IRPA 12 INTERNATIONAL CONGRESS
19–24 October 2008 - Buenos Aires - Argentina

Seminar 3: Radiation Protection in the nuclear industry (Focusing on few key issues)

Eduardo Dìaz

- Case studies
- Discussions
- Conclusions/Recommendations

EVENTS WITH RADIOLOGICAL SIGNIFICANCE IN THE NUCLEAR INDUSTRY

- Case studies and recommendations. Operational experience. Feedback into design and procedures.

- Try to present “case study” events with radiological significance in the nuclear industry, such as:
- Skin/tissue injuries with simultaneous radioactive contamination. How to deal with hemorrhage and decontamination.

  Try to provide recommendations and procedures to eliminate or minimize radiological impact.

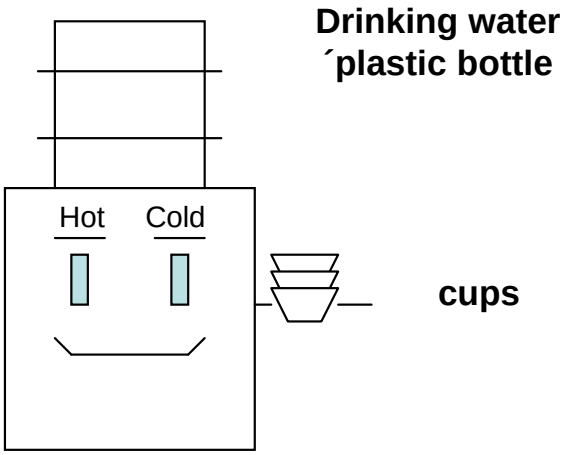
EVENTS WITH RADIOLOGICAL SIGNIFICANCE IN THE NUCLEAR INDUSTRY

- Avoid skin/tissue injuries with simultaneous radioactive contamination.
- If it happens, define beforehand how to stop hemorrhage or when to stop decontamination.
- Do not forget injured individual follow up after the event.

EVENTS WITH RADIOLOGICAL SIGNIFICANCE IN THE NUCLEAR INDUSTRY

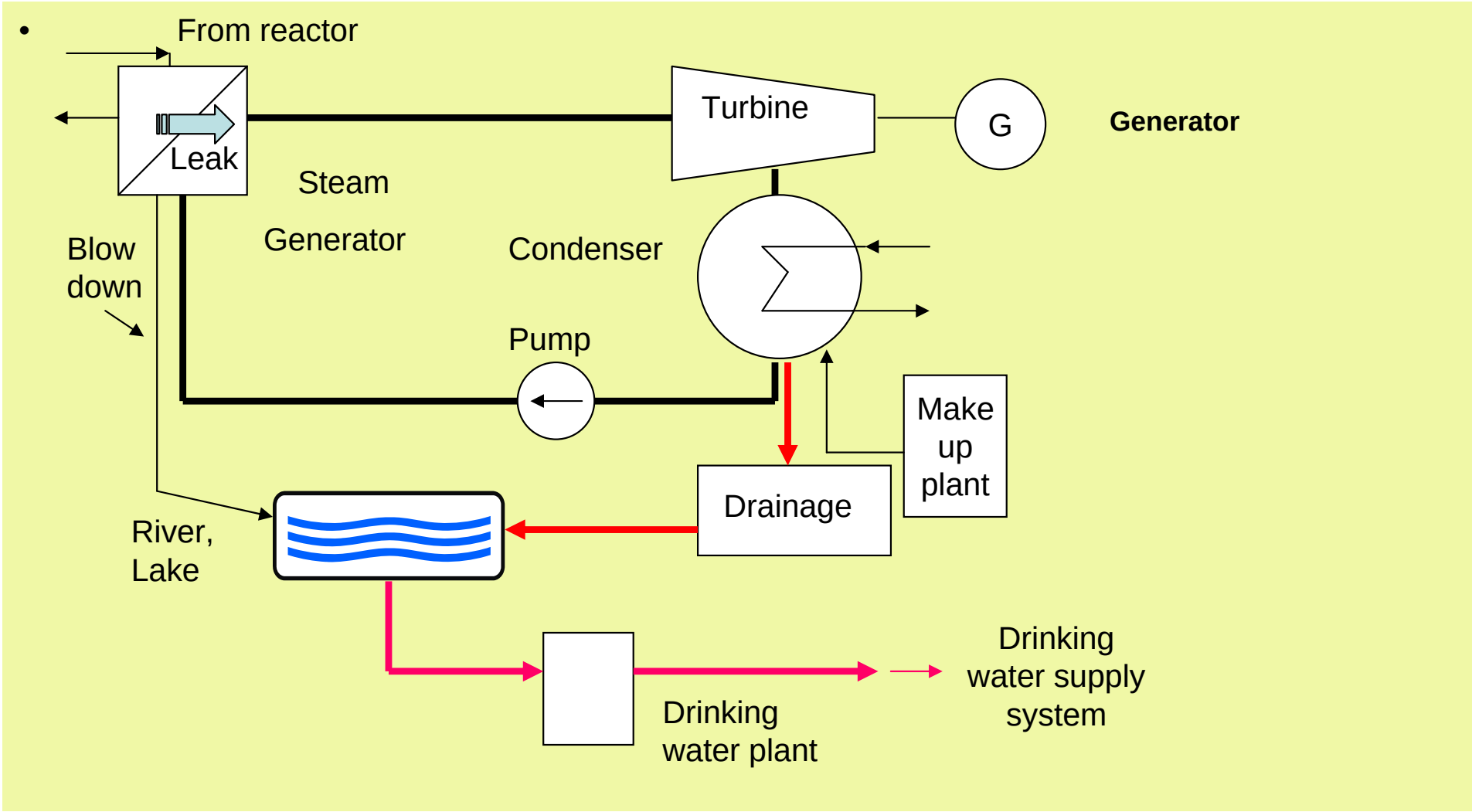
- Radioactive contamination of drinking water at the plant (intentionally or non-intentionally). How to cope with the problem. How to avoid it or to be acquainted immediately.
- Intentionally: Contamination of drinking water dispensers
- Non - intentionally: Contaminated condenser hold up water drainage.

DRINKING WATER CONTAMINATION



Typical water dispenser

DRINKING WATER CONTAMINATION



AVOIDING CROSS CONTAMINATION AT THE PLANT

- It is important to define clear routes inside radiological controlled areas, specially, access and exit procedures, including well defined monitoring and applicable clothing.
- Locker rooms, shower rooms and decontamination facilities of personnel, must be also defined.
- Procedures and supporting material should be identified and make it available to establish barriers and “hotter” areas, when necessary.
- Establish permanent and temporary signals to be posted in different areas alerting radiation risk.

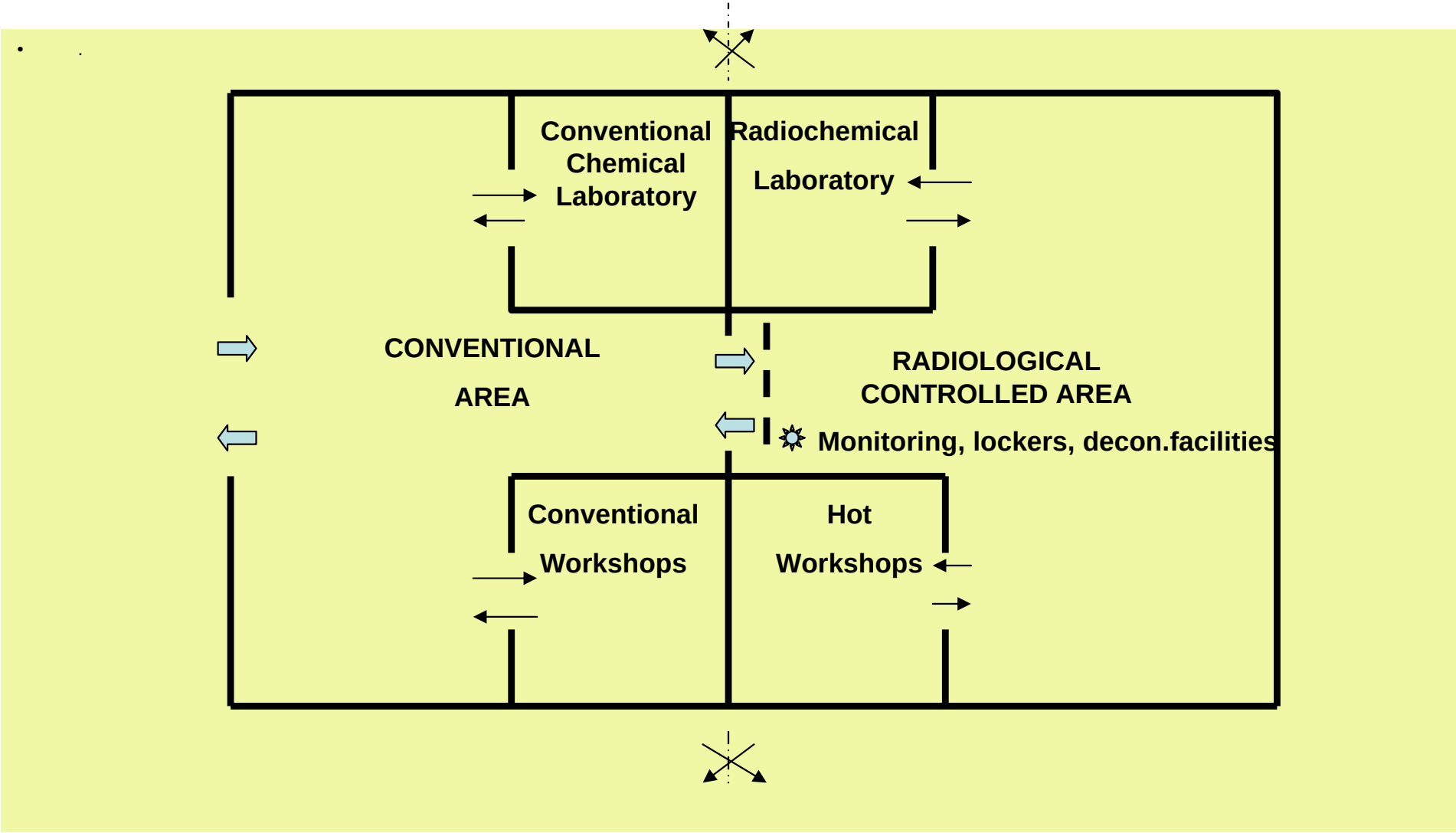
CLEAR DEFINED RADIOLOGICAL CONTROLLED AREA VS. GRADED RADIOLOGICAL CONTROLLED AREAS

- Both systems are used in the nuclear industry.
- A “clear defined radiological controlled area” is probably more expensive, but defines clearly conventional and radiological areas with their applicable procedures and precautions.
- Many maintenance and repair works do not need deep decontamination when they are performed inside the “clear defined radiological controlled area”. Some examples will be presented.
- Obviously, “hot workshops and laboratories” will be additionally required. “Hot tooling and devices” must be properly identified.

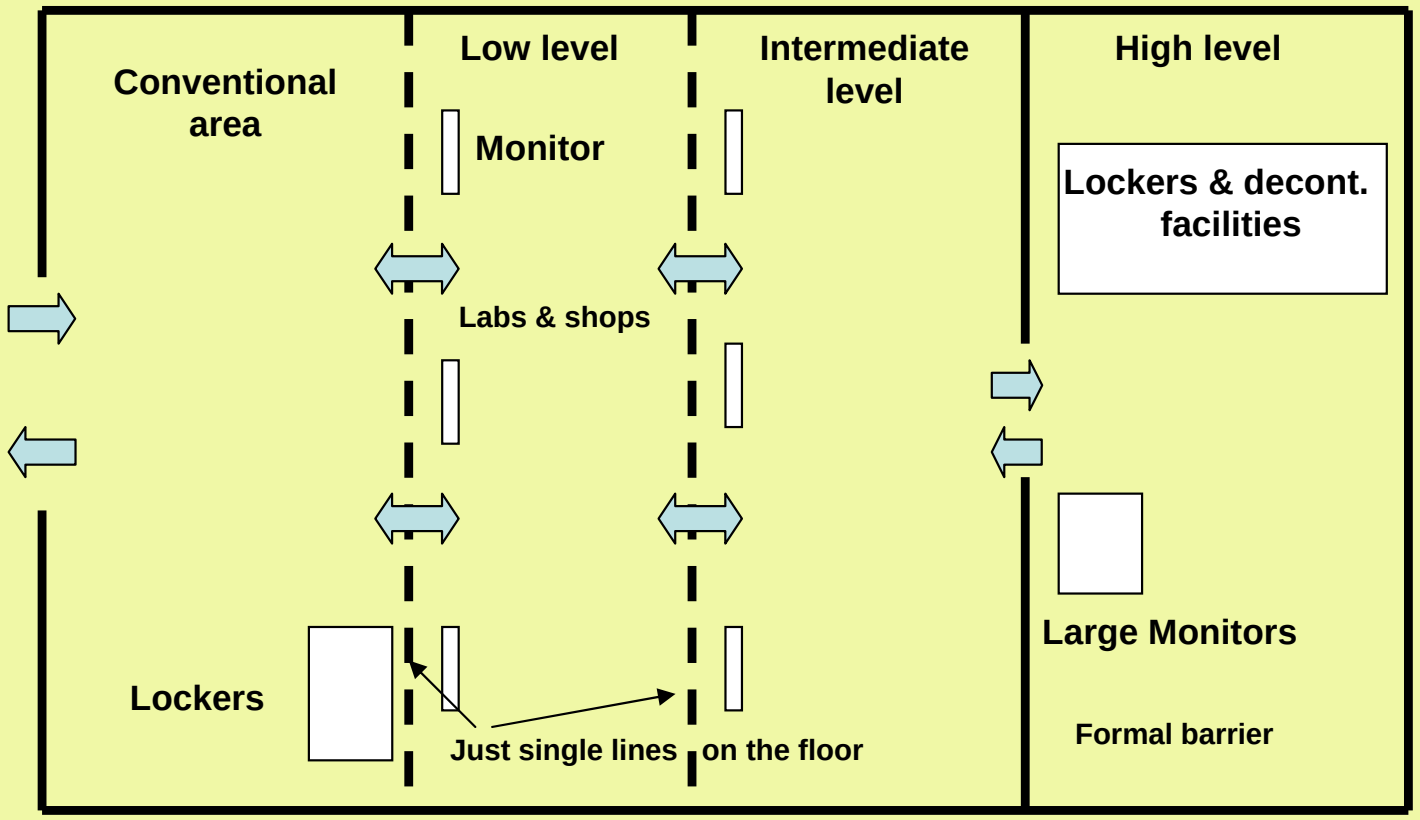
CLEAR DEFINED RADIOLOGICAL CONTROLLED AREA VS. GRADED RADIOLOGICAL CONTROLLED AREAS

- For “graded radiological controlled areas”, there are three areas defined as: low, intermediate and high risk of contamination/radiation. Access to each area may require adequate clothing and monitoring procedures. Clothing change depends on the radiological situation of the next area. A “high maturity” level of personnel is necessary .
- An exhaustive control of common workshops and laboratories is necessary.
- A very good radiological control of intermediate and high risk areas is necessary. Low and conventional areas must be permanently controlled, avoiding degradation.

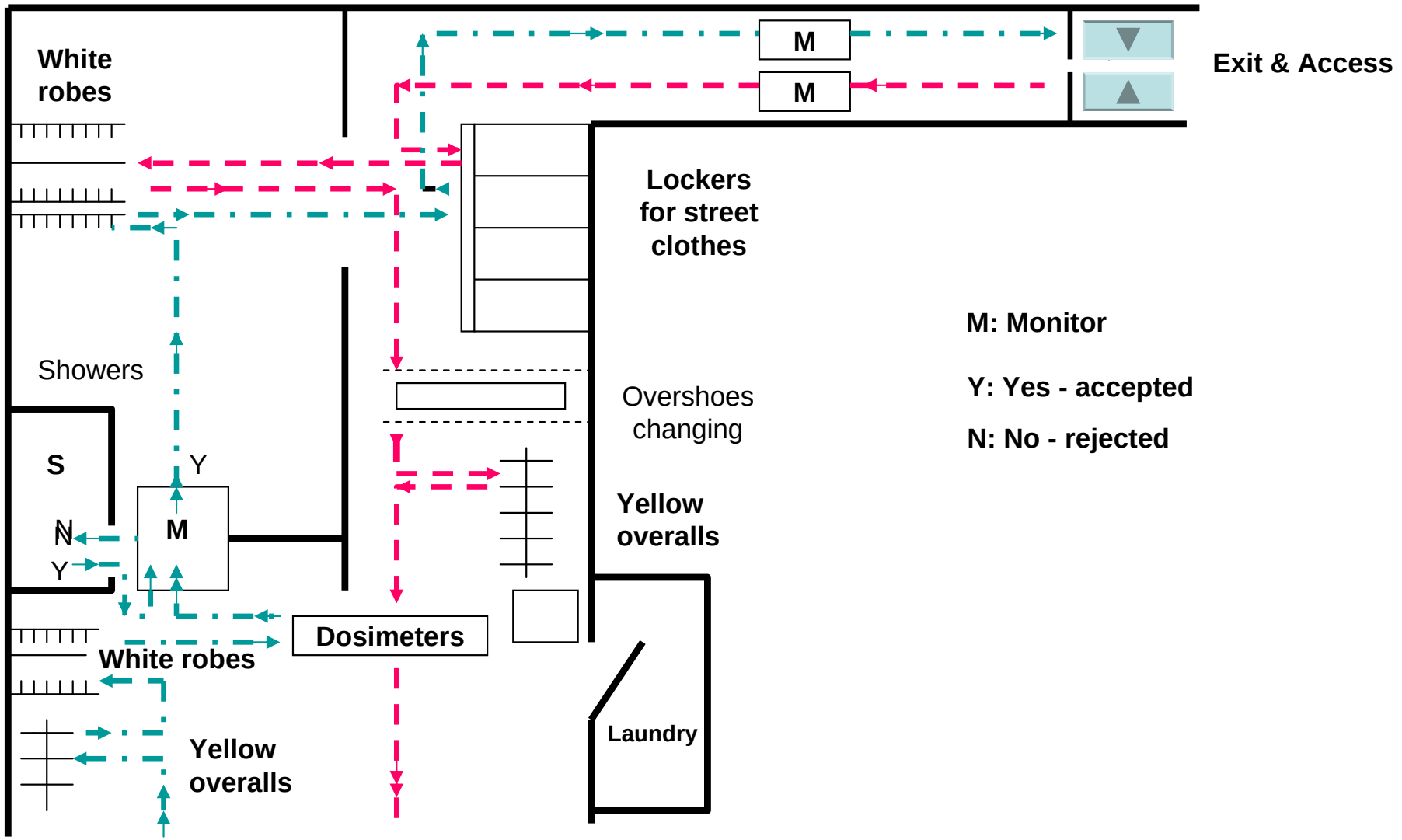
CLEAR DEFINED RADIOLOGICAL CONTROLLED AREA - BASICS



GRADED RADIOLOGICAL CONTROLLED AREAS- BASICS



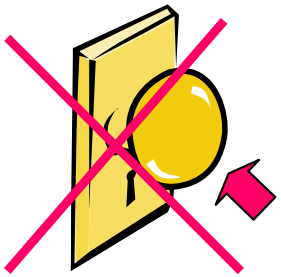
TYPICAL ACCESS TO A RADIOLOGICAL CONTROLLED AREA



AVOID CROSS CONTAMINATION

- Some examples

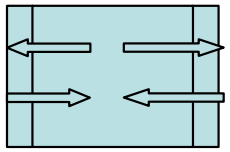
No



No

No

Yes



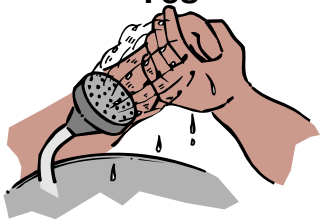
Glass Sliding doors

Sliding doors Proximity detectors

No

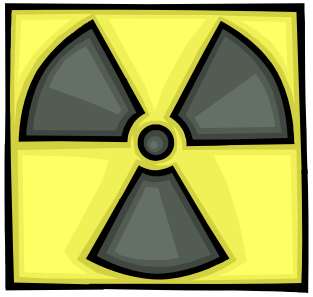
Yes

Yes



Operated by photocells, pedals, etc

TYPICAL POSTERS AT THE ACCESS TO CONTROLLED AREA



No eating!

Do not shake hands!

OTHER SUBJECTS?

Many other subjects may be considered during the Seminar, such as:

- National recording system of Radiation Workers
- Indoctrination of outsourcing man-power (Safety and Radiation Protection)
- Radioprotection Supervisors round the clock or "Everyone is a Qualified Radioprotection Supervisor"
- How to avoid legal problems using adequate procedures and monitoring equipment in key access and exit points of the plant.