Inventory and Warehouse Management Validation Session

LOG-IM/WM-Validation
January 6, 7, 8, 2009

LaGov

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IM / WM Validation Session Agenda

- Purpose
- Work Session Recap
- Master Data Design
  - Key Design Elements and Decisions
  - Changes and Challenges
  - Open Issues
  - Benefits/Improvements
  - FRICE-W objects
- To-Be Processes by Topic
  - Key Design Elements and Decisions
  - Changes and Challenges
  - Open Issues
  - Benefits/Improvements
  - FRICE-W objects
- Conversion Strategy and Interim Solution
- Organizational Impacts
- Next Steps
- Questions
Purpose of Validation Sessions

Validation Sessions are intended to provide feedback to the workshop participants regarding the TO-BE process design:

- **Review and discuss TO-BE business process design.**
  - Confirm adherence to Leading Practices inherent in SAP or reasons for differing.
  - Ensure the State’s business requirements have been addressed.
  - Highlight decisions that define the process, approval steps, and integration points.

- **Review and discuss Master Data design.**
  - Address key integration points.
  - Support organizational requirements.
  - Consistent and appropriate use of data fields.

- **Identify areas of changing processes, roles, and responsibilities.**

- **Resolve open issues or identify strategies for resolution.**

- **Analyze and document the benefits, improvements, and challenges inherent in the TO-BE process design.**

*Note: Validation sessions are an affirmation of work session decisions, and assumes the SAP functionality knowledge covered in the TO-BE session.*
Purpose of Today’s Validation Session

- Review Inventory and Warehouse Management organizational structure.
- Define Material Master Data specific to Inventory and Warehouse Management processes.
  - General data
  - MRP specific data
  - Warehouse Management specific data
- Review process flows for goods movements.
  - Goods Receipts
  - Goods Issues
  - Stock Transfers
- Review Warehouse Management planning and monitoring tools.
- Review stock taking processes.
# IM / WM Workshop Session Recap

<table>
<thead>
<tr>
<th>Business Process</th>
<th>Workshop Codes</th>
<th>Goals</th>
<th>Work Session Date</th>
<th>AM/PM</th>
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</table>
| WM Specific Material Master | LOG-MD-005 | - Define differences between Warehouse Management and Inventory Management  
- Review Warehouse Management structure  
- Define key Warehouse Management material master data | 9/23-24/08 | 8:30am-4:30pm |
| MRP Specific Material Master | LOG-MD-004 | - Overview of general inventory replenishment and MRP concepts  
- Define key MRP material master data  
- Review MRP functionality and control data  
- Review forecast functionality  
- Determine forecast applicability based on consumption history | 10/7/08 | 8:30am-4:30pm |
| Inventory and Warehouse Goods Movement | LOG-IM/WM-002 | - Review goods receipt processes  
- Review transfer options between storage locations and plants  
- Review goods issue processes  
- Review scrapping process  
- Review transfer process for material status changes  
- Review control data for account determination in Inventory Management | 10/15/08 | 8:30am-4:30pm |
# IM / WM Workshop Session Recap

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<tbody>
<tr>
<td>Inventory and Warehouse Stock Taking</td>
<td>LOG-IM/WM-003</td>
<td>▪ Review physical inventory processes</td>
<td>10/16/08</td>
<td>8:30am-4:30pm</td>
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<tr>
<td>Warehouse Management Planning and Monitoring</td>
<td>LOG-WM-001</td>
<td>▪ Review process for monitoring transfer requirements</td>
<td>10/29/08</td>
<td>8:30am-4:30pm</td>
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<td></td>
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<td>▪ Review inbound and outbound delivery monitors</td>
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<td>▪ Review process for generating a pick list for items in multiple locations</td>
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<td>▪ Review process for combining multiple storage units into a single storage unit</td>
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<td>MRP Planning Run</td>
<td>LOG-IM-001</td>
<td>▪ Define MRP execution control parameters</td>
<td>11/5/08</td>
<td>8:30am-4:30pm</td>
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<td></td>
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<td>▪ Review and live demo of MRP execution process</td>
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<td>▪ Review and live demo of MRP evaluation and output processing</td>
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<td>▪ Live demo of purchase order cycle</td>
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<td>▪ Live demo of stock transport order cycle</td>
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<td>▪ Live demo of reservations and issues for consumption</td>
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Inventory and Warehouse Management Organizational Structure
**IM / WM Organizational Structure**

- **Plant:**
  - Is an operational unit within a single Company Code.
  - Is embedded in the organizational structure as follows:
    - A Company Code can have several plants.
    - Several Storage Locations in which materials (stock) are managed belong to a Plant.
    - A Plant can have both Inventory Management and Warehouse Management.
    - The valuation of inventory is instrumental in the determination of Plants within an organizational structure.
IM / WM Organizational Structure

- **Storage Location:**
  - Is an organizational unit allowing a physical delivery location, as well as the differentiation of material stocks within a Plant.
  - Is where stocks of materials are delivered and where inventory exists.

- **MRP Areas:**
  - Will be utilized to subdivide Plants into individual replenishment units.
  - Materials managed in MRP Areas will have both a Plant and MRP Area control data.
Inventory and Warehouse Management
Proposed Organizational Chart

INVENTORY MANAGEMENT

WAREHOUSE

PLANT MRP

PLANT

MRP AREA 1

DATA

RADIO MAINTENANCE

IM

IM

IM

IM

CENTRAL WAREHOUSE

WM

POLICE SUPPLY

CRIME LAB

HQ FLEET

IM

IM

IM

IM

DPS

PLANT
Inventory and Warehouse Management
Proposed Organizational Chart

DOTD

PLANT LEVEL MRP

DISTRICT 9

MRP AREA 1

PARISH 2

MRP AREA 2

PARISH 3

PLANT

MRP AREA 1

SECTION 7

CENTRAL WHAREHOUSE TRAFFIC

STORAGE LOCATION

STORAGE LOCATION

WAREHOUSE

ADDR

CENTRAL

YARD

WHS

CENTRAL

PARISH 2

PARISH 3
Inventory Management oversees the aggregate inventory position and item status.

- min/max
- quantity
- price
- unit of measure
- MRP functionality

Warehouse Management is used to manage complex warehouse structures.

- Management of items at bin level
- Warehouse Management is not possible without Inventory Management
Phase one of LaGov project:

- Identified 2 Warehouses within the State of Louisiana:
  - DOTD Central Warehouse
  - DPS Central Warehouse

- Identified multiple Storage Locations with Inventory Management functions only. For example:
  - DOTD Sections
  - DOTD Parishes
  - DPS Police Supply
  - DPS Crime Lab
  - DPS Fleet HQ
  - DPS Troops (vehicle repair shops)

- Determined use of MRP Areas. For example:
  - DOTD Parish 1 – MRP Area 1
  - DOTD Parish 2 – MRP Area 2
Change: Establishment of MRP Areas within Plant structure

- **Organizational impacts:**
  - Ability to have MRP generated replenishment proposals for local inventories, such as parishes, managed by one MRP Controller
  - Reduction of workload required to manage inventory at a stock location

- **Training requirements:**
  - Educating MRP Controller on inventory functions related to MRP Area
IM / WM Organizational Structure

Resolved Issues

- Determination of Wildlife & Fisheries’ organizational structure in relation to Inventory and Warehouse Management.
  - Wildlife & Fisheries will have four Plants and will utilize Inventory Management only.

- Final determination of DOTD’s organizational structure.
  - DOTD’s organizational structure has been defined.
- Define with Logistics the numbering scheme for Storage Locations and Plants.

- Discuss with PM and Agile Assets regarding Storage Locations and numbering – will Storage Locations be the same within both?
Establishment of MRP Areas can improve management of inventory at multiple locations. For example:

- DOTD districts will be able to view parish inventories to make better informed decisions regarding replenishment of stock.
Material Master Data - General

- Material Master Record:
  - Is a data record containing all of the basic information required to manage a material in SAP.
  - Creation of the record for non-inventoried materials requires the following views:
    - Basic Data 1 & 2
    - Purchasing
    - Purchase Order Text
    - Accounting 1 & 2
  - Contains both global and plant specific information.
  - Global information is shared across the ERP system and is maintained by a centralized work group.
Material Master Data – General
Key Decisions

- Internal numbering will be used for material numbers.
- UNSPSC codes will replace current commodity codes.
- Noun nomenclature will be used for short text fields.
- Multiple units of measure will be utilized.
- Open security so that agencies can view (not update) data within another plant.
- All new Material Master Records will be created by a centralized work group.
- Changes to global fields of the Material Master Record will be maintained by a centralized work group.
Material Master Data – General
Create Material Master Record

Process Name – Inventory Specific Master Data – Create Material Master Record

Requester

- Completes new material master record (MMR) form

Central Group

- Central Group (CG) receives the form
- CG to search MMR in all plants
- Does MMR exist?
  - Yes: Extend the MMR to requester’s plant
  - No: CG creates new MMR to enter global information and creates screens associated with material type

Requester to complete data entry on the MMR views for requester’s plant

Process termination
Material Master Data – General Changes & Challenges

- **CHANGE:** Centralized work group to be owners/maintainers of global information pertaining to the Material Master Records and inventory staff will maintain localized master data.

  - **Organizational impacts:**
    - Material Master Number Request forms will be completed by the requestor and sent to the centralized work group.
    - The centralized work group will create new Material Master Records and extend appropriate IM & WM views.

  - **Policy impacts:**
    - Policy and procedures will need to be established for completion of information sent to the centralized work group for additions, changes and deletions of Material Master Records.
    - Develop a policy and procedure for the maintenance of Material Master Records at the localized level.

  - **Training requirements:**
    - Personnel to complete required form for additions, changes or deletions of Material Master Records.
    - Maintainers must know the master data well and have the knowledge of which areas the master data impacts.
**Material Master Data – General Changes & Challenges**

- **CHANGE:** Internal numbering of Material Master Records

  - **Organizational impacts:**
    - Replacement of current stock numbering system

  - **Training requirements:**
    - Online search by selection criteria of Material Master Records (Description, Material Group, Plant, Material Type, etc.)
Material Master Data – General

Open Issues

- Develop a list of Material Types (classification of materials)
  - Examples of Material Types
    - Office Supplies
    - Janitorial Supplies
    - Automotive Parts
    - Safety Supplies
Material Master Data – General
Benefits & Improvements

- Material Master Record to contain uniform descriptive information shared across the ERP system.

- Will have the ability to view and manage a stocked item statewide by an identified Material Master Number.

- The master data process/maintenance will provide better notification of changes throughout the supply chain.
Material Master Data – General
FRICE-W Objects

- **Forms:**
  - Material Create / Change form (PDF form sent electronically to the centralized work group).

- **Conversions:**
  - Conversion strategy needed for material masters, inventory, bins, etc.
  - Current systems to be converted:
    - PIMS
    - Venice
    - Wildlife & Fisheries?
Inventory Specific Material Master Data
The centralized work group will extend the Material Master Record to specific Storage Locations that are utilizing Inventory Management.

The extension of the Material Master Record will result in the addition of the following views:

- Plant data/Storage Location data 1 & 2
- Plant Stock (display only)
- Storage Location Stock (display only)

These views contain both defaulted global and Plant specific information.

Only Plant specific information may be modified by inventory staff.

Financial information is tied to the Plant level material master data.
Decision needs to be made on the ability to valuate inventory differently across the parishes/state. Per DOTD, a weighted average price for each district would be acceptable.

- Each DOTD district will have the same weighted average price. For example:
  - The cost of gravel will be the same at both the district level and any parishes within this district.
Material Master Data

MRP Specific
Material Master Data
Material Master Data – MRP Specific

- Materials Requirement Planning (MRP) will be used to create replenishment proposals for inventoried materials at the Plant / MRP Area level.

- Material Master MRP views will be extended by the centralized work group to Plant/Storage Locations that will utilize MRP functionality.

- The extension of the Material Master Record will result in the addition of the following views:
  - MRP 1, 2, 3 & 4
  - Forecasting

- Multiple inventory locations can be grouped as one MRP Area managed by one MRP Controller on the MRP Area views.

- MRP specific information will be managed by inventory staff, usually the MRP Controller.
Consumption driven MRP will only be activated after sufficient consumption history has been generated in the system. It will then be based on manual reorder point and safety stock.

The statistical forecast and automatic reorder point and safety stock determination option will be available once an appropriate consumption history has been generated where:
- The material has a non-sporadic consumption history.
- A realistic replenishment lead time and service level can be defined.

If a new material is added to the MRP, and the warehouse determines that the material is relevant for statistical forecast, the following options are available:
- Assign an existing material with similar consumption values as reference.
- Let the material build up consumption statistics over at least 3 months and then initialize the forecast.
LaGov project will utilize MRP functionality.

MRP Areas, with assigned Storage Locations, will be used to subdivide the lowest level under a Plant where MRP will apply.

DOTD will utilize MRP Areas by assigned Storage Locations at the parish level.

One or more MRP Controllers can be designated for an inventory site, each being responsible for the replenishment planning of different materials.

One MRP Controller will be assigned to each MRP Area.

MRP Types include manual or automatic reorder points that are determined with or without external requirements.
Material Master Data – MRP Specific
Key Decisions

- Applicable MRP Types have been determined.
- Applicable Lot-sizing selections have been determined.
- Material Master MRP and Forecasting control data is owned and maintained at the inventory site by the Inventory Manager.
- The forecast functionality will be available at Plant and MRP Area level.
Material Master Data – MRP Specific
Creating / Adjusting MRP Master Data

B.08-LOG-MD-PDD004-Material Master Record - MRP

Start

Material MRP control data needs adjustment

Maintain Material MRP parameters

Material needs statistical forecast?

Yes → New material without consumption history?

Yes → Can other material consumption history be referenced?

No → Manually set ROP and safety stock

Yes → Material to be planned in MRP?

No → End

Yes → End

Maintain forecast parameters and initialize forecast

Forecast acceptable?

No → Manually determine forecast model and re-execute

Yes → Forecast acceptable?

Firebase ORC MRP

New inventoried material

Central Master Data Maintenance
CHANGE: Inventory personnel to be responsible for inventory specific Material Master information.

- Organizational impacts:
  - Inventory Manager to maintain information specific to their Plant/Storage Location.

- Policy impacts:
  - Policy and procedures will need to be established for completion of information specific to a Plant and/or Storage Location.

- Training requirements:
  - Training of personnel to maintain information on the Inventory/MRP/Forecast related views of the Material Master Record.
Change: Establishment of MRP Areas.

- **Organizational impacts:**
  - Establishing at least **one** MRP controller per MRP Area.

- **Policy impacts:**
  - Policy and procedures need to be developed for maintenance of inventory within an MRP Area. For example:
    - Min/max
    - Reorder points
    - Safety stock

- **Training requirements:**
  - Train the MRP Controller.
Material Master Data – MRP Specific Changes & Challenges

- **Challenge:** Identification of materials that require MRP and Forecasting functionality.

  - **Training requirements:**
    - Training of personnel to properly identify materials that require MRP functionality and appropriate forecasting parameters.
Material Master Data – MRP Specific Resolved Issues

- **Look at use of vendor consignment (special procurement keys) relating to fuel.**
  - Vendor consignment fuel is not part of Inventory Management.

- **Determine locations where MRP applies.**
  - All inventory areas maintaining min/max will need MRP functionality.

- **Determine use of MRP Areas and/or Storage Location MRPs.**
  - MRP Areas have been defined.

- **Gather information regarding which Plants will be the supplying Plants for a particular material.**
  - DOTD districts will supply items to parishes.
  - DOTD Central Warehouse will supply items to districts.
Material Master Data – MRP Specific
Resolved Issues

- Look into MRP generated Stock Transfers being 2 step (issue/receipt).
  - **Stock Transport Orders** will be utilized for moves from:
    - Central Warehouse to district
    - Central Warehouse to parish
    - district to district
    - district to parish outside of plant
  - **Stock Transfers** will be used for local moves within the same stock location, such as a district moving an item from inside storage to stock yard.

- Integrate with Purchasing to include the MRP Controller as an approver to MRP generated Stock Transport requisitions and requisitions for external procurement.
  - Release of the requisition by the MRP Controller serves as the approval by the MRP Controller.
Possible numbering schemes for MRP generated requisitions – if different approvals are needed than for regular requisitions, MRP requisitions could have a different number range to trigger a separate strategy.

- By default the system sets a flag in the requisition indicating whether it was MRP generated or manually generated. Approvals can be based on this flag.
Material Master Data – MRP Specific
Tasks to be Completed

- Define MRP Types per material.
- Define Lot-sizing procedures per material.
- Define any Special Procurement Types.
- Define Lead Time Elements for materials.
- Assign MRP Controllers.
- Determine use of statistical forecasting.
- Conversion requirements and logic.
Material Master Data – MRP Specific
Benefits & Improvements

- Allows for more efficient management of inventories located within a Plant or several Plants.

- Increased visibility of inventoried items.

- Increased ability to plan and forecast needs.

- Statistical consumption data is available from one system.

- Replaces manual entry of requisitions, which speeds up the replenishment process.
Material Master Data – MRP Specific
FRICE-W Objects

- **Forms:**
  - In-house form for changes pertaining to MRP specific master data

- **Reports:**
  - Replenishment report

- **Conversions:**
  - Additional required information needed for Material Master:
    - MRP Types
    - Lot-sizing Procedures
    - Special Procurement Types
    - Lead Time Elements
Warehouse Management
Specific
Master Data
Master Data – WM Specific

- Warehouse specific Material Master data will be used to manage complex warehouse structures.

- Warehouse Management (WM) is an extension of Inventory Management.

- WM Material Master views will be extended by the centralized work group to Storage Locations that will utilize WM functionality.

- The extension of the Material Master Record will result in the addition of the following views:
  - Warehouse Management 1
  - Warehouse Management 2
Master Data – WM Specific

- WM does not have financial implications.

- WM specific information will be modified by warehouse staff, usually the Warehouse Manager.

- Bin master data will be created and maintained by the Warehouse Manager.
WM specific material master data includes general material data, storage strategies, palletization data, and storage bin material quantities data (min, max, replenishment quantity, etc.).

Storage bin master data includes storage section, storage bin type, picking area, max bin weight, bin capacity (if relevant) and bin blocking indicators.

Storage bins are maintained per warehouse and storage type.
Master Data – WM Specific
Key Decisions

- Identified current warehouse(s) / yards(s) that will utilize WM.
  - Only two warehouse locations have been identified:
    - DOTD Central Warehouse
    - DPS Central Warehouse

- What numbering scheme will be used for warehouses?
  - Since only two warehouses have been identified, the warehouse number will be designed and created by the centralized work group.
  - Numbering of warehouse location inventories must be a unique identifiable number. For reporting purposes, warehouse location numbering can not be duplicated across plants within the state.
1. Request to update the WM view

2. Change Material Master

3. Notify the Central Control Group to extend the WM view

WM view exists?

NO

YES

Create Material Master

STOP
Master Data – WM Specific
Flow Chart - Storage Bin Creation/Maintenance

START

Request to maintain Bin

New Bin? YES -> Create Storage Bin

NO -> Block / Unblock?

YES -> Block / Unblock Storage Bin

NO -> Change Bin?

YES -> Change Storage Bin

NO -> Display Storage Bin

STOP
CHANGE: Inventory personnel to be responsible for the maintenance of WM specific Material Master information.

- **Organizational impacts:**
  - Warehouse Manager to maintain information specific to their warehouse.

- **Policy impacts:**
  - Policy and procedures will need to be established for completion of information specific to a warehouse location.

- **Training requirements:**
  - Training of personnel to maintain information on the WM related views of the Material Master Record.
Master Data – WM Specific Tasks to be Completed

- Identify warehouse layout
  - pick zone/fixed bin/packing area, etc.
- Define storage types
  - bulk, fixed, etc.
- Define storage sections (optional)
  - fast, medium, slow, etc.
- Define bin attributes
  - size, weight capacity, etc.
- Define bin numbering scheme
  - For example: Aisle/Shelf-Bin = A52-01
Master Data – WM Specific Benefits & Improvements

- More accurate visibility of items located in multiple locations within the warehouse.

- Can define fixed bin locations, pick strategy, putaway strategies.

- Can specify WM unit of measure, which is different than the basic unit of measure. This allows movement of materials within the warehouse based on the larger unit of measure.

- Automatic bin replenishment can be triggered based on min/max quantity maintained in WM views.

- Can maintain palletization information, i.e. how many WM units make a full pallet. Avoids the need of conversion every time the material is moved.
Master Data – WM Specific
FRICE-W Objects

- **Forms:**
  - In-house form for changes pertaining to WM specific master data.

- **Reports**
  - Material Master listing with bin locations, min/max, quantity, etc.

- **Conversions:**
  - Additional required information needed for Material Master:
    - Storage Types
    - Storage Sections
    - Storage Bin Types
    - Minimum Bin Weights
    - Maximum Bin Weights
    - Bin Capacities (if relevant)
Requests for
Inventory Items
Discuss with Procurement where the interface will be for the requisition/reservation process for inventoried items.

– Currently evaluating three options.
Discuss with Procurement how an inventory item with split valuation (new and refurbished) will be handled on a requisition. If the refurbished item is requested but not available, approval is needed to issue the new item at the higher price.

Can SRM/ECC allow the ATP (available to promise) check to be performed before the approvals?

ATP check is currently only at Plant level through SRM. Needs to be at Storage Location level.
IM & WM – Requests for Inventory Items
FRICE-W

- Reports

- Report that can be generated by plant, storage location or warehouse that will list inventory items with on hand quantities.
Transfers
**IM & WM – Transfers**

- **Stock Transfer**
  - Used for internal *physical* movement of a material where the account assignment does not change (i.e. Storage Location to Storage Location, bin to bin).
  - Inventories will decrease at the source location and increase at the destination location.
  - Financial implications do not occur with this transaction.

- **Stock Transport**
  - Used for *physical* movement of a material where the ownership changes from the source location to the destination location (i.e. from Plant to Plant; district to district).
  - Inventories will decrease at the source location and increase at the destination location with this transaction.
  - Financial implications will occur with this transaction.

- **Transfer Posting**
  - Used for the *logical* movement of a material from one category to another within the same location (i.e. from ‘blocked stock’ to ‘unrestricted use’).
  - Financial implications do not occur with this transaction.
### IM & WM – Transfers

- **Internal Physical Transfers:**
  
  - Can be accomplished via the 1-Step method or the 2-Step method.

  - **1-Step method:**
    - Step 1 - issue the item to the final destination.

  - **2-Step method:**
    - Step 1 - issue the item to an interim location.
    - Step 2 – issue the item from the interim location to the final destination.
B.08-LOG-IM-PDD002-General Inventory Processing/Storage Location to Storage Location Transfer 1 Step

IM Transfers
Storage Location to Storage Location – 1 Step

- Start
  - Material needs to be moved to another Storage Location
  - Stock Transfer posting Stor. Loc. to Stor. Loc. (Step 1)

- Receiving Storage Location
  - Material available
  - End
WM Transfers
Bin to Bin

1. Stock Transfer Requirement Identified
2. Create Transfer Order (TO)
3. Transfer Order Assigned To Operator
4. Material Moved & Putaway
5. Putaway / TO Confirmed
WM Transfers
Stock Replenishment at Bin Level

START

By Delivery

Manual, Min/Max, or by Delivery?

Manual

Min/Max

Deliveries are taken into consideration before picking takes place.

Pick is performed that brings inventory level below minimum required quantity

Transfer Orders (TO) automatically generated

Report is generated that list potential replenishment candidates

Primary pick locations that require more materials to fulfill delivery requirements are identified.

Primary pick locations that are below a predefined minimum level are identified

A
**WM Transfers**

**Stock Replenishment at Bin Level**

1. **A**
   - FIFO search for partial or full pallets that will bring the location inventory to the predefined maximum

2. Material is brought to destination bin

3. Qty. fit in the dest. bin?
   - Yes: Bins are replenished
   - No: Bins are filled to max

4. Correct Qty is confirmed on the TO

5. Create a TO for excess quantity

6. End

7. WM Internal Material Movements
IM & WM Transfers
Open Issues

- How will SAP handle production orders and/or sales orders currently utilized by DOTD (inter-agency transfers)?

- Review delivered reports regarding transfers.
IM & WM Transfers
FRICE-W Objects

- **Forms:**
  - Development of an internal transfer document for internal movements and/or transfer postings
  - Development of a packing list for stock transport orders

- **Enhancements:**
  - Ability to initiate bin to bin transfers using RF device

- **Workflow:**
  - Approvals needed for Stock Transport Orders
Goods Receipts
IM & WM Goods Receipts

- A Goods Receipt (GR) transaction will be entered for all items received into inventory. Inventory will be increased by the GR quantity upon completion of this transaction.

- A GR transaction will also be entered for all non-inventoried items received at an inventory location through a purchase order. This will allow tracing capability of these items.

- A GR transaction is the only transaction needed if an inventoried item is received into an IM only facility.

- If an inventoried item is received into a WM facility, further movement transactions will be needed to place the items into a bin location within the warehouse.
IM & WM Goods Receipts

- Items that require quality inspection before acceptance and placement into inventory can be placed in either:
  - **GR blocked status** - valuation *does not* occur until the items are approved and moved to unrestricted use status.
  - **Quality Inspection (QI) status** - valuation *does* occur when items are placed into QI status.

- WM inbound transactions can be completed with RF devices and barcode enabled functionalities.

- Inbound Deliveries will be utilized for items returned to WM warehouses.
IM & WM Goods Receipts
Key Decisions

- Automatic R-Mail notification to the purchasing office is not required for goods received.

- Non-valuated Material Type will be used for items that are expensed at purchase, but still need to be managed on a quantity basis in Inventory Management.

- Split valuation will be used to enable different inventory cost prices for new and used/overhauled components. Valuation type will have to be entered for all goods movements of materials subject to split valuation.
IM & WM Goods Receipts
Key Decisions

- IM - Shelf Life Expiration Date information will be utilized through Batch Management. The vendor batch number and shelf life expiration date will have to be entered at the time of the GR transaction.

- WM – Shelf Life Expiration Date can be drilled down to the quant level.

- Serialization will be used to keep track of serialized materials. Serial numbers will have to be manually entered each time this item is relocated (example: LED traffic lights).
IM Goods Receipts
GR for PO Item

B.08-LOG-IM-PDD002-General Inventory Processing - GR for PO

Procurement
Purchase order processing

Accounts Payable
Invoice Verification
End

Warehouse 1
Start
Shipment arrives at receiving dock
Verify and scan items received into IM
Incoming inspection required?
Yes
Lab test required?
Yes
Issue sample quantity
Transfer posting from QI stock to Unrestricted
Vendor return processing
No

Labs/test facility
Perform test as required
Passed test?
Yes
No
Warehouse Management
Receiving Process for PO and STO

1. PO/STO Created
2. Print Receiving Document (Unloading Worksheet)
3. Unload / Inspect goods
4. Enter/Scan Pallet Info: Qty, PO No, SU label (TBD), Material, Staging Location
5. Post Goods Receipt Through PO
6. End
7. Warehouse Putaway Processing
8. Transfer Requirement Created
Warehouse Management
Goods Receipts – Putaway

Stock transfers inter/intraplant receipts

Material has been received and is staged.

Putaway task created

Putaway operator logs onto RF putaway function OR system

Putaway operator scans Transfer Order / Selects TO on system

Destination information appears

Customer Returns

Vendor Receipt

End

Confirm storage bin on RF /System

Place material in storage bin
CHALLENGE: If the account assignment field is left blank on the purchase requisition/purchase order and the item has a Material Master Record, then the item is received as an inventory item.

- **Organizational impacts:**
  - Item would have to be received into inventory via a Goods Receipt and then issued to the requestor via a Good Issue.

- **Training requirements:**
  - Strong emphasis should be placed on the importance of correct entries to the account assignment field of purchase requisitions/purchase orders.

- **Option:**
  - Authorization for ordering inventoried items may only be given to inventory personnel through user profiles.
IM & WM – Goods Receipts
Resolved Issues

- Look into necessity of printing a GR slip with every GR transactions vs. using the online system.
  - Utilization of online system with ability to print GR information as needed
  - Development of a GR slip

- How to handle zero dollar amount items in inventory (bank bags, DOTD produced forms, DOTD sheeting)?
  - Will be handled as non-valuated materials

- Discuss under and over delivery tolerances with Finance and Procurement. IM/WM group not in favor of under delivery tolerances due to the encumbrance funds issue, but do need to look closer at overages.
  - No under delivery tolerances will be allowed

- Discuss with Purchasing requisitions to blanket orders, scheduling agreements, etc.
  - A similar functionality for blanket orders will be utilized in SAP.
IM & WM – Goods Receipts
Open Issues

- Forced in receipts on POs that are marked ‘delivery complete’ (encumbrance cancelled when delivery marked complete before all items are received). To be discussed with Procurement.

- Discuss with PM work orders with byproducts (i.e. poles/J bolts)

- Mobile solutions to map serial numbers to GRs.
Discuss with Finance the determination of valuation classes between IM and Financial Accounting.
IM & WM – Goods Receipts
FRICE-W Objects

- **Forms:**
  - Barcoded inbound worksheet for RF device use in receiving items into the warehouse
  - Standardize GR form needs to be developed

- **Reports:**
  - Development of customized reports regarding GRs

- **Enhancements:**
  - RF transactions for receiving/putaway
Goods Issues
A Goods Issue (GI) is initiated by either a Reservation, Stock Transport Order, Outbound Delivery or verbal request (walkup customer).

Stock Transport Orders will be used to move inventory items from one Plant to another Plant location.
- Example: DOTD District 1 to DOTD District 2

A GI transaction will be initiated for all items issued from inventory.

A GI transaction will decrease the quantity of the inventoried item.

A GI transaction is the only transaction needed if an inventoried item is issued from an IM only facility.
IM & WM Goods Issues

- If an inventoried item is issued from a WM facility, further movement transactions will be needed to pick the items from a bin location within the warehouse.

- WM outbound transactions can be completed with RF devices and barcode enabled functionalities.

- Picking strategies can be applied, but are optional.
DOTD work-orders may require, for a short period of time, a negative stock quantity and stock value for certain Storage Locations and material combinations where mobilized GIs will occur before the GR transactions.

– Example: hot-mix

Batch Status Management will be used to enable blocking of specific batches for GI.

– Example: Items with expired expiration dates
Key Decisions

- WM - Outbound Deliveries will be used when delivering items issued out of inventory.

- WM - The Outbound Deliveries will be initiated based on reservations entered by the requestors.

- Approvals/Account assignments for unplanned issues will be obtained verbally.
IM Goods Issues
GI for Cost Center – Unplanned Pickup

B.08-LOG-IM-PDD002-General Inventory Processing/GI for Cost Center – Unplanned Pick-up

- Procurement Approver
  - Approved?
    - No
    - Yes

- Requestor
  - Start
  - Ad hoc material supply determined
    - Yes
    - No

- Warehouse
  - Approval required?
    - Yes
    - No
  - Call approver
    - GI for account assignment
      - End
B.08-LOG-IM-PDD002-General Inventory Processing/GI - Stock Transport No WM

1. Procurement Approver
   - Approval processing

2. Receiving Warehouse
   - Start
   - MRP Processing
   - Create STO based on approved Stock Transport Requisition
   - Monitor Stock in Transit
   - Receive and post GR for Stock Transport Order
   - End

3. Sending Warehouse
   - Ship and post GI for Stock Transport Order
WM Goods Issues
GI – Stock Transport with WM

B.08-LOG-IM-PDD002-General Inventory Processing/GI – Stock Transport WM

1/21/2009
IM Goods Issues
GI for Scrap

B.08-LOG-IM-PDD002-General Inventory Processing/GI for Scrap

<table>
<thead>
<tr>
<th>Approver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approved?</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Warehouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start</td>
</tr>
<tr>
<td>Material is obsolete or damaged beyond repair</td>
</tr>
<tr>
<td>Request scrap approval</td>
</tr>
<tr>
<td>GI for scrap with reason code</td>
</tr>
<tr>
<td>End</td>
</tr>
</tbody>
</table>
WM Goods Issues
Delivery Out of Inventory

B.08-LOG-IM-PDD002-General Inventory Processing - Delivery out of Inventory

Procurement

Approved?

Procurement Sourcing

Requestor

Start
Material supply required
Create reservation
Rejection notification

Yes
End

Warehouse

Conversion of Reservations to Outbound Deliveries

End

WM Picking Process

Group Deliveries according to destination

GR for PO

End

Ship and post GI for Outbound Delivery

Yes

Enough inventory available?

MRP repl. processing

End

1/21/2009
IM & WM Goods Issues
Changes & Challenges

- **Challenge:** Approvals/account assignments for unplanned issues will be obtained verbally. Approvals will be entered in the text field of the material document.

  - **Organizational impacts:**
    - Employees must be knowledgeable of account assignments (i.e. work order number, cost center, project number).

  - **Training requirements:**
    - Inventory staff must have knowledge of appropriate approver(s) per agency.
IM & WM Goods Issues
Resolved Issues

- SME’s to provide samples of issuing documents.
  - Samples provided by DOTD and DPS.

- Resolve issue of items loaned to non-agency entities or contractors that are not returned.
  - Proposed solution is that non agency entities and contractors will be billed for the items. Items will no longer be loaned.

- Need approval process for unplanned issues.
  - Approvals for unplanned issues will be obtained verbally and will be entered in the text field of the material document.

- Discuss with Linear Assets how the concrete and hot mix inventories will be handled in SAP.
  - Concrete/hot mix will be handled in Inventory Management and may result in a temporary negative stock.
Discuss with Agile Assets and/or Plant Maintenance if linear assets such as LEDs (for traffic lights) and cameras will be issued as a consumable item or considered an asset.

Review fuel requirements for DOTD Alexandria area (bulk fuel vs. statewide fuel contract); price changes weekly. To be discussed with Fleet Maintenance.

Discuss with Plant Maintenance/Project approval of work orders/projects and the associated Goods Issues.
**IM & WM Goods Issues**

**Open Issues**

- Talk to Human Resources (HR) to see if items issued can be tracked to the person it was issued to through an HR line (i.e. State Police uniforms)
  - HR consultant to advise. Object can be linked to assets, but not sure if object can be linked to inventory/warehouse.

- Review delivered Goods Issue reports.
Discuss with Procurement the Stock Transport process.

- Determine approach to handling Stock Transport approvals.

  - SRM does not recognize Stock Transport Requisitions.

  - Approvals are required in DOTD and potentially other departments as well.
Forms:
- Development of pick list, issue ticket, and packing slip to include barcoded information.

Enhancements:
- Transformation of Reservations into Outbound Deliveries for triggering of WM picking for reservations. Reservations will need to be deleted after transformation.
- Development of custom tables for status management and mapping of cost centers to ship to addresses in regards to transformation of Reservations into Outbound Deliveries.
- RF transactions for WM picking process.

Workflow:
- Approvals for Goods Issues based on Reservations as well as walk up customers.
GOODS MOVEMENTS
GENERAL INFORMATION
IM & WM Goods Movements – General

Open Issues

- Discuss with Agile Assets about inventories with serial numbers that need to track warranty issue.

- Discuss with PM items going from field back to inventory, sent for repair, and back into inventory after repaired (LEDs). Need to track by serial numbers and have split valuation.
Inventory Management will be integrated with the SAP Financial module, Plant Maintenance module, and Project Systems module.

- Eliminates dual system entries

Document flow of goods movements will provide full traceability of items received which may include relevant information such as:

- Reservation/Purchase Order
- Account Assignment
- Vendor/Supplying Plant
- Date of GR
- Date of GI
IM & WM Goods Movements – General Benefits & Improvements

- Visibility of statewide inventories allows for improved distribution of inventoried items.

- All transactions are completed online, reducing manual paperwork currently used for goods movements.

- Use of RF devices in WM will reduce paperwork and time required to complete goods movement transactions.

- Use of RF devices in WM will reduce clerical data entry errors.
Materials Requirement Planning

MRP Run
Materials Requirement Planning – MRP Run

- The MRP process is an online system process used for the replenishment of inventoried materials.

- MRP looks at Inventory Management, not Warehouse Management.

- MRP looks at the current stock requirements situation and creates MRP Lists containing replenishment proposals.

- The replenishment proposals are reviewed and approved by the MRP Controller.
Currently Consumption Driven MRP applies across reviewed agencies.

MRP Areas will be utilized to subdivide Plants into local replenishment units.

MRP output will be:

- *Planned Orders* for external procurements and stock transports between Plants.

- As an exception, replenishments within the same plant can only be *Stock Transport Requisitions*.

For example:

- District to Parish
- DPS Central Warehouse to Data Inventory
Challenge: Training of MRP Controller

- Training requirements:
  - MRP Controller training to involve both system training and forecasting analysis training.
Resolved Issues

- Discuss with Procurement what is the option for synchronization of price.
  - Requisition costs will be imported from the Material Master Record.
Review of MRP specific reports available in SAP system to determine if needs are met.
• Discuss with Procurement the requisition process.

  – Determine approach to handling MRP generated requisition approvals.
Materials Requirement Planning – MRP Run
Benefits & Improvements

- Automated system assists day to day planning of materials.
- Real time check on statewide inventory items.
- Forecasting capabilities can automate the determination of the safety stock and reorder point.
- Efficient management of inventory levels results in lower costs and higher service standards.
Materials Requirement Planning – MRP Run
FRICE-W Objects

- **Reports:**
  - Need report listing purchase requisitions/purchase orders by Storage Location.

- **Conversions:**
  - Current Material Master MRP data

- **Workflow:**
  - Approval process for Stock Transport Requisitions
WM Planning and Monitoring
WM Planning and Monitoring

- The WM planning and monitoring process will use three tools to monitor the warehouse:
  - Warehouse Activity Monitor
  - RF Monitor
  - Delivery Monitor

- The Warehouse Activity Monitor allows warehouse administrators the ability to oversee, plan, and optimize work processes in the warehouse.

- The RF Monitor allows warehouse administrators the ability to oversee and plan warehouse activities, i.e. assign or reassign workloads through a queue.

- The Delivery Monitor indicates both Inbound and Outbound Deliveries and the status of these deliveries.
Change: Utilization of RF devices allows for material movement requests to be continuously assigned or reassigned to warehouse personnel.

– Organization impacts:
  • Establish infrastructure for RF devices resulting in purchase of RF guns, barcode printers, etc.

– Training requirements:
  • Employee training of RF devices.
Resolved Issues

- Discuss with Procurement how the monitoring of past due PO items will be handled.
  - Report to be provided showing all open PO items.

- Determination of warehouse activities to be executed through RF devices.
  - The majority of warehouse activities can be handled through RF devices.
WM Planning and Monitoring
Tasks to be Completed

- Agencies to provide listing of putaway and pick strategies. For example:
  - Based on min/max quantities
  - Maintenance of Shelf Life / Expiration dates
  - FIFO
  - LIFO
WM Planning and Monitoring
Open Issues

- Discuss with Finance and Procurement the inventory integration of P-Card Goods Receipts (GR for inventory procured without reference).
  - Procurement currently evaluating two possible processes.

- What are the requirements to support the RF device infrastructure?
Automated monitoring of Warehouse Management processes.

Automated recognition and display of errors provides increased efficiency in monitoring of personnel tasks.

RF device allows for reassignment of workloads based on real time queue reports generated.
Stock Taking
IM Stock Taking Processes:

- **Periodic Physical Inventory**
  
  • A count of all inventory items located within a Storage Location performed on a periodic basis. Usually performed annually.
  
  • Requires shut down of all inventory operations until counts have been completed and differences reconciled.

- **Continuous Physical Inventory**
  
  • Stocks are counted continuously during the entire fiscal year.
  
  • Important to ensure that every material is physically counted at least once during the year.
– **Cycle Counting**

• A count of all inventory items at regular intervals within a fiscal year.

• The cycle counting indicator determines the intervals of the cycle count.

– **Inventory Sampling**

• Random selected stocks to be physically counted on a specific date.

• If the variance between the count and the book inventory balances are within a certain range, it is presumed that the book inventory balances are correct for all other items.
IM Stock Taking

- IM inventory count is carried out at the Material/Storage Location level.

- Freezing book inventory balances allows you to take a snapshot of the system inventory levels when the count took place. This enables you to lift the block indicator when the count has been taken and allows business to continue while reconciling and posting of inventory differences is being completed.
WM Stock Taking

- **WM Stock Taking:**
  - **Annual**
    - A count of all inventory items located within a Plant/Warehouse performed on an annual basis.
    - Requires shut down of all inventory operations until counts have been completed and differences reconciled.
  - **Random**
    - Unscheduled stock counts performed on an as needed basis throughout the year.
    - Can be a single bin, multiple bins, or all bins.
  - **Periodic**
    - Performed on a continuous basis.
    - Cycle counting is determined by A, B, C scheme.
WM Stock Taking

- WM inventory count is carried out at the bin level.

- WM Continuous Inventory may be completed at the time of an inventory putaway.

- WM allows for zero stock check during stock removals.

- WM stock taking processes may be completed with the RF device.
Any variations of the different stock taking processes can be utilized within a Storage Location.

Selections for physical inventory counting documents can be by Storage Locations, Material Type, Material Group or Bin Number.

Physical inventory documents can be created and printed prior to the actual blocking of materials for inventory count.
IM & WM Stock Taking

- IM and WM inventory must always match.
  - Any differences between WM and IM inventory counts will post to “Interim Storage Area for Differences”.
  - Differences will have to be reviewed to determine if they are valid.
    - If not valid, a recount for that material may be needed.
    - If valid, you will clear the differences, which will automatically update IM inventory to match WM.
IM & WM Stock Taking
Key Decisions

- Periodic Physical Inventory (wall-to-wall) will be used by all agencies at least once per year.

- Continuous Physical Inventory will be available and optional for any agency that wants to spread a physical inventory across the year.

- Cycle Counting will be available and optional for any agency that wants to count fast moving items more frequently than slow moving items.
Challenge: Goods Issues are blocked when materials are blocked for inventory taking.

- **Policy impacts:**
  
  • Procedures need to be established for planned work orders requiring issuance of inventory items during inventory stock taking.
Change: RF devices will be used for WM stock taking process.

– **Organizational impacts:**

  • The establishment of RF device infrastructure including purchase of RF devices, barcode printers, etc.

– **Training Requirements:**

  • Train personnel on use of RF device.
Look into RF gun process for inventory taking.
  
  – RF devices will be used for WM stock taking only.

Need reason code or comment field for discrepancies in inventory.
  
  – Reason codes are available in SAP.
Discuss with PM – blocked Goods Issues when materials are block for inventory (what are the organizational impacts?).

- Check to see if annual inventory is required by law or if continuous inventory can be used.

- Define reason codes applicable to LaGov for stock taking discrepancies.
IM & WM Stock Taking
Benefits & Improvements

- Better control over stock adjustment via document posting/audit trail.
- Stock visibility at the bin level.
- Reduced time required to take WM annual inventory count using the RF device.
- Added system functionality for physical inventory and stock adjustment in warehouse.
IM & WM Stock Taking
FRICE-W Objects

- **Reports:**
  - Inventory Counting Sheet that **does not** show system inventory quantities
  - Inventory Counting Sheet that **does** show system inventory quantities

- **Enhancements:**
  - RF transaction capabilities for WM inventory taking processing
Organizational Impact Summary

- Establishment of Controlled Work Group as owners/maintainers of Material Master Records who will also be responsible for the extension of the IM & WM views to the appropriate Plants and Storage Locations.

- Establishment of at least one MRP Controller per MRP Area
  - DOTD districts/parishes may have one person responsible for all inventory items at one location.

- Establishment of RF device infrastructure resulting in the purchase of RF guns, barcode printers, etc.

- Training of personnel
  - to maintain information on the Material Master view related to Inventory Management, Warehouse Management, MRP functionality and appropriate forecasting parameters.
  - on inventory functions related to MRP Area and MRP Controller duties
  - on use of RF devices for WM functions
Next Steps - General

- **Current Blueprinting Phase (Nov ’08 – Jan ’09):**
  - Conducting Validation Session
  - Researching and Resolving Open Issues

- **Realization Phase (February 2009+):**
  - System Configuration
  - Unit and Confirmation Testing
  - Document Business Process Procedures (BPP’s)
  - Define and Develop FRICE objects
  - Integration Testing
  - User Acceptance Testing
Next Steps – IM & WM Specific

- Review and Finalize Process Design Documents (PDDs)
  - documents detailing the to be processes

- Review Legacy Conversion Data
Questions?