

FOREWORD

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Thirty to forty years have now passed since the construction of Japan's main steel works and much social infrastructure during the country's "high growth period," how to maintain these facilities and administrate is an important issue for continuing "safe and secure" company and social activities. However, some high aging equipment has already entered "unknown territory," which it is impossible to guess its condition on the basis of past experience and knowledge. In maintenance of such equipment, the development of new techniques utilizing advanced technologies is indispensable.

The JFE Group is a corporate group with 3 aspects; a supplier of the steel products which are the basic materials for these equipment, an engineering business that manufactures equipment from those materials, and a large-scale user of that equipment. Taking advantage of those features and our total capabilities, we constantly endeavor to develop and commercialize new technologies in the field of equipment control and have obtained a variety of results. The results of recent technology development in the field of "condition monitoring technologies" have been especially remarkable. These technologies have not been kept in the steel works and JFE Group, but have been developed widely and are useful in "safety and security" in all fields of industry. We believe this will match the JFE Group's Corporate Vision of "Contributing to society with the world's most innovative technology," so we will introduce representative examples of these technologies in this Special Issue on Condition Monitoring Technology to Establish Safe Safety Operation, JFE Technical Report.

This special issue features technologies which may not be particularly glamorous, but actually respond to the heightened social needs of recent years by using advanced technologies and countermeasures for equipment of high aging. Examples include closed-type, nondestructive inspection technologies for various type of structures, technologies which enable diagnosis of abnormalities while equipment is in operation, diagnostic technologies for electrical equipment, and others which had been considered difficult in the past. Due to Japan's topography, geology, climate, and other features, the country is prone to

natural disasters such as earthquakes, typhoons, and torrential rains. Technology which can also contribute to enhanced disaster prevention by simulation techniques for earthquake damage is also included in this issue.

Utilizing its total capabilities, the JFE Group actively promotes the development of equipment administration technologies, to respond to the advanced needs of our customers and society. We will be extremely pleased if the technologies introduced in this special issue help to ensure “safety and security” in all related fields. We will appreciate the advice and opinions from related fields to further evolution of these technologies in the future.