

**Oracle Utilities Meter Data Management
Release 2.0.1**

Utility Reference Model

4.2.1.2 MDM.Manage VEE and VEE Exceptions

January 2014

Oracle Utilities Meter Data Management Utility Reference Model 4.2.1.2 Release 2.0.1

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Contents

Chapter 1

Overview..... 1-1

 Brief Description 1-2

 Actors/Roles..... 1-2

Chapter 2

Detailed Business Process Model Description 2-1

 Business Process Diagrams..... 2-2

 MDM.Manage VEE and VEE Exceptions Page 1..... 2-2

 MDM.Manage VEE and VEE Exceptions Page 2..... 2-3

 MDM.Manage VEE and VEE Exceptions Page 3..... 2-4

 MDM.Manage VEE and VEE Exceptions Page 4..... 2-5

 MDM.Manage VEE and VEE Exceptions Description..... 2-6

 1.0 Determine VEE Group based on IMD Type and MC..... 2-7

 1.1 Select the VEE Group..... 2-7

 1.2 Select VEE Rule in the Group within Applicable Period..... 2-8

 1.3 Determine Referred VEE Group 2-8

 1.4 Determine 'Factor Value' and 'Factor Value' Mapped VEE Group 2-9

 1.5 Validate Meter Multiplier, Unit of Measure..... 2-9

 1.6 Analyze Existing Measurement with Same Date/Time as Raw Data 2-10

 1.7 Validate Replacement of Existing Measurement..... 2-10

 1.8 Analyze IMD Type..... 2-11

 1.9 Estimate Gaps in IMD 2-11

 2.0 Estimate Missing IMD for Period 2-12

 2.1 Estimate Scalar Read..... 2-12

 2.2 Validate Interval Size..... 2-13

 2.3 Check Interval Spike 2-13

 2.4 Check High/Low Reads..... 2-14

 2.5 Check for Negative Consumption 2-14

 2.6 Perform Sum Check..... 2-15

 2.7 Update IMD to "VEE" State..... 2-15

 2.8 Analyze MC Type for Any Values to be Derived..... 2-16

 2.9 Derive Values 2-16

 3.0 Evaluate if Measurement(s) Exist for Same Period 2-17

 3.1 Create Normalized Measurement(s) 2-17

 3.2 Update Existing Measurement(s)..... 2-18

 3.3 Validate Normalized Data..... 2-18

 3.4 Determine Usage Subscription(s) Linked to Service Point of IMD..... 2-19

 3.5 Select Each Usage Transaction of Each Usage Subscription for the Period 2-19

 3.6 Change Usage Transaction State to 'Subsequent Correction'..... 2-20

 3.7 Update IMD to 'Complete' State 2-20

 3.8 Analyze Exception..... 2-21

 3.9 Update IMD to 'Exception' State and Log Error..... 2-21

 4.0 Create To Do 2-22

4.1 Log Error	2-23
4.2 Highlight Info	2-23
4.3 Analyze Error and Work To Do	2-23
4.4 Request to 'Discard'	2-24
4.5 Complete To Dos	2-24
4.6 Update IMD to 'Discard' State	2-25
4.7 Request to 'Force Complete'	2-25
4.8 Update IMD to 'Force Complete' State	2-26
4.9 Request to 'Perform VEE'	2-26
5.0 Update IMD to 'VEE' State and Continue Processing	2-26
5.1 Evaluate Criteria to Run Automated Retry Process	2-27
5.2 Identify IMD Record in 'Exception' State	2-27
Business Objects Lifecycle	2-29
D1-InitialLoadIMDInterval	2-29
D1-InitialLoadIMDScalar	2-30
D1-ManualIMDInterval	2-31
D1-ManualIMDScalar	2-32
D1-EstimationIMDInterval	2-33
D1-EstimationIMDScalar	2-34
Related Training	2-35

Chapter 1

Overview

This chapter provides a brief description of the MDM.Manage VEE and VEE Exceptions business process and associated process diagrams. This includes:

- **Brief Description**
 - **Actors/Roles**

Brief Description

Business Process: 4.2.1.2 MDM.Manage VEE and VEE Exceptions

Process Type: Sub-Process

Parent Process: 4.2.1 MDM. Collect and Process Measurements

Sibling Processes: 4.2.1.1 MDM.Upload Device Measurements, 4.2.1.3 MDM.Calculate Usage

This process gets initiated when the IMD is loaded into the system, has passed the VEE Ready state across its life-cycle and is ready for VEE processing. The various types of IMDs (Initial Load, Manual, and Estimation) can have VEE processes invoked either through the system or by users. During the VEE process, various VEE rules are applied sequentially. Each of the rules may be single rule or can refer to another group of VEE Rules through specific selection criteria. These VEE rules fall into different categories such as common validation rules, estimation rules, device type specific rules, along with few rules to check the accuracy of the consumption. Any exceptions encountered, during the VEE process, may lead to either termination of the whole VEE Process or continuation based on the severity of exception, followed by exception processing. With the successful completion of the VEE process, the application normalizes and finalizes IMD and makes processed measurements available for usage calculations.

Actors/Roles

The MDM.Manage VEE and VEE Exceptions business process involves the following actors and roles.

- **MDM Authorized User:** An authorized user of the Meter Data Management application
- **MDM Application:** The Meter Data Management system

Chapter 2

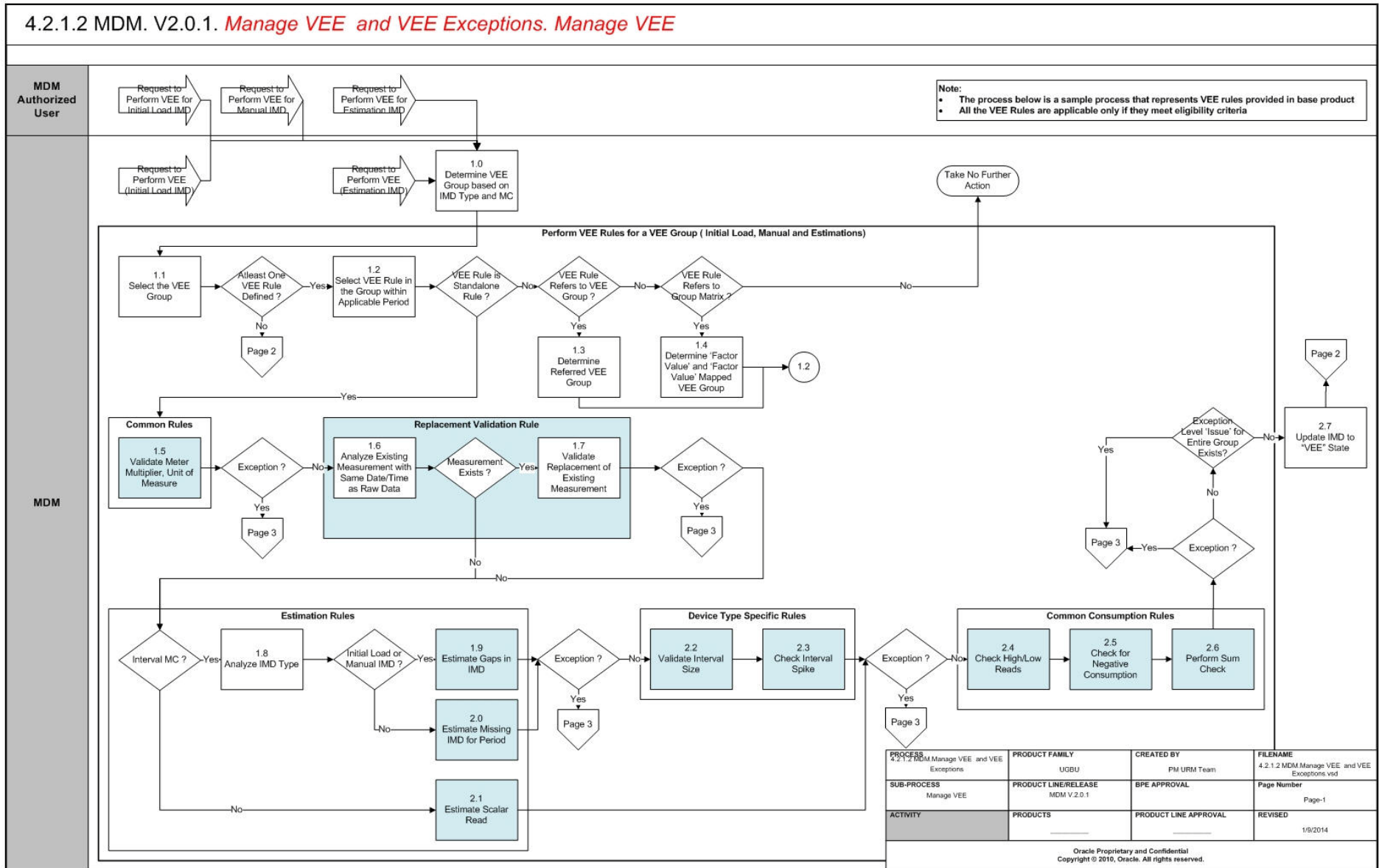
Detailed Business Process Model Description

This chapter provides a detailed description of the MDM.Manage VEE and VEE Exceptions business process. This includes:

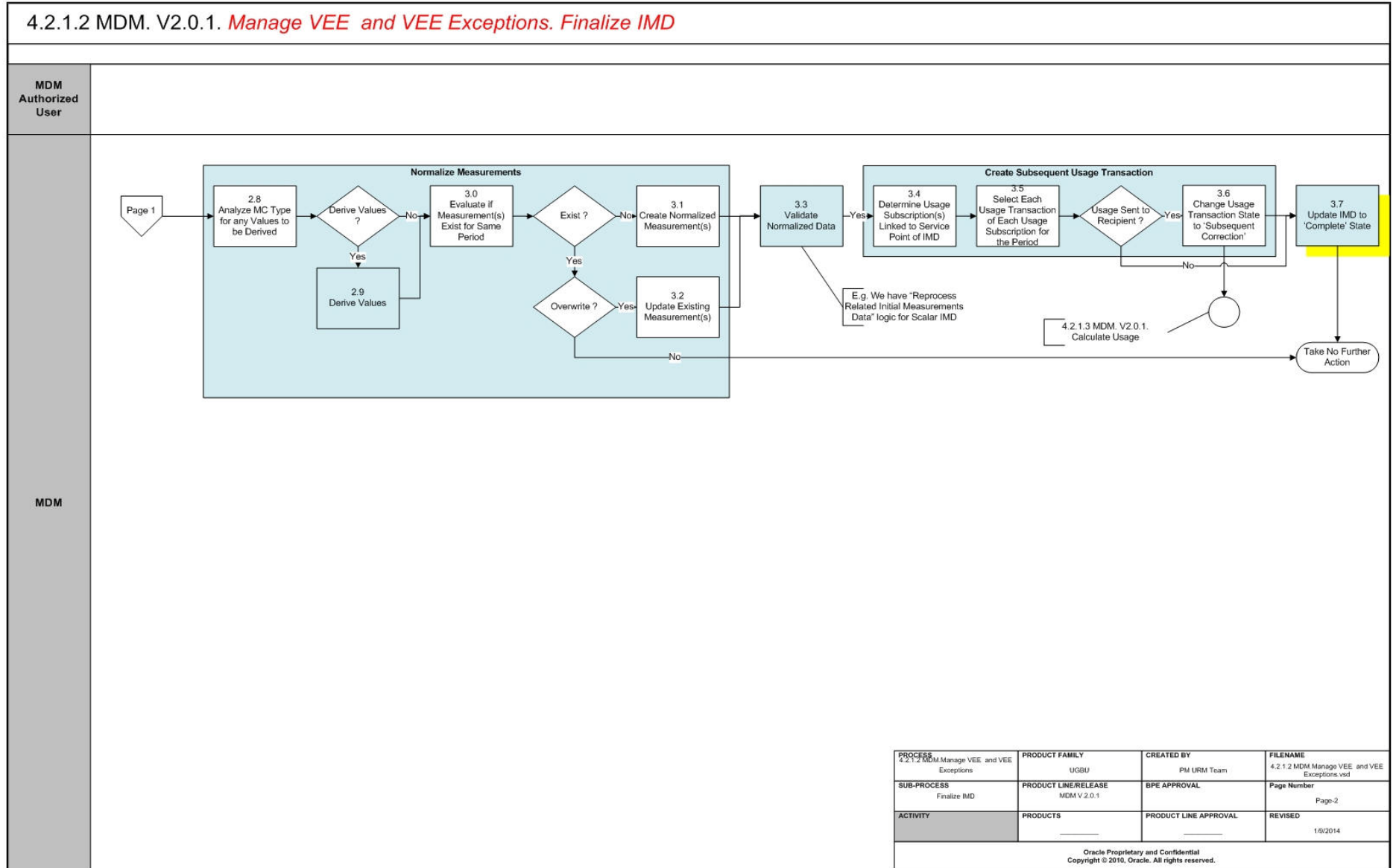
- **Business Process Diagrams**
 - **MDM.Manage VEE and VEE Exceptions Page 1**
 - **MDM.Manage VEE and VEE Exceptions Page 2**
 - **MDM.Manage VEE and VEE Exceptions Page 3**
 - **MDM.Manage VEE and VEE Exceptions Page 4**
- **MDM.Manage VEE and VEE Exceptions Description**
- **Business Objects Lifecycle**
 - **D1-InitialLoadIMDInterval**
 - **D1-InitialLoadIMDScalar**
 - **D1-ManualIMDInterval**
 - **D1-ManualIMDScalar**
 - **D1-EstimationIMDInterval**
 - **D1-EstimationIMDScalar**
- **Related Training**

Business Process Diagrams

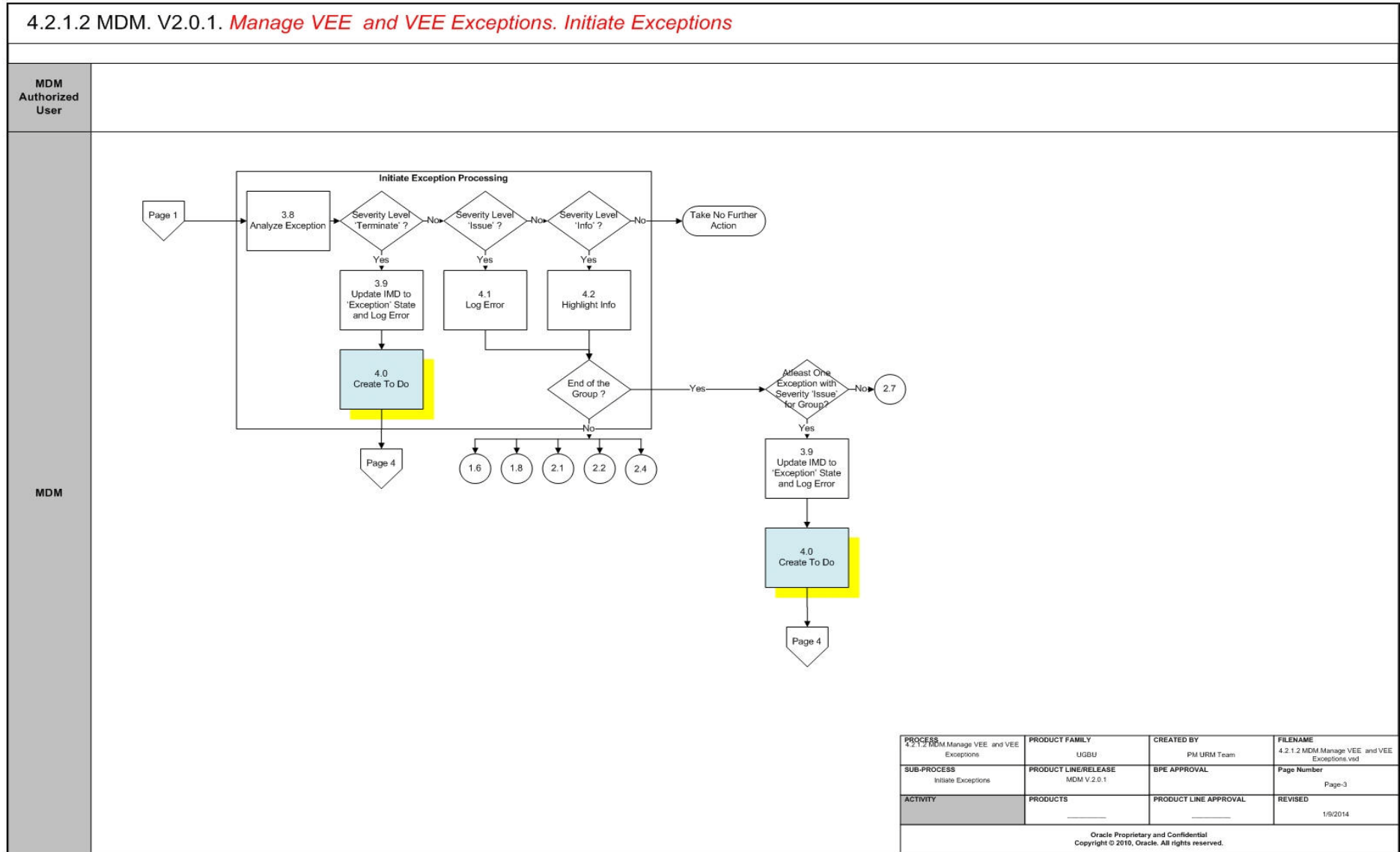
MDM.Manage VEE and VEE Exceptions Page 1



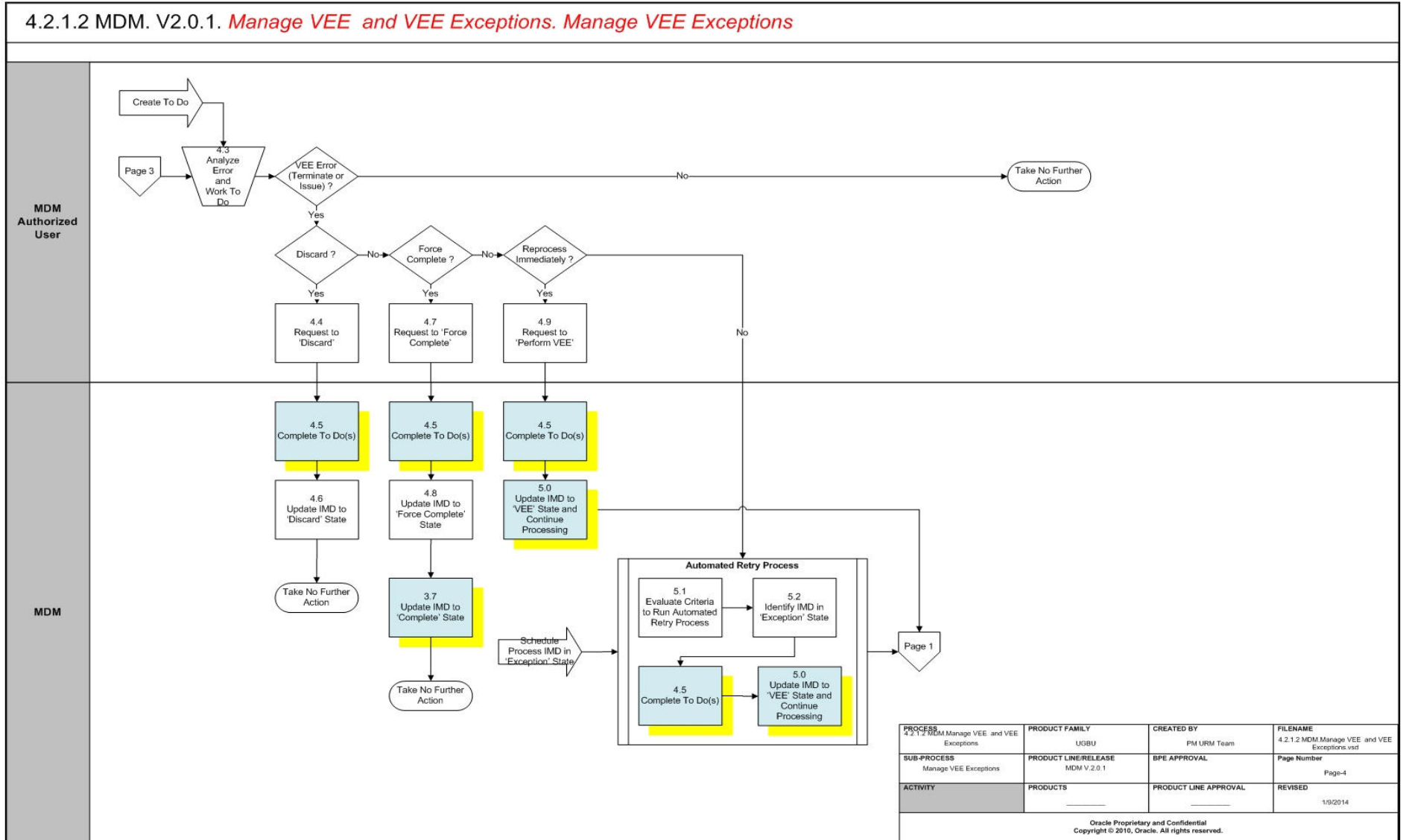
MDM.Manage VEE and VEE Exceptions Page 2



MDM.Manage VEE and VEE Exceptions Page 3



MDM.Manage VEE and VEE Exceptions Page 4



MDM.Manage VEE and VEE Exceptions Description

This section includes detailed descriptions of the steps involved in the MDM.Manage VEE and VEE Exceptions business process, including:

- 1.0 Determine VEE Group based on IMD Type and MC
- 1.1 Select the VEE Group
- 1.2 Select VEE Rule in the Group within Applicable Period
- 1.3 Determine Referred VEE Group
- 1.4 Determine 'Factor Value' and 'Factor Value' Mapped VEE Group
- 1.5 Validate Meter Multiplier, Unit of Measure
- 1.6 Analyze Existing Measurement with Same Date/Time as Raw Data
- 1.7 Validate Replacement of Existing Measurement
- 1.8 Analyze IMD Type
- 1.9 Estimate Gaps in IMD
- 2.0 Estimate Missing IMD for Period
- 2.1 Estimate Scalar Read
- 2.2 Validate Interval Size
- 2.3 Check Interval Spike
- 2.4 Check High/Low Reads
- 2.5 Check for Negative Consumption
- 2.6 Perform Sum Check
- 2.7 Update IMD to "VEE" State
- 2.8 Analyze MC Type for Any Values to be Derived
- 2.9 Derive Values
- 3.0 Evaluate if Measurement(s) Exist for Same Period
- 3.1 Create Normalized Measurement(s)
- 3.2 Update Existing Measurement(s)
- 3.3 Validate Normalized Data
- 3.4 Determine Usage Subscription(s) Linked to Service Point of IMD
- 3.5 Select Each Usage Transaction of Each Usage Subscription for the Period
- 3.6 Change Usage Transaction State to 'Subsequent Correction'
- 3.7 Update IMD to 'Complete' State
- 3.8 Analyze Exception
- 3.9 Update IMD to 'Exception' State and Log Error
- 4.0 Create To Do
- 4.1 Log Error
- 4.2 Highlight Info
- 4.3 Analyze Error and Work To Do
- 4.4 Request to 'Discard'

- 4.5 Complete To Dos
- 4.6 Update IMD to 'Discard' State
- 4.7 Request to 'Force Complete'
- 4.8 Update IMD to 'Force Complete' State
- 4.9 Request to 'Perform VEE'
- 5.0 Update IMD to 'VEE' State and Continue Processing
- 5.1 Evaluate Criteria to Run Automated Retry Process
- 5.2 Identify IMD Record in 'Exception' State

1.0 Determine VEE Group based on IMD Type and MC

See **MDM.Manage VEE and VEE Exceptions Page 1** on page 2-2 for the business process diagram associated with this activity.

Actor/Role: MDM

Description: MDM determines the VEE Group configured for the Measuring Component derived from the IMD.

Entities to Configure

VEE Rules
 VEE Group
 Measuring Component

Business Objects

D1-InitialLoadIMDInterval
 D1-InitialLoadIMDScalar
 D1-ManualIMDInterval
 D1-ManualIMDScalar
 D1-EstimationIMDInterval
 D1-EstimationIMDScalar

1.1 Select the VEE Group

See **MDM.Manage VEE and VEE Exceptions Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Perform VEE Rules for a VEE Group (Initial Load, Manual and Estimations)

Actor/Role: MDM

Description: MDM selects the VEE Group based on the measuring component to perform the VEE process.

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-INIT-VEE (Perform VEE for Initial Load IMD)
D1-InitialLoadIMDScalar	D1-MNOV-VEE (Perform VEE for Manual IMD)
D1-ManualIMDInterval	D1-ESTM-VEE (Perform VEE for Estimation IMD)
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

1.2 Select VEE Rule in the Group within Applicable Period

See **MDM.Manage VEE and VEE Exceptions Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Perform VEE Rules for a VEE Group (Initial Load, Manual and Estimations)

Actor/Role: MDM

Description: MDM selects the VEE rules configured in the VEE group as per the configured rule sequence and filters the rules based on their applicability.

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-INIT-VEE (Perform VEE for Initial Load IMD)
D1-InitialLoadIMDScalar	D1-MNOV-VEE (Perform VEE for Manual IMD)
D1-ManualIMDInterval	D1-ESTM-VEE (Perform VEE for Estimation IMD)
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

1.3 Determine Referred VEE Group

See **MDM.Manage VEE and VEE Exceptions Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Perform VEE Rules for a VEE Group (Initial Load, Manual and Estimations)

Actor/Role: MDM

Description: MDM determines the VEE Group referred by the VEE Rule.

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-INIT-VEE (Perform VEE for Initial Load IMD)
D1-InitialLoadIMDScalar	D1-MNOV-VEE (Perform VEE for Manual IMD)
D1-ManualIMDInterval	D1-ESTM-VEE (Perform VEE for Estimation IMD)
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

1.4 Determine 'Factor Value' and 'Factor Value' Mapped VEE Group

See **MDM.Manage VEE and VEE Exceptions Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Perform VEE Rules for a VEE Group (Initial Load, Manual and Estimations)

Actor/Role: MDM

Description: MDM shall dynamically determine the factor value for a VEE rule and determines the VEE group mapped to the factor value.

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-INIT-VEE (Perform VEE for Initial Load IMD)
D1-InitialLoadIMDScalar	D1-MNOV-VEE (Perform VEE for Manual IMD)
D1-ManualIMDInterval	D1-ESTM-VEE (Perform VEE for Estimation IMD)
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

1.5 Validate Meter Multiplier, Unit of Measure

See **MDM.Manage VEE and VEE Exceptions Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Common Rule(s)

Group: Perform VEE Rules for a VEE Group (Initial Load, Manual and Estimations)

Actor/Role: MDM

Description: The MDM applies common rules.

Note: Common rules are rules that can be applicable to an IMD irrespective of the type of meter, e.g., scalar or interval. Sample common rules are:

- The Meter Multiplier rule ensures that the meter multiplier value of the current measurement data matches the meter multiplier value stored on the measuring component.
- The Unit of Measure rule ensures that the unit-of-measure (UOM) of the incoming data matches the UOM specified on the measuring component.

Entities to Configure

Multiplier Check

Unit of Measure

Business Objects	Available Algorithms
D2-RegisterMultiplierCheck	D1-INIT-VEE (Perform VEE for Initial Load IMD)
D2-UOMCheck	D1-MNOV-VEE (Perform VEE for Manual IMD)
	D1-ESTM-VEE (Perform VEE for Estimation IMD)
	D2-REGMULCHK (Multiplier Check)
	D2-UOMCHK (Unit of Measure Check)

1.6 Analyze Existing Measurement with Same Date/Time as Raw Data

See **MDM.Manage VEE and VEE Exceptions Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Perform VEE Rules for a VEE Group (Initial Load, Manual and Estimations)

Group: Replacement Rule(s)

Actor/Role: MDM

Description: The MDM system checks if there are any existing measurements for the same period as the current measurement. Furthermore, it checks if the existing measurement is system read or manually edited.

Business Objects	Available Algorithms
D2-IntervalReplacementRule	D1-INIT-VEE (Perform VEE for Initial Load IMD)
D2-ScalarReplacementRule	D1-MNOV-VEE (Perform VEE for Manual IMD)
	D1-ESTM-VEE (Perform VEE for Estimation IMD)
	D2-INTREPRL (Interval Replacement Rule)
	D2-SCAREPRL (Scalar Replacement Rule)

1.7 Validate Replacement of Existing Measurement

See **MDM.Manage VEE and VEE Exceptions Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Perform VEE Rules for a VEE Group (Initial Load, Manual and Estimations)

Group: Replacement Rule(s)

Actor/Role: MDM

Description: When the measurement exists with same date/time as the raw data, the rule determines if the raw reading will be rejected completely or rejected only if the existing measurement is manually user-edited.

Business Objects	Available Algorithms
D2-IntervalReplacementRule	D1-INIT-VEE (Perform VEE for Initial Load IMD)
D2-ScalarReplacementRule	D1-MNOV-VEE (Perform VEE for Manual IMD)
	D1-ESTM-VEE (Perform VEE for Estimation IMD)
	D2-INTREPRL (Interval Replacement Rule)
	D2-SCAREPRL (Scalar Replacement Rule)

1.8 Analyze IMD Type

See **MDM.Manage VEE and VEE Exceptions Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Perform VEE Rules for a VEE Group (Initial Load, Manual and Estimations)

Group: Estimation Rule(s)

Actor/Role: MDM

Description: The MDM system analyses if the IMD is an Estimate IMD or Manual IMD.

Business Objects	Available Algorithms
D1-ManualIMDInterval	D1-INIT-VEE (Perform VEE for Initial Load IMD)
D1-ManualIMDScalar	D1-MNOV-VEE (Perform VEE for Manual IMD)
D1-EstimationIMDInterval	D1-ESTM-VEE (Perform VEE for Estimation IMD)
D1-EstimationIMDScalar	

1.9 Estimate Gaps in IMD

See **MDM.Manage VEE and VEE Exceptions Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Perform VEE Rules for a VEE Group (Initial Load, Manual and Estimations)

Group: Estimation Rule(s)

Actor/Role: MDM

Description: MDM proceeds forward to estimate the gaps in the Initial Load IMD and the Manual IMD.

Entities to Configure

VEE Group for Estimation

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-INIT-VEE (Perform VEE for Initial Load IMD)
D1-ManualIMDInterval	D1-MNOV-VEE (Perform VEE for Manual IMD)
D2-IntervalInterpolationEst	D2-INTINTEST (Interval Interpolation Estimation)
D2-IntervalAveragingEstimation	D2-INTAVGEST (Interval Averaging Estimation)

2.0 Estimate Missing IMD for Period

See **MDM.Manage VEE and VEE Exceptions Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Perform VEE Rules for a VEE Group (Initial Load, Manual and Estimations)

Group: Estimation Rule(s)

Actor/Role: MDM

Description: The application estimates the whole missing Interval IMD for using various estimation techniques.

Business Objects	Available Algorithms
D1-EstimationIMDInterval	D1-ESTM-VEE (Perform VEE for Estimation IMD)
D2-IntervalInterpolationEst	D2-INTINTEST (Interval Interpolation Estimation)
D2-IntervalAveragingEstimation	D2-INTAVGEST (Interval Averaging Estimation)

2.1 Estimate Scalar Read

See **MDM.Manage VEE and VEE Exceptions Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Perform VEE Rules for a VEE Group (Initial Load, Manual and Estimations)

Group: Estimation Rule(s)

Actor/Role: MDM

Description: MDM estimates scalar value using various estimation techniques.

Business Objects	Available Algorithms
D1-EstimationIMDScalar	D1-ESTM-VEE (Perform VEE for Estimation IMD)
D2-ScalarProfileEstimation	D2-SCAPROEST (Estimate Scalar Based on Profile Data)

2.2 Validate Interval Size

See **MDM.Manage VEE and VEE Exceptions Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Perform VEE Rules for a VEE Group (Initial Load, Manual and Estimations)

Group: Device Type Specific Rule(s)

Actor/Role: MDM

Description: MDM checks to ensure that the interval size of the initial measurement data matches the defined value in the measuring component type.

Entities to Configure

VEE Group and Rules

SPI on Measuring Component

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-INIT-VEE (Perform VEE for Initial Load IMD)
D2-IntervalSizeValidation (Interval Size Validation)	D2-INTSIZVAL (Interval Size Validation)

2.3 Check Interval Spike

See **MDM.Manage VEE and VEE Exceptions Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Perform VEE Rules for a VEE Group (Initial Load, Manual and Estimations)

Group: Device Type Specific Rule(s)

Actor/Role: MDM

Description: MDM examines the interval data to identify intervals with suspiciously high usage relative to the surrounding intervals.

Entities to Configure

Spike Tolerance Values

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-INIT-VEE (Perform VEE for Initial Load IMD)
D2-IntervalSpikeCheck (Interval Spike Check)	D2-INTSPKCHK (Interval Spike Check)

2.4 Check High/Low Reads

See **MDM.Manage VEE and VEE Exceptions Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Perform VEE Rules for a VEE Group (Initial Load, Manual and Estimations)

Group: Common Consumption Rule(s)

Actor/Role: MDM

Description: MDM checks the Initial Measurement for high or low consumption.

Entities to Configure

VEE Group and Rules

High Tolerance or Tolerance Factor

Low Tolerance or Tolerance Factor

Historical Percentage Required

Historical Pre-Window

Historical Post-Window

Comparison Method (Average / Max)

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-INIT-VEE (Perform VEE for Initial Load IMD)
D1-InitialLoadIMDScalar	D2-HILO-CHK (High/Low Check)
D2-VEERuleHighLowCheck (High/Low Check)	

2.5 Check for Negative Consumption

See **MDM.Manage VEE and VEE Exceptions Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Perform VEE Rules for a VEE Group (Initial Load, Manual and Estimations)

Group: Common Consumption Rule(s)

Actor/Role: MDM

Description: MDM will check if consumption has any negative values.

Entities to Configure

VEE Group and Rules

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-INIT-VEE (Perform VEE for Initial Load IMD)
D1-InitialLoadIMDScalar	D2-NCON-CHK (Negative Consumption Check)
D2-NegativeConsumptionCheck (Negative Consumption Check)	

2.6 Perform Sum Check

See **MDM.Manage VEE and VEE Exceptions Page 1** on page 2-2 for the business process diagram associated with this activity.

Group: Perform VEE Rules for a VEE Group (Initial Load, Manual and Estimations)

Group: Common Consumption Rule(s)

Actor/Role: MDM

Description: MDM evaluates whether consumption for the current initial measurement data record is within a tolerance of the sum of the consumption (during the same period) for any related measuring components.

Entities to Configure

Percentage Tolerance

Tolerance

Meter Multiplier Tolerance

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-INIT-VEE (Perform VEE for Initial Load IMD)
D1-InitialLoadIMDScalar	D2-SUM-CHK (Sum Check)
D2-SumCheck (Sum Check)	

2.7 Update IMD to "VEE" State

See **MDM.Manage VEE and VEE Exceptions Page 2** on page 2-3 for the business process diagram associated with this activity.

Actor/Role: MDM

Description: MDM updates the IMD to VEE State.

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	F1-AT-RQJ (Transition to Default Next Status)
D1-InitialLoadIMDScalar	
D1-ManualIMDInterval	
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

2.8 Analyze MC Type for Any Values to be Derived

See **MDM.Manage VEE and VEE Exceptions Page 2** on page 2-3 for the business process diagram associated with this activity.

Group: Normalize Measurements

Actor/Role: MDM

Description: MDM analyses the measuring component type to determine the measurement BO and populate the data by mapping with Post-VEE raw measurement data. It further checks if there are any algorithms configured to derive other values based on current values.

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-AUTO-NORM (Normalize Measurements) Value Derivation Algorithms
D1-InitialLoadIMDScalar	
D1-ManualIMDInterval	
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

2.9 Derive Values

See **MDM.Manage VEE and VEE Exceptions Page 2** on page 2-3 for the business process diagram associated with this activity.

Group: Normalize Measurements

Actor/Role: MDM

Description: MDM derives other values based on the current measurements.

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-AUTO-NORM (Normalize Measurements) Value Derivation Algorithms
D1-InitialLoadIMDScalar	
D1-ManualIMDInterval	
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

3.0 Evaluate if Measurement(s) Exist for Same Period

See **MDM.Manage VEE and VEE Exceptions Page 2** on page 2-3 for the business process diagram associated with this activity.

Group: Normalize Measurements

Actor/Role: MDM

Description: MDM checks if there exists any finalized measurement whose date/time matches the current measurement.

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-AUTO-NORM (Normalize Measurements)
D1-InitialLoadIMDScalar	
D1-ManualIMDInterval	
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

3.1 Create Normalized Measurement(s)

See **MDM.Manage VEE and VEE Exceptions Page 2** on page 2-3 for the business process diagram associated with this activity.

Group: Normalize Measurements

Actor/Role: MDM

Description: MDM creates normalized measurements.

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-AUTO-NORM (Normalize Measurements)
D1-InitialLoadIMDScalar	
D1-ManualIMDInterval	
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

3.2 Update Existing Measurement(s)

See **MDM.Manage VEE and VEE Exceptions Page 2** on page 2-3 for the business process diagram associated with this activity.

Actor/Role: MDM

Description: MDM updates the existing measurement with current measurement.

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-AUTO-NORM (Normalize Measurements)
D1-InitialLoadIMDScalar	
D1-ManualIMDInterval	
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

3.3 Validate Normalized Data

See **MDM.Manage VEE and VEE Exceptions Page 2** on page 2-3 for the business process diagram associated with this activity.

Actor/Role: MDM

Description: This step is performed if business requires additional data processing or validations while data is normalized.

Note: Currently this step is relevant for Scalar IMDs only. System checks if there are any IMDs in error state for related Measuring Components and attempts reprocess these IMDs if required.

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-REP-RLIMD (Reprocess Related Initial Measurement Data(s))
D1-InitialLoadIMDScalar	
D1-ManualIMDInterval	
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

3.4 Determine Usage Subscription(s) Linked to Service Point of IMD

See **MDM.Manage VEE and VEE Exceptions Page 2** on page 2-3 for the business process diagram associated with this activity.

Group: Create Subsequent Usage Transaction

Actor/Role: MDM

Description: MDM identifies Usage Subscription(s) linked to the service point.

Entities to Configure

Device Configuration

Service Points

Usage Subscription(s)

Usage Transaction(s)

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-TRAN-UT (Transition Usage Transaction(s))
D1-InitialLoadIMDScalar	
D1-ManualIMDInterval	
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

3.5 Select Each Usage Transaction of Each Usage Subscription for the Period

See **MDM.Manage VEE and VEE Exceptions Page 2** on page 2-3 for the business process diagram associated with this activity.

Group: Create Subsequent Usage Transaction

Actor/Role: MDM

Description: MDM determines the Usage Transaction(s) that fall within the period of IMD.

Entities to Configure

Usage Subscription(s)

Usage Transaction(s)

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-TRAN-UT (Transition Usage Transaction(s))
D1-InitialLoadIMDScalar	
D1-ManualIMDInterval	
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

3.6 Change Usage Transaction State to 'Subsequent Correction'

See **MDM.Manage VEE and VEE Exceptions Page 2** on page 2-3 for the business process diagram associated with this activity.

Group: Create Subsequent Usage Transaction

Actor/Role: MDM

Description: MDM checks if the usage information has already been sent out to the Recipient. If usage has been already sent to the usage Recipient, it updates the Usage transaction to the 'Subsequent Correction' state.

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-TRAN-UT (Transition Usage Transaction(s))
D1-InitialLoadIMDScalar	
D1-ManualIMDInterval	
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

3.7 Update IMD to 'Complete' State

See **MDM.Manage VEE and VEE Exceptions Page 2** on page 2-3 for the business process diagram associated with this activity.

Actor/Role: MDM

Description: MDM updates the status of IMD to 'Complete'.

Business Objects

D1-InitialLoadIMDInterval

D1-InitialLoadIMDScalar

D1-ManualIMDInterval

D1-ManualIMDScalar

D1-EstimationIMDInterval

D1-EstimationIMDScalar

3.8 Analyze Exception

See **MDM.Manage VEE and VEE Exceptions Page 3** on page 2-4 for the business process diagram associated with this activity.

Group: Initiate Exception Processing

Actor/Role: MDM

Description: When an exception takes place during VEE Processing, MDM analyzes the severity of the exception based on the configuration.

Entities to Configure

Exception Severity for VEE Rules

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-INIT-VEE (Perform VEE for Initial Load IMD)
D1-InitialLoadIMDScalar	D1-MNOV-VEE (Perform VEE for Manual IMD)
D1-ManualIMDInterval	D1-ESTM-VEE (Perform VEE for Estimation IMD)
D1-ManualIMDScalar	D1-TRN-EXCP (Transition on Exception)
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

3.9 Update IMD to 'Exception' State and Log Error

See **MDM.Manage VEE and VEE Exceptions Page 3** on page 2-4 for the business process diagram associated with this activity.

Group: Initiate Exception Processing

Actor/Role: MDM

Description: If an exception exists with severity 'Issue', MDM automatically updates the IMD status to 'Exception' and logs an error.

Entities to Configure

Exception Severity

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	F1-AT-RQJ (Transition to Default Next Status)
D1-InitialLoadIMDScalar	
D1-ManualIMDInterval	
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

4.0 Create To Do

See **MDM.Manage VEE and VEE Exceptions Page 3** on page 2-4 for the business process diagram associated with this activity.

Group: Initiate Exception Processing

Actor/Role: MDM

Description: Once the MDM system logs the errors, it creates a To Do entry. Authorized Users are allowed to review the problem and attempt to fix the error reported by system. User can configure the creation or non-creation of a To Do Entry.

Entities to Configure

Exception Type

Exception Severity

To Do Role

To Do Type

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-CRE-IMDTD (Create To Do)
D1-InitialLoadIMDScalar	
D1-ManualIMDInterval	
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

4.1 Log Error

See **MDM.Manage VEE and VEE Exceptions Page 3** on page 2-4 for the business process diagram associated with this activity.

Group: Initiate Exception Processing

Actor/Role: MDM

Description: MDM logs an error based on an exception of severity 'Issue' found during VEE processing.

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-INIT-VEE (Perform VEE for Initial Load IMD)
D1-InitialLoadIMDScalar	D1-MNOV-VEE (Perform VEE for Manual IMD)
D1-ManualIMDInterval	D1-ESTM-VEE (Perform VEE for Estimation IMD)
D1-ManualIMDScalar	D1-TRN-EXCP (Transition on Exception)
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

4.2 Highlight Info

See **MDM.Manage VEE and VEE Exceptions Page 3** on page 2-4 for the business process diagram associated with this activity.

Group: Initiate Exception Processing

Actor/Role: MDM

Description: If identified exception severity level is "Info" MDM just highlights the issue and provides relevant information.

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-INIT-VEE (Perform VEE for Initial Load IMD)
D1-InitialLoadIMDScalar	D1-MNOV-VEE (Perform VEE for Manual IMD)
D1-ManualIMDInterval	D1-ESTM-VEE (Perform VEE for Estimation IMD)
D1-ManualIMDScalar	D1-TRN-EXCP (Transition on Exception)
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

4.3 Analyze Error and Work To Do

See **MDM.Manage VEE and VEE Exceptions Page 4** on page 2-5 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: The MDM Authorized User analyzes the error logged and respective To Do created to determine the corrective action. The MDM Authorized User performs work to resolve the error.

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-CRE-IMDTD (Create To Do)
D1-InitialLoadIMDScalar	
D1-ManualIMDInterval	
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

4.4 Request to 'Discard'

See **MDM.Manage VEE and VEE Exceptions Page 4** on page 2-5 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: When the IMD is in an 'Exception' state and MDM Authorized User decides that the IMD cannot be used, the MDM Authorized User manually discards the record.

Business Objects
D1-InitialLoadIMDInterval
D1-InitialLoadIMDScalar
D1-ManualIMDInterval
D1-ManualIMDScalar
D1-EstimationIMDInterval
D1-EstimationIMDScalar

4.5 Complete To Dos

See **MDM.Manage VEE and VEE Exceptions Page 4** on page 2-5 for the business process diagram associated with this activity.

Actor/Role: MDM

Description: MDM finds all non-completed To Do entries and completes them before reprocessing.

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-COMP-TD (Complete To Do Entries for Initial Measurement Data)
D1-InitialLoadIMDScalar	
D1-ManualIMDInterval	
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

4.6 Update IMD to 'Discard' State

See **MDM.Manage VEE and VEE Exceptions Page 4** on page 2-5 for the business process diagram associated with this activity.

Actor/Role: MDM

Description: MDM updates the IMD to the 'Discard' state indicating that it cannot be used further. However it remains in the system.

Business Objects

D1-InitialLoadIMDInterval
D1-InitialLoadIMDScalar
D1-ManualIMDInterval
D1-ManualIMDScalar
D1-EstimationIMDInterval
D1-EstimationIMDScalar

4.7 Request to 'Force Complete'

See **MDM.Manage VEE and VEE Exceptions Page 4** on page 2-5 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: The MDM Authorized User manually approves IMDs in an error state.

Business Objects

D1-InitialLoadIMDInterval
D1-InitialLoadIMDScalar
D1-ManualIMDInterval
D1-ManualIMDScalar
D1-EstimationIMDInterval
D1-EstimationIMDScalar

4.8 Update IMD to 'Force Complete' State

See **MDM.Manage VEE and VEE Exceptions Page 4** on page 2-5 for the business process diagram associated with this activity.

Actor/Role: MDM

Description: MDM updates IMD to 'Force Complete' state.

Business Objects

D1-InitialLoadIMDInterval

D1-InitialLoadIMDScalar

D1-ManualIMDInterval

D1-ManualIMDScalar

D1-EstimationIMDInterval

D1-EstimationIMDScalar

4.9 Request to 'Perform VEE'

See **MDM.Manage VEE and VEE Exceptions Page 4** on page 2-5 for the business process diagram associated with this activity.

Actor/Role: MDM Authorized User

Description: The MDM Authorized User requests the system to VEE an IMD in an incomplete state.

Business Objects

D1-InitialLoadIMDInterval

D1-InitialLoadIMDScalar

D1-ManualIMDInterval

D1-ManualIMDScalar

D1-EstimationIMDInterval

D1-EstimationIMDScalar

5.0 Update IMD to 'VEE' State and Continue Processing

See **MDM.Manage VEE and VEE Exceptions Page 4** on page 2-5 for the business process diagram associated with this activity.

Actor/Role: MDM

Description: MDM updates the IMD to the VEE state and continues re-processing.

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-IMD-RETRY (Retry Initial Measurement Data Processing)
D1-InitialLoadIMDScalar	
D1-ManualIMDInterval	
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

5.1 Evaluate Criteria to Run Automated Retry Process

See **MDM.Manage VEE and VEE Exceptions Page 4** on page 2-5 for the business process diagram associated with this activity.

Group: Automated Retry Process

Actor/Role: MDM

Description: The application determines if IMDs requires re-processing.

Note: A batch process is configured for this automated retry process.

Customizable process

IMD Monitor - Physical Devices (D1-IMD)

Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-IMD-RETRY (Retry Initial Measurement Data Processing)
D1-InitialLoadIMDScalar	
D1-ManualIMDInterval	
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

5.2 Identify IMD Record in 'Exception' State

See **MDM.Manage VEE and VEE Exceptions Page 4** on page 2-5 for the business process diagram associated with this activity.

Actor/Role: MDM

Description: The MDM continuously monitors IMDs to identify records in an 'Exception' state.

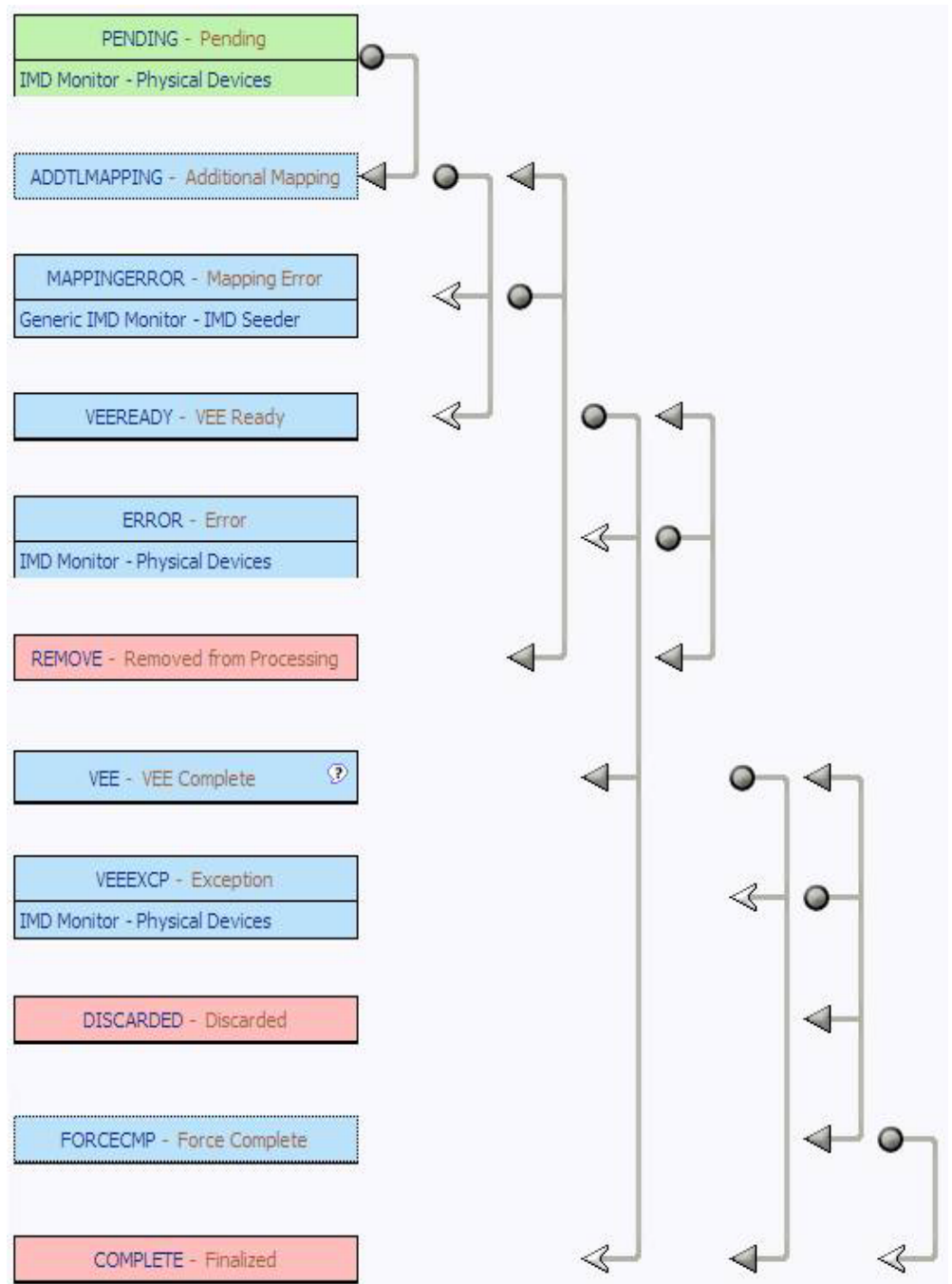
Customizable process

IMD Monitor - Physical Devices (D1-IMD)

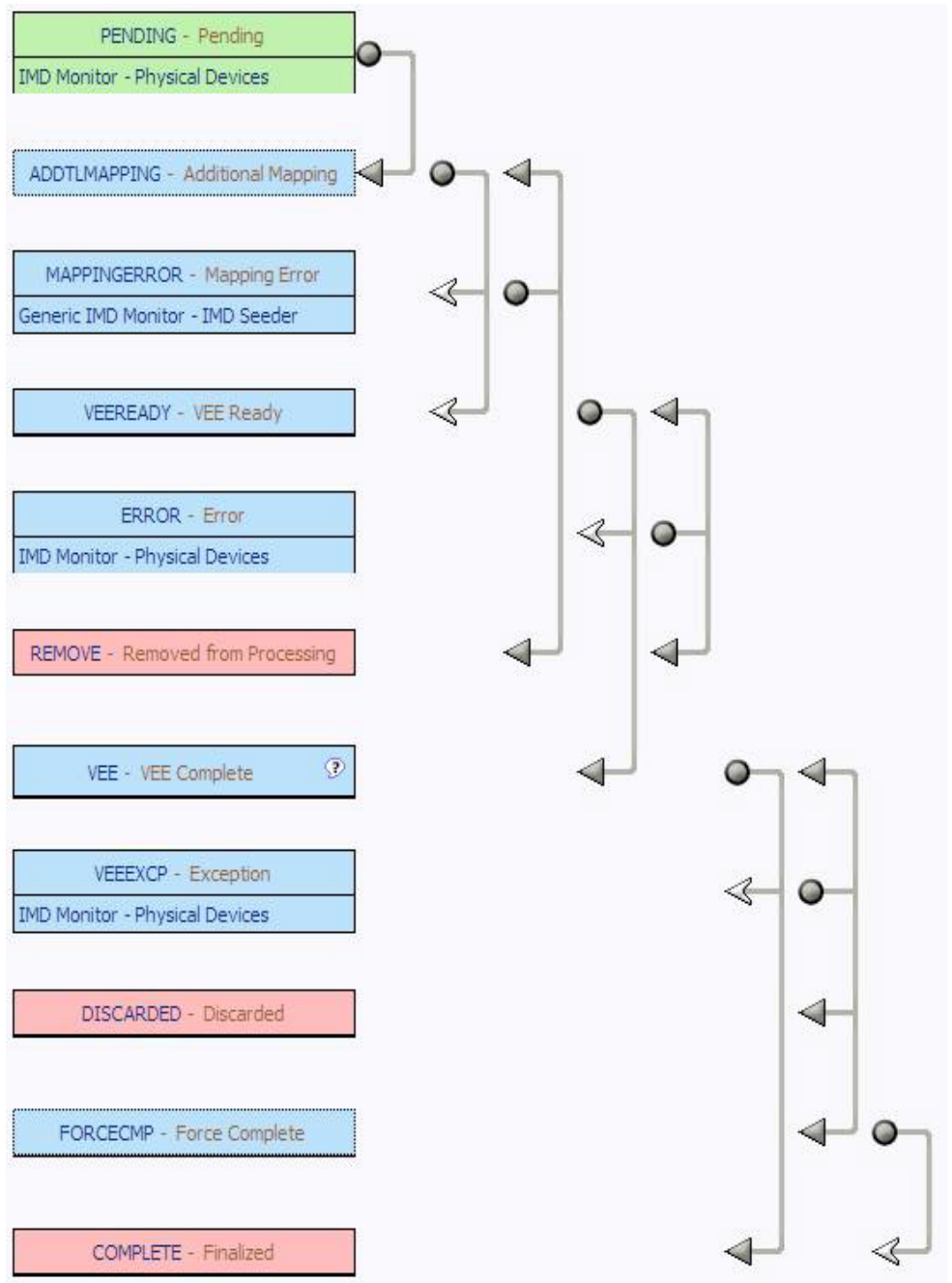
Business Objects	Available Algorithms
D1-InitialLoadIMDInterval	D1-IMD-RETRY (Retry Initial Measurement Data Processing)
D1-InitialLoadIMDScalar	
D1-ManualIMDInterval	
D1-ManualIMDScalar	
D1-EstimationIMDInterval	
D1-EstimationIMDScalar	

Business Objects Lifecycle

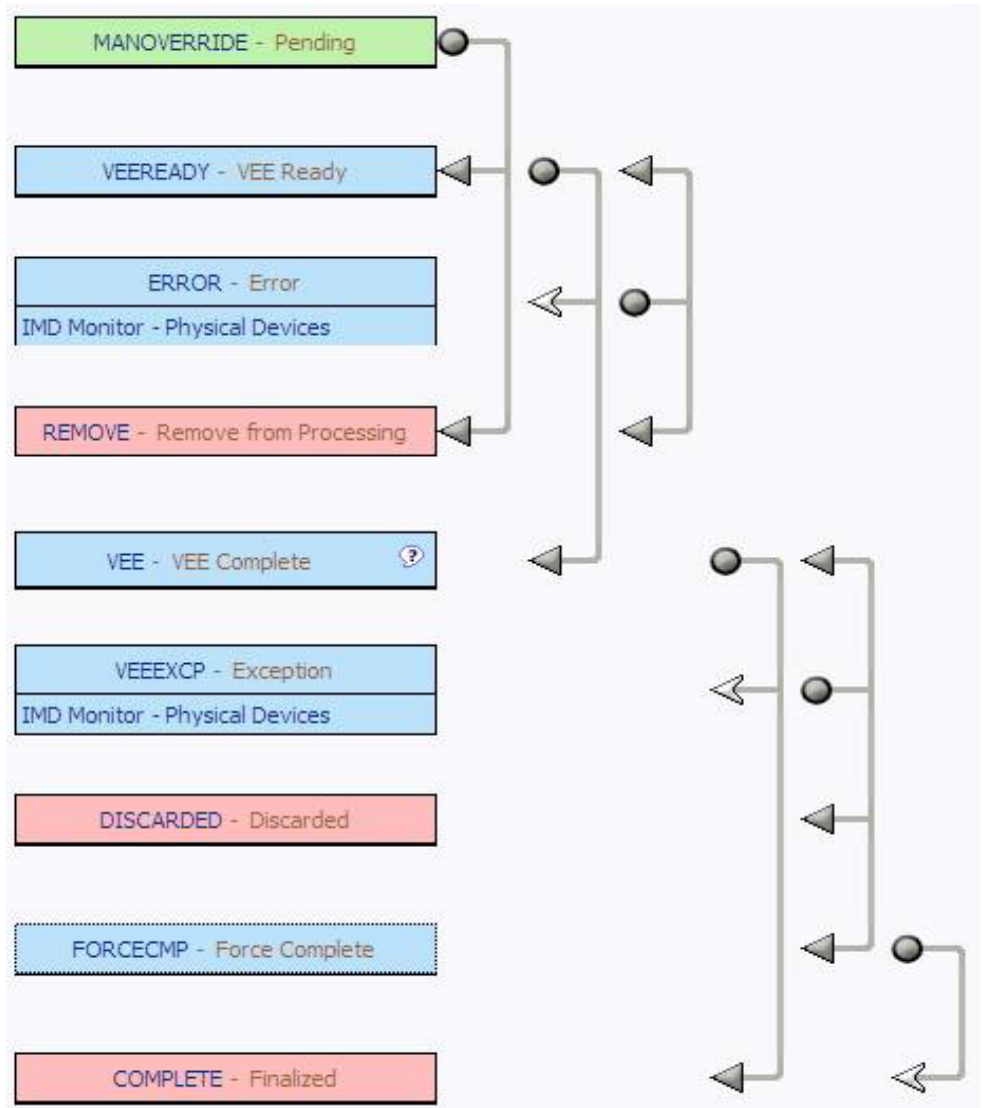
D1-InitialLoadIMDInterval



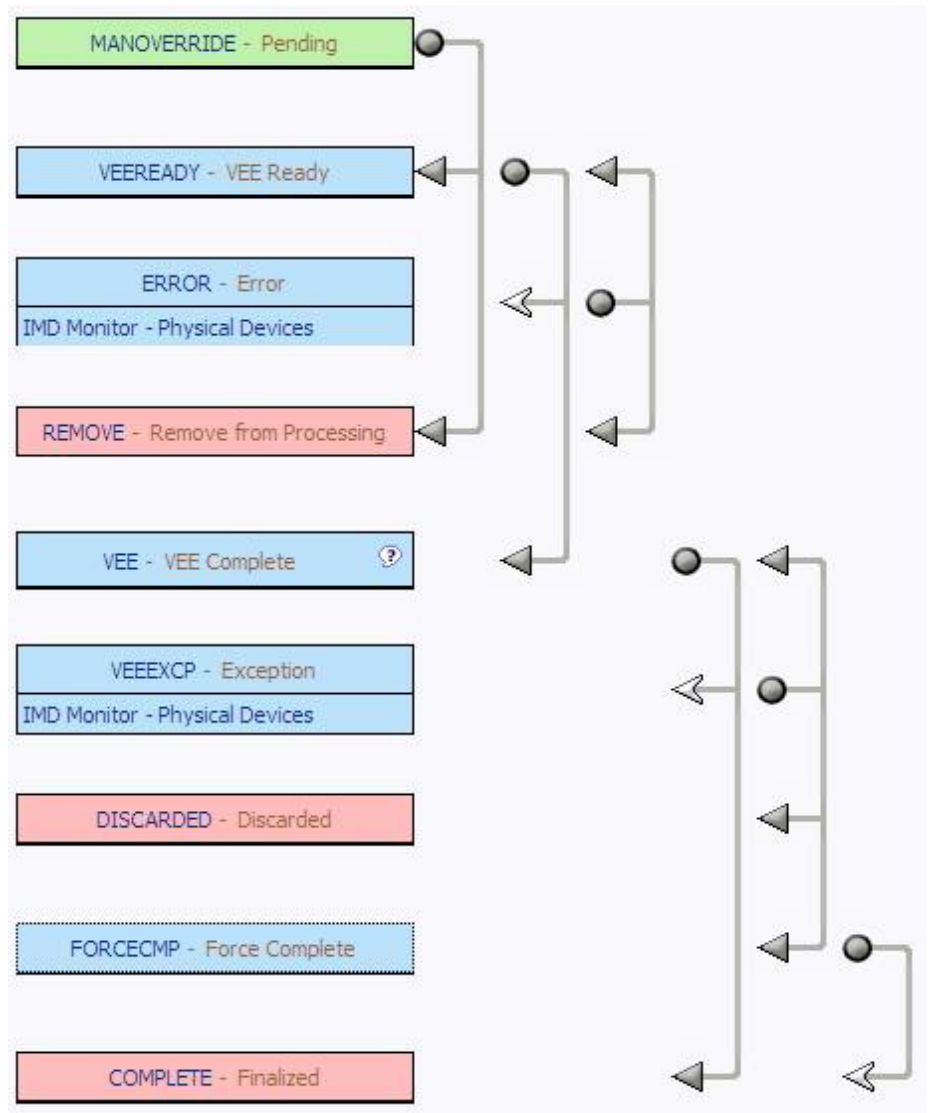
D1-InitialLoadIMDScalar



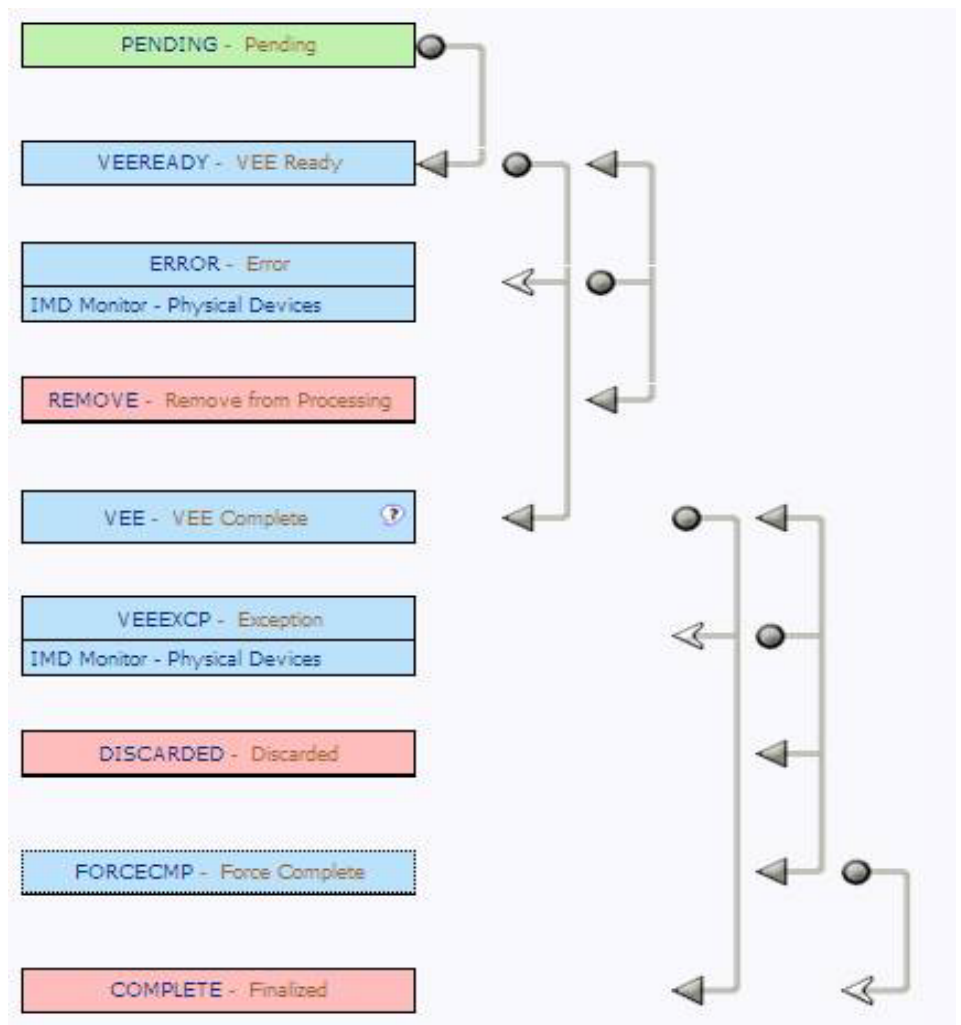
D1-ManualIMDInterval



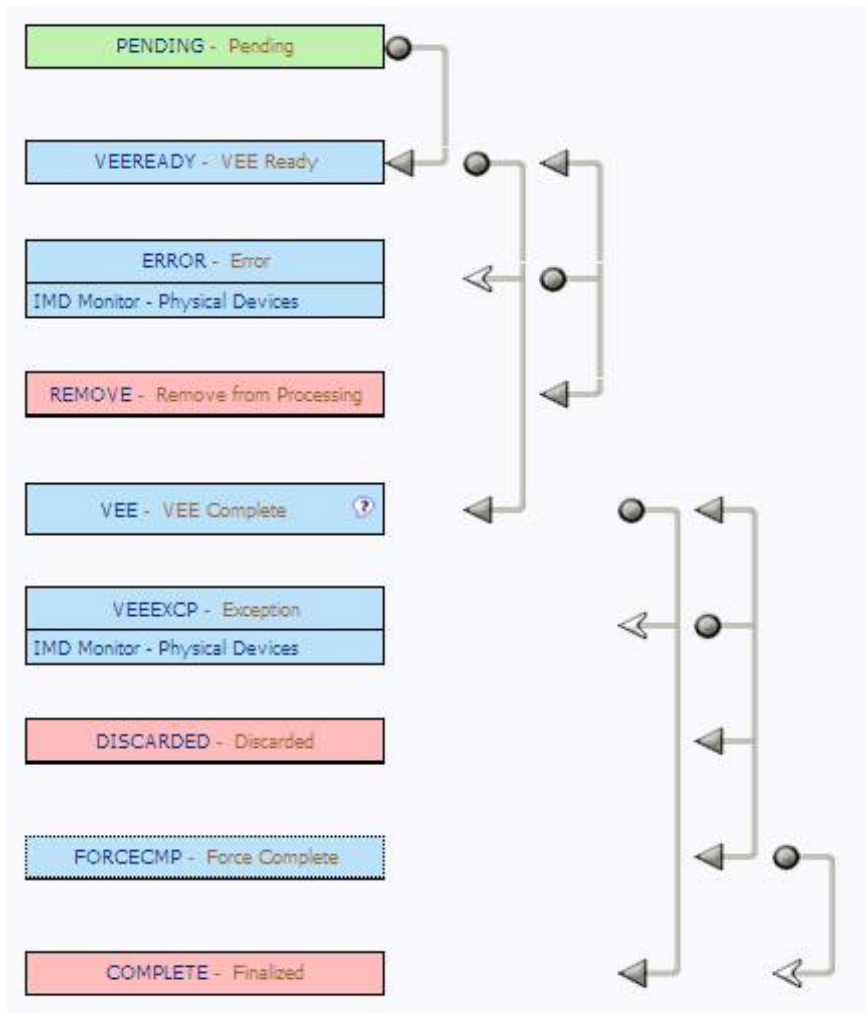
D1-ManualIMDScalar



D1-EstimationIMDInterval



D1-EstimationIMDScalar



Related Training

The following User Productivity Kit (UPK) modules provide training related to this business process:

- Oracle Utilities UPK for Meter Data Management Administrative Setup
- Oracle Utilities UPK for Meter Data Management User Tasks
- Oracle Utilities UPK for Meter Data Management VEE and Usage Rules
- Oracle Utilities UPK for Meter Data Management Working with Measurement Data