

## **Long-term Record Preservation in Geological Disposal**

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Geological disposal program requires wide areas of expertises and long-term period up to hundreds of years from the site selection to termination of the post-closure controls. Site selection and closure of the repository will be the most important decision for the society to progress the step-wise decision process of the implementation of the repository program in each country. Therefore, information on the decisions should be transparent, traceable and accountable both to the current and future generations. Significance of long-term record preservation has been discussed by Nordic countries, USA, IAEA, Japan and others. Especially in these couple of years, the Rome Workshop and IAEA activities have re-confirmed the significance to be transferring information to the future generations to aim at both warning and their own decision-making and also sending current generation an implicit message, “doing our best for future generations”. Open networks such as world-wide-web supported by both main and local computers, paper documents and digital archives are the well matured technology for the robust information transfer system, but they have the possibility to be damaged or lost suddenly or gradually as the time passed. Also they have much dependency on the international frameworks based on responsibility, finance, languages, and internationally centralized & local archives with durable storing environments. To answer the latter weak point, we’ve developed the laser-engraving technology, “Laserglyph” to convert paper documents to silicon carbide plates with human readable font size. In addition to the durability of silicone carbide plate itself, the most durable material resistive to chemicals, higher temperature and abrasion, we’ve examined the visibility or readability of laser-engraved ideograms such as Chinese characters engraved onto SiC plates under the conditions of high temperature up to 1000°C, high corrosive chemicals and sand blasting. We’ve confirmed that “Laserglyph” would be an alternative to paper documents and also as an alternative to microfilm utilized as digital recording media.