Another Space Shuttle Limiting Reactant Problem!

The attitude control rockets on the space shuttle use the hypergolic rocket fuel monomethyl hydrazine (CN2H6 or CH3NHNH2) with dinitrogen tetroxide (an oxidizer). Hypergolic fuels spontaneously ignite upon contact. In this case the reaction products are nitrogen, carbon dioxide, and water.

1. **Write a balanced chemical equation for the reaction.**
2. **Given 1.00 kg each reactant, which is the limiting reactant? And what is the mass expected (theoretical yield) for each product in the best of circumstances?**