**Hedonistic Sustainability: Excrement Explosives**

Turn participants’ human waste into explosives! Fun for the whole community!

**The Concept**

* Produce locally-made nitrogen-based pyrotechnics for Burning Man from the human waste produced by the event’s participants.
* Address a known waste issue from composting toilets (excess urine that needs to be pumped out regularly), reduce the carbon footprint of Fly Ranch / Burning Man, and provide an on-site resource for fireworks/explosives, fertilizers/soil amendments, and methane gas for cooking/burning.

**How?**

* Urine collected from composting toilets and/or urine separating toilets will be processed into methane gas for cooking/burning and potassium nitrate, the primary component (75%) of black powder, the lifting agent in fireworks and explosives.
* In composting toilets, such as EcoZoic, urine regularly needs to be pumped out and disposed of - this project would present a productive alternative to dumping that nutrient-rich resource.
* This process will take place in a biodigester, which could create potassium nitrate for use in fireworks/explosives and methane gas for cooking/burning, in addition to nutrient fertilizer.
* Excess potassium nitrate could also be used on-site as a crop fertilizer or soil amendment.

**Also… Fun Facts!**

* Urine putrefaction and conversion into explosives has a long and rich history, especially during times of conservation and limited resources.
* The production vessel will be artistically designed and have exposed and/or transparent sections to allow Fly Ranch visitors to see the action up close!

**The Details**

1. **Technology used in our design:**
	1. Self-contained biodigester used to convert on-site inputs (urine from composting toilets, green waste from crops or other homogenous sources, wood ash) into potassium nitrate for use in fireworks & explosives or as a fertilizer & soil amendment and methane for cooking & burning
	2. Specific biodigester technology to be determined/developed by our team of civil and environmental engineers based on the site-specific conditions of available on-site inputs
2. **List of activities our design would support:**
	1. Fireworks and explosives
	2. Crop fertilization
	3. Fuel for cooking and burning
3. **List of system inputs:**
	1. Urine from composting toilets
	2. Green waste from crops or other homogenous sources
	3. Wood ash from wood burning activities
4. **List of system outputs:**
	1. Potassium nitrate for use in fireworks and explosives or as a fertilizer and soil amendment
	2. Methane gas for use as a fuel in cooking, heating, and/or artistic expression
5. **List of the primary materials used in our design and major dimensions:**
	1. Steel and other metals, plastic and other polymers, PVC, and plexiglas or similar for viewports
	2. Approximately 10’ x 10’ x 15’ tall
6. **Order-of-magnitude conceptual cost estimate:**
	1. Prototype: $25,000
	2. Scaled-production: $250,000
7. **A short summary of our strategy for on-site prototype development:**
	1. Prototype the biodigestor to determine/develop the specific biodigester technology needed to convert urine waste from a handful of composting toilets available on-site to create enough cooking gas (methane) and fireworks/explosives (potassium nitrate) to power a small Burn event
8. **Environmental impact summary:**
	1. Physical impacts to the location where the biodigestor is placed; preferably close to the composting toilets
	2. If a component of the biodigestor were to be damaged, care would need to be taken to contain the urine and/or methane - a containment system would be developed to complement the biodigestor