



The sarcophagus at the end of the Anthropocene

Description

The recent ransomware attack hit some of the monitoring systems at the defunct Chernobyl nuclear power plant. (See [Guardian article](#).) The malware locks the data on your computer and you have to pay \$300 in bitcoin to a specified account in order to receive the code that unlocks your computer.

As it happens, the malware message that appears on computer screens neglects to tell you where to send confirmation that you have paid the money. So it's not possible to retrieve the encryption key to restore your computer's data.

The malware could be rogue software, or something put together by inexperienced amateurs, or adapted from other malware, or perhaps the malware masqueraded as ransomware, but was actually doing something different: it stole data, brought down systems, or just sowed confusion, uncertainty and made us all nervous.

The computer downtime at Chernobyl meant that workers had to take routine radiation readings by walking around the exclusion zone and the site of the reactor, a task neither dangerous nor onerous on this occasion.

Precarity

Rogue software offers a stark reminder of just how precarious is the human-environment relationship, especially when it jeopardises radiation monitoring systems around a failed nuclear reactor.



Reactor 4 exploded in 1986, and spread radiation into the atmosphere, killing around 59 workers and residents and displacing 120,000 residents (according to the most consistent sources I can find), rendering an area of Ukraine virtually uninhabitable. That's the exclusion zone, with a radius of approximately 30 kilometres.

The radiation from the reactor was eventually contained by a concrete and steel structure completed soon after the disaster. The structure was colloquially known as the *sarcophagus*.

Just last year, a massive new arched structure was slid into place to provide a further barrier to contain the radiation and reduce risk. That would enable workers eventually to dismantle sarcophagus #1. The whole project has cost ~2.15 billion and was an impressive international effort. The structure is known officially as the New Safe Confinement (NSC or New Shelter).

From a distance, sarcophagus #2 looks like a giant marble tomb, still to be sealed around the edges. In fact it is a double skinned structure clad in stainless steel with an arched frame and a void in the space of the arch. The air pressure in the arch is kept higher than that of the space beneath to further contain any air born dust that might escape from the old reactor within.



Hot mess

The horror still within the centre of the old reactor is 200 tones of cooled radioactive lava formed when the reactor exploded, melting steel, concrete, sand and fissionable material. The toxic compound (mixture) has been named *corium*, and is a solidified radioactive mass. It is now just warmer than air temperature, and has a radioactive half life of over 30 years. (Thereâ??s plutonium and similar products distributed around the exclusion zone which are less lethal but have a half life of 24,000 years.) Thereâ??s a helpful cross section of the current structure [here](#).

The outer sarcophagus has been built to last 100 years. The whole ensemble needs to be monitored, maintained, and requires constant power.

Dark tourism

The exclusion zone is now a popular dayâ??s outing from Kiev, via specialist coach tours. The protocol for passing through the 30k and 10k exclusion zones adds to the areaâ??s fascination. I reported on a visit in the [previous post](#). You canâ??t enter the sarcophagus of course, but there are YouTube clips of the interior taken by engineers and journalists.

Notes

- See <https://www.youtube.com/watch?v=dH1bv9fAxiY>
- Also see https://www.youtube.com/watch?v=_4siRRMN4Nk

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Category

1. Nature

Tags

1. Nuclear power
2. ruins

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