Koeberg Public Safety Information Forum (KPSIF)

Minutes of the meeting held on 18 September 2014

Venue: Nuclear Auditorium, Bulk Stores, Koeberg Nuclear Power Station

Chairperson: Ms Smokie La Grange

Deputy Chairperson: Ms Christa Kleynhans

Name and Surname	Organisation	Present
Anderson, Melville	Resident	P
Boulanger, Catherine Irene	Resident	P
Browne, Peter	Resident	P
Grose, Nora	Resident	P
Iosiphakis, John	Resident	P
Jansen van Vuuren, Mariesa	Resident	P
Kleynhans, Christa	KPSIF Deputy Chairperson	P
Kraamwinkel, Salome	Resident	P
La Grange, Duval	Resident	A
La Grange, Smokie	KPSIF Chairperson	P
Lewis, Deidre	Resident	P
Lewis, Lloyd	Resident	P
Longden-Thurgood, M	Resident	A
Mayhew, Robert	Resident	P
Mayhew, Sylvia	Resident	P
Mtya, Yuneka	Resident	P
Mtya, Sizeka	Resident	P
Nagan, Roy	Resident	P
Nyoka, Thembile	Resident	P
Pannaye, Angelique	Resident	P
Saaymans, Desmond	Resident	A
Suga, Hlomla	Resident	P
Staffen, C	Resident	P
Schwarz, Elke	Resident	P
Taylor, John	Resident	A
Watney, Tertius	Resident	P
Williamson, Raymond	Resident	P
Williamson, Mrs	Resident	P
Weaver, Z	Resident	P
Witbooi, Katrina	Resident	P
Bakardien, Riedewaan	Power Station Manager – Eskom Koeberg Nuclear Power Station	P
Beukes, Willem	NECSA	P
Bobo, Lindelwa	CoCT	P
Engel, Kevin	Plant Manager – Eskom Koeberg Nuclear Power Station	P

Featherstone, Keith	Senior Manager: Nuclear Support - Eskom Koeberg Operating Unit	P
Joshua, Debbie	Senior Advisor: Stakeholder Management - Eskom Koeberg Operating Unit	P
Karsten, Tertius	Manager: Radiation Protection - Eskom Koeberg Operating Unit	P
Le Roux, Clive	Senior General Manager - Eskom Koeberg Operating Unit	P
Moonsamy, Gino	National Nuclear Regulator	A
Nicholls, Dave	General Manager (Nuclear Engineering) - Eskom Koeberg Operating Unit	
Phidza, Lewis	Manager: Stakeholder Management - Eskom Koeberg Operating Unit	P
Pillay, Greg	Head: Disaster Risk Management Centre - City of Cape Town	A
Pienaar, Shaun	Communication Officer: Stakeholder Management, Eskom Koeberg Operating Unit	P
Radebe, Phindile	Assistant Communication Officer: Stakeholder Management, Eskom Koeberg Operating Unit	P
Seitei, Victoria	National Nuclear Regulator	P
Staffen, Kelvin	Manager: Nuclear Services - Eskom Koeberg Operating Unit	P
Steyn, Elmien (Dr.)	Head: Special Planning and Critical Infrastructure - City of Cape Town	P
Trollope, Ian	Emergency Management Manager - Eskom Koeberg Operating Unit	P
Tshepe, T	Department of Energy	P
Van Rensburg, Stephen	Head: Area North Disaster Risk Management Centre – City of Cape Town	A
Van der byl, Francis	Fire and Rescue Services - City of Cape Town	P

Abbreviation/definition list			
Abbreviation	**Description**	**Abbreviation**	**Description**
KNPS	Koeberg Nuclear Power Station	**CoCT**	City of Cape Town
KOU	Koeberg Operating Unit	**IAEA**	International Atomic Energy Agency
NNR	National Nuclear Regulator	**DOC**	Disaster Operations Centre
KPSIF	Koeberg Public Safety Information Forum	**SABC**	South African Broadcasting Corporation
ISO	International Standards Organisation	**mSv (millisievert)**	The millisievert (mSv) is a measure of the absorption of ionising radiation by the human body.
PSM	Power Station Manager	**EP**	Emergency Plan
SAPS	South African Police Service	**UPZ**	Urgent Protective Action Planning Zone
MW	Megawatts. A unit of measure - one megawatt is equal to one million watts.	**Emergency**	An event that requires taking prompt action, or the special regulation of persons or property, to limit the risk to people's health, safety or welfare, or to limit damage to property or the environment.
ECC	Emergency Control Centre	**Evacuation**	The rapid, temporary removal of people from the area to avoid or reduce short-term radiation exposure in the event of an emergency.
Emergency Plan	A document describing the organisational structures, its roles and responsibilities, concept of operation, means and principles for intervention during an emergency at Koeberg.	**Plant**	Nuclear power station with associated components, machinery, equipment or devices
PAZ	Precautionary Action Zone	**National Electricity Grid**	The network of high-voltage power lines between major power stations.
LTI	Lost Time Injury	**WANO**	World Association of Nuclear Operators
NSRB	Nuclear Safety Review Board	**Radiation**	Energy released in the form of particles or electromagnetic waves

			during the breakdown of radioactive atoms.
Public Notification	Notification to the public of an emergency and the appropriate protective actions to be taken by using the installed siren and loudspeaker system, as well as local authorities, local radio and television station.	**Sheltering**	A protective action whereby members of the public stay indoors with windows and doors closed, to reduce their exposure to radioactive material in an emergency situation.
Release	The controlled or accidental discharge of radioactive substances into the environment.	**EMP**	Environmental Management Plan
Accident	An unintended event, including operating errors, equipment failures or other mishaps.	**Disaster Management**	A continuous and integrated multi-sectorial, multi-disciplinary process of planning and implementation of measures aimed at: a) Preventing or reducing the risk of disaster b) Limiting the severity or consequences of disasters c) Emergency preparedness d) Responding rapidly and effectively to disaster; and e) Post-disaster recovery and rehabilitation
FCs	Functional Coordinators	**EPSOC**	Emergency Planning Steering and Oversight Committee
TEM	Traffic Evacuation Model	**SAMGs**	Severe Accident Management Guidelines
EPZ	Emergency Planning Zone	**UPZ**	Urgent Protective Action Zone
SHEQ	Safety Health Environment and Quality	**KCWIB**	Koeberg Cooling Water Intake Basin
Outage	Refers to the maintenance period on a power plant when a number of activities are performed on equipment that keeps the plant running.	**FME**	Foreign Material Exclusion
NOSA	National Occupational Safety Association	**NOSCAR**	The grading of NOSA for safety performance.
UAG	Unplanned Automatic Grid Separation	**NERSA**	National Energy Regulator of South Africa
SSA	Sea Shore Act	**NSRB**	Nuclear Safety Review Board
CCGT	Closed Cycle Gas Turbine	**Hazmat**	Hazardous material

IPP	Independent Power Producer	**KEP**	Koeberg Emergency Procedure
NECSA	South African Nuclear Energy Corporation SOC Limited	**CCGT**	Closed Cycle Gas Turbines
WAC	Waste Acceptance Criteria	**FA**	Fuel Assembly
IPP	Independent Power Producer	**CPA**	Consumer Protection Act
Boron	A very hard, almost colourless crystalline metalloid element that in impure form exists as a brown amorphous powder. It occurs principally in borax and is used in hardening steel. The naturally occurring isotope boron-10 is used in nuclear control rods and neutron detection instruments.		

1. Opening and welcome

The Chairperson welcomed everyone to the KPSIF meeting.

2. Safety briefing

Mr Pienaar conducted the safety evacuation briefing, informing members about the safety protocol of the venue.

3. The following apologies were tendered (18 September 2014):

- Mr Desmond Saayman
- Mr John Taylor
- Mr Mike Longden-Thurgood
- Mr Greg Pillay
- Mr Steven van Rensburg
- Mr Gino Moonsamy

4. Matters Arising from the previous minutes

Comment by Mr Mayhew

Mr Mayhew raised a concern about the lack of NNR representation in the last meeting, without any apologies tendered. He requested an explanation for the non-attendance at the previous meeting, as he views the KPSIF as an NNR meeting.

Response by Mr Phidza

Mr Phidza responded that he would follow up with the NNR about the reason for their non-attendance and lack of apology for the previous meeting. It was noted that Ms Victoria Seitei was present as Mr Moonsamy's stand in.

Comment by Ms Seitei

Ms Seitei made an apology on behalf of Mr Moonsamy and introduced herself as the NNR representative, standing in for Mr Moonsamy.

Comment by Mr Featherstone

Mr Featherstone advised the meeting that agenda point nine on the KPSIF agenda for the day, 18 September 2014, was as a result of Matters Arising from the previous KPSIF minutes of 26 June 2014.

5. Acceptance of the Minutes of the previous meeting (26 June 2014)

The Minutes were accepted by Mr Mayhew and seconded by Mr Iosophakis.

6. Koeberg Quarterly Feedback - Mr Riedewaan Bakardien - Koeberg Power Station Manager

Mr Bakardien welcomed the members to the meeting, and extended a special welcome to Mr Clive le Roux, the Koeberg Operating Unit Senior General Manager.

Third quarter feedback

Summary

Unit 1

- Unit 1 has remained at 100% power for the last quarter and has been online since synchronisation to the grid on 28 December 2013.
- Unit 2 returned from Outage 220 on 17 May 2014 after a 54-day outage and has been online since. He added that there has been one minor event, and one load reduction of approximately 5MW (0.5% reduction) over the period 8 to 18 July 2014 to repair a feed-water system drain line. A pinhole leak was found on this line, which was repaired after the affected section of plant had been isolated and made safe to allow the repair to be implemented.
- Mr Bakardien illustrated the location of the leak and explained that this occurred on the secondary side (condensate extraction system), which poses no threat to nuclear safety, but had to be repaired to maintain the integrity of the plant.
- The station focus remains on the safe and reliable operation of both units and preparation for two long outages in 2015 (98 days each).
- Koeberg achieved 3 million man-hours (260 days) injury-free hours (on 31 July 2014), reflecting the continued focus on industrial safety at the station.
- The 3-yearly World Association of Nuclear Operators (WANO) Peer Review was held over three weeks in July 2014.

1. The review team consisted of experienced nuclear industry experts, mainly from the US, but also included nuclear experts from Canada, Japan, Russia, France and Romania.
2. This review measures Koeberg performance on safety and performance against the best worldwide nuclear power station performance.
3. The review acknowledged improved overall station performance over the three-year period since the previous review.
4. WANO identified 13 areas for improvement (21 in last review) and 6 strengths.
5. Koeberg Emergency Plan exercises were being conducted between August to October 2014, and the biennial NNR Emergency Plan Exercise is scheduled to take place 22 October 2014. This will test the station readiness for a nuclear emergency.

6. The replacement of the Steam Generators at Koeberg will be a big milestone for the station, with the contract having been placed, and the replacement scheduled for 2018/19.
7. The national electricity grid remains constrained and attendees were reminded to use electricity sparingly.
8. The fuel shipment for refuelling Outage 121 arrived on site in August 2014.
9. 2015 will see two of the biggest outages in Koeberg's history in terms of the scope of work being undertaken:
    a) Outage 121: 9 February – 18 May 2015 (98 days)
    b) Outage 221: 31 August – 7 December 2015 (98 days)
    c) The work-scope includes containment Integrated Leak Rate Tests; Reactor Vessels Inspections, large maintenance projects and various modifications.
10. The WANO Peer Review 2014 AFIs (Areas for Improvement):
    a) Reducing chemistry out of specification incidents
    b) Updating fire hazards analysis and design documents
    c) Document retrieval protocols
    d) Emergency plan drills and equipment
    e) Interim and long term equipment plans for future modifications
    f) Risk management and controls during outages
    g) Maintenance tool usage fundamentals
    h) Radiation Protection technical practices
    i) Ageing strategies for plant components
    j) Supervisors influencing maintenance worker behaviours
    k) Problem reporting and trending
    l) Equipment Operations errors due to behaviour shortfalls
    m) Leadership correcting worker behaviours

Question by Mr Mayhew

Mr Mayhew enquired whether the pinhole leak occurred on Unit 2, which had just come out of an outage, and further enquired why this was not picked up during the maintenance period of the outage.

Response by Mr Bakardien

Mr Bakardien responded that prior to an outage, pipes are assessed for susceptibility to wall thickness/flow system corrosion. This particular area of piping did not meet those requirements and hence was not scheduled to be part of on the maintenance programme for Outage 220. As an improvement, the programme has been updated to allow for inspections to take place on that specific area of the plant in future. He added that this leak was not a result of the work done during outage.

Question by Mr Iosophakis

Mr Iosophakis enquired whether the leaking water was contaminated.

Response by Mr Bakardien
Mr Bakardien responded that the water was not contaminated as this occurred outside of containment (on the secondary side, which contains non-contaminated water).

Question by Mr Williamson
Mr Williamson asked whether the 13 AFIs identified in 2014 are in addition to the 21 AFIs identified in 2011.

Response by Mr Bakardien
Mr Bakardien responded that of the 21 AFIs identified in the last review, 20 AFIs have been addressed with one being a reoccurrence in 2014. The 13 AFIs identified during this review thus included the 1 reoccurrence.

Question by Mr Iosophakis
Mr Iosophakis asked whether all 13 AFIs will be addressed before the next WANO Peer Review.

Response by Mr Bakardien
Mr Bakardien agreed that the 13 AFIs need to be addressed prior to the next WANO Peer Review. He added that the intent is to address the AFIs within six months.

Question by Mr Mayhew
Mr Mayhew enquired whether the exercise to address these AFIs has commenced.

Response by Mr Bakardien
Mr Bakardien responded that some of the AFIs had already been identified by the power station and corrective actions were already underway. The intent is to address approximately 80% of the AFIs prior to the 2015 outage period, which will pose a challenge in achieving these goals.

Question by Mr Williamson
Mr Williamson noted that AFIs 10, 12 and 13 reflect behaviours. He questioned what the best practises were in addressing these behaviour AFIs. He commented that the behavioural issues may be normal according to South African standards and asked whether this necessarily affect the efficiency of the plant.

Response by Mr Bakardien
Mr Bakardien noted that this is a good question which “we also ask ourselves”. He responded that Eskom Koeberg has made a conscious decision to align to the US version of WANO specifically because they have the best operational performance. He added that the SA culture is a bit different however, and in the USA different cultures are found. WANO is hesitant not to put something on the table which ignores cultural differences.

It's not as simple as to say that in South Africa this US thinking should be the norm. We need to acknowledge that possibly there are challenges we have to deal with. There might be more of a non-compliance culture in South Africa than in certain parts of the US (although this is a generalisation) but when WANO comes here they view things from their perspective and they would compare practices and behaviours at Koeberg to the world best practice, and behaviours need to be focused on as it is one of the barriers to prevent events on the plant. Overall performance on the station has been good, however we look a level deeper to see what other less significant events have occurred e.g. a wrong valve is operated on. It's these sort of things that can't be ignored as it needs to be understood what behaviour led to that error. We take it from the perspective of searching for opportunities to improve the behaviours of our workers, and hence a lot of focus is placed on addressing those issues. Some of them are cultural issues where we constantly have to engage our staff about these things.

Comment by Mr Williamson
Mr Williamson commented that he understands how this would be difficult, as he would imagine that culture, to a certain extent, worked against the Japanese in the Fukushima incident.

Response by Bakardien
Mr Bakardien agreed and added that each country has its own culture and that in Japan there is a culture of not always challenging authority when required. He added that South Africa does not have this problem however there are other areas in which we're lacking.

Question by Mr Nagan
Mr Nagan asked for an explanation for the reported conflict amongst European suppliers with regard to the tender for Koeberg's steam generator replacement.

Response by Mr Bakardien
Mr Bakardien responded that the reason the steam generators must be replaced is because most power stations of similar design have already replaced their steam generators. Koeberg is amongst the last of such power station models that haven't replaced its steam generators. If they're not replaced, Koeberg cannot operate beyond 2025. The steam generators are currently in a good condition due to an early intervention to drop the temperature, which has extended their life. He added that the station's position is that they need to be replaced, as soon as possible. He added that two vendors were successful for the steam generator replacement and subsequently one was selected. One of the candidates challenged the decision and is taking legal recourse regarding the awarding of the tender.

Comment by Mr Nicholls

Mr Nicholson added that detailed specifications were put together for the steam generators and both vendors met these specifications. One had to be selected and it is irrelevant which one was chosen.

7. Low and intermediate level waste at Koeberg - Mr Kelvin Staffen

W*hat is Low and Intermediate level waste?*

- Radioactive waste that can be packaged normally in steel or concrete drums and does not need special cooling or other measurement or monitoring to make it safe.

What is short-lived waste?

- Radioactive waste that does not contain significant levels of radio nuclides with half-lives greater than 30 years.
- These are normally the fission products and activated corrosion products

Three different waste streams at Koeberg:

Gaseous waste

Radioactive gases received from:

1. Nitrogen blankets on tanks containing radioactive fluids.
2. Gases coming out of solution during depressurisation of the primary system.

Treatment and disposal:

The gases are stored in hold up tanks and allowed to decay to below the acceptable release limit and then dispersed into the atmosphere after filtration

Liquid waste

Radioactive liquid received from:

- Bleed and feed of the primary system
- Dilution of the primary system to maintain reactor power
- Recovery from sumps (cleaning purposes)
- Excess water used during outages

Treatment and disposal:

- Re-used in the primary system
- Passed through demineralisers, filters or evaporators prior to release to the ocean.

Solid waste

- Compressible waste (trash) such as paper, cloths, plastic and rubber products, with a contact dose rate less the 2mSv/h.
- Active Resin from system demineralisers.
- Active Water System Filters.
- Evaporator Concentrates from waste effluent systems.
- Sludge, created from system tank clean-up projects.
- Non Compressible Waste (NCW) such as metal.

Solidification and Immobilisation Processes
Each of the above-mentioned waste types have their respective prescribed treatment/conditioning processes and procedures. These procedure for the waste treated will ensure that the final waste package comply with the Waste Repository requirements.

Waste Packaging

Waste containers used
11. The vessel into which the waste form is placed for handling, transport, storage and disposal, forms the outer protection barrier from external intrusion. The waste container is a component of the waste package.
12. 210-litre steel drums, contains low-low active resin, filters (APG) and compressible waste (trash).
13. Concrete drums; contain evaporator concentrates, sludge, active resin, assorted active filters and non-compressible waste (NCW).

Other Criteria
14. The mass of a concrete waste package shall not exceed 6.0 Ton and a metal waste package shall not exceed 200 kilogram.

Monitoring
All waste packages produced are tracked by means of an electronic tracking programme which:
15. Numbers each new drum received
16. Tracks the drum through its life cycle
17. Notes the contents of the drum
18. Notes the location of the drum
19. Records the radiation levels of the drum through each stage of its journey.
20. Records the entire history of the drum from birth to burial in the repository at Vaal puts.

Auditing
The Radwaste process is subjected to numerous, annual audits, conducted by:
- NECSA
- National Nuclear Regulator
- Eskom Data and Integrity
- KPMG NOSA
- ISO 14001
- Koeberg Quality Assurance

On delivery
Vaal puts waste disposal facility carried out receipt inspections, radiation monitoring and smear tests according to their procedures.

If waste does not meet the required criteria, per WAC it is understood that:

- Vaal puts is not obliged to accept the waste
- All cost incurred would be for Koeberg's account
- Vaal puts reserves the right to suspend any further deliveries until appropriate corrective action has been taken.

Disposal

The waste disposal facility at Vaal puts is the National repository for Nuclear Waste

Near Surface Disposal Facility

- Waste Disposal Facility is owned by NECSA - South African Nuclear Energy Corporation
- Situated in the Northern Cape Region of South Africa, approximately 600km from Koeberg Nuclear Power Station
- Near surface facilities are suitable for solid and solidified radioactive waste
- Chosen because evaporation exceeds rainfall

Emergency Plan for Radwaste Transport to Vaal puts (KEP-086)

KEP-086 describes the process and responsibilities for actions in the event of an incident or accident involving the transport of radioactive waste from Koeberg to Vaal puts.

These include:

- Instructions to drivers (general and specific)
- Radio failure
- Mechanical breakdown
- Involvement in an accident (integrity affected and unaffected)

Question by Mr Mayhew

With reference to an illustration of low level waste concrete drums in interim storage onsite, Mr Mayhew asked how long it has taken to accumulate the waste.

Response by Mr Staffen

Mr Staffen responded that the concrete drums have been accumulated since the commissioning of Koeberg. He added that once the concrete drums have been sealed they are temporarily stored at the on-site low level waste facility until they're transported to Vaal puts. He advised that the transportation takes place on an ongoing basis, adhering to a schedule.

Question by Mr Mayhew

Mr Mayhew asked how many concrete drums are produced per month.

Response by Mr Staffen

Mr Staffen responded that 150 concrete drums are produced per year. He added that the concrete drums pose a challenge with regard to transportation as their heavy weight allows only five per load, as opposed to the 120 steel drums per load.

Mr Staffen added that as of 2012/2013, it has become more challenging to transport the low level waste drums to Vaal puts since the transport schedule has to be shared with NECSA, who also transport waste to Vaal puts.

Question by Mr Williamson
Mr Williamson asked whether the waste disposal and fuel delivery trucks have a security escort.

Response by Mr Staffen
Mr Staffen confirmed that both waste disposal and fuel delivery have a security escort, and advised that fuel delivery is governed by a different procedure.

Question by Chairperson
The Chairperson enquired whether it has happened that waste has not been accepted at Vaal puts.

Response by Mr Staffen
Mr Staffen responded that it has happened in the past that Vaal puts declined receipt of a drum as it was deemed to have unsatisfactory capping.

Question by KPSIF member
A KPSIF member asked what would happen to the waste once the steam generators are replaced.

Response by Mr Nicholls
Mr Nicholls responded that the waste disposal is part of the project. The current view is to use Vaal puts as the disposal site. However, a final decision has not yet been made.

Question by Mr Mayhew
Mr Mayhew asked how many waste drums are already stored at Vaal puts.

Response by Mr Beukes
Mr Beukes responded that currently Vaal puts has five trenches of metal drums which are 42m long, 8m deep and 9m wide. He confirmed that, coupled with the concrete drums, this waste takes up only 8% of the facility's capacity.

Question by Mr Iosophakis
Mr Iosophakis enquired what would be considered high level waste once the steam generators have been replaced.

Response by Mr Carstens
Mr Carstens responded that the steam generators would be considered intermediate waste, as once cut out, they would no longer be deemed active.

8. Spent fuel on-site storage – Dr Steph Steyn

Koeberg Nuclear Reactor Core/Fuel

- 157 Fuel assemblies (FAs) in the core
- 264 Fuel rods per FA
- Currently use 4,40% enrichment
- Replace about 56 FAs every outage
- 17- to 18month cycle length

Spent Fuel Pool description

- One dedicated Spent Fuel Pool (SFP) per unit.
- Fuel stored in racks and cells submerged in water containing boron.
- Total spent fuel storage capacity:
  - About 1 500 FAs per unit;
  - Currently about 2/3 filled.
- Qualified and licensed to store up to 5,0% enriched fuel.

Koeberg on-site spent fuel storage summary

- Currently all Koeberg spent fuel is safely stored on-site in the two spent fuel pools (SFPs), and in casks.
- Storage is considered safe for the following reasons:
  1. Designed to internationally accepted standards to ensure safety of public, staff and the environment.
  2. Have defence-in-depth in place.
  3. Operated by trained personnel according to approved procedures.
  4. Parameters critical to safety are frequently monitored.
  5. Safety functions are tested on a regular basis.
  6. In the unlikely event of an incident, safety studies demonstrate that the public, personnel and environment will not be exposed to undue risk (more than what is internationally accepted).

Koeberg spent fuel pools – current status

- Re-racked on two occasions in the past.
- Currently have high density racks (~1 500 cells per unit):
  1. Two regions in SFP: Region I and Region II;
  2. For Region II FA storage, burn-up must be above certain minimum, else use checker-board arrangement, i.e. every 2nd SFP cell;
  3. Minimise number of FAs to be checker-boarded through CLP optimization.
  4. SFPs will be completely filled by 2018.
- Need to procure, license and load casks before 2018.
- Consider inserts to avoid checker-boarding low BU spent fuel - delaying the need for casks until 2021.

Question by Mr Mayhew

Mr Mayhew queried what happens to the residual heat once the dry storage casks have been loaded with the used fuel.

Response by Mr Steyn

Mr Steyn responded that dry cask storage only takes place after the fuel has been stored and cooled in the fuel pool for a minimum of 10 years, therefore dissipating most of the heat.

Question by Mr Mayhew
Mr Mayhew asked what the temperature of the casks would be and what material they are lined with.

Response by Mr Steyn
Mr Steyn responded that the general temperature of the casks is approximately 40°C to 50°C and that they are lined with stainless steel with borated plates to supress the nuclear chain reaction.

Question by Mr Mayhew
Mr Mayhew enquired what the next stage is for the fuel stored in the casks.

Response by Mr Steyn
Mr Steyn responded that upon decommissioning of the Koeberg reactor, the used fuel needs to be stored appropriately. He indicated that Vaal puts has been identified as the ideal storage location. However, a final decision is yet to be made.

Comment by Mr le Roux
Mr le Roux advised that as part of the non-proliferation treaty and the work done with the IAEA, it is the government's responsibility to create a permanent repository for the storage of spent fuel. Eskom has budgeted for the storage, which, once government has identified the appropriate repository, will be paid for. Those fuel assemblies contain plutonium which needs to be controlled. Thus far only two countries have identified the final suppository for spent fuel and South Africa is not there yet.

Comment by Mr Mayhew
Mr Mayhew commented that Eskom must understand that spent fuel storage/waste is an important topic to the public and is one the reasons why the public is anti-nuclear.

Comment by Mr Nicholls
Mr Nicholls advised that although the design life of the casks is 50 years the US NRC has accepted that they'll last longer than 100 years.

Question by Mr Williamson
Mr Williamson asked which is most vulnerable between fuel in the reactor, and spent fuel in the fuel pool.

Response by Mr Steyn
Mr Steyn responded that fuel is safe in both, however, that there is more control in the reactor.

Question by Mr Mayhew
Mr Mayhew asked what boron is.

Response by Mr Steyn
Mr Steyn responded that boron is boracic acid.

Question by Mr Mayhew
Mr Mayhew asked how often the redundant fuel pool cooling system is maintained.

Response by Mr Bakardien
Mr Bakardien responded that the systems are swopped over on a monthly basis.

Comment by Mr Nicholls
Mr Nicholls advised that a third train (cooling system) has also been installed.

Question by Mr Iosophakis
Mr Iosophakis queried how much spent fuel storage capacity Koeberg has.

Response by Mr Steyn
Mr Steyn responded that each of the two fuel pools has a capacity of 1500 Fas, and that they currently have 1000 FAs each. He added that of the remaining capacity, some space is reserved in the event that fuel needs to be unloaded urgently. He added that according to calculations, space will run out by 2018, necessitating the need to store more spent fuel assemblies in the dry storage casks.

Question by Mr Iosophakis
Mr Iosophakis enquired whether the tender which has been advertised, is for the addition of fuel pool racks.

Response by Mr Steyn
Mr Steyn responded that the fuel pool cannot be extended and that the tender is for the procurement of dry storage casks.

9. Compensation, maintenance costs and Consumer Protection Act – Keith Featherstone

Extent of Liability

- South African Contract Law is based on the Roman-Dutch law of contract.
- A broad definition of a contract is an agreement two or more parties enter into with an intention of creating a legal obligation.
- Contract Law provides the legal framework within which persons can transact business, secure in the knowledge that the law will uphold their agreements and if necessary enforce them.
- All Eskom orders are reduced to written contracts, which include the terms and conditions (including liabilities), which are accepted by each party.
- Thus the obligations of each party are clearly identified and any breach of obligation by either party is a civil wrong, and may give rise to a duty to pay damages as compensation.
- The Eskom Terms and conditions limits the liability to compensation for direct costs associated with the obligation. (but not indirect costs)
- If liability was unlimited, suppliers would not do business with Eskom as the financial risk would be unacceptable.

Replacement Power – Koeberg unavailability

- The National Grid interconnects all generators with loads, and the power at any time comes from an "optimum" combination of nuclear, coal, wind and gas.
- The system "reserve margin" is the percentage additional generation capacity that is available, to be called on, should a problem occur with the generators in service.
  The Ankerlig gas turbines were installed as "peaking" generators to limit the impact of significant evening and morning peaks. The electricity supply situation in the country is severely constrained, (very small reserve margin) and has required the Ankerlig gas turbines to be used for periods (other than just peak reduction), when the total national capacity is insufficient to meet the demand.
- The reason for utilising the Ankerlig gas turbines is due to a combination of issues and cannot be directly linked to a specific event like the Koeberg Unit 2 unavailability.
- The costs associated with the generation of energy when Koeberg is unavailable, is not part of Koeberg's maintenance costs.
- The outage delay resulted in Koeberg unavailability (UCLF) of 1.52%, target for year is <3%. (Currently sitting at 1.56%).

Electricity pricing – consumer impact

- The electricity price is set by the National Energy Regulator of South Africa (NERSA) in April each year, and not by Eskom.

- NERSA will determine if the total cost to supply electricity to the customers is correct and in the interests of South Africa.
- The NERSA process considers the actual (historical) production costs, the expected performance levels from the different generators, the contracted prices that Eskom has to pay for the wind IPPs, etc. and may result in an adjustment in the electricity price for subsequent years.
- If the total costs were determined to be too high as a result of Eskom inefficiencies, any additional costs would be disallowed.
- The cost associated with running Ankerlig to compensate for the insufficient generation capacity (reserve margin) is one of the biggest challenges facing Eskom and NERSA.

What is the Consumer Protection Act (CPA)?

- The purpose of the Act is to protect consumers from a host of consumer-related issues and provide "(g) for an accessible, consistent, harmonized, effective and efficient system of redress for consumers."
- A "consumer" is defined as a person who has entered into a transaction with a supplier in the ordinary course of the supplier's business, unless exempt from the application of this Act by section 5(2).
- Section 5(2) states "This Act does not apply to any transaction – (b) in terms of which the consumer is a juristic person whose asset value or annual turnover, at the time of the transaction, equals or exceeds the threshold value determined by the Minister in terms of Section 6."
- A juristic person refers to companies, close corporations, etc. which includes Eskom, and the threshold value currently sits at R2 million rand.
- Thus the CPA does not apply to any transactions where Eskom is the purchaser.

Summary

- Costs are not directly passed on to the consumer.
- NERSA determines the electricity tariff based on historical production costs, which are fixed for a year. During which Eskom has to absorb all unexpected production costs.
- Eskom can only claim damages as per the contractual terms and conditions, and liability of suppliers is limited to costs directly associated with the obligation of the contract.
- The CPA is applicable to Eskom as it is an Act of the country, but not when Eskom is the consumer.

Comment by Mr Mayhew
Mr Mayhew commented that the presentation clarifies the questions with regard to consequential damage and consumers inevitably paying for these damages.

Question by Mr Iosophakis
Mr Iosophakis asked when the OCGT will be converted to CCGT

Response by Mr Le Roux
Mr Le Roux responded that the machines which are being used are easily convertible from a diesel to natural gas burner. However, the challenge has been in securing a source of gas. There are three sources which are currently considered.

Comment by Mr Williamson
Mr Williamson commented that the presentation about compensation, maintenance costs and the CPA is not a KPSIF issue.

Response by Mr Featherstone
Mr Featherstone responded by agreeing with Mr Williamson and added that it had to be clarified in the meeting.

Question by Mr Anderson
Mr Anderson enquired whether Koeberg is aware of the 6 800 housing units which will be built in Wolwe Rivier and asked how these additional people will be evacuated in the event of an emergency.

Response by Chairperson
The Chairperson responded and confirmed that this topic has been covered in length in previous meetings where the EP Plan and Transport Evacuation Model (TEM) were presented by the relevant parties. The Chairperson suggested that the CoCT present this again.

Response by Dr Steyn
Dr Steyn responded that she will engage her colleagues from Human Settlements to deliver a presentation at the next KPSIF, if available.

Comment by Chairperson
The Chairperson clarified that the article in the 13 August 2014 edition of Table Talk newspaper was not factual. She explained that the author attended the KPSIF under false pretences.

10. Date of the next meeting

The next KPSIF meeting is scheduled to take place at 19:00 on 20 November 2014 at the Koeberg Visitors Centre.

11. Proposed agenda points for next meeting

- The Koeberg Operating Control Room and its operation
- The NSRB Feedback
- Marine life monitoring feedback
- Wolwe Rivier extension's impact on the TEM

Closure

The KPSIF meeting was adjourned at 21:23.