

## Energy

# Former US energy boss quits over fracking report

The former head of the US Department of Energy's Office of Science, Raymond Orbach, has resigned from his position as director of the Energy Institute of the University of Texas at Austin. The move follows the conclusions of a review into a recent institute report on hydraulic fracturing of shale gas – known as fracking – that was led by a faculty member with a potential, but unstated, conflict of interest. The panel's report, released early last month, found that the “design, management, review and release of the study...fell short of contemporary standards for scientific work”.

The original report, funded by the university and released in February, saw little or no evidence of any direct connection between the chemicals injected into underground shale formations during the fracking process and the contamination of ground water. However, it was later realized that Charles Groat, the Energy Institute's associate director who



### Stepping down

Raymond Orbach, director of the University of Texas Energy Institute, has resigned following a review of a controversial report into fracking by the institute.

co-ordinated the report, had failed to disclose that he was a board member of fracking firm Plains Exploration and Production (see September 2012 p11).

The University of Texas then set up a review, which was carried out by Norman Augustine, the retired chairman and chief executive of Lockheed Martin, Rita Colwell, former director of the National Science Foundation, and James Duderstadt, president emeritus of the University of Michigan. The panel made six recommendations including the need for the university and its Energy Institute to “maintain and enforce rigorous policies governing conflict of interest” issues. Although the panel did not pass any judgment on the report's scientific findings, the university has now withdrawn the original report. Groat also submitted his resignation from the university faculty on 21 November, which “was accepted by the university shortly afterwards, at a

time when stakeholders had begun to hear what the panel findings might include”.

Orbach, who has a PhD in physics from the university of California and served as energy secretary in the George W Bush administration, resigned from the Energy Institute after he met with university provost and vice-president Steven Leslie on 30 November 2012 – the day after the university received the review panel's final report. The University of Texas makes it clear that Orbach “had no direct role in overseeing” the report and according to Energy Institute spokesperson Gary Rasp, Orbach “is not making any public statements on this issue”. However, Orbach has not cut his ties entirely with the university, retaining tenured positions in the physics department and the schools of engineering and geosciences, according to university spokesman Gary Susswein.

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## History of physics

# Tests rule out mercury poisoning in astronomer death

Scientists from Denmark and the Czech Republic have revealed that, contrary to 400 years of rumour and hearsay, the Danish astronomer Tycho Brahe did not die from mercury poisoning. But in a twist to a tale that refuses to come to an end, a conclusive answer to how one of the fathers of modern astronomy passed away may prove elusive.

Brahe, one of Europe's most enigmatic astronomers renowned for his precise astronomical and planetary observations, died suddenly in 1601 after attending a banquet in Prague. While the official cause of death was kidney stones, speculation abounded that Brahe had in fact been poisoned, possibly by his student Johannes Kepler. Following the exhumation of his body in 1901, the discovery of a significant amount of mercury in the hairs of Brahe's beard seemed to confirm this theory.

In an attempt to resolve the issue once and for all, a team led by Jens Vellew from Aarhus University exhumed Brahe's remains for the



Jacob C Raun/Aarhus University

second time in 2010 and took samples from his beard, bones and teeth. “We measured the concentration of mercury using three different quantitative chemical methods in our labs in Odense and Rež,” says chemist Kaare Lund Rasmussen from the University of Southern Denmark. “All tests revealed the same result: mercury concentrations were not sufficiently

### Under the microscope

Two years of tests have revealed that mercury levels in the teeth and hair of the body of Tycho Brahe were not sufficiently high to have caused his death.

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The project has also shed light on another aspect of the myth surrounding Brahe. Having lost part of his nose in a duel in 1566, the astronomer wore a prosthetic nose that was supposedly made of silver and gold. However, when Brahe's grave was opened for the first time in 1901, his prosthesis was not found, but there were greenish stains around the nasal region. Analysis by Vellew's team shows that this colouration contained traces of equal parts copper and zinc, indicating that the prosthesis was, in fact, made of brass.

The team hopes to use its findings to understand more about the astronomer's lifestyle and general health, as well as the textiles in use during his lifetime and how he was buried. However, it is still unclear exactly how Brahe died. “I don't think we'll solve this,” Vellew told *Physics World*. “But perhaps whoever opens Brahe's tomb in another 100 years will be able to say more.”

**Simon Perks**