We are continuously improving our understanding of investing in Serbia. This is a new jurisdiction for Rio Tinto and maintaining regular meetings between our representatives and the Government helps us to understand each other. Following a meeting with the Serbian Prime Minister in April this year, Chief Executives for Rio Tinto Energy & Minerals and Growth & Innovation, Bold Baatar and Steve McIntosh, met with the Prime Minister again in early August to provide an update. This helps us all as we navigate the Project through pre-feasibility phase in full compliance with Serbian laws.

Meanwhile, our project teams are continuing their work in a variety of areas. Maintaining our good safety record remains our most important priority. A large diameter drilling campaign is the focus of our geology campaign. The environmental team are methodically continuing with water, waste, noise and other environmental studies. Our technical teams developing the jadarite ore process design are progressing through a pilot plant test programme to build on our understanding and optimise recovery rates and the economic viability of the project.

My time as a General Manager of our Rio Tinto subsidiary in Serbia is coming to an end after six and a half years. I will be departing Jadar later this year and leaving the project in the safe hands of my colleague, Marnie Finlayson. Marnie is a mineral process engineer with extensive experience in operations management. You can find more information about Marnie in this news brief. My time in Serbia has been extremely fulfilling both professionally and culturally. I leave convinced that the Jadar Project is a world-class project with great potential for both Serbia and our company. I’m optimistic that together we can make this project a reality and I wish all involved the very best for the future.
As our project continues to develop, we will continue to face new HSECQ challenges and to identify, review and implement mitigation measures for all possible risks before we take any actions. Our study work on the potential tailings site continues alongside processing study tests and the large diameter drilling campaign (see next page) requiring thorough assessments of all health, safety, environmental, communities’ quality (HSECQ) and logistical risks. Our team continues to manage all these assessed risks proactively 24/7 with the help of all our contractors.

We do this by executing a robust Rio Tinto contractor management process and by following Serbian legal requirements. The process encompasses contractor pre-qualification prior to awarding contracts and comprehensive risk assessments, training/induction and pre-start inspections after awarding the contract. The final part of the safe work environment puzzle is daily supervision and coaching, and the use of the Critical Risk Management system to stop all unsafe work and find a safe way to do it. All teams need to achieve a ‘zero harm’ work environment.
Update from the field

Introducing large diameter drilling

After years of geological drilling, we still continue to invest in improving our understanding of the deposit. We recently commenced large diameter drilling. A drill rig capable of drilling of 292 mm core diameter was recently delivered to the drill site. After rigorous safety and technical inspections, drilling of the first hole started in the first week of August. This technology will enable the collecting of additional core sample for testing of the technological properties of mineral raw materials. Timely completion of this program will provide support to the Jadar Project processing team in Melbourne, Australia. Exploration drilling remains our principal method for geological investigations and will be supplemented by aero-magnetic geophysical surveys in the near future.

Project statistics

Since the start of the project in 2004 we have drilled more than 180 km of core samples. During the drilling campaign, which started in November 2017, we have drilled 30.9 km of jadarite ore until now. To provide our processing team in Bundoora, Australia with the materials they need for further testing, our Resource Study Team has shipped 16t of jadarite solid core bulk samples since the start of 2017 drilling campaign. The geological data collected is incorporated into multiple geological models in order to help us better understand the nature of the ore deposit. The geological studies are also being performed in order to define the parameters for the assessment of the suitability of the terrain for the possible construction of future project facilities. So far, more than 2,500 m of core has been drilled and the drilling has been accompanied by hydrogeological tests.
Working with the Community

Environmental studies underway

To allow the project to develop in a way to balance the environmental, social and economic outcomes, the Jadar Project team is researching, planning, predicting and mitigating the potential environmental impacts. Environmental scientists working on the project are completing various environmental studies. Work has been completed on surface and ground water studies, biodiversity studies, and collection of weather data.

In the last couple of months, our team has safely managed the successful completion of eight stream weirs within the Jadar Project footprint. The stream gauges will be an important tool to aid in the development of the overall hydraulic model of the project (see photos above). Additional field work planned for the remainder of 2018 and early 2019 will focus on the completion of baseline data collection to comply with the Strategic Environmental Assessment and Environment Impact Assessment processes.

Collaboration with the Community

The Jadar Project Environment Team works directly with our Communities Team to coordinate information sharing with our stakeholders and to ensure concerns are addressed. All further plans and development will be conducted in accordance with all Serbian regulations and in close consultation with the relevant institutions.

Engaging local communities early and on regularly basis is helping us to continuously work on improvements to our current and future project design and plans so we can work on reducing our environmental footprint, and at the same time continue to understand the priorities of local communities and help them to better understand the project and its impacts.
Advanced techniques for mineralogical definition of Jadar ore

In order to produce lithium and boron products, our processing team in Australia is testing how to separate jadarite from the unwanted material that occurs with it in the ore (gangue). Mineralogical data helps us understand how best to do this. Core that is shipped to Australia for the jadarite processing plant is scanned using sophisticated core imaging technology before being processed. Hyperspectral analysis technique identifies the minerals in the drill core using their unique infra-red reflectance and absorption signatures (“fingerprints”) and scans the core at the rate of about 100 m per day at 0.5 mm pixel resolution.

At Rio Tinto Growth and Innovation’s technical development centre in Bundoora, Australia we used the hyperspectral data, validated independently against X-ray diffraction and scanning electron microscope data, to build a mineralogical definition of the main ore domains in the Jadar ore body. We have gained some very useful insights into the Jadar ore body knowledge, and we now have a more robust toolkit to continue to build a better understanding of the Jadar orebody.

Mineral map of Jadarite

These are three example images of a few centimetres of Jadar drilled core as analysed by hyperspectral logging. In each set, a high-resolution core photo is shown on the left and hyperspectral mineral map on the right. Jadarite is the white veins and rounded blebs, and is shown as shades of red on the mineral maps. The other colours are the gangue minerals. The benefit of hyperspectral analysis is accurate and consistent identification of all minerals which is not always easy to do with the naked eye, and a measure of their relative abundance from one part of the ore body to the next.

The high volumes of data produced with this technology give us the (statistical) confidence to define the mineralogy for each of these domains and then to incorporate these definitions into the geological model and future mine planning.
Jadar's graduates attend Rio Tinto summit

As pioneers in mining and metals, we rely on the next generation of experts and visionaries to drive our business forward. One of the highlights in the structured two-year programme is the graduate summit, which brings together graduates from all over the world and at various stages of their graduate journey. Close to 70 graduates from across the Americas, Africa and Europe attended the Montreal summit in April this year. Our three graduates represented Jadar Project.

“Those few days were really inspiring and amazing! We learned, shared and networked. We learned a lot about the entire business, about leadership, how to build relationships with team members, how to communicate and to be trusted partner. We had so much pleasure from meeting our senior leaders and our peers from all around world.”

Tanja, technical graduate

“It is great when at beginning of your career you can get advice from people that are full of experience in their fields. They had so much passion in welcoming people, hearing us, speaking to us and giving us courage. I am really proud that I am part of this company.”

Borko, environment and communities graduate

“While we all have different background cultures, we come from different business units, we often have different fields of interests, but at the same time we share very similar thoughts and challenges in our careers and the same values. Working every day with Rio Tinto helped us understand just how important safety, integrity, excellence, teamwork, and respect are.”

Jelena, finance graduate

NEWS BRIEF

Jadar project to be headed by new General Manager

Marnie Finlayson will join Rio Tinto Energy & Minerals at the end of August 2018 as General Manager of Rio Tinto’s subsidiary in Serbia, Rio Sava exploration d.o.o. and will be based in Belgrade. Marnie is a qualified Minerals Processing engineer, but most recently she headed up our group operating model programme. Marnie was based in Perth, Australia, and was responsible for the development and implementation of a revised group operating model to support delivery of the Rio Tinto group strategy.

Prior to this Marnie spent her career managing operations across a range of mining commodities including salt, iron ore, diamonds, base metals and coal. Marnie will live in Serbia with her husband and two children.

We wish Marnie a success in her new role!