1. Purpose of Development

- Development of vitrification technology with a higher performance
- Improvement of the challenge areas of the current glass melter (Flowability of the platinum group of element, etc.)

- Development of the new glass melter
  - Development of the structure of a glass melter such that it can control the settling or sedimentation of the platinum group of elements, and methods for heating the bottom of the melter, etc.
  - Development of a new glass melter on a real scale based on what is mentioned above
  - Acquisition of basic data for complementing development

- Further improvement in performance (Decrease in the amount of vitrified waste and improvement in the operating ability of the melter)

- Development of a new glass material
  - Development of a glass material which can fill (high-filling) much more high-level liquid waste
  - Development of a new glass material which can suppress the generation of the yellow phase (low viscous fluid)

- Development in cooperation with Japanese universities and research institutions under the All Japan Framework

2. Development of the new glass melter (Design concept for the structure of the melter bottom)

- Improvement in flowability of the platinum group of elements
  - Modifications in the structure of the bottom (Triangular prism vs. Conical)
  - Modifications in the angle of gradient (45° vs. 60°)

3. Development of the new glass material

- Development of a new glass material (glass matrix) along with the development of the glass melter
  - Development of a new glass material which can take in much more high-level liquid waste
  - Development of a glass material which improves the solubility of the waste elements contained in the high-level liquid waste into glass

4. Development of Element Technology

- Development of a technology that improves operation monitoring or improves the recovery from the state of decreased flowability
  - Technology is planned to be gradually introduced in the order of completing the development.

5. Overview of the glass vitrification technology development facility

- Research & development base to develop the glass melting technology
- Remotely operability confirmatory tests & education and training of the operators, etc.
- Constructed inside the reprocessing plant site so that the information or findings obtained at this facility are promptly fed back in a real machine

6. Features of the development facility

- Construction site: Inside the reprocessing plant site
  - Construction area: Approx.5,200㎡
  - Total floor area: Approx.9,500㎡
  - Scale of the building: Approx.91m x Approx.55m (5 stories above the ground)

- Start of construction: May, 2011
- Completion: October, 2013
- Main facilities:
  - Testing area where the solidification cell is simulated
  - Remote maintenance facilities
  - Simulation area for disassembling the melting furnace

March 29, 2013
Japan Nuclear Fuel Limited

Regarding the development status of the new glass melter