

THE EVALUATION OF THE RADIOLOGICAL IMPACT FOR A NEW NUCLEAR FACILITY ON A MULTI- FACILITY SITE

By
Ms Helen Seals
Senior Scientist
For
IRPA13, Glasgow

14 May 2012



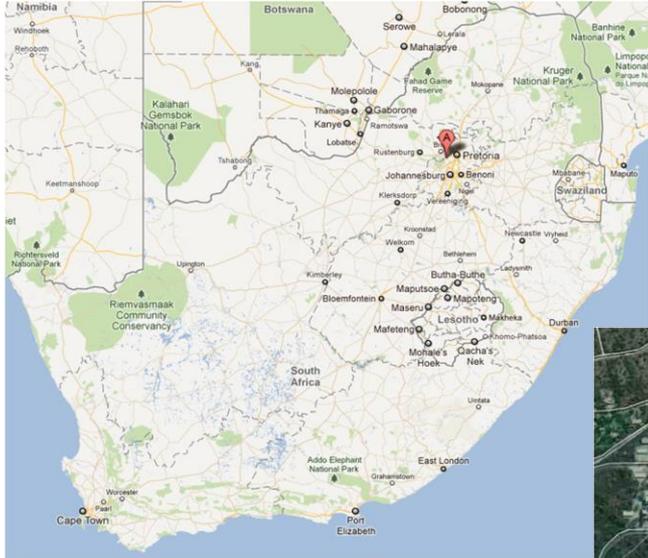
Content

- Siting a new facility in South Africa
- Pelindaba community survey and reference groups
- Identifying a Representative Person – analysis tool
- Cumulative Dose Impact of a Multi-facility Site

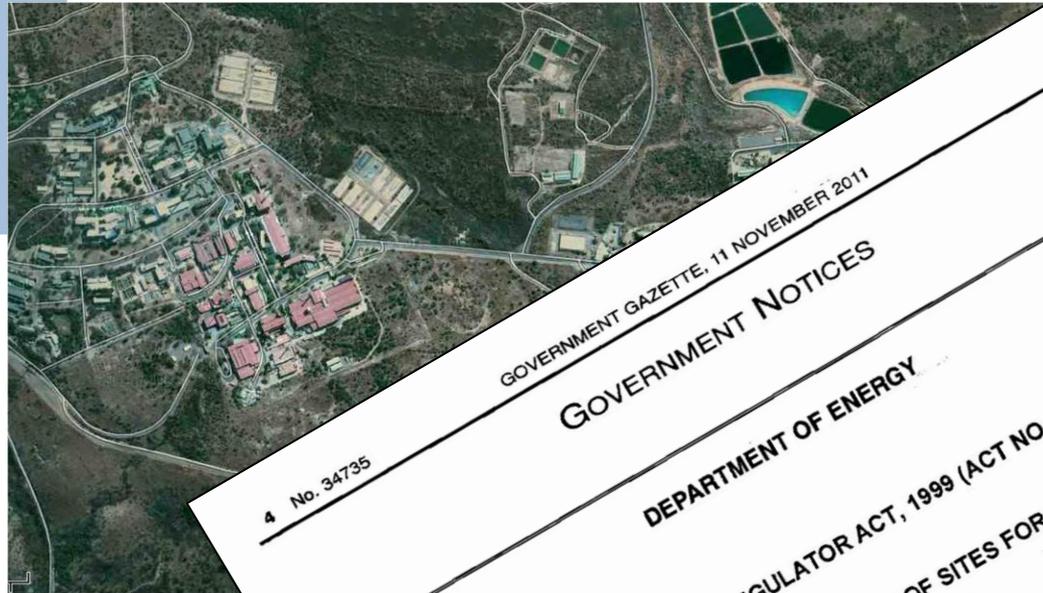


Pelindaba – ideal site for a new facility?

- North West Province
- 27km west of Pretoria
- Over 2362 hectares



- SAFARI-1
- NTP Hot Cell complex
- Waste Stores
- Fuel Plate Fabrication
- Various Chemical Facilities



4 No. 34735

GOVERNMENT GAZETTE, 11 NOVEMBER 2011

GOVERNMENT NOTICES

DEPARTMENT OF ENERGY

11 November 2011

No. R. 927

NATIONAL NUCLEAR REGULATOR ACT, 1999 (ACT NO. 47 OF 1999)
THE REGULATIONS ON LICENSING OF SITES FOR NEW NUCLEAR
INSTALLATIONS

Director of Energy hereby, in terms of section 36 re
Nuclear Regulator Act, 1999 (Act No. 47
the Board of Directors of th
in the Schedule.



Reference Groups

Farmer



Farm Worker



Informal Farmer



Resident



Informal Resident



Worker



Tourist



Representative Person for New Facilities

Normal Operational Atmospheric Discharges

	Sr-90	U-235	Pu-239	I-131	Cs-137	Xe-135
1	Farmer	Farm Worker	Farm Worker	Farmer	Farm Worker	Farm Worker
2	Farm Worker	Informal Farmer	Informal Farmer	Farm Worker	Informal Farmer	Informal Resident
3	Informal Farmer	Farmer	Farmer	Informal Farmer	Farmer	Informal Farmer
4	Resident	Informal Resident	Informal Resident	Resident	Informal Resident	Resident
5	Informal Resident	Resident	Resident	Informal Resident	Resident	Farmer
6	Worker	Worker	Worker	Worker	Worker	Worker

Inhalation

Ingestion

Farmer

Farm Worker

Informal Farmer

Cloudshine

Groundshine

- Time outdoors
- Shielding factors



Normal Operational Liquid Discharges

	Sr-90	U-235	Pu-239	I-131	Cs-137
1	Informal Farmer				
2	Informal Resident				
3	Tourist	Tourist	Tourist	Tourist	Tourist

Informal Farmer

Ingestion

Informal Resident



Representative Person for New Facilities

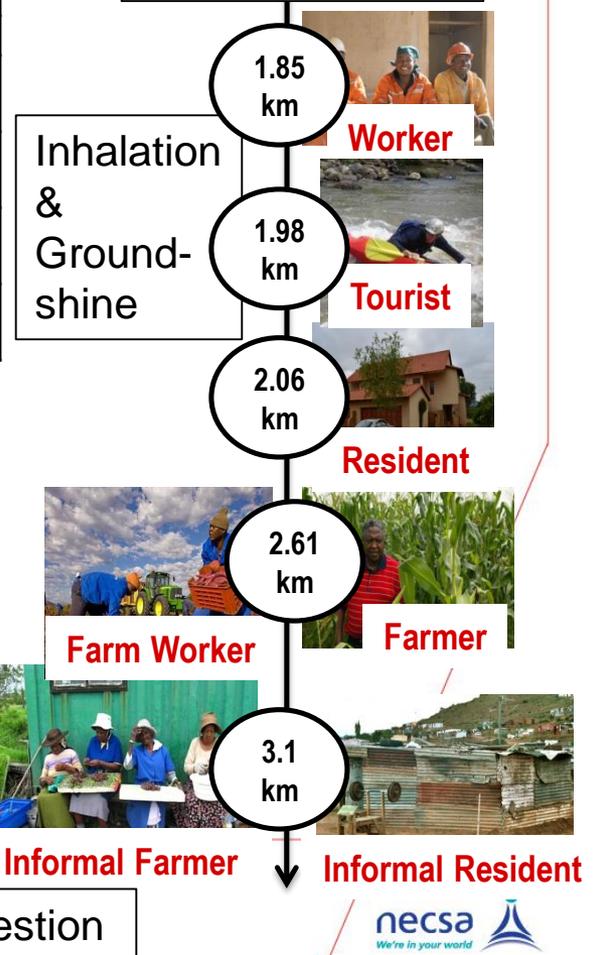
Accident Releases: Short Term (7 day)

	Sr-90	U-235	Pu-239	I-131	Cs-137	Xe-135
1	Resident	Resident	Resident	Resident	Resident	Farm Worker
2	Farm Worker	Resident				
3	Farmer	Farmer	Farmer	Worker	Worker	Informal Resident
4	Worker	Worker	Worker	Farmer	Farmer	Informal Farmer
5	Informal Resident	Farmer				
6	Informal Farmer	Worker				

Accident Releases: Long Term (50 year)

	Sr-90	U-235	Pu-239	I-131	Cs-137	Xe-135
1	Farmer	Resident	Resident	Farmer	Farm Worker	Farm Worker
2	Farm Worker	Farm Worker	Farm Worker	Farm Worker	Farmer	Resident
3	Informal Farmer	Farmer	Farmer	Informal Farmer	Informal Farmer	Informal Resident
4	Resident	Worker	Worker	Resident	Resident	Informal Farmer
5	Informal Resident	Informal Resident	Informal Farmer	Informal Resident	Worker	Farmer
6	Worker	Informal Farmer	Informal Resident	Worker	Informal Resident	Worker

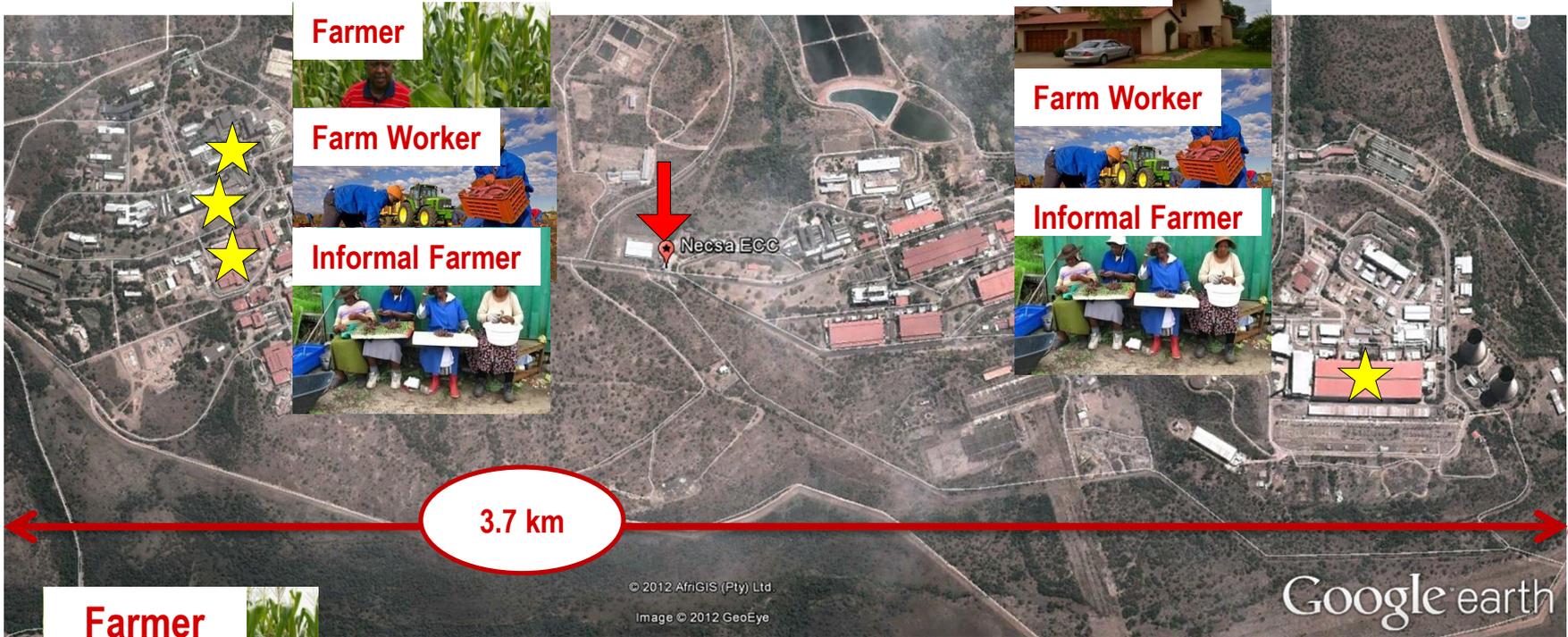
- Distance
- Time outdoors
- Shielding factors



Continues...

Cumulative Impact

Normal Operational Atmospheric Discharges



In terms of the cumulative Normal Operational discharges the Farmer is the representative person.



Cumulative Impact

Accident Releases:
Short Term
(7 day)

SAFARI-1



Isotope Production & Uranium facilities (East & West)



Accident Releases:
Long Term
(50 year)

SAFARI-1



Isotope Production



Uranium facilities (East & West)



Continues...



Conclusions

- A Brownfields site is a logical place for a new facility.
- Pelindaba's size and the diversity of activities are challenges to identifying a single representative person for all activities.
 - Unit Bq tool is valuable for Normal Operational Discharges
 - Individual Assessments are recommended for Accident Cases
- The representative person for Normal Operational Discharges is not necessarily the same as for Accident Cases



Questions?



Thank You!!!

