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Senior Consultant,
Russia

When you join an international organisation such as Systech, with an extensive network of worldwide regional offices, it can become almost routine to be assigned to one of the more widely recognised expat work locations such as South East Asia, the Middle East or the Americas. However, after more than 20 years working abroad, one of the most unusual assignment locations I have experienced was last year when our Paris office secured a commission in Moscow with a major French civil engineering and mechanical services consortium engaged in the construction of the four storage tanks for the Yamal LNG project in Siberia, northern Russia.

Yamal, with a total capital expenditure of US\$27bn, is a liquefied natural gas project located deep in the Russian Arctic, a region that is ice-bound for seven to nine months of the year and where the sun remains beneath the horizon for three months in winter. During this period, the work continues and is performed under floodlights with temperatures as low as minus 40°C.

As you can imagine, this is one of the most remote locations on the planet and a complete support infrastructure had to be developed so that the workforce, plant and materials could be mobilised and sustained throughout the five-year construction period.

This entailed the construction of an accommodation camp for up to 5000 personnel, access roads, an airport and a port facility for unloading all necessary supplies as well as construction materials. The process plant itself was prefabricated in China and shipped in 150 modules weighing 450,000 tonnes for site hook-up and commissioning.

The tanks are specially designed to contain the LNG at its cryogenic temperature of minus 162C at atmospheric pressure. Each of the storage tanks has a capacity of 160,000 cubic metres and is supported on 950 steel piles driven 20 metres into the permafrost. To maintain the ground stability a thermo-stabilisation system was installed to ensure that the ground stays below minus 4 degrees to avoid defrosting during the summer months. The concrete walls were slipformed and then lined with 9% nickel steel plates which can withstand the extreme temperature at which the LNG must be maintained for storage and transportation.

Systech's brief was to prepare a claim for an extension of time and the recovery of additional costs incurred due to acceleration and mitigation measures implemented by the French consortium to recover delays caused by late client approval of the reimbursable works subcontracts for the construction of the camp, thermo-stabilisation and piling of the tank foundations.



Yamal Port Facility at Sabetta,
Northern Russia



950 steel tube piles per tank driven
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As a result, the planned site mobilisation in 2014 to start piling works was delayed by 5 months. Although 2 months were recovered using acceleration and mitigation measures, this had a significant impact on the subsequent slip-forming of the tank walls. This was planned to be performed during the 4 month summer weather window starting in 2015 but would now require additional measures to perform during the winter or be delayed by up to 12 months until the summer of 2016. So, although the consortium was only 3 months late, there was an entitlement to 12 months extension of time as the slip-forming was performed outside the optimum weather window defined in the Contract.

Unfortunately, due to the nature of the work and the location of the consortium team in Moscow, it was not necessary to travel to site and experience the Arctic conditions! However, I did experience life in Moscow from mid-winter to mid-summer and the huge contrast this brings. While it was not unexpected to face temperatures of minus 20 during the winter, it came as a big surprise to discover that in summer the temperature can rise to the high 30's. In fact, in summer Moscow seemed more like Paris with everyone out for a walk or relaxing by the riverside cafés and restaurants in the evenings. Another major attraction was Gorky Park which was only a 10 minute walk from our office.

Moscow is a 24 hour non-stop city with all shops, restaurants and bars open seven days per week. There is also a strong cultural following with large queues waiting to enter museums, theatres and shows so there is always something happening whatever the weather. So much so that it was not unusual to look out of the hotel window at 1.00am and see a traffic jam in the streets below! Also by UK standards, especially in the era of the falling value of the pound, Moscow was very good value for money with a main course dinner in the hotel costing less than £10.

Getting around is easy and cheap with a metro journey costing about 40p. In fact, a journey by metro is an event in itself and has to be one of the highlights of a stay in Moscow. The system, first opened in 1935 and is immaculately preserved, with no litter or graffiti and is just like going to an underground museum with chandeliers, sculptures and artworks on display at every turn.

As is often the case with tight work deadlines and weekend working, there is never enough time to see everything but Moscow is definitely one of the more interesting locations I have experienced and one I would recommend anyone to accept if they are offered the chance to work there.



A visit to the museum? No, that will
be a Moscow Metro Station

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