



# International Conference on Control & Management of Inadvertent Radioactive Material

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REGULATORY CONTROL OF SCRAP  
CONTAMINATED WITH NORM FROM MINING AND  
MINERAL PROCESSING FACILITIES  
A South African Experience

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# Talk Outline

1. History of NORM Regulation in SA
2. SA Nuclear Governance framework
3. Regulatory Challenges
4. Regulatory Approaches to Challenges



# History of NORM Regulation in SA

- ✚ 1940's Uranium production commences.
- ✚ Around 150 000 tones of uranium have been produced from South African gold mines since 1950s, with SA being the fourth largest producer in the world
- ✚ 1950's Investigation concluded that no control is needed for Radiation hazards in Uranium.
- ✚ 1970's proposal by Atomic Energy Corporation to control radiation hazard under Nuclear installation Act. Chamber of Mines challenged the legality.
- ✚ 1980's Regulatory Mechanisms were investigated
- ✚ 1982 Nuclear Energy Act made explicit provision for the regulation for licensing facilities
- ✚ 1988 Council for Nuclear Safety (now NNR) was established
- ✚ 1990 Council for Nuclear safety( Now NNR) started to authorizing the Gold mine industry under the Nuclear Energy Act



# SA Nuclear Governance Framework

The Minister of Minerals and Energy responsible for the governance of Nuclear industry and related matters.

## Legislation

- + Nuclear Energy Act 1999, Act 46 of 1999
  - + South African Nuclear Energy Corporation-Research and development
  - + Nuclear Non-Proliferation Treaty
- + *National Nuclear Regulator Act, Act 47 of 1999.*
- + National Radioactive Waste Management Policy and Strategy 2005. Bill (2008) have being passed for comments. The Act can be passed soon.



# Regulatory Authority

- ✚ **The National Nuclear Regulator Act 1999, Act 47 of 1999 sets up the National Nuclear Regulator (previously the Council for Nuclear Safety)**
- ✚ **Oversees safety regulation of**
  - **NECSA's Pelindaba site,**
  - **Vaalputs Radioactive Waste Disposal Facility,**
  - **Koeberg Nuclear Power Station,**
  - **Proposed PBMR project**
  - **NORM facilities.**



# SA Nuclear Governance Framework (Cont)...

## Department of Health (DoH) Directorate: Radiation Control

- Hazardous Substances Act, 1973 (Act No. 15 OF 1973)

## DoH issues licences for:

- Group III hazardous substances (electronic product generating X-rays, other ionising beams, electrons, neutrons or other particle radiation or non-ionising radiation); and
- Group IV hazardous substances (radioactive material not at nuclear installation, which does not form part of or is used or intended to be used in the nuclear fuel cycle, and which is used or intended to be used for medical, scientific, agricultural, commercial or industrial purposes e.g. fabricated sources, medical isotopes).



## SA Nuclear Governance Framework (Cont...)

- Department of Health (Radiation Control Division)-Radioactive sources
  - 17 000 sources in database
  - 304 orphan sources
  - on average per month an incident reported where source is pick up in Scrap Metal Recycling industry
- Cooperative agreement thru NNRA



# Regulatory Control of Scrap generated from NORM Facilities

## + Overview

In 1993, radioactive scrap was exported from South Africa to the United Kingdom and returned because of the presence of contamination.

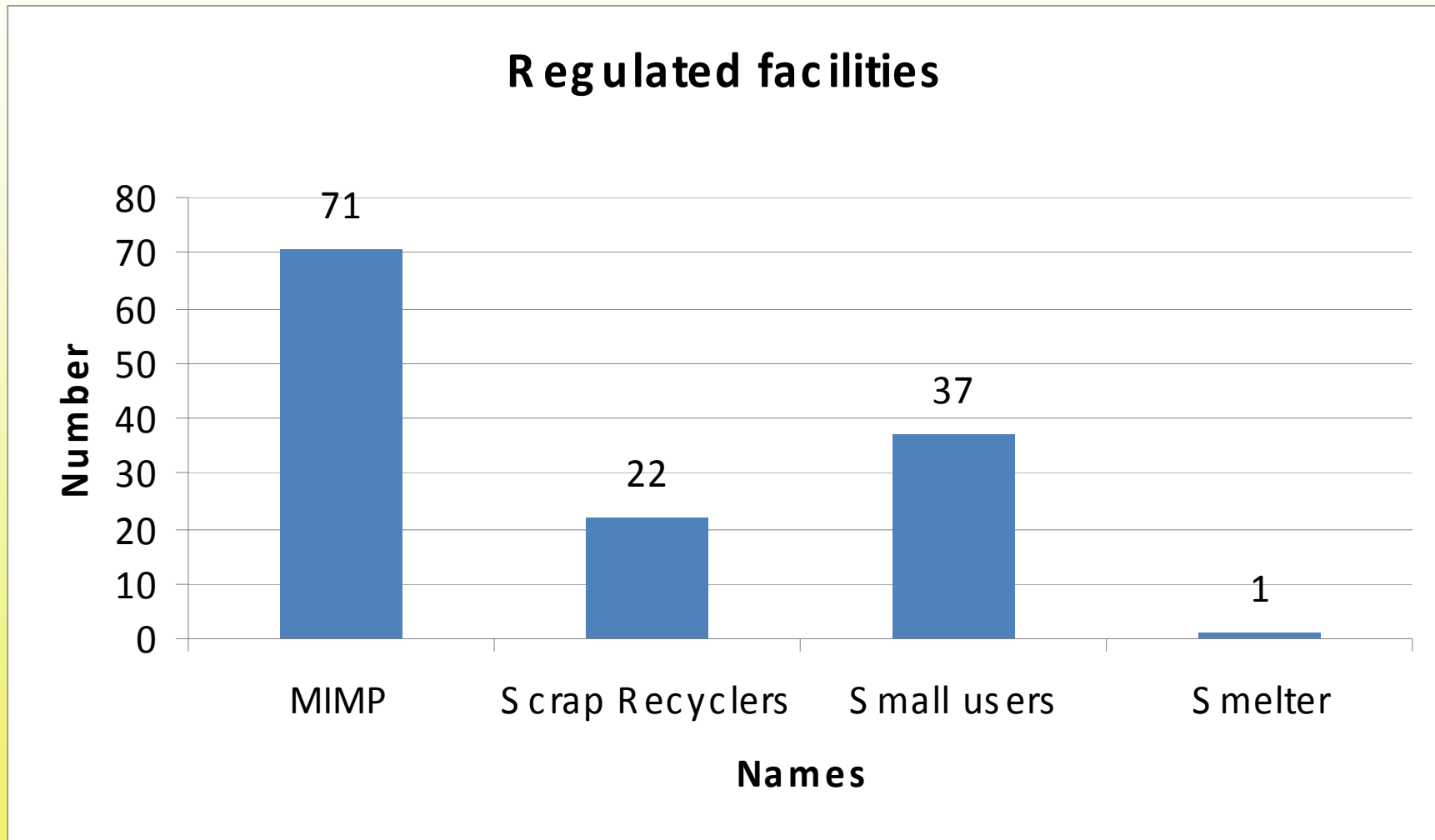
+ 38 sites contaminated with radioactive scale from scrap from gold mines

+ During 1993 only 3 Scrap facilities and 1 smelter obtained licences





# Present Situation





# REGULATORY REQUIREMENTS- SCRAP RECYCLERS-COR

## Scope of authorisation

## Operational radiation protection programme

- Appoint a Radiation Protection Officer and Radiation Protection Monitor
- Instrumentation-(drive through bulk gate, Portable rate meter) Out of 22 holders only 6 site have bulk gate detectors.

## Radioactive waste programme

## Transportation-IAEA requirements

## Physical security

## Occurrences

## Quality management



# Compliance Inspections

- **Regulatory Staff**-12 Regulatory officers
- **Routine inspections**
  - Planned-twice annually
- **Investigations**
  - Unknown load of scrap at non regulated facilities



# Regulatory Challenges

## Illegal mining

- Mines were formally not regulated
- During that time some mines used scrap and tailings residue to backfill sinkholes
- Most of these sinkholes are in areas that are outside the scope of regulation
- Illegal mining is currently taking place in these area for *Scrap* and gold.



# Regulatory Challenges

## CROSS-BORDER MOVEMENT





# Regulatory Approaches to Challenges

- Annual holders meeting (project review)-Scrap recyclers and smelting plants.
- Illegal Mining: Control is being strengthen at source and public education is also used as an additional tool.
- IAEA/UN/-project on to Regulatory Network of African regulatory Bodies. National Nuclear Regulator to host the first meeting in March 2009.



THANKS FOR LISTENING

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