



National
**Nuclear
Regulator**

Lessons learnt in the South African Context

Licensing and Oversight Lessons from the Pandemic

Tuesday, March 8, 2021, 1:00 pm - 2:30 pm (EST)

Dr. Bismark Tyobeka, Chief Executive Officer

Protecting people, property and the environment.



National
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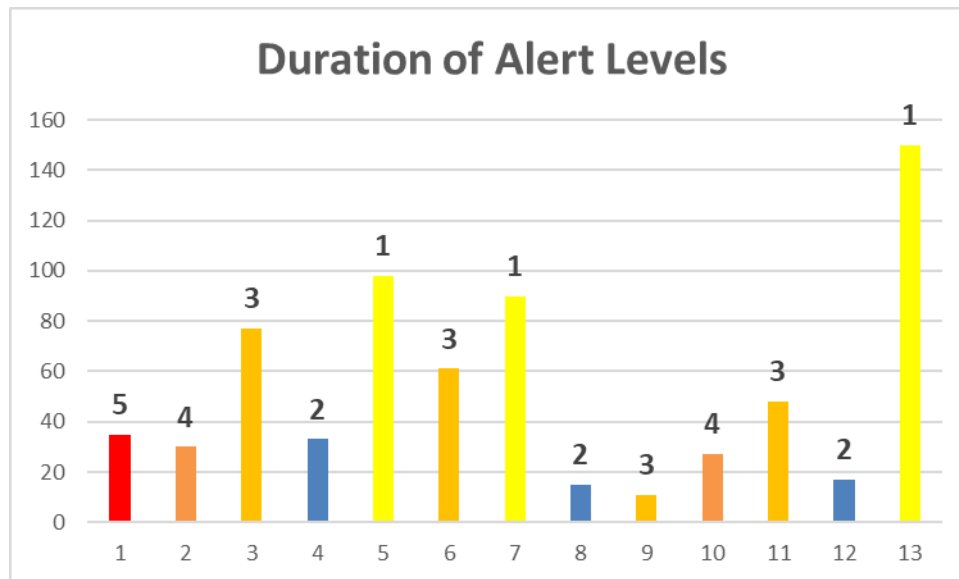
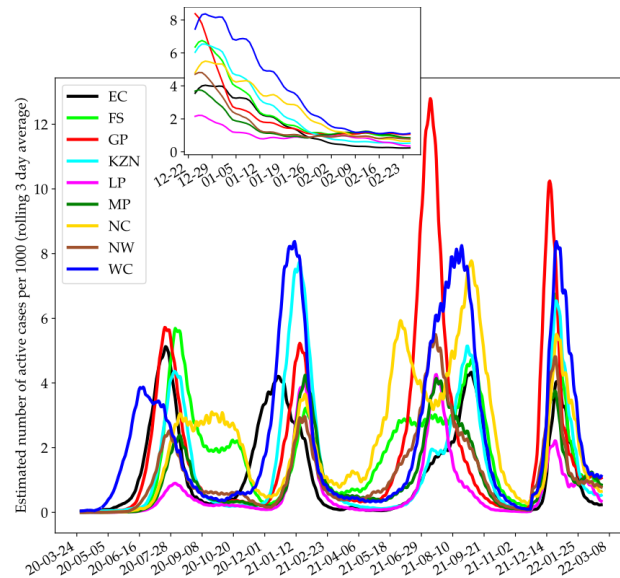
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Introduction

- South Africa declared the coronavirus pandemic a national disaster and announced a package of extraordinary measures to combat the public health emergency.
- In an attempt to flattening the curve of infections the then newly established National Coronavirus Command Council enforced a nation-wide lockdown for an initial period of 21 days from midnight on Thursday 26 March 2020. The lockdown was subsequently extended. Currently the national state of disaster is still in force.
- From the 1st of May 2020 a new approach was initiated that included the easing of lockdown restrictions based on a risk adjusted strategy to allow the start of some economic activity. The new strategy consists an “alert system” with five levels, this would allow for flexibility and responsiveness, and would reduce the need to amend regulations in future.
- Currently as of the 1st of October 2021 the country is at level 1.

Introduction: Evolution of pandemic and Alert Levels



Level	Period	Duration (days)
5	26 Mar to 30 Apr '20	25
4	1 May to 31 May '20	30
3	1 Jun to 17 Aug '20	77
2	18 Aug to 20 Sep '20	33
1	21 Sep to 28 Dec '20	98
3	29 Dec to 28 Feb 21	61
1	1 Mar to 30 May '21	90
2	31 May to 15 Jun '21	15
3	16 Jun to 27 Jun '21	11
4	28 Jun to 25 Jul '21	27
3	26 Jul to 12 Sep '21	48
2	13 to 30 Sep '21	17
1	from 1 Oct 2021	>158

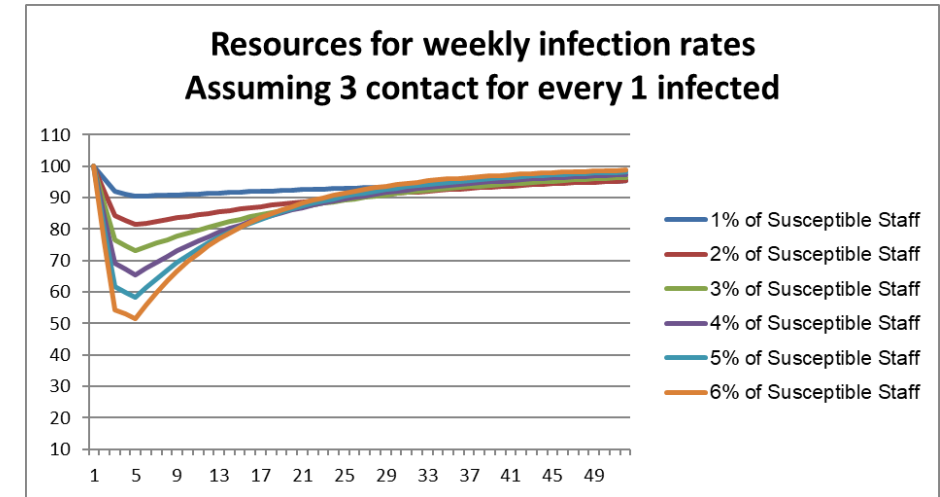
NPP Operator Response

The initial response included amongst others:

- ✓ Introduced 14-day quarantine period (internationally and returned from high risk countries) in preparation for outage activities,
- ✓ Supplied of PPE to staff in critical positions, Thermal screening has been introduced,
- ✓ All meetings are done via teleconference or video conferencing,
- ✓ Initially access to control rooms have been suspended, except for operators, safety engineers and specific maintenance personnel who support the control rooms,
- ✓ Reduced staff on site in order to only have the required personnel on site,
- ✓ Categorization of staff into two teams that would alternate working on-site: Establishment of an “off-site” team, they do not perform any work on-site but stay in self isolation/quarantined conditions until called upon to assume duties in the event that the on-site minimum resource requirements are challenged.
- ✓ Introduced mass testing before outages of all workers; implemented requirement for 72hours negative test result

NPP Operator Response

- ✓ To ensure ongoing safe operations of the NPP, the Operator developed a resources strategy – developed a model with various scenarios
- ✓ It focuses on a staffing strategy for the Nuclear Operating Unit (Maintenance, Operations, RP, Security) to protect employee health and safety whilst ensuring plant safety and plant operations
- ✓ A model was developed and a number of infection scenarios were considered in order to understand the longer term impact of the COVID-19 infection rate on the Koeberg resources.
- ✓ Safety of the plant has to be assured in both the short term as well as the long term.



Higher Infection Rate

Main Risk: Too few people to Operate the plant

Short term risk
Risk of On Site transmission is higher.
Decrease staff density.
Provide defence in depth.
Reduce work to get through the peak.

Main Risk: Plant Material Condition Degrades

Long term risk if maintenance falls behind.
Risk of on site transmission is lower
Increase staff density
No additional defence in depth required
Perform all normal work

Lower Infection Rate

Regulatory Response

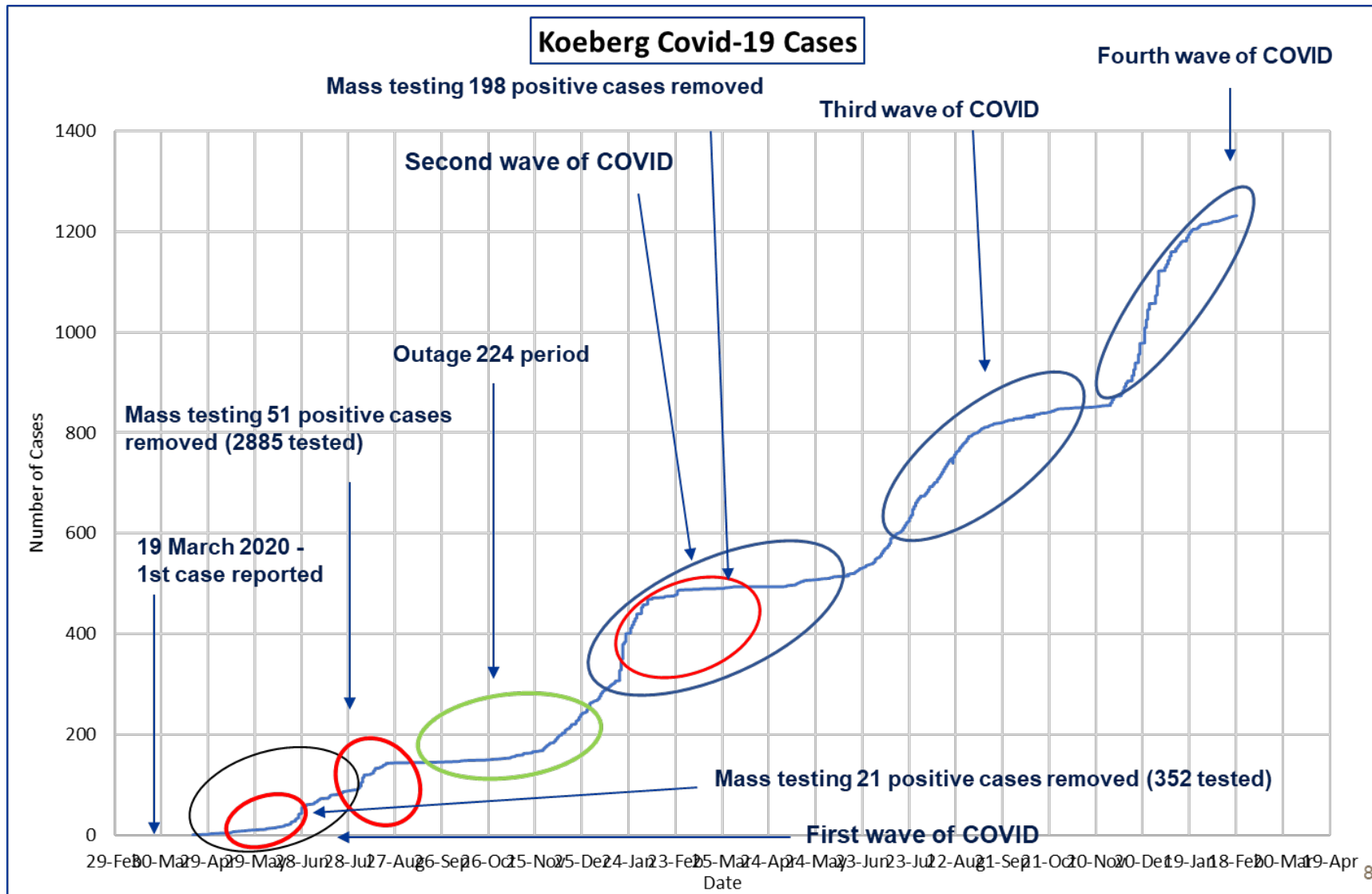
The Regulator put in place measures for Business Continuity and to ensure that it is able to carry out its essential mandate. These measures included:

- ✓ Travel restrictions implemented as per Government lockdown regulations.
- ✓ Continued engagement with Operators/Applications via electronic media.
- ✓ All incoming and processing of urgent licensing requests and associated reviews continues as per normal;
- ✓ Although access to the NPP site under new conditions are possible, planned site inspection activities were rescheduled where possible.
- ✓ Monitoring of plant and operations performance continue by online access of live plant information, databases and logs.
- ✓ Where possible going forward working remotely will be encouraged.
- ✓ Procure and issue PPE to all employees and contractors.
- ✓ Implement work rosters to ensure minimum staff at work and assist social distancing

Regulatory Response

- Directed NPP to evaluate impact of the national lockdown restrictions on the effective implementation of the NPP emergency plan and to:
 - ✓ develop contingency plans as appropriate
 - ✓ demonstrate efficacy of the emergency plan
 - ✓ communicate with the public in terms of readiness
- Directed NPP to perform control room habitability studies and analyse the possible infection scenarios to ensure the operability of the main and emergency control rooms.

Current Status



Current Status

- At level 1 for more than 150 days
- Regulatory staff required to be at work at least three days per week
- Operator busy with major refurbishment outage with all staff required to be back at work
- Koeberg is still meeting staff numbers as per the **Nuclear license requirements**, and **no** active case are present in Operating. Seven (7) positive cases have been reported the past week at Koeberg with six (6) active case.
- **Exited the fourth wave.**

Lessons Learnt (Operator)

- Initially due to uncertainty of infection rate and impact of the pandemic on availability of resources to safely operate the NPP a precautionary approach was considered
- Operator was required to demonstrate that adequate staffing is required for the short (operations) and long term (outage, maintenance and testing to continue).
- Staffing strategies had to be developed and implemented during the different waves of the pandemic.
- Especially during the recent fourth wave with the omicron variant with the higher infection rates, certain functions were challenged. The staffing strategy had to be flexible enough (changing shift roster, additional staff, etc.) to ensure minimum staffing levels were not compromised.
- Implementation of various COVID protocols, especially mass testing, ensured that onsite transmissions were limited.

Lessons Learnt (Public)

- Certain interest groups questioned safety of the NPP, need for NPP operation in light of lower energy demand, as well as viability of the emergency plan during a pandemic.
- Concerns related to impact on evacuation assumptions, mass care centres, etc. during strict lockdown periods as well as readiness of local authorities to deal simultaneously with both disasters (pandemic and nuclear emergency).
- Regulatory emergency plan exercise subsequently conducted included testing off site response organisation's readiness (some improvement actions have been identified and addressed).
- Communication from both the Operator and Regulator had to be adjusted to address concerns

Lessons Learnt (Regulator)

- Prior to the pandemic the NNR piloted work from home.
- During the pandemic work from home has been implemented in graded approach depending on the alert levels
- Review and assessment tasks have not been negatively impacted at all
- Inspections during strict lockdown were primarily conducted virtually, although options remained for site visits if deemed necessary
- In general, all planned compliance assurance activities were completed.
- Currently, NNR inspectors are on site almost on daily basis for the refurbishment outage
- There was no need to adjust the Regulatory Framework as a result of the pandemic – as a Regulator however we had to be responsive and adjust some of our regulatory and work practices



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Thank you

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