INMM 31\textsuperscript{th} Spent Fuel Workshop

Spent Fuel Cask/Canister Manufacturing and Technology in Japan

40 Years’ Experience of Hitachi Zosen on Cask/Canister Design and Manufacturing

January 12, 2016

Ryoji Asano
Hitachi Zosen Corporation
# General Information of Hitachi Zosen

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Hitachi Zosen Corporation</th>
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<tbody>
<tr>
<td>Date of founding</td>
<td>April 1, 1881 by E. H. Hunter</td>
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<td>Date of establishment</td>
<td>May 29, 1934</td>
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<tr>
<td>Representative</td>
<td>Takashi Tanisho, President</td>
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<tr>
<td>Capital</td>
<td>45 billion yen (As of March 31, 2015)</td>
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<tr>
<td>Main Business Lines</td>
<td>Environment Business, Machinery Business (Including Nuclear), Infrastructure Business</td>
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<tr>
<td>Sales Total (Consolidated)</td>
<td>359 billion yen (FY 2014)</td>
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<td>Employees (Consolidated)</td>
<td>9,791 (As of September 30, 2015)</td>
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The First Delivered Transportation Casks – HZ75T –

Our cask business was started in 1972.

The first delivery was in 1978. Since that time, we have been delivering casks and canisters for 40 years.

The first delivered cask is called “HZ75T“ for transportation SF to Tokai Reprocess Plant.

As all plants in Japan face to sea, a large scale cask was required from the beginning.
• The next opportunity was casks for overseas reprocessing.

• The first export, and manufacturing only

• A large scale casks, manufactured based on lessons learned obtained from HZ-75T

• Both casks were delivered in the first half of 1980.
The first order of the storage cask, NAC S/T

The delivery was 1988

We learned that the design and the fabrication technology of the basket were important for efficient storage.

We developed three kind of basic basket designs, the plate type, the tube and disk type, and the tube and block.
Casks for Rokkasho Reprocessing Plant –NFT Cask–

• Transport cask for the Rokkasho Reprocessing Plant

• Six kinds of design were developed, these were called “NFT Cask”.

• The slide shows the PWR type NFT cask.

• The first delivery was in 1997.
As the delay of the completion of Rokkasho Reprocess Plant arose the issue of the spent fuel management.

The dry storage was planned at Fukushima Daiichi NPS and Tokai No. 2 NPS.

We developed JAPC DSC for Tokai NPS based on NAC S/T.

It can load 61 BWR spent fuels.

We have delivered 17 units since 2001.

The 15 units have already been loaded.
We examined the entry of the U. S. dry storing cask market in the latter half of 1990.

We discussed two possibilities, to bring in our own design or to be a just a manufacturer.

The latter was chosen to evade the risk of the licensing.

Since that time, more than 600 units of canisters have been delivered.
The delivery of canisters for 15 Years

- Reason why we are able to continue to deliver the canisters for 15 years as a manufacturer?
  - The first is cooperation of the customers.
  - The seconds are good quality management and on time delivery.

MAGNASTOR VCC

Ariake Works
Acquisition of NAC Intl. in March 2013

• The main purpose is to offer One Stop Solution to our customers.
• In addition, Hitachi Zosen will keep the standpoint of a cask manufacturer in U.S. market.
Thank you for your attention!