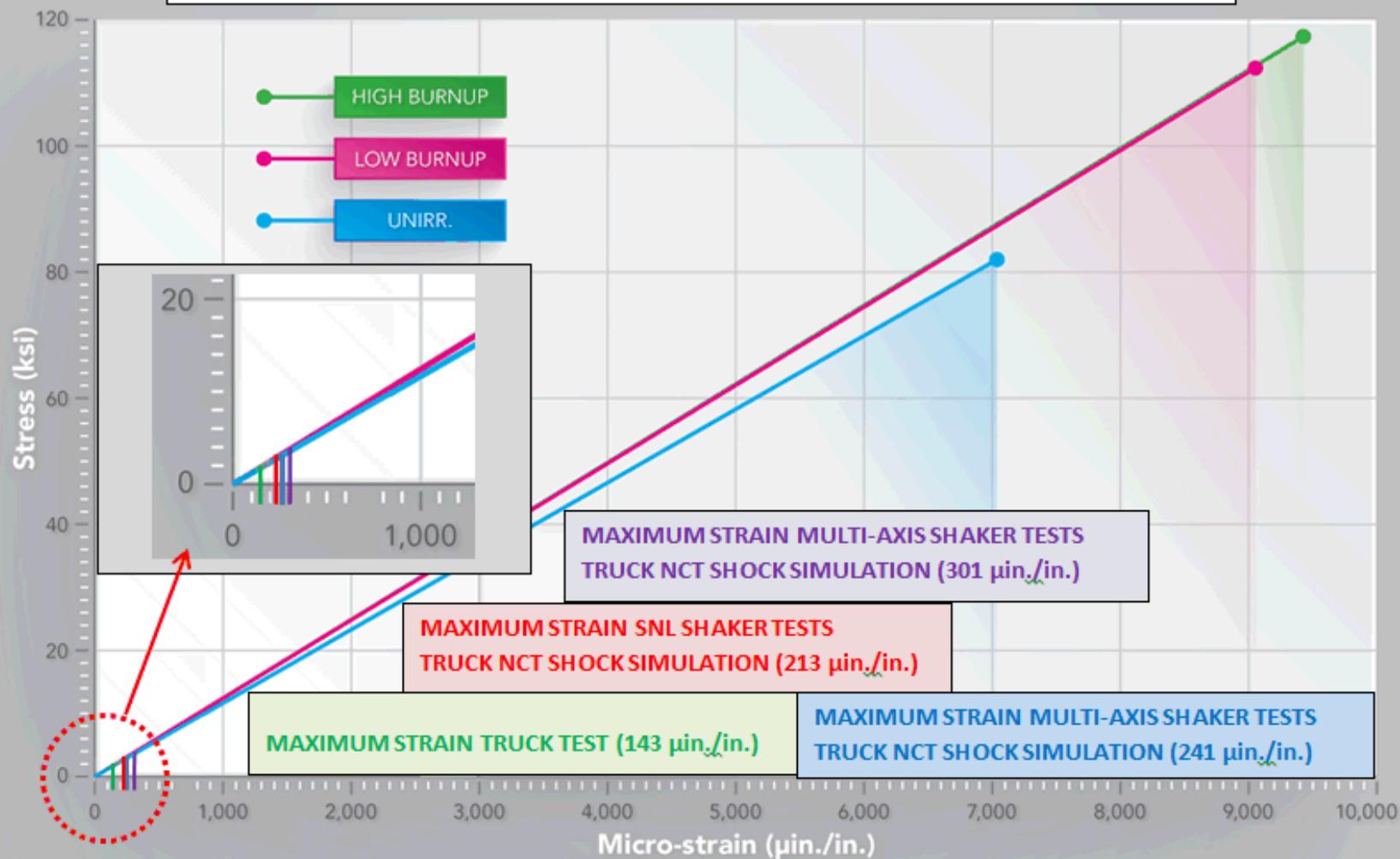


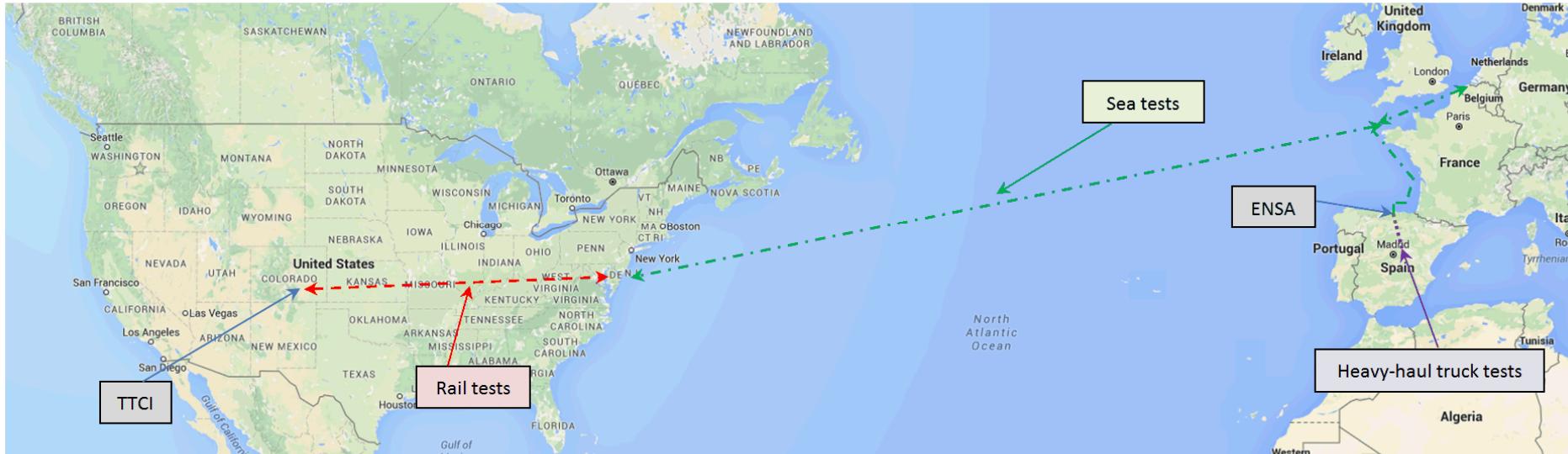
1. Provide shock and vibration data for:
  - all modes of transportation and transfer operations
  - development of a unique database that will be used for years
  - input into the cumulative effects tests that will be run by ORNL
2. We have a great opportunity to partner and cost share with ENSA to get this data quickly and close this gap in a few years.

Plot of elastic region of Zircaloy-4 stress-strain curve per PNNL data base





# Proposed routing of the cask



1. Heavy-haul truck from within Spain.
2. Coastal sea shipment from Santander to a large northern European port.
3. Ocean transport from Europe to an eastern U.S. port (e.g., Baltimore).
4. Commercial rail shipment from East Coast to Pueblo.
5. Return trip to ENSA will be the same.

**Data will be collected throughout all legs of the transport of the cask & assembly**