

Nuclear Disarmament Verification

Aldridge, Barritt, Christodoulou, Lu,
Moors, Rajroop, Theodorou, Xiao,
Department of Physics and Astronomy,
University College London,
London WC1E 6BT,
United Kingdom

2012 March 06th

Executive summary

The Context

Why do we Verify? We verify to assure confidence. We have a declaration, our verification methods, and our confidence. If we are too intrusive with our verification methods there is the threat of the spread of proliferation information which could in turn lead to a breakdown of the declaration agreements alongside an increased risk of mass devastation. If the verification methods employed are too feeble, the uncertainty in the confidence will be high and inspectors may fail to detect anomalous behaviour in the hosts disarmament activities. This balance is known as the information barrier and it is spawn from the consideration of ratified treaties, the capabilities of the equipment and the feasibility of the procedure. The treaties outline what information should and shouldnt be shared with the inspectors; the equipment and procedure are the technological or economic constraints. *A chart of time, treaty and declaration information or disarmament rates, there should be an inflection at 2002 * Summers treaty review Nicks information barrier in the context of treaty Lukes weapon introduction Jacks confidence in verification

The Process

What do we verify? Lukes weapon introduction Nicks brief overview Ralphs dismantling process Valentinos chain of custody / Containment and surveillance of dismantlement Lukes Blending down

The Methods

How do we verify? Jenelles Passive detection; Gamma signature, Neutron signature Kaijians detection methods; Induced Gamma and Neutron signature Nicks Pit stuffing Lukes blending down

The Technology

What do we use to verify and how does it work? Valentinos Containment and surveillance / Ralphs review of tags and seals tech Kaijians detection methods Jenelles Passive detection Valentinos Muon Tomography

The Conclusion

(What are the Strengths weaknesses opportunities and threats?)

Final Summary

Contents

1	Introduction	2
1.1	Sample Section	2
2	Political Background	2
2.1	Treaties	2

1 Introduction

1.1 Sample Section

Here is a sample statement, of which I shall include the most well known equation of all. Indeed, the irony is that this equation is intimately related to our group project.

$$E = \gamma m_0 c^2$$

2 Political Background

2.1 Treaties