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MIRAIT Holdings Corporation

[MIRAIT Technologies Corporation]
Briefing Held on Results of PPP Research on “Water Pipe Construction Management System Using Photoruction”

Using computers and smartphones to simplify preparation of documents and supervision operations in water pipe construction

The City of Kobe Waterworks Bureau (Water Supply Manager: Yasuo Yamamoto), Kurimoto, Ltd. (head office: Osaka-shi, Osaka; representative: Kushida Moriyoshi), Photoruction, Inc. (head office: Chuo-ku, Tokyo; representative: Takaharu Nakajima), MIRAIT Technologies Corporation (head office: Osaka-shi, Osaka; representative: Yasushi Totake), which is a Group company of MIRAIT Holdings Corporation, and JFE Engineering Corporation (head office: Chiyoda-ku, Tokyo; representative: Hajime Oshita) held a briefing on the results of the joint research on a “Water Pipe Construction Management System Using Photoruction” (hereinafter referred to as the “System”).

From the perspective of preventing the spread of novel coronavirus, the briefing was held using a “hybrid format” combining online streaming, and approximately 300 people from companies and water-supply corporations nationwide participated.

1. Background of the Joint Research

Water-supply corporations nationwide, including the City of Kobe are entering a period when facilities constructed and invested in during the period of rapid growth need to be updated at once while faced with the difficult situation of revenue from water rates decreasing due to reduced water demand. In particular, they are required to update and further strengthen the earthquake resistance of aging pipe conduits accounting for much of the investment. However, both the public sector and private sector are having difficulty securing engineers and passing along skills, and the improvement of productivity and operational efficiency are significant issues for the continuity of operations.

Participants in this joint research included water-supply corporations and water pipe manufacturers, in addition to communications construction companies and IT vendors who did not have any contact with the water supply business in the past, and the research was conducted across the boundaries of the public and private sectors, business types and industries in an effort to improve efficiency and automate water pipe construction management operations by utilizing water supply infrastructure know-how and ICT.

2. Results of the Joint Research

The objectives of the joint research are productivity improvements and work style reforms, and three characteristics of the System intended to resolve these issues are described below.

(1) System implementation

The items that had previously been recorded in field books after performing checks on site in water pipe construction on the type of pipes employed as water service pipes in the City of Kobe (ductile steel pipes, steel pipes and polyethylene pipes) are input into mobile terminals such as smartphones and tablets to automatically generate a water joint check sheet.

Information can be shared among the parties issuing and receiving orders because construction information such as the construction documents prepared and the photographs taken are stored in the cloud.

(2) Automation and digitization

Work photographs are automatically arranged using an electronic blackboard according to rules that can be set at will.

In future, the aim is to digitize text information using image recognition technology on handwritten water joint check sheets and conventional construction photographs using construction blackboards.

(3) Improvement of efficiency and labor saving

Redundant input tasks can be reduced when preparing documents by linking digital information such as electronic blackboards and multiple construction documents (progress management, quality management, pipe journals, piping diagrams, and volume of materials used).

An update history (identification of information on additions, changes and deletions) is retained when updating construction records, etc. for which input tasks have been performed, enabling the information to be checked by parties placing and receiving orders and facilitating reconfirmation of items when revising the content of documents, and essentially making comparison of data across documents unnecessary.

3. Moving forward

Provision of the “Water Pipe Construction Management System Using Photoruction” will commence in autumn of 2020.

The System will support the improvement of productivity of water-supply corporations and construction companies nationwide with the aim of improving the efficiency of water pipe construction work.