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Potential Construction of Home Made Nuclear Reactor

Michael LaFranzo
Senior Decommissioning Inspector
US Nuclear Regulatory Commission
Region III (Chicago Office)

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Purpose

- This session is to provide:
  - A different perspective on different persons having different opinions;
  - Use of regulatory skills to resolve an issue; and
  - Not to get yourself hurt.

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Background

- In early September 2002, the NRC received a call of the Michigan Department of Health.

- Reason: A member of the public, a member of the general public located in Baldwin, Michigan, was building a nuclear reactor on his property, was armed and had threatened to harm State of Federal Officials that attempted to gain access to his experiment.

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Law Enforcement Assistance

- The NRC decided to visit the site with the assistance of the Michigan State Police, Federal Bureau of Investigations and Michigan Department of Health Representatives…

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Location

Residence of Member of the Public

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User Group Interaction

- At this point, I am interested in what people think about the current situation?
- E.g.: Dangerous, amusing, etc…
- Remember: You have not met this person yet.

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After meeting member of the public

- Personable
- Reasonably well dressed
- Interior of building clean
- Possessed a radiological survey instrument
- Clearly had retained knowledge of his chemistry and geophysical schooling
- Had a Doctorate in Geo-Science from the University of Michigan.

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Member of the Public

- How did he get interested in nuclear…
  - He was attempting to use uranium and other natural nuclides a markers for dating Paleo-Indian artifacts and other materials and events – Great Lakes Region.

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Member of the Public

- How did he get into reactor production…
  - Over time, he felt that world powers were holding back society and cheap energy would be the solution for many of the world's woes.
  - His work in natural uranium lead him to believe that a small nuclear reactor, powered by natural uranium, would be the answer.

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Possession

- 5 pounds of Depleted Uranium
- Fine carbon powder
- About 30 pounds of rock from the west containing uranium and thorium (highest reading on contact was 5 mR/hr)
- Concentrated uranium chemically processed from natural rock
- Assorted exempt quantity material
- Uncalibrated radiation survey instrument – all text was in a foreign language (for which he did not speak)

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Results

- His mixture of nuclear fuel in the 30 gallon drum produced an increase of 10 to 15 degrees (F) compared to the outside of the drum.

- Therefore, the mixture must surely be causing fission which is the reason for the increase in heat.

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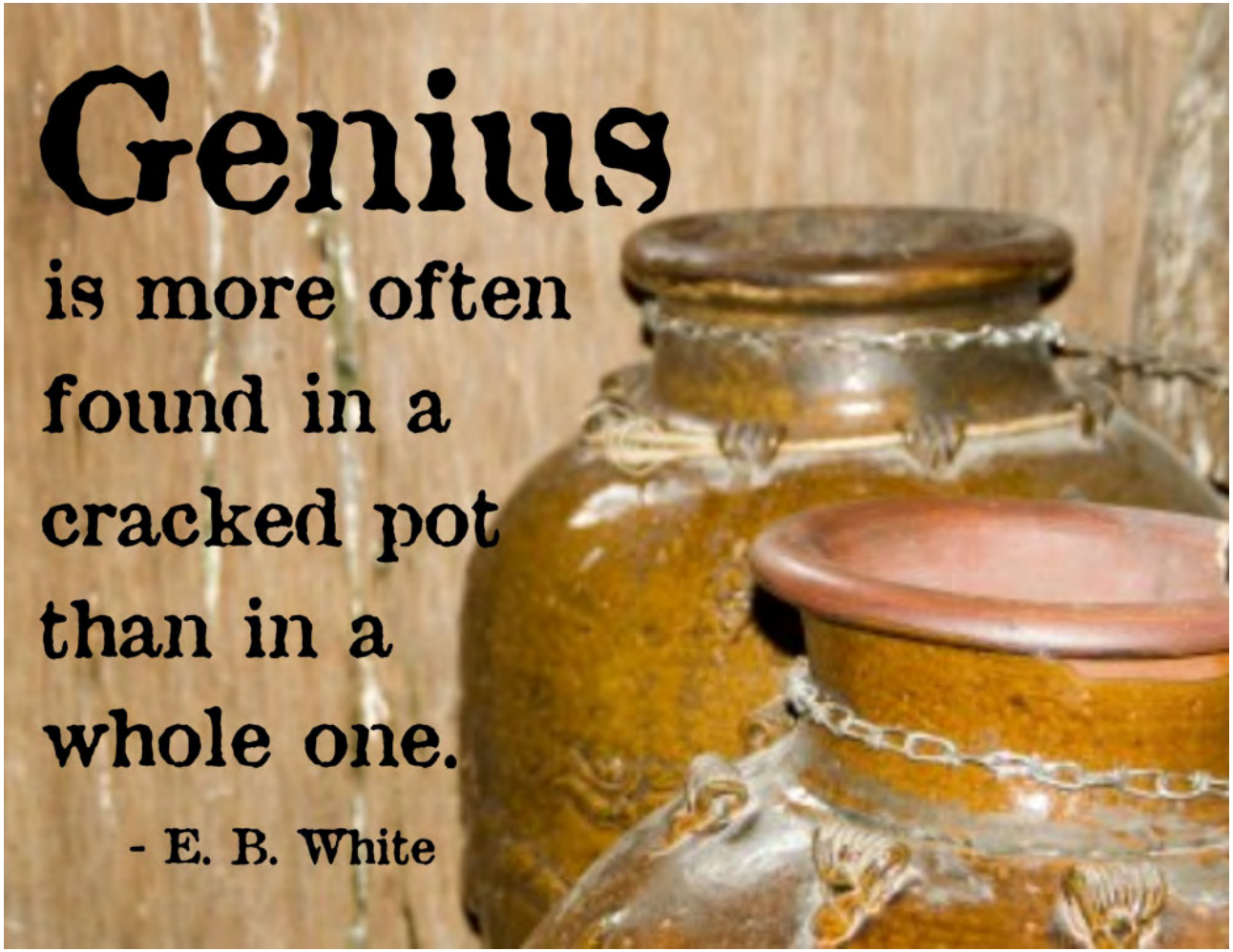
Inventors Moto



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As a Regulator that Protects the Public Health and Safety

- What is he doing with the radioactive material?
- How much material does he possess?
- Are his actions endangering the public?

United States Regulatory Conclusion

- Based upon the information available, member of the public was eligible to be considered a general licensee pursuant to 10 CFR 40.22

- Conditions:
  - Could not dispose of material randomly;
  - All work had to be considered research;
  - Could not exceed possession limits.

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Conclusion of the process

- Experiment did not work as intended
- Member of the Public was in contact with the NRC almost daily for 4 years thereafter and weekly numerous years after that.
- In about 2013, the member of the public ceased contacting the U.S. Regulatory Commission

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Internal Analysis

- Pay attention to your surroundings during these types of visits; (don't get shot)
- Don't assume the person you are talking to is an idiot because you don't understand/agree with their position;
- Try to focus on the regulatory/safety aspect instead of an emotional reaction
- Even if you are 99% sure the person you are talking to is incorrect, treat them with respect.

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Questions