**NACE Conference – CorrTrin 2019**

**Remarks by Ron Adams | VP, Operations, NGC**

**April 26th, 2019**

Good morning.

It is my singular honor this morning to open the presentations at CorrTrin 2019 with some remarks on behalf of my company, The National Gas Company of Trinidad and Tobago Limited, NGC. As a point of departure for today's sessions, I was specifically asked to share some thoughts on asset integrity, which is the framework within which today's presentations will be delivered. Given that my remarks will pivot around operations at NGC, I thought it best to start with a broad overview of the business of my company.

(BUSINESS OVERVIEW)

To bring it around to the theme at hand:

As you can see, NGC operates a massive transmission and distribution network. The footprint of our infrastructure is so extensive that for us, asset integrity is not simply necessary for business continuity.

Our pipelines pass under towns and communities, along heavily trafficked roadways and through sensitive natural environments. We therefore make it a priority to maintain our assets, to prevent failures that could jeopardize public safety or disrupt ecosystems. Indeed, this is a responsibility that all operators in the industry share, so I commend NACE on bringing stakeholders together for exchange on this very relevant theme.

We have seen too often, both locally and abroad, instances of negligence impacting heavily on communities in proximity to oil and gas infrastructure. We must never forget that our license to operate hinges on our safe and responsible management of the infrastructure in our care. Taking preemptive action through rigorous integrity management is therefore imperative if we want to stay in business.

In NGC's particular case, there is more at stake if we do not carefully monitor the integrity of our pipeline network. Our network is responsible for feeding natural gas to export-oriented petrochemical producers, iron and steel manufacturers, CNG stations, over 100 light industrial and commercial consumers, and critically, power generating companies. In addition, even though we do not directly supply gas for LNG, our infrastructure is used to transport the product to Point Fortin. Outputs produced using natural gas, whether as a feedstock or fuel, generate significant value for our country. Therefore, if we falter in our duty and issues arise on our network that force us to take pipelines offline, supply will be interrupted to our customers, with knock-on effects on our economy.

For these reasons, asset integrity management has always been a function of our Operations Division, but in recent years, we have redoubled our efforts in this area. Our renewed focus was a direct response to a National Facilities Integrity Audit that was conducted in 2015 by international firm DNV. This audit, which investigated over 30 local companies, assigned NGC a score of 1.79 (for Systems' evaluation), below the national average of 2.02.

As the flagship state entity managing our country's most valuable hydrocarbon, we could not accept these results. We undertook an aggressive remedial campaign on our equipment and systems to address concerns raised by the auditors. Two years later, we proactively re-engaged DNV to conduct another audit. We were then

scored at 2.07, which represented a healthy and necessary improvement over our prior assessment.

The initial audit results highlighted the risk of complacency in legacy systems and prompted a reassessment of how we manage and maintain our network. We have since begun to strengthen our core by appointing a lead and adding resources to the area of Asset Integrity Management. Technology is constantly innovating the tools of our trade and we aim to keep pace to sustain best-in-class capability in our maintenance function. As an example, in 2016, in a pioneering move for state entities in Trinidad and Tobago, a drone was drafted into use at NGC. This device has enabled us to monitor much more effectively our Right-of-Way or pipeline corridor for issues such as encroachment, landslips or changes in terrain that could impact our lines. Given the success of our first drone, we have invested in a larger model. This will be capable of carrying heavier payloads such as infra-red cameras, Light Detection & Ranging (LiDAR) sensors and possibly gas detection sensors, all of which can aid our asset integrity efforts. More recently we began exploring applications for Extended Reality technologies. We see VR simulations assisting with work planning, scenario modelling, emergency response training, and even virtual tours for visitors that would reduce the exposure of our infrastructure to risk of third-party interference, (or conversely, expose persons to the inherent risk in our Operation).

To keep us accountable, asset integrity management has been pegged to our corporate scorecard. This means that we hold our work in this area as a key performance indicator for the company. And rightly so. System availability, downstream operations, profitability and public safety all hinge on us getting it right. As part of the wider NGC group, an AIM Steering Committee has been formed, which incorporates NGC, PPGPL, NGC CNG and National Energy. This

Steering Committee is the platform for synergies in sharing best practices, methodologies and technologies to provide a consistent approach in the development of our asset management framework.

Ladies and gentlemen, as I get set to turn over to the first presenter, let me orient the discussion to the focus of this conference. At the heart of asset integrity management is mitigation of risk. Different companies in the industry will confront different challenges with their infrastructure, but today's conference focuses on one particular risk that we must all seek to counter, and that is corrosion. As operators of steel pipelines, we at NGC intimately understand this threat and have considerable experience in treating with it. Corrosive agents in the soil and sea act on the external surfaces of our lines while liquids in our gas stream can contribute to internal wall loss.

To combat this risk, different layers of protection are applied to our lines, including surfacing with special coatings, Cathodic Protection and chemical inhibitors that adhere to the interior walls. DCVG (Direct Current Voltage Gradient) surveys, ER probes and corrosion coupons help us monitor the effectiveness of these measures and inform maintenance interventions accordingly.

Preventative maintenance activities also play a key role. Conducting routine pigging of pipelines helps clear residual liquids that could precipitate corrosion, while In-line Inspections are used to detect and assess structural anomalies that could deteriorate into leaks.

My colleague Lyndon Mohammed will follow me with a more detailed presentation on our processes, so I need not elaborate further. Suffice it to say that we have a lot of knowledge to share and we are therefore happy to be represented at this

conference. Indeed, looking at the programme for the day, I am certain we too will leave richer for having participated and learned from the experiences of other industry veterans.

I want to thank NACE International for the opportunity to share some words and wish them all the best for a successful conference today. To all in attendance, I trust the sessions will be of great value and hope that collaboration here today can lead to greater synergies for our industry. Let us apply our collective learnings to ensure we continue to operate safely in energy.

Thank you.