CMMS Vendor Demo Scenario #1

Confined Space Pump Repair at Water Treatment Plant — Create & Prepare Work Order

Purpose: Evaluate the CMMS' ability to create a work order using an asset QR code, auto-attach a confined space permit and repair SOP based on work type, capture/attach a photo, enforce required data fields, reserve parts, and auto-notify the assigned technician. This scenario addresses:

- Create WO
- QR code
- WO attachments
- WO workflow
- Warehouse parts
- Mobile

1) Scenario

At the Water Treatment Plant (WTP), operators report abnormal vibration and minor leakage on High Service Pump 3 located in a below-grade pump gallery. Maintenance must inspect and replace the mechanical seal. The pump gallery is a permit-required confined space (below grade, limited access/egress, potential atmospheric hazards).

Maintenance needs CMMS functionality that:

- Identifies the exact asset via QR code scan
- Applies the correct work type and auto-attaches Confined Space Entry Permit
- Provides the repair SOP for the technician
- Requires a photo before work
- Enforces completion rules (safety and failure details)
- Reserves a mechanical seal kit from the warehouse
- Auto notifies the assigned technician of the WO

2) Step-by-Step Vendor Demo Script

Step 1 — Create WO via QR Code Scan (Mobile)

1. Open the mobile app and scan the label on High Service Pump 3 with the QR data
2. Show that the system identifies the asset and opens Create Work Order pre-populated with:
    - Asset ID, Location, Parent, and basic asset metadata

Step 2 — Select Work Type to Trigger Confined Space Permit

1. Choose Work Type = Corrective Maintenance: Pump Repair (Confined Space)
2. Show the system auto-attach:
    - Permit: Confined Space Entry Permit template
    - SOP High Service Pump Seal Replacement procedure

Step 3 — Attach Photo of the Asset

1. From mobile, capture a "before" photo of High Service Pump 3 and attach to the WO.

Step 4 — Enforced Data Rules (Technical attempts early Completion)

1. Attempt to move the WO to Completed/Closed without entering the required fields.
2. Demonstrate the system blocking completion and showing exactly which fields are missing:
    - Failure codes (class/problem/cause/action)
    - Safety fields (confined space permit number, entry/exit times)
    - Labor hours & materials used
    - Required photo

Step 5 — Reserve Needed Part from Warehouse

1. From the WO, open Materials/Parts
2. Search needed pump seal part and show availability on-hand, and bin number location
3. Reserve 1 part unit to the WO
4. Show the system reduces inventory by 1, available-to-promise, and creates a pick request for the WO

Step 6 — Auto-Notify the Assigned Technician

1. Assign the WO to John Smith (Technician).
2. Show instant notification to the technician (push message, text, and/or email) with the WO link/details.
3. Open the WO on the technician's mobile to confirm receipt.

CMMS Vendor Demo Scenario #2

SCADA-Triggered PM on High Service Pump — Create, Execute, and Reset Runtime-Based PM

Purpose: Evaluate the CMMS + SCADA integration for runtime-based preventive maintenance (PM): auto-trigger, automatic PM work order creation with history/context, SOP inclusion, technician completion data capture, and automatic reset of the CMMS maintenance runtime clock on the asset when the PM is completed.

1) Scenario

At the Water Treatment Plant (WTP), High Service Pump 2 delivers finished water to distribution. The pump/motor assembly accumulates run hours captured by SCADA. The maintenance strategy requires a PM every 1,000 run hours or 3 months, whichever comes first. SCADA detects that run hours ≈ 1,000 and sends an event to CMMS. Expected system behavior:

- SCADA runtime threshold auto-triggers a PM work order in CMMS.
- The PM work order includes historical runtime and asset condition data (e.g., last 30 days of run hours and any available asset condition indicators).
- The PM Work Type automatically includes the maintenance SOP for the technician.
- When the technician completes the PM, the CMMS resets the maintenance runtime clock (hours-since-last-PM) on the pump/motor assembly.
- To complete the WO, the technician must enter hours worked, parts/materials used, and update the asset condition status.

2) Step-by-Step Vendor Demo Script

Step 1 — Show SCADA Run Hours Condition Approaching Threshold

1. On SCADA/HMI or historian, display pump run hours nearing 1000 since last PM
2. Simulate or let the value cross 1000

Step 2 — Auto-Creation of PM Work Order in CMMS

1. Show that a PM WO is created automatically in CMMS for the pump
2. Display the WO fields auto-populated from the PM program (priority, craft, estimated duration, etc.)
3. Show the audit trail linking to the SCADA event (correlation ID/time)

Step 3 — Historical Runtime & Asset Condition Context on the WO

1. Open a History/Context panel on the WO or asset record showing:
    - RunHoursTotal and RunHoursSinceLastPM at trigger time
    - Last PM date/time
    - Last 30 days of asset condition indicators (e.g., bearing temp, vibration) or a link to embedded trend.

Step 4 — SOP Auto-Attached & Viewable on Mobile

1. Confirm pump Inspection & Service SOP is auto-attached to the PM WO based on Work Type
2. Open the SOP on the mobile app (offline-capable preferred)

Step 5 — Technician Executes PM & Enters Required Data

1. On mobile, technician starts work, records labor hours
2. If any materials/parts are used (e.g., small consumables or grease), add them to the WO
3. Update Asset Condition Status (e.g., "Good – minor wear observed") and, if available, capture readings (bearing temp, vibration, post-PM test run) and enter into asset information

Step 6 — Completion Triggers Runtime Clock Reset

1. Technician completes the PM WO
2. Show that the asset's CMMS maintenance runtime clock (e.g., HoursSinceLastPM) resets to 0.0 and the Last PM Completed timestamp updates
3. Show a handshake back to SCADA/historian (e.g., writing a PMCompleted/PMReset flag or creating an event annotation)

CMMS Vendor Demo Scenario #3

Water Main Break Isolation & Repair — CMMS ⇄ GIS Two-Way Workflow

Purpose: Evaluate the end-to-end experience of locating and isolating a main break using the GIS map interface in the CMMS, creating and executing an emergency work order from the map, attaching photos, dispatching a crew, viewing CMMS asset information from GIS, tracking labor/materials in CMMS, and writing back asset/valve status changes to GIS, then closing the work order.

1) Scenario

A customer reports water bubbling up at the curb near 1250 Maple Ave, in the Riverview distribution system. GIS indicates a probable break on a 12-inch ductile iron water main in Pressure Zone PZ-3. The main must be isolated by closing two valves before the repair crew can excavate and fix the leak.

Expected CMMS and GIS system behavior:

- Staff use GIS to locate the break, identify isolation valves, and navigate to the valve location(s)
- From the GIS map interface within CMMS, open an emergency work order in CMMS for "Main Break Isolation & Repair."
- Attach photos of the leaking main and the valve site to the WO (mobile)
- Request and document an emergency crew dispatch
- In GIS, view CMMS asset information for the main (install date, material, diameter, age, work history)
- Perform the repair; track labor, equipment, and materials in CMMS
- Turn valves back on after repair and update statuses in GIS (and CMMS, if applicable)
- Close the WO with full audit of field and system updates

2) Step-by-Step Demo Script (What to Show)

Step 1 — Locate Break & Identify Isolation Valves in GIS

1. In the GIS map interface in CMMS, search for 1250 Maple Ave or drop an Incident Point on the map
2. Run an Isolation Trace (or valve isolation tool) on the connected network
3. Show selected assets: Main Segment M-45 and isolation valves V-1023 and V-1027, plus affected customers/outage polygon

Step 2 — Navigate to Valve Location

1. From the valve popup panel in CMMS, view address and GPS
2. Launch mobile navigation (e.g., open in device maps) to V-1023

Step 3 — Create Emergency Work Order from Map (GIS → CMMS)

1. In the GIS map interface in CMMS, click "Create Work Order"

2. Confirm WO fields are in CMMS:
    - WO Type Emergency – Main Break Isolation & Repair
    - Linked assets (M-45, V-1023, V-1027), incident address, geometry (point/line), and outage polygon (optional)
    - Auto-assign priority based on response SLA
3. Show audit/correlation between the GIS action and the new CMMS WO.

Step 4 — Attach Photos (Valve & Break)

1. On mobile, the crew attaches photos:
    - Valve location photo (V-1023 or V-1027)
    - Break excavation photo (M-45)
2. Photos should be geo-tagged and synced to both CMMS and visible from GIS via the WO link

Step 5 — Request Emergency Crew via Dispatch Center

1. From the WO, trigger a "Request Crew" action (integrated dispatch ticket or logged call)
2. Show that the request appears on Dispatch Queue, and notifications go to the crew lead

Step 6 — View CMMS Asset Information in GIS

1. From the GIS map interface in CMMS for M-45, open CMMS Asset Details
2. Display install date, material, diameter, work history, and last exercised dates for valves

Step 7 — Isolate Main (Update Valve Status)

1. Crew closes V-1023 and V-1027; in CMMS or GIS, set valve status to Closed
2. Show CMMS → GIS write-back updating valve symbology/state in near real-time
3. Record Outage Start time on the WO

Step 8 — Perform Repair & Track Labor/Materials

1. Record labor hours for each crew member and equipment hours (e.g., backhoe)
2. Add materials used (e.g., RC-12-DI-FW clamp, or 6 ft of DI12-20FT plus couplings)
3. Enter repair type (Clamp vs. Section Replace), leak cause (e.g., joint failure, corrosion), and any chlorination/flush steps (hydrant H-554)

Step 9 — Restore Service & Update Status in GIS

1. Reopen V-1023 and V-1027; update valve status to Open
2. Set Main M-45 status to In Service and record Outage End time; Generate restoration notifications
3. Show CMMS → GIS synchronization of valve and main statuses and a Repair event written to a GIS Breaks/Repairs layer with the WO number

Step 10 — Close Work Order

1. Validate all required fields (labor, equipment, materials, photos, outage times, repair type/cause)
2. Close the WO; show final write-backs (if any) and audit logs on both systems

CMMS Vendor Demo Scenario #4

Mobile Visual Condition Assessment → Auto Corrective Maintenance WO on Threshold

Purpose: Evaluate the end-to-end ability to support condition assessment on an asset. This scenario addresses:

- Recording a structured visual condition assessment on a mobile device, including photos
- Auto-upload the assessment to CMMS
- Viewing condition history/trends at the asset
- Automatically issue a corrective maintenance work order

1) Scenario

During a quarterly condition round, the technician inspects Drive Unit #2, a gear-reducer + 10 HP motor that rotates paddles for flocculation. The utility uses structured drop-downs to assess condition and performance. The inspection reveals a minor gearbox oil leak and a cracked coupling insert. Based on the condition score and flags, the system should automatically issue a CM work order for a Level 2 (medium priority) service.

- Type of Asset: Drive Unit #2
- Type of Repair (triggered CM scope): Replace coupling insert, inspect/reseal gearbox output shaft seal (minor repair), torque-check motor terminations, lubricate drive components, verify guards.

2) Step-by-Step Vendor Demo Script

Step 1 — Start Inspection on Mobile (QR Scan)

1. On iPad, open CMMS mobile app, scan asset QR on WTP-FLOC-DRV-2
2. Select "Start Condition Assessment." The asset is prepopulated in the mechanical asset condition assessment standard form.

Step 2 — Record Structured Condition Data (Drop-Downs)

1. Select Condition = 4 - Poor Condition, Performance = 4 – Poor Performance
2. Check Oil Leak and Coupling Damage flags; add note: "Oil film at reducer output; coupling spider cracked."
3. Enter optional readings (e.g., Motor surface temp 62 °C; Oil level = Low)

Step 3 — Capture Required Photo(s)

1. Use device camera to capture photo(s) of the reducer output and coupling guard; attach to the inspection

Step 4 — Auto-Upload to CMMS (Sync & Audit)

1. Submit the inspection; show automatic sync to CMMS (online)
2. On desktop, open the asset record to view the new inspection, values, and photos immediately
3. Show an audit log (who/when/where) for the submission

Step 5 — View Condition History/Trend

1. From the asset record, open Condition History and show the past inspections and trend
2. Confirm the mobile app can also display prior assessments or trend (read-only)

Step 6 — Threshold Triggers Auto CM Work Order

1. Demonstrate the rule evaluation: Condition = 4 - Poor Condition and Oil Leak/Coupling Damage flags met the threshold
2. Show automatic creation of CM WO: CBM-L2 – Flocculator Drive Minor Service
3. Confirm SOP auto-attached to the PM WO

Step 7 — Auto-Assign & Notify Another Technician

1. Show PM WO auto-assigned to another technician based on craft/rules
2. Confirm push/email notification is delivered

CMMS Vendor Demo Scenario #5

Risk-Based Asset Management — Risk Scoring and Dashboard Visualization

Purpose: Evaluate the CMMS' ability to capture and maintain risk management data for major assets, calculate Likelihood of Failure (LoF) and Consequence of Failure (CoF) scores, and visualize risk rankings on a dashboard that supports management decisions on repair, refurbish, or replace.

1) Scenario

The utility wants to prioritize capital and maintenance investments based on risk. They use a risk matrix combining:

- Likelihood of Failure (LoF): Based on age, condition, performance history
- Consequence of Failure (CoF): Based on operations, economic, social, health & safety and environmental.

Assets exceeding a risk score threshold (LoF × CoF) should appear on a dashboard for management review and decision-making.

2) Step-by-Step Vendor Demo Script

Step 1 - Show Asset Risk Data Entry & Update

- Open High Service Pump #3 record
- Display LoF criteria scores, CoF criteria scores, and Risk Score fields
- Show how LoF scores are updated from condition assessments

Step 2 - Show Risk History

- Trend of LoF/CoF changes over time

Step 3 - Dashboard Visualization

- View Risk matrix for all assets in the CMMS with color-coded zones
- Top 10 highest-risk assets
- Ability to filter by area/class

Step 4 - Decision Support

- Drill into High Service Pump #3
- Show linked work history, cost data, and recommended action (Replace)

Step 5 - Action Tracking

- Demonstrate how decision (Repair/Refurbish/Replace) is recorded and linked to capital plan or WO