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Precision Agriculture Irrigation Language: Irrigation System Operations

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0 Introduction

Part 3 of the Standard pertains to irrigation operations, i.e., the activities associated with the application of water with an irrigation system. It focuses on management-level communications and record-keeping. The operations data set is based around a set of Core Documents: a Recommendation, which describes a suggested course of action; a Work Order, which describes a desired course of action; and a Work Record, which describes what actually happened. This work is based on, and extends, the ISO11783-10 standard for communications between agricultural machinery and FMIS (ISO, 2015).

Software developers and others using this part of the Standard should read, and be familiar with the Core Concepts presented in Part 1 of the standard, including the following:

- Business Process Models that are used to describe the flow of data within an integrated irrigation system
- The actors and their role(s) in the process
- Core Documents and their relationships
- The use of unique identifiers and Compound Identifiers for objects that are used by reference in another object
- How the standard captures the concept of time in irrigation events
- Specifying Reference, Setup and Configuration data

The sections titled Reference Data, Setup Data, and Irrigation Data describe the classes that compose messages in the Standard:

- UML class diagrams show all the properties
- List with precise description of the properties of each class
- Implementation guidelines

Annex A Contains a series of examples that represent common use cases covered by the standard

Annex B Contains an XML schema implementation of the object model described in the preceding sections.

Annex C Contains a series of XML examples representing common use cases covered by the standard.

1 Purpose and Scope

The purpose of this part of the Standard is to present an object model and reference XML serialization schema to represent the specification and reporting of irrigation water and product applications in an irrigation system. The scope includes planning and preparation phases (represented by documents called Plan, Recommendation and Work Order) as well as the recording of as-applied water and products (known as a Work Record). The scope of this document does not, however, include representing the Observations and Measurements that drive tactical decision-making in irrigation (and the creation of Recommendations and Work Orders); that material, corresponding to an irrigation-specific implementation of the ISO 19156 standard, is covered in Part 2 of this standard. This standard should enable a developer to unambiguously represent the data being communicated in