

# Release of the building and site after the decommissioning of an abandoned fertilizer industry



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## About the old fertilizer industry

- In the area of the port of Piraeus, near Athens, a phosphate fertilizer industry was in operation from 1960 until the beginning of 1999
- This area has a high commercial value and a plan for construction of commercial buildings and other facilities for public use
- A scrap dealer had transported some material from the old factory to a melting facility but the portal radiation monitors at the entrance of the steel factory had been activated





## Permission for demolition of the building after the removal of the equipment

- Scanning to locate areas of high dose rate
- Decontamination of the contaminated surfaces by the use of blasting technique
- 100 % survey of the internal surfaces of the building with a total alpha-beta contamination monitor
- Clearance criterion: total alpha-beta counting rate had to be in the area of rates for building materials in Greece.

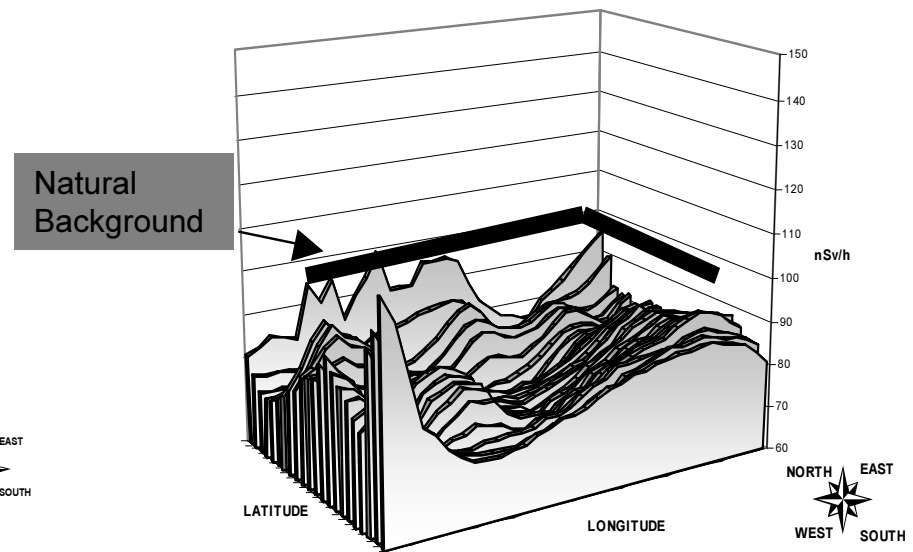
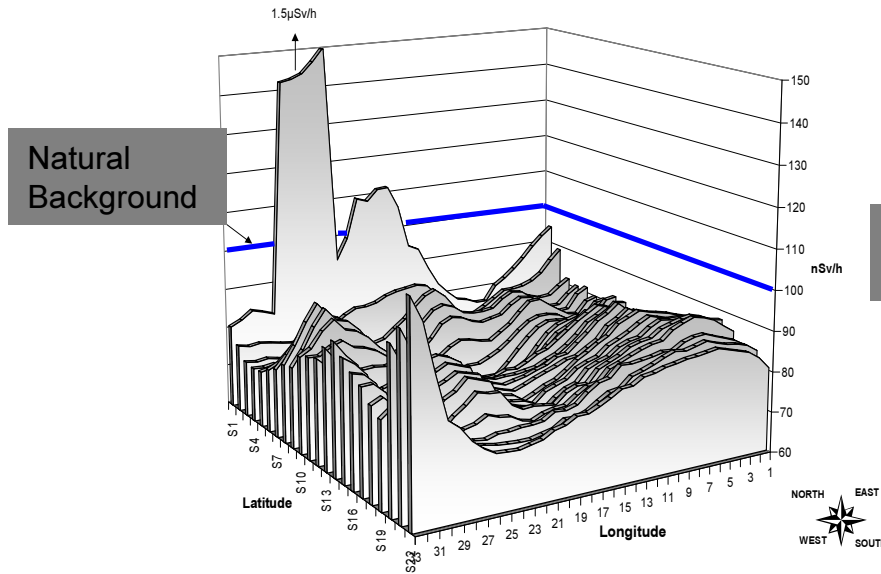


## Survey of the site after demolition and reshaping the decommissioned sites

- The area was about 2000 m<sup>2</sup> (possibly contaminated area)
- The survey was extended to neighboring regions and covered a total surface of 3000 m<sup>2</sup> (suspected area)
- The area was divided in 32X22=704 sectors of ~4 m<sup>2</sup> each
- The dose rate survey of each sector was performed using a 3X3 NaI detector
- The measured radiation dose rates were compared to the level of the natural background of nearby areas
- Some hot spots were detected
- At those spots, slag or contaminated buried pipes were found and removed



## *The criterion to release the area was the natural background*



*Results from the final dose rate survey of the area before and after the removal of slag and the contaminated items*



## Final survey of the area

- 100 drills of 10 m depth were done randomly in the area of 3000 m<sup>2</sup>
- Dose rate scanning of the drills with a small NaI detector (1 min measurement at 10 depths)
- Some areas (about 10) with phosphogypsum were found and cleared
- Also some contaminated items were found (considered as non important findings)
- 50 drills of 10 m depth were done randomly in the same area
- Dose rate scanning of the drills
- One unimportant finding



## For further information:

- C. Potiriadis et al., Proceedings of the International Conference on Lessons Learned from the Decommissioning of Nuclear Facilities and the Safe Termination of Nuclear Activities, Athens 11-15 December 2006.
- V. Stamatis et al., “Decommissioning a phosphoric acid production plant: a radiological protection case study”, Journal of Environmental Radioactivity (Article in press).





Thank you for your attention