



REPORT TO: CITY MANAGER

TO BE REFERRED BY THE OFFICIAL TO MAYCO VIA THE RELEVANT *SAFETY AND SECURITY PORTFOLIO COMMITTEE* SECTION 79 COMMITTEE [AFTER CONSIDERATION BY CITY MANAGER]

[OFFICIALS TRAVELLING OVERSEAS FOR COUNCIL RELATED ACTIVITIES]

1. ITEM NUMBER

2. SUBJECT

FEEDBACK ON THE INTERNATIONAL TRIP UNDERTAKEN FROM 17 TO 21 MARCH 2025 FOR AN INTERNATIONAL STUDY TOUR ON NUCLEAR AND RADIOLOGICAL EMERGENCY PREPAREDNESS AND RESPONSE HOSTED BY THE NUCLEAR REGULATORY AUTHORITY OF HESSIA/GERMANY IN WIESBADEN, GERMANY.

TERUGVOERING OOR DIE INTERNASIONALE REIS WAT VANAF 17 TOT 21 MAART 2025 ONDERNEEM IS VIR 'N INTERNASIONALE STUDIETOER OOR KERN- EN RADIOLOGIESE NOODGEVALGEREEDHEID EN REAKSIE WAT DEUR DIE KERNREGULATORIESE OWERHEID VAN HESSE/Duitsland IN WIESBADEN, Duitsland, AANGEBIED IS

INGXELO ENGEMVA KOHAMBO OLUYA PHESHEYA OLUTHATYATHWE UKUSUSELA NGOWE17 UKUYA KOWAMA21 KWEYOKWINDLA 2025 KUTYELELO KUMANYE AMAZWE OLUNGEZIFUNDO EZINGOKULUNGELA NOKUPHENDULA NGEXESHA LIKAXAKEKA KWINYUKLIYA NOBUNZULUWAZI BOKUTHATHA IIFOTO ZE-X REYI OLUYA KUSINGATHWA YINUCLEAR REGULATORY AUTHORITY OF HESSIA/GERMANY E-WIESBADEN, EGERMANY.

Ref No. R3354

[LSU: Language Services to provide ref number here that should ALWAYS be quoted with the subject – Directly under the three languages.]

In terms of Council's Language Policy, the heading and recommendation(s) are to be submitted in all three languages.

Please submit subject heading and recommendations (not entire report) to Translation@capetown.gov.za.

3. EVENT SUMMARY

EVENT DETAILS	
CONFERENCE/SEMINAR	
OTHER	International study tour on nuclear and radiological emergency preparedness and response including the development of a national training programme for nuclear emergency functionaries.
DATE	17 March 2025 – 21 March 2025
VENUE	17 March 2025 – Wiesbaden 1. Hessian (federal state) nuclear safety regulator (Wiesbaden, 1 day, 17.03.2025) 2. Hessian regional emergency coordination organisation (Landeskrisenstab) at the Ministry of Internal Affairs 18 March 2025 – Darmstadt 1. Research facility – GSI (Helmholtzzentrum für Schwerionenforschung / Research institute for heavy ion accelerator) and its EP&R organisation 2. FAIR - Facility for Antiproton and Ion Research and its E&PR organisation – currently under construction - an international accelerator facility under construction which will use antiprotons and ions to perform research in the fields of: nuclear, hadron and particle physics, atomic and anti-matter physics, high density plasma physics, and applications in condensed matter physics, biology and the bio-medical sciences. The focus of the visit was on EP&R as the facility will generate radiation and use radioactive materials. 19 March 2025 - Karlsruhe 1. German nuclear and radiological emergency response support organisation – KHG (Kerntechnische Hilfsdienst GmbH / German organisation devoted to emergency preparedness and response) 19-20 March 2025 - Munich 1. Federal Office for Radiation Protection - BfS Munich - Federal nuclear and radiation emergency response coordination centre (Radiologisches Lagezentrum des Bundes, RLZ)
TOTAL COST TO THE CITY	R11 188.84
CITY	The following cities were visited: Frankfurt; Wiesbaden; Darmstadt; Karlsruhe; Munich; Frankfurt
COUNTRY	GERMANY

ATTENDEE DETAILS	
NAME AND SURNAME	DESIGNATION
Dr. Johan Minnie	MANAGER: DISASTER MANAGEMENT CENTRE
PROVIDE SUMMARY OF HOST ORGANISATION / CITY	
Hessia is one of the 16 "<i>länder</i>" or states that together form the Federal Republic of Germany. The Federal States has extensive powers which include responsibility for the regulation of nuclear and radiological safety. The Nuclear Regulatory Authority of Hessia/Germany is located in the city of Wiesbaden, in central south Germany. Organisationally, the Authority is located within the Hessian Ministry of Agriculture, Environment, Viticulture, Forestry, Hunting and Homeland, the "<i>Hessisches Ministerium für Landwirtschaft und Umwelt, Weinbau, Forsten, Jagd und Heimat (HMLU)</i>". While Hessia invited and hosted the tour, the tour was funded under the Instrument for Nuclear Safety Cooperation (INSC), an EU programme and the South African delegation was led by the South African National Nuclear Regulator (NNR).	

4. OBJECTIVE

The purpose of the study tour was to build national capacity and knowledge on the development of a national coordinated programme for the training of emergency functionaries, including a Training Programme of First Responders for Nuclear and Radiological Emergencies. Participants will be exposed to national approaches and practices followed within the European region.

5. OUTCOMES

Observation of nuclear and radiological preparedness and response measures in place in Germany provided insight into the organisation, training, equipment and facilities that can be put in place for nuclear and radiological emergencies and when compared to what is in place in South Africa, the Western Cape and Cape Town, provided insights into possible improvements.

6. ACTIONS REQUIRED

Comparative study of measures, developing recommendations on improvements that can be made, and development of a procurement programme for such improvements.

7. IMPLICATIONS

- | | | | |
|-----|---|--|------------------------------|
| 7.1 | Constitutional and Policy Implications | No ☒ | Yes ☐ |
| 7.2 | Environmental implications | No ☒ | Yes ☐ |
| 7.3 | Financial Implications | No ☒ | Yes ☐ |
| 7.4 | Legal Implications | No ☒ | Yes ☐ |

7.5 Staff Implications No ☒ Yes ☐

7.6 Risk Implications No ☒ Yes ☐

7.7 **POPIA Compliance**

- ☒ It is confirmed that this report has been checked and considered for POPIA Compliance.

NOTE: POPIA Section MUST be completed otherwise the report will be returned to the author for revision.

Contact your Directorate POPIA Stewards should you require assistance.

8. **RECOMMENDATIONS**

It is recommended that the feedback report on the trip International study tour on emergency preparedness and response including the development of a national training programme for nuclear emergency functionaries participated in by Dr. Johan Minnie from 17 March 2025 to 21 March 2025 be considered and noted.

AANBEVELINGS

Daar word aanbeveel dat die terugvoeringsverslag oor die internasionale studietoer oor noodgevalgereedheid en -reaksie, insluitende die ontwikkeling van 'n nasionale opleidingsprogram vir kernnoodgevalbeamptes, waaraan dr. Johan Minnie vanaf 17 Maart 2025 tot 21 Maart 2025 deelgeneem het, oorweeg word en daarvan kennis geneem word.

IZINDULULO

Kundululwe ukuba makuthathelwe ingqalelo kwaye kuqwalasele ingxelo engemva kohambo oluya kwamanye amazwe olungezifundo ezingokulungela nokuphendula ngokungxamisekileyo kuquka uphuhliso lwenkqubo yoyeqesho yesizwe ngokujoliswe kwimisebenzi yenyukliya engxamisekileyo eyenziwe nguGqr Johan Minnie ukususela ngowe17 kweyoKwindla 2025 ukuya kowama21 kweyoKwindla 2025.

9. **GENERAL DISCUSSION**

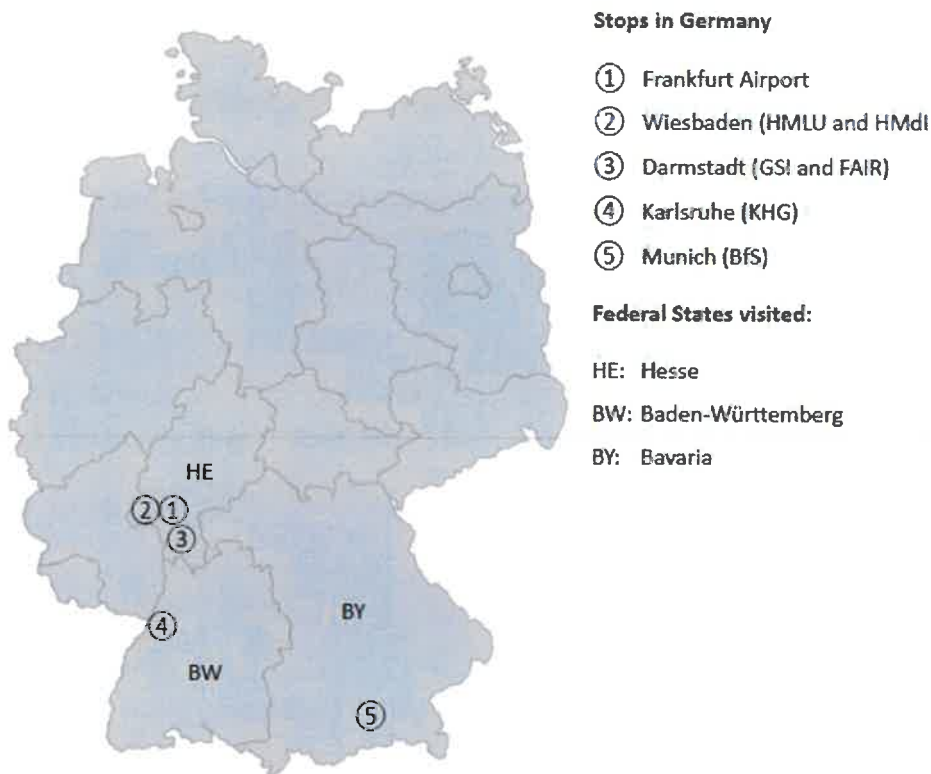
The National Nuclear Regulator (NNR) undertook an international study tour on nuclear emergency preparedness and response (EPR) focusing on practices within the European Union, from 17 to 21 March 2025. The study tour was hosted by the Nuclear Regulatory Authority of Hestia/Germany, located in the city of Wiesbaden in the state of Hestia, Germany.

The purpose of the study tour was to build national capacity and knowledge on the development of a national coordinated programme for the training of emergency functionaries, including a Training Programme of First Responders for Nuclear and Radiological Emergencies.

The City of Cape Town's Disaster Risk Management Department was requested to nominate one participant, who was also a senior official responsible for duties covering or related to the Koeberg Nuclear Emergency Plan, to accompany the NNR local delegation. Dr Johan Minnie, Manager (Head of Centre): Disaster Management, was nominated by the ED: Safety and Security to attend the tour.

The SA delegation of 12 that participated in the tour included:

- 9 x National Nuclear Regulator (NNR)
- 1 x South African Health Products Regulatory Authority (SAHPRA)
- 2 x Local Government Disaster Management, of which Madibeng x 1 and City of Cape Town x 1



17 March 2025 – Wiesbaden

Hessian (federal state) nuclear safety regulator, situated under the Hessian Ministry of the Environment:

Observations:

1. The environmental ministry works in the area of radiation protection and emergency protection, large scale research facilities and accelerators, and radioactive waste clearance and transport.
2. Regarding storage of high level nuclear waste, Germany is following the “best possible” approach to high level nuclear waste storage by assessing all parameters with a goal of finding the best possible storage location in Germany. They are focusing on clay, salt, and granite as the best possible storage medium, but the investigation is not yet concluded.
3. The regulator is interested in learning by sharing.

4. The department also focuses on the health risk of Radon and the risk of research into laser-based nuclear fusion.
5. Germany has a national nuclear disaster management plan.
6. The group was welcomed by the State Secretary and received an online briefing from Giulia Sebastio from Euratom INTPA.
7. Training: Training is ongoing with regular exercises.
8. The ministry has an operations room and strategic decision-making room at its headquarters in Wiesbaden, with normal office-based telecommunication infrastructure.

Regional emergency coordination organisation (Landeskrisenstab) at the Hessian Ministry of Internal Affairs

Observations:

1. The facility is divided into divisions that are similar to how the City of Cape Town as well as the Western Cape Province organises its disaster operations centres, with a strategic top-management decision-making area (government around one table), a tactical area with service representatives to maintain a common operational picture, situational awareness, control deployments and work on achieving objectives, and an operations / communications room with communications operators.
2. One difference is that the strategic room is much smaller (due to less ministries) and basically only accommodates the top political leadership of the state. The strategic and tactical rooms adjoin each other and can be shut off from each other with privacy glass, or opened up for full interaction between the two rooms.
3. Work rooms / cubicles are provided for representatives and are equipped with computers and telephones.
4. The centre functions as both a crisis management and a disaster management facility.
5. The communications centre has 6 seats and communication channels include Tetra radio (as Cape Town has) and satellite telephone (something Cape Town should develop).
6. The facility also includes an operational command and control room (leadership and disaster control staff room for fire, civil protection, police) that carries out command and control for those disciplines only, separate from the joint strategic / tactical area.
7. Regular major exercises are held.
8. The facility has back-up power in case of supply failures.
9. The organisation uses a forms-based system running on Sharepoint but is busy with a software upgrade. Digital information / documentation is accessible from 45 enabled locations.
10. Representatives / incident command positions in the tactical room include: Press, Finances, Environment, Economics, Health, Internal service, Fire Services, Documentation, Police, National Police, Situation.
11. Only 12 seats in the strategic decision-making room with 2-seater control desk in back, 14 in tactical with control desk in back and 7 seats in back.
12. Lockers are provided for cellphones if cellphones need to be left outside due to sensitive discussions.
13. Leadership and decision-making in crisis situations is provided by the crisis management team of the state government. The management level crisis management team of the state government reports to the state cabinet with inputs from the state chancellery and state ministries / departments.
14. The crisis team of the state government organises response at the level of the highest state authorities, evaluates all available information with its representatives from the police, fire department, civil protection, ministries, state chancellery, press and public relations and specialist advisors and consolidates it into a uniform picture of the situation, makes political and strategic decisions and manages uniform crisis communication.

15. The crisis management effort consists of cabinet, the crisis team (administrative staff), command staff (civil protection staff) and coordination staff of the state police headquarters.
16. Crisis communication is facilitated through a media centre, internet, citizen's hotline, social media and warning systems via electronic media.
17. An alternative location is located at the Hessian State Fire Brigade School Kassel.
18. The centre has process descriptions for hazardous situations for: civil protection, IT security, infection risks, food safety, animal disease, radiation protection, aviation safety at Frankfurt Airport, targeted violence at schools, and widespread long-lasting power outage.
19. Process descriptions for internal work (how the centre operates) include: preparatory cooperation, deciding on convening, starting work in the crisis centre, processing the risk situation in the crisis centre, dismissing (demobilising) the crisis unit, and procedure management.
20. The Hessian crisis team is unique in Germany due to its following characteristics:
 - State government at one table
 - Minister of the Interior: Chair and final decision
 - Crisis centre always ready for action
 - 150 experts in staff functions, three shifts
 - Business processes
 - Crisis communication
 - Alternative location

18 March 2025 – Darmstadt

Two adjoining and linked advanced research facilities: 1) GSI (Helmholtzzentrum für Schwerionenforschung / Research institute for heavy ion research) and its EP&R organisation; and 2) FAIR - Facility for Antiproton and Ion Research in Europe and its E&PR organisation – currently under construction.

Upon completion of construction, FAIR will use antiprotons and ions to perform research in the fields of: nuclear, hadron and particle physics, atomic and anti-matter physics, high density plasma physics, and applications in condensed matter physics, biology and the bio-medical sciences.

The focus of the visit to the joint international research centres was on EP&R as the facilities will generate radiation and use radioactive sources. Clinical particle therapy has been a focus of research at GSI, where carbon ion beam therapy was advanced. There are currently 15 such facilities worldwide, using particle acceleration for medical treatment.

Observations:

1. Each facility that handles radio-active sources and manages radiation or nuclear processes has extensive measures in place for emergency preparedness and response. These EPR resources are monitored by the regulator. From a Disaster Management perspective within the South African context, the full coverage of all facility-based and process-based nuclear and radiological safety, preparedness and response must be confirmed as it is a shared responsibility between the National Nuclear Regulator (NNR) and the South African Health Products Regulatory Authority (SAHPRA). Furthermore, it is clear that close relationships between local, provincial and national emergency response structures and the preparedness and response personnel at specific installations / operators should be maintained and strengthened through regular exercises.
2. The control room for the equipment and experiments is set up in four half-circle work and equipment benches accommodating around 2 to 5 operators each with multiple

screens and interfaces and a work surface, and a video wall for the room per room giving additional information. A central work table allows for quick meetings of controllers. The control room for GSI will be decommissioned once the new joint GIS/FAIR control room is completed.

3. Emergency preparedness and response measures such as plans, procedures, equipment and facilities must be resourced, maintained and tested.
4. Training of response personnel as well as those responsible for nuclear and radiological safety remains a high priority.
5. It is clear that emergency response structures must be ready to respond at any time, which requires availability of emergency staff on a standby basis.
6. It is expected that the use of clinical particle therapy will expand and that the number of such facilities will increase, which brings potential risk with it.

19 March 2025 - Karlsruhe

German nuclear and radiological emergency response support organisation – KHG (Kerntechnische Hilfsdienst GmbH / Nuclear technical support service - German organisation devoted to nuclear / radiological emergency preparedness and response)

The group was welcomed and guided by Dr Michael Gustmann and Mr Stefan Proestman.

Observations:

1. KHG is established as a company that is contracted by various clients to provide support in training and in nuclear / radiological emergencies.
2. KHG is focused on the decontamination of radiation workers at the facilities / institutions that contract them, they are not equipped for mass public decontamination.
3. In Germany schools are identified as mass care centres.
4. Standby roles in KHG for a full alert includes: 1) Head of intervention; 2) Electronic expert who can also run the alerting system; 3) Radiation measurement; 4) Decontamination; 5) Robotics and 6) Administration
5. Vehicles and equipment: The expected operational lifecycle of vehicles are: 1) Passenger vehicles 15 years; 2) Vans 20 years; and 3) Trucks 25 years.
6. The operational deployment of KHG for a nuclear or radiation emergency would entail establishing a rear base in a safe position from which operations will be launched into the contaminated zone. Equipment will be brought to site by a variety of trucks and vans and motor-cars, depending on the specific situation.
7. Training: KHG has a strong training component and every operator needs to spend a period of time per year at KHG for training. Operators are individuals working at various locations in the radiation protection field within Germany and are mobilised to KHG if an emergency develops.
8. KHG operates and maintains a variety of robots, from very small pipecrawlers to remote-controlled digger-loaders, to walking robots and flying drones for remote handling of radio-active materials or observation, monitoring and measuring. These robots and their sensors and electronics have been upgraded over time to withstand the specific hazards to electronics due to radiation. Robots developed for indoor use must be able to pass through a normal door, which is a design constraint. Indoor use robots are also mostly electrically powered.
9. KHG was contracted to assist in Fukushima in 2011.
10. Trucks that transports the remote-controlled vehicles have built-in robotic control console with video feeds inside the cab of the truck.
11. The group has a self-sufficient ecosystem of devices and command, control and support facilities on a diverse mobile platform consisting of various trucks, vans and vehicles.

12. Related to mobile joint operations centres, KHG has a very informative layout of the mobile decision-making and briefing facility in terms of seating for meetings.
13. The mobile equipment to be deployed to a rear base enables extensive screening and testing of persons for contamination as well as handling and analysis of samples and decontamination.
14. KHG has three mobile radiation monitoring and measuring vans. The German government has distributed 520 such vans, also equipped for chemical and biological detection and monitoring, to public services (fire brigade services) accross Germany.

19-20 March 2025 - Munich

Federal Office for Radiation Protection - BfS Munich - Federal nuclear and radiation emergency response coordination centre (Radiologisches Lagezentrum des Bundes, RLZ)

Observations:

1. BfS was formed under the federal Environmental Ministry in response to Chernobyl and it has four divisions of which one is Emergency Preparedness and Response.
2. The EP&R group is an on-call / standby service and within working hours must mobilise in 20-30 mins and after hours within 1 hour 30 mins.
3. Their general goal is to start working in one hour after alert, and to produce their first report in another hour.
4. The group has 8 positions / roles when activated including L1 Leader, responsible for outside communication and L2 Operative head. Other positions in teh emergency structure include: Situation, Documentation, Visualisation, Incident/Event, Rodos / Lasair, Measurements, Operational Management Situational Awareness,
5. The group provides a situation reporting and qualified recommendations for protective actions in an advisory role to federal states, while the federal states are responsible for disaster response. Federal states have their own disaster response plans and the national government has its own plan.
6. Federal cannot order states. The Landrat of the states makes final decision. BfS makes radiological assessment, States and Cities decide for themselves. The federal states have a lot of power.
7. Reference radiological incidents that serve as case studies include: Toikamuro; Haan; North Sea; Lailly en Val; Goiania Brazil; Kosmos 945; Sevmorput and Palomares.
8. New SMRs (small modular reactors) is a potential new concern.
9. Germany has an extensive national network for radiation monitoring: Alarm if two adjoining detectors above 0.1 microsieverts per hour or if one above 1 microsieverts per hour.
10. The radiation monitoring group has equipment that can be fitted in police helicopters for wide area monitoing. This is regularly tested and practised.
11. Exercises are regularly conducted
12. Detectors include: Iodine detectors, germanium detectors, cesium, uranium.
13. They use an AWAG alarm calls system which is commercially available.

Conclusion

Even though Germany has been closing reactors down, many sites with high levels of radiation remain, including sites with high level waste. Germany also needs to prepare for potential incidents in bordering countries and must be able to respond to the effects of nuclear plant emergencies in other countries.

Observation of nuclear and radiological preparedness and response measures in place in Germany provided insight into the organisation, training, equipment and facilities that can be put in place for nuclear and radiological emergencies and when compared to what is in place

in South Africa, the Western Cape and Cape Town, provided insights into possible improvements.

The following important observations for disaster management in Cape Town can be derived from the study tour:

- Satellite communication should be available in a disaster management centre.
- It is important to maintain a fall-back / alternative facility for a disaster management or crisis management centre.
- Layout of mobile joint operations centres can benefit from some of the ergonomics employed in KHG vehicles, with smaller t-shaped workstations backing against the sides of the vehicle instead of a central table with seating around it.
- Standby and rapid mobilisation is critical at national, provincial (state) and local level.
- Resources for radiation and nuclear incident response is privately owned or contracted by the operators / owners of nuclear and radiological installations or processes but these resources do not provide for a response to impact on the general population.
- Although it was not clear during the visit as no local government entities were visited, Cape Town can still engage and learn from the local-government level preparedness for- and response to mass care and mass decontamination and the equipment and plans in place at local government level, as alluded to by the national and state agencies interfaced with.
- The staffing positions implemented for the various response teams of Hesse, KHG and BfS can be compared to the incident command positions and disaster co-ordinating team positions used by the City of Cape Town in order to make potential improvements.
- The situation report and the public protective actions recommendations by BfS provides insight into the critical elements of information required for decision-making and how to improve situational awareness and situation reporting.

Thank you

Sincere thanks are extended to the National Nuclear Regulator and the European Commission Directorate General for International partnership for the INSC project "Support to the Nuclear Regulator in South Africa" (INTPA/2022/EA-RP/0067, Contract N° INSC/2022/434-085) for this remarkable opportunity to observe emergency preparedness and response arrangement for nuclear and radiological hazards in Germany, with a specific focus on Hesse. Kind thanks also to our hosts the Hessian Nuclear Regulator (Ministry of the Environment) and the contractor Plejades GmbH, under Dr Norbert Molitor, who facilitated to activity. A special thanks to our guides Mr Johannes Kötters and Ms Rumiana Mirtcheva.

10. ANNEXURES

None, but detailed presentation with video and photography available.

FOR FURTHER DETAILS, CONTACT:

DATE	31 March 2025	
NAME	Dr. Johan Minnie	CONTACT NUMBER
E-MAIL ADDRESS	Johan.Minnie@capetown.gov.za	
DIRECTORATE	Safety and Security	FILE REF NO
SIGNATURE:	Johan Minnie Digitally signed by Johan Minnie Date: 2025.05.06 11:24:53 +02'00'	

EXECUTIVE DIRECTOR

VINCENT BOTTO

The ED's signature represents support for report content and confirms POPIA compliance.

SIGNATURE:

NAME

VINCENT BOTTO

DATE

7/5/2025

COMMENT:

MANAGER: INTERNATIONAL RELATIONS

DR. DENVER VAN SCHALKWYK

SIGNATURE:

DATE

COMMENT:

☐ REPORT COMPLIANT WITH THE PROVISIONS OF COUNCIL'S DELEGATIONS, POLICIES, BY-LAWS AND ALL LEGISLATION RELATING TO THE MATTER UNDER CONSIDERATION.

☐ NON-COMPLIANT

LEGAL COMPLIANCE

COMMENT:

NAME

TEL

DATE

Certified as legally compliant based on the contents of the report.

CITY MANAGER

☒ NOTED

☒ REFER TO THE MAYORAL COMMITTEE VIA THE RELEVANT SECTION 79 COMMITTEE

DATE

COMMENT: