

Procedure	Maximo Contingency Plan			Number: FAM-P-2011FP	
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SUBJECT

MAXIMO CONTINGENCY PLAN

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PURPOSE

To establish control and standardization of business processes and documentation generated in support of the Base Operations and Spaceport Services (BOSS) Contract. The Maximo System Contingency Plan was developed to identify the business processes that will be initiated in the event that the Maximo Computerized Maintenance Management System (CMMS) becomes inoperative/unavailable due to an electrical power outage, hurricane, network or platform problem, or any other event that results in the Maximo system being off-line for an extended period of time.

SCOPE AND APPLICABILITY

This procedure applies to all BOSS Divisions, Branches, Sections, and Team Member Subcontractors involved in the performance and documentation of work who utilize the BOSS Maximo CMMS. It is only valid during any period of Maximo system unavailability.

PROCESS**1. MAXIMO CONTINGENCY PLAN**

In the event that Maximo is unavailable for an extended period of time, the following actions shall be taken.

1.1. Preliminary Preparation

When it is known ahead of time that Maximo will be unavailable, some preparation is possible and required.

- 1.1.1. The BOSS SIC/Test Conductors shall prepare an Excel spreadsheet, see Section 1.2.1 for required fields, and print blank copies of Form FAM-F-2016FP, Blank Maximo Work Order, and Form FAM-F-2017, Blank Maximo Service Request, for hard copy use prior to a planned outage.
- 1.1.2. The BOSS SIC/Test Conductors download current Customer and JON listings prior to the scheduled outage start time.
- 1.1.3. Work Management ensures PMs and other Work Order types scheduled to be worked during the outage period are printed and available to the shops for work.

1.2. Work Order Creation

- 1.2.1. The BOSS SIC/Test Conductors is the only group authorized to create Work Orders and Support Requests during a Maximo outage. All other user requests will be put into the backlog and entered in Maximo once it is returned to service. The BOSS SIC/Test Conductors shall maintain an Excel spreadsheet, New Work Requests, to document all work requests generated during the period when Maximo is unavailable, and distribute the spreadsheet to the Work Management Analyst Office daily to be distributed for review before the New Work Report daily work review. Required fields include the following:
 - Maximo Work Order Number (WON) (may be blank; see section 1.2.3)

- EWR Number
- Date
- Requester
- Phone
- Customer
- Facility
- Location
- Asset
- Priority
- Project Title/Request Description
- CAC (if applicable)
- WF Type
- Work Type
- JON
- Customer
- Lead Shop
- Support Shop(s)
- Crew

1.2.2. When BOSS Maximo is not available but the Electronic Work Request System (EWRs) is available, all work requests will be entered into EWRs. Urgent Work Orders that must be worked during the outage period shall be hand-written on Form FAM-F-2016FP, Blank Maximo Work Order . The BOSS SIC/Test Conductors shall enter the EWR number in the appropriate field to serve as the tracking number, and enter the appropriate information in a Contingency Maximo Work Order Log during the outage. Once Maximo is returned to service, the Work Order shall be approved and generated from EWRs and the resulting WON entered into the Contingency Maximo Work Order Log and communicated to the appropriate shop.

1.2.3. In the event EWRs is not available, Work Orders shall be hand-written on Form FAM-F-2016FP, Blank Maximo Work Order, assigned a manual tracking number by the BOSS SIC/Test Conductors, and tracking maintained in a Contingency Maximo Work Order Log during the outage. When Maximo and EWRs are returned to service, the Contingency Maximo Work Order Log used during the outage period will be relayed to IT to stage the manual tracking numbers against the appropriate EWR records. This number shall become the WON when Maximo is returned to service and the electronic Work Order is created.

Example: BMX0001, BMX0002, etc. This action provides traceability and eliminates duplications. Tracking the numbers manually using an Excel spreadsheet avoids duplicating Work Order numbers.

1.2.4. Service Requests (SRs) shall be hand-written on Form FAM-F-2017, Blank Maximo Service Request, assigned a manual tracking number by the BOSS SIC/Test Conductors, and tracking maintained in a Contingency Maximo Service Request Log during the outage. This number shall become the SR number when Maximo is returned to service and the electronic SR is created.

Example: SRVX0001, SRVX0002, etc. This action provides traceability and eliminates duplications. Tracking the numbers manually using an Excel spreadsheet avoids duplicating Service Request numbers.

- 1.2.5. Planning and Estimating (P&E) shall continue using Word files and cut and paste tasking into Maximo once it has been returned to service and the Work Order has been created by the BOSS SIC/Test Conductors.

1.3. Work Order Implementation

- 1.3.1. The BOSS SIC/Test Conductors shall call and email trouble call and urgent real-time requirements to the responsible shops for action. The responsible shop scheduler shall process the hard copy Work Order.

NOTE: *This process will be used for FSEU ETC and Priority 2 RTC work. Other Divisions' work will be reviewed for urgency prior to distribution.*

- 1.3.2. In the event that a scheduler is not available or the work requirement occurs on an off-shift when no work control personnel are available, the BOSS SIC/Test Conductors acts on their behalf to change the status of a Work Order to INPRG to allow work to begin.
- 1.3.3. Refer to WCC-P-2002, Electronic Work Order Procedure, for specific instructions on Tablet use. Recognize that Tablet use may not always be available during a Maximo outage. For planned events, please follow instructions that will be emailed to management prior to the event.
- 1.3.4. All shop work performed during the Maximo outage shall be tracked on a Form FAM-F-2016FP, Blank Maximo Work Order, including notes and any other data requested. All work begun as hard copy will be completed as hard copy, unless completion of the work will take more than five (5) business days following Maximo returning to service. Once Maximo has been returned to service, the shop will receive notification of the Work Order number associated with the EWR for each work order they received during the outage.
- 1.3.5. In the event a PM must be deferred/rescheduled while Maximo is unavailable, an e-mail shall be sent to NASA SI providing the detailed information and rationale that would be given in the PM Deferral process within Maximo. That e-mail serves as the documentation to begin the process and, once Maximo is returned to service, shall be attached in PDF format to the Maximo PM Deferral record. For planned outages, PM deferral/reschedule requests shall be initiated prior to the outage.
- 1.3.6. The BOSS SIC/Test Conductors shall call and email or fax SRs generated for SC Jones, Brevard Achievement, etc., to the responsible office for action. The hard copy SR serves as the official work document during the Maximo outage.

1.4. Work Order Closeout

- 1.4.1. The data obtained for Work Orders and Service Requests performed manually shall be entered into the Maximo system by the BOSS SIC/Test Conductors personnel once the Maximo system is returned to normal operation. This data update shall be performed as soon as possible once the Maximo system is returned to normal operation to allow electronic data processing to resume. The manual tracking number, when used, serves as the WON or SR number in Maximo to provide traceability.
- 1.4.2. Once a WON is entered into Maximo, the "Target Finish Date" shall be adjusted by subtracting the number of days from when the work was called in from the date the Work Order was entered into Maximo. Example: Work Order called in on August 31, entered on September 4; the "Target Finish Date" would be adjusted by 4 days. Work performed during the Maximo outage shall be tracked on a hard copy, including notes and any other data requested. Once the Work Order has been created in Maximo by the BOSS SIC/Test Conductors, the BOSS Scheduler updates the Work Order with notes and other detailed information from the hard copy Work Order. After all data has been transferred to Maximo, the hard copy shall be scanned and attached to the Work Order for record purposes. The hard copy may then be discarded; it is no longer an official record.
- 1.4.3. After Maximo is returned to normal service, SC Jones, Brevard Achievement,, etc., shall be responsible for updating Maximo records from the hard copy documents once the SRs are created by the BOSS SIC/Test Conductors.

1.5. Outages

The following guidelines should be used to process utility outages when there is a Maximo outage. Reference MSO-P-0002, Outage Procedure, for typical process and data retention policy.

- 1.5.1. The Outage Coordinators shall keep hard copies of all Maximo Outage Requests which are being processed.
- 1.5.2. Only emergency outages shall be processed while Maximo is out of service. Non-emergency outage request processing resumes after Maximo is returned to normal service.
- 1.5.3. The Outage Coordinator shall be the single point of contact for new scheduled and real-time Outage Requests. The Outage Coordinator shall assign a number to the Outage and log all required information into an Excel spreadsheet, Contingency Outage Log. Required fields include the following:
 - Outage type
 - Report date
 - Support required
 - Requester's Name, Organization and phone
 - Outage description
 - Outage Work Order Number or JON
 - Location and description of Work Request

- Facilities affected
- Reason for outage
- Impact if outage is denied
- Requested start date and duration of outage

- 1.5.4. Outages shall be hand-written on a blank Request For Utility Outage, Form MSO-F-0003, and assigned manual tracking numbers by the BOSS SIC/Test Conductors and tracking maintained in an Outage Log during the outage. This number becomes the Outage number when Maximo is returned to service and the Outage Request is created.

Example: SRVX001, SRVX002, etc. This provides traceability and eliminate duplications. Tracking these numbers manually using an Excel spreadsheet avoids duplicating Outage Request numbers.

- 1.5.5. The Outage Coordinators may e-mail PDF versions of the outage, if available, and may accept e-mail impacts and assessments. The Outage Coordinator shall be responsible for receiving impacts and assessments and transferring that information to the outage file.
- 1.5.6. The Outage Coordinators coordinate support required with the SE/SME, shop, facility manager, and Mission Support Office.
- 1.5.7. The Outage Coordinator shall obtain approvals for the Outage and verifies a printed copy of the approved outage with impacts, assessments, and approvals, is available for all shops supporting the outage and on the appropriate utility and JSTC console.
- 1.5.8. The Outage shall be opened and worked the same as an electronic Maximo Outage, and any required notes attached to the work copy. The work copy shall be delivered to the Outage Coordinators' office after the Outage is closed by the console.
- 1.5.9. Outages which are being processed manually shall continue to be processed manually to completion after an extended Maximo outage for consistency.
- 1.5.10. When Maximo is returned to service, the Outage Coordinators shall enter the data from the completed, collected copies into Maximo, including the numbers for the hand-written outages to provide traceability.

1.6. Materials Management

- 1.6.1. Prior to a scheduled event, Materials Management Supervisor shall obtain a complete listing of all inventory on hand. The report shall include the following:
- Stock Number (Item Number)
 - Part Number (Model)
 - Manufacturer
 - Full Description
 - Bin Location
 - Current Balance

- Cost
- Unit of Issue/Unit of Measure
- Source Code

- 1.6.2. Logistics Spares Analysis (LSA) shall obtain a listing from the RG38 database of all Spare Parts Analysis (SPA) numbers. LSA will continue to work with RG38 to obtain the SPA information as well as the OMEU listing

1.7. Non-Stock Order Processing

- 1.7.1. BOSS customers shall submit a Labor Scope and Material Form (WCC-F-2001A-F-2001A) with approved Owning Group (OG) signatures to the Materials Requirement Notification distribution list KSC-DL-BOSS-Materials-Requirements-Notification@mail.nasa.gov. Requests shall only be for material needed to support work that is deemed Mission Essential and is of an Urgent nature. All other requests will be held by Work Control, the Shop, Planning and Estimating or Engineering until Maximo is operational.
- 1.7.2. Urgent requests will be processed by Materials Management. A Purchase Request (PR) will be created in Cost Point. Property Management and Quality/Environmental points of contact will review/approve PR via email requesting the appropriate coding. If the OG has not signed the WCC-F-2001A Form, the PR will be routed via email for approval.
- 1.7.3. The approved PR will be routed to Procurement.
- 1.7.4. Once Maximo is returned to service, Procurement shall validate that the information from Cost Point has been pushed back to Maximo.

1.8. Stock Listed Order Processing

- 1.8.1. If stock listed items require procurement, the Materials Management Supervisor or designee shall create the Purchase Request in Costpoint and provide to BOSS Procurement via email.

1.9. Stock Listed Items in Inventory

- 1.8.1 Materials Management shall review the WCC-F-2001A Form and research the printed listings of the inventory to determine if the item is in stock. If so, the WCC-F-2001A shall be provided to Storage & Distribution (S&D) for issue. If not, the WCC-F-2001A shall be returned to the Materials Management Supervisor or designee to hold and notify the Property, Environmental, Safety and Quality Representative that there are PRs for approval and signature.

1.10. SPA Processing

The LSAs shall utilize the RG38 database and cross reference the stock numbers with the Inventory Listing to locate an item for a SPA. The LSAs shall also cross reference manual copies of each SPA on file.

1.11. Procurement

When an outage occurs, Procurement will utilize Costpoint for processing Purchase Requisitions (PR) and Purchase Orders (PO).

- 1.11.1. Buyer shall provide a copy of the PO to Receiving
- 1.11.2. Once Maximo is returned to service the Buyer follows up with Receiving to ensure receipts are processed in Maximo. Working with BOSS IT, Procurement will ensure any/all POs created, received, etc., are pushed back to MAXIMO after the outage.

1.12. Receiving

Receiving functional areas include Freight Chits, Direct Shipments, NASA Procured Receipts, and BOSS Procured Receipts.

1.12.1. Freight Chits

During the outage Receiving personnel shall utilize the Freight Chit Receiving Module of B During the outage Receiving personnel shall utilize the Freight Chit Receiving Module of BOSS MAXIMO Test environment to complete all Freight Chit activity. Should the test environment not function as planned, receiving personnel shall utilize KSC Form 28-630, Freight Chit/Document Number Contingency This form shall be completed in its electronic form and users shall print copies. A suspense file shall be created and utilized to enter information into Maximo when it becomes available.

1.12.2. Direct Shipments

Receiving personnel shall utilize the Freight Chit Receiving Module of BOSS MAXIMO Test environment to complete Direct Shipments. Should the BOSS MAXIMO Test environment not function as planned, receiving personnel shall utilize KSC Form 28-630, Freight Chit/Document Number Contingency, to process direct shipments. When processing direct shipments Receiving personnel shall print two (2) copies of the Freight Chit; one (1) for the suspense file and one (1) for attachment to the item for onward movement to the Delivery section. If a customer pickup is required, have the end user sign for the material on the Freight Chit from MAXIMO Test or the KSC Form 28-630. Add the signed copies to the suspense file for entry into Maximo when it becomes available.

1.12.3. NASA Procured Receipt (Purchase Cards, Contracts)

NASA procured receipts, including Purchase Card (PC) receipts and NASA contracts, only require Maximo for the use of creating the Freight Chit. NASA receipts are processed using the BankCard and SAP systems, which shall not be affected.

Receiving personnel shall utilize the Freight Chit Receiving Module of BOSS MAXIMO Test Environment to complete all Freight Chits support NASA Procured receipts. Should the BOSS MAXIMO Test environment not function, KSC Form 28-630 will be utilized as needed for NASA Procured

Receipts. All fields required are available on the form. If a customer pickup is required for PCs, have the end user sign for the material on the KSC Form 28-630. Add the signed copies to the suspense file for entry into Maximo when it becomes available.

1.12.4. BOSS Procured Receipts

Receiving personnel shall complete the following for BOSS procured receipts:

- Obtain PO number from Packing List
- Complete Freight Chit using BOSS Maximo Test or KSC Form 28-630, Freight Chit/ Document Number Contingency, print and retain a hard copy for later entry into Maximo, if using KSC Form 28-630.
- Obtain PO line item details from PO documentation and WCC-F-2001A provided by Materials Management to verify items received
- Utilize PO data from PO documentation, packing list, and verify items received, complete receipts in Costpoint as required.
- Report any discrepancies to the Buyer for resolution
- Complete any Identification (tagging) requirements
- Retain all receiving transaction documentation in suspense file for entry into MAXIMO when it becomes available.
- For Non-Stock-Listed or direct issue material receipts, obtain the delivery location from PO documents. Attach a copy of the PO Details report containing the appropriate PO line to the item and annotate the delivery location from the PO documentation. Mark the items for delivery to the requested location. Attach a copy of the WCC-F-2001A to the items being delivered. Mark the copy of the WCC-F-2001A to annotate what items are being received and delivered to the end user.
- For Stock-Listed materials, review the reservation report and/or the WCC-F-2001A to ascertain if a reservation exists for the items received. If a reservation exists, mark the item for delivery per the reservation report. Attach a copy of the WCC-F-2001A to annotate what items are being received and delivered to the end user.
- If a customer pickup is required, the end user will sign for the material on the WCC-F-2001A. Add the signed copies to the suspense file for entry into Maximo when it becomes available.
- Continue to process ERRs for those items requiring tagging, affix copy of the PO, receiving documentation and place in the PMO Inbox in the Receiving department area.

1.13. Transportation

1.13.1. Packing & Crating

- Request for Shipping Document – No actions to perform since Requesters shall be required to initiate all shipping requests via the manual form.

1.13.2. Delivery

- Creation of Issue Authorization from the KSC Form 26-105, Equipment Fuel List – This action is performed in order to generate the Fuels Distribution report used by various entities at the end of the month. This report would be unavailable during a Maximo outage. Prior to a planned outage at the end of the month, the report shall be generated and any fuel distribution after that point would have to be manually added to the report. After the outage, post actions to create the Issue Authorizations shall be performed. If the outage occurs at a time other than the end of the month, post actions to create the Issue Authorization shall be performed once Maximo becomes operational.

1.13.3. Transportation Management Office (TMO)

- Request for Shipping Document – No actions to perform since Requesters shall be required to initiate all shipping requests via the manual form. Request for Shipping Documents from Procurement or Requestors shall be submitted to the TMO via the email DL: KSC-DL-BOSS-TMO
- General queries for tracing/tracking purposes – Before a planned outage, the TMO shall print an Inbound Freight Register to use as a source in tracing inbound shipment receipts. Tracing Issue Authorizations shall be a manual process dependent on the information provided by the requester, and data will possibly be unavailable until after Maximo is returned to service.

1.14. Storage & Distribution

Prior to a planned Maximo outage, the Storage & Distribution Supervisor shall accomplish the following:

- Perform the necessary queries in Maximo to download basic warehouse information for the following warehouse locations:
 - Central Supply (Includes PW1, PCR and AME bin locations)
 - POL
 - LSC 83
- Information shall be limited to the following:
 - Item Number
 - Description
 - Unit of Issue
 - Bin Number
 - Current Balance
- The most current reservation report in Maximo shall be generated and the items shall be pulled to satisfy existing reservations.
- The most current Work Order Kitting data should be obtained and downloaded to a spreadsheet. Customers needing items from Kitting shall sign for the material on a copy of the existing Issue Authorization. A suspense file shall be maintained for updating Maximo when it becomes available.
- All of these files will be stored in the BOSS-Maximo Outage Contingency Files folder in the Logistics share file.

- 1.14.1. Warehouse personnel shall review the requirements against the inventory spreadsheet. If the required material is in the inventory, it shall be issued and provided to the requester who shall acknowledge receipt by signing a copy of the WCC-F-2001A. Items that have been requested on the WCC-F-2001A that are unavailable shall be lined through and annotated by Warehouse personnel and initialed by the customer before acknowledging receipt of the available materials.

A column for remarks to record issues and material received into inventory shall be added to the spreadsheet. A remark shall be entered for each item in a manner shown in the example below ensuring sufficient information is captured to update Maximo when it becomes operational.

ITEMNUM	DESCRIPTION	ISSUE UNIT	LOC	BINNUM	CUR BAL	REMARKS
5120010066499	CUTTER, WIRE: LONG NOSE SIDE CUT, 12 AWG CAPACITY	EA	BOSS	PCR05P01B08A	7	
4730001537710	NIPPLE, PIPE: WELDED OR SEAMLESS LONG, 1/2", MNPT, 2" OVERALL LG, SCH 80 XH, BLACK OXIDE STEEL, ASTM A733-89	EA	BOSS	PCR02P13B01C	10	Received 10 each, PO #KISC53984, Binned in same location, New Curbal = 20
5305004977401	SCREW, SELF-TAPPING, #6-20, 1/2" (0.469"-0.531"), GIMLET, PAN PHILLIPS, PASSIVATED HARDENED CRES 410 SS, TYPE 1	EA	BOSS	PCR04P02B04H	424	
4730001877617	COUPLING, PIPE: 2", INT THD, 150 LB STEAM 300 LB WOG, GALV MI, WW-P-521 TYPE 2	EA	BOSS	PCR02P13B03C	6	
433000K858194	FILTER: FRONT END LOADER WATER SEPARATOR PRECIPITATOR	EA	BOSS	PCR03P17B08J	7	Issued 1 each to WON OUTMAX002, 9/4/12. Customer Picked up, New Cur Bal = 6
473000EG44738	ANGLE, FRAMING FITTING: 60 DEG	EA	BOSS	PCR02P06B08A	8	
4730002783721	NIPPLE, PIPE, HEX: 1/8", T HD, BRASS	EA	BOSS	PCR03P08B01F	41	

Example of Record for Issues and Materials Received into Inventory.

- 1.14.2. After Maximo is restored, the remarks column of the inventory spreadsheet shall be reviewed and the necessary updates to the Maximo database shall be made accordingly to account for each manual transaction.

2. MAXIMO WORK ORDER HARD COPY

The data requirements of the documentation are the minimum necessary to complete a particular Maximo screen. It has accounted for automatic fill-in of related data and minimizes the need to provide more data than would normally be requested in a purely paper-driven environment. To support expedited data entry the document design also reflects the relative positions of the data fields on the Maximo data input screens. The legal values for each field on the Work Order Screen are defined as follows. A sample of Form FAM-F-2016FP, Blank Maximo Work Order FP, is shown in Appendix A.

2.1. DATA FIELD VALUES

- 2.1.1. **Work Order No** – Enter the manual Work Order number (WON) from the Work Order Log when EWRS is also not available.
- 2.1.2. **Emergency** – Yes/No field indicating whether the Work Order is reporting/supporting an emergency.
- 2.1.3. **Date** – Date work was identified to be performed (creation date).
- 2.1.4. **Time** – Time work was identified to be performed (optional).
- 2.1.5. **Shift** – Enter the shift (1, 2, 3) on which the task began (required for Protective Systems).
- 2.1.6. **Work Order Title/Description** – A detailed description of the requested work to be performed and reason. If requested task is safing or anything other than system troubleshooting, contact appropriate Supervisor. Supervisor will determine what action will be taken and whether or not to contact SE.
- 2.1.7. **EWR #** – Enter the Electronic Work Request (EWR) number generated by EWRS. This will serve as the tracking number when EWRS is available and Maximo is not.
- 2.1.8. **System** – Record system identification. This field is required for Protective Systems. Appropriate values are: Fire Alarm, ESS, Traffic, CFMS, Fire Suppression, TAWS, CRMS.
- 2.1.9. **Facility** – Facility/building number where work is to be performed.
- 2.1.10. **Location** – Further description of location where work is being performed (be specific). This data will be used in Secondary Location fields when data is entered into Maximo.
- 2.1.11. **Asset** – Description of Asset. If Asset number is known, provide it as well.
- 2.1.12. **Priority** – The relative importance of the work. On a scale of 1 to 7, with 1 being the most important, and 7 being Deferred Maintenance. See Appendix B for a list of acceptable values.
- 2.1.13. **Status** – The status of the Work Order. See Appendix E for a list of acceptable values.
- 2.1.14. **Work Type** – This is the work classification or type of Work Order. See Appendix C for a list of acceptable values.
- 2.1.15. **WF Type** – This identifies the Work Order's workflow type. See Appendix D for a list of acceptable values.
- 2.1.16. **JON (Job Order Number)** – This number identifies charging information for the work. The BOSS SIC/Test Conductors will have an up-to-date listing of JONs available for use.
- 2.1.17. **Customer** – Identifies customer charging for the requested work. See Appendix G for a list of the most often used acceptable values.
- 2.1.18. **CAC** – Safety and/or Environmental Condition Assessment Code.

- 2.1.19. **Reported By** – Name of the person identifying the work requirement.
- 2.1.20. **Phone** – Phone number of the person identifying the work requirement.
- 2.1.21. **POC (Point of Contact)** – Point of Contact name, if other than person identifying the work requirement.
- 2.1.22. **Company** – Company of person identifying the work requirement.
- 2.1.23. **Dept** – Department of person identifying the work requirement.
- 2.1.24. **Target Completion Date** – Date work is expected to be completed.
- 2.1.25. **Supervisor/Engineer** – Enter name of Supervisor or SE.
- 2.1.26. **No Contact Regd?** – If no contact is required, check box.
- 2.1.27. **Outage Regd?** – Identify whether an Outage is required, Yes/No.
- 2.1.28. **Lead Shop** – Lead shop (craft number) for the work to be performed. If more than one shop/craft is identified on a work order, this is typically the shop/craft with the most work to perform.
- 2.1.29. **Support Shop** – Support shop(s) (craft number) for the work to be performed.
- 2.1.30. **Crew** – The prime crew that is to perform the work. This field is displayed on the front screen of the Maximo work order. See Appendices F and G for specific acceptable values and additional information.
- 2.1.31. **Failure Class** – The BOSS SIC/Test Conductors will identify the appropriate Failure Class for the Asset identified on the Work Order. A list of Failure Classes appears in Appendix I.
- 2.1.32. **PCR Code** – Problem-Cause-Remedy identification for Failure Reporting is required on all Work Orders with aWork Type of ETC, RTC, REP, REP-PM, REP-RI. When Maximo is unavailable, the appropriate codes will be applied prior to work order closure.
- 2.1.33. **Material** – Identify Materials/Item Numbers on a WCC form WCC-F-2001A and provide to Logistics Specialist for input.
- 2.1.34. **JP Number** – Number of the Job Plan, if normally used.
- 2.1.35. **NOTES** – Collect any notes associated with accomplishment of this task. Information will be entered in Maximo.
- 2.1.36. **Operations**

Step	The operational step.
Crew	The shop performing the work.
Task Description	Describe step by step the work that is performed. Be as specific as possible.
Estimated & Actual Hours	The best estimate possible and the actual time required to perform the work.
Performed By	The person who performed/completed the work.
Performed Date	The date the work was completed.

- 2.1.37. **Signatures** – Signature lines for the technician (Completed By) and Supervisor.

APPENDIX A: SAMPLE BLANK MAXIMO WORK ORDER, FAM-F-2016FP

WORK ORDER No. _____

MAXIMO®

Page 1 of 2

Emergency? Yes ☐ No ☐

Date: _____ Time: _____ Shift: _____

Work Order Title/Description _____

EWR #: _____

System: _____

Facility: _____

Location: _____

Asset: _____

Priority: _____ Status: _____ Work Type: _____

WF Type: _____ JON: _____ Customer: _____

CAC: _____

Reported By: _____ Phone: _____

POC (if other than Reported By): _____ Phone: _____

Company: _____ Dept: _____ Target Completion Date: _____

Supervisor/Engineer: _____ No Contact Rad: ☐Outage Req'd? Yes ☐ No ☐

Lead Shop: _____

Support Shop(s): _____

Crew: _____

Failure Class: _____

PCR: _____, _____, _____

Identify Materials/Item Numbers on a WCC form WCC-F-2001A.

JP Number: _____

NOTES: _____



WORK ORDER No. _____

MAXIMO®

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OPERATIONS

<u>Step</u>	<u>Crew</u>	<u>Task Description</u>	<u>Est Hrs</u> <u>Act Hrs</u>	<u>Performed</u> <u>By</u>	<u>Date</u>
_____	_____	_____	/	_____	_____
_____	_____	_____	/	_____	_____
_____	_____	_____	/	_____	_____
_____	_____	_____	/	_____	_____
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_____	_____	_____	/	_____	_____
_____	_____	_____	/	_____	_____
_____	_____	_____	/	_____	_____
_____	_____	_____	/	_____	_____
_____	_____	_____	/	_____	_____

Completed By _____

Supervisor _____

APPENDIX B: PRIORITY

Work Order Priority.

VALUE	DESCRIPTION
1	Emergency – Immediate response required. Complete within 7 Days.
2	Urgent – Work stoppage, Mission Related/Safety. CMPLT by WFTYPE Date.
3	Priority – Fixed completion date to meet customer requirements.
4	Routine – Complete within 30 Days.
5	Routine – Complete within 45 Days.
6	Routine – Complete within 60 Days
7	Deferred Maintenance

APPENDIX C: WORK TYPE

Work Type, sorted by Code.

Code	Description
ENGWO	Engineering Work Order
ETC	Emergency Trouble Call
LOGWO	Logistics Work Order
OPS-CCC	Operations – CCC
OPS-GEN	Operations – General (GEN)
OPS-UP	Operations – Central Utility Plant (CUP) O&M
PGM	Programmed Maintenance
PM	Preventive Maintenance
PM-PTI	Predictive Testing & Inspection
PM-RI	PM – Regulatory Inspection
PM-SPT	PM – Support
REP	Maintenance Repair Projects
REP-PM	Repair – PM Discrepancy
REP-RI	Repair – RI Discrepancy
ROI	Replacement of Obsolete Items (ROI)
RTC	Routine Trouble Call
SO	Service Order
SO-BOX	Service Order, Box Move Only
SO-ENG	V&V or EGS Engineering Supt, 1 Count Per 4 Hours
SO-INT	Service Order – Internal
SWO	Standing Work Order

APPENDIX D: WORKFLOW (WF) TYPE

Workflow Type sorted by Code.

VALUE	DESCRIPTION
ADMIN	ADMIN
BRR-A	Baseline Repair & Replacement, >\$0 to <=\$1k
BRR-B	Baseline Repair & Replacement, >\$1 to <=\$2k
BRR-C	Baseline Repair & Replacement, >\$2 to <=\$8k
BRR-CPS	Baseline Repair & Replacement, >\$2 to <=\$8k
BRR-D	Baseline Repair & Replacement, >\$8 to <=\$15k
BRR-DPS	Baseline Repair & Replacement, >\$8 to <=\$15k
BRR-E	Baseline Repair & Replacement, >\$15 to <=\$20k
BRR-F	Baseline Repair & Replacement, >\$20 to <=\$25k
BRR-G	Baseline Repair & Replacement, >\$25 to <=\$30k
BRR-H	Baseline Repair & Replacement, >\$30 to <=\$35k
BRR-I	Baseline Repair & Replacement, >\$35 to <=\$40k
BRR-J	Baseline Repair & Replacement, >\$40 to <=\$45k
BRR-K	Baseline Repair & Replacement, >\$45 to <=\$50k
BSLN	Baseline Work
COM	Commercial
DM	Deferred Maintenance
ETC	Emergency Trouble Call
PM-PTI	PM - Predictive Testing & Inspection
PM-RI	PM - Regulatory Inspections
REM	Reimbursable
ROM	Rough Order of Magnitude Estimate
RTC	Routine Trouble Call
SO-1	Service Order, >\$0 to <=\$250
SO-2	Service Order, >\$250 to <=\$500
SO-3	Service Order, >\$500 to <=\$1k
SO-4	Service Order, >\$1k to <=\$5k
SO-5	Service Order, >\$5k to <=\$10k
SO-6	Service Order, >\$10k to <=\$15k
SO-7	Service Order, >\$15k to <=\$20k
SO-8	Service Order, >\$20k to <=\$25k
SO-BOX	Service Order, Box Move Only
SO-ENG	Service Order - ENG
TO-DB	Task Order – Design Build
TO-DES	Task Order – Design
TO-IMP	Task Order – Implementation
TO-OMD	Task Order – O&M Documentation
TO-PCD	Task Order – Pre-Priced Conceptual Design
TO-PLN	Task Order – Planning
TO-PPR	Task Order – Pre-Priced Work
TO-PPR-DBT	Task Order – Pre-Priced Work Debit
TO-STD	Task Order – Study
TRVLR	Traveler (no labor or non-labor charges)

APPENDIX E: STATUS

Work Order Status sorted by Code.

<u>Code</u>	<u>Description</u>
APPR	Approved
CAN	Canceled
CDEF	Complete Deferred
CHKMATRL	Check Material
CLOSE	Closed
CMPLT	In Progress Prelim Complete
CMPLTAL	Prelim Complete, Awaiting TAL Documentation
COMP	Completed
DOCCL	Documentation Closure
HISTEDIT	Edited in History
INMATL	In Progr Waiting on Material
INPRG	In Progress
INRSCHED	In UOP Reschedule
INTALREV	TAL Review Waiting for SME/SSE Documentation
INWCC	In Progress Work Control Center
MATLORD	Material Ordering
PMGOVDISP	PM Deferral/Resched in Government Disposition
PMORIG	PM Deferral/Resched at Originator
PMSCH	PM Deferral/Resched in Scheduler Status
PMSME	PM Deferral/Resched in SME
REOPEN	Work Order Reopened Using Rollback Tool
RTW	Ready to Work
SC	Substantially Complete
SCHED	Scheduled
SCHEDREV	Scheduler Review
WACCESS	Waiting for Access
WAIT_WO_COMP	Waiting Work Order Completion
WAPPR	Waiting for Approval
WASSIGN	Waiting to be Assigned
WCCCON	Work Control Center Conversion
WCCHOLD	Holding in Work Control CTR
WMATL	Waiting on Material
WNASA	Waiting for NASA decision
WOUTAGE	Waiting for Outage
WPLN	Waiting for Planning
WPLNCMPLT	WPLNCMPLT - Planning Complete
WREPLN	WREPLN - Waiting on Replanning
WSCH	Waiting to be Scheduled
WSCHED	Waiting for Scheduling

Task Status sorted by Code:

<u>Code</u>	<u>Description</u>
CAN	Canceled
CMPLT	Complete
PMTSKDIS	PM Task Discrepancy
PMTSKNR	PM Task Not Required
PMTSKREP	PM Task Repaired on Site

APPENDIX F: SHOP/CRAFT

Most commonly used Shop/Craft values sorted by Crew.

SHOP/CRAFT	DESCRIPTION	CREW
221260T7	HVAC BOILERS - BOILER PLANT OPERATOR/MECHANIC	BOILER
332060T2	CCC-Power Coordinator	CCC
221660TM	COMPRESSED AIR SERVICES - COMPRESSED AIR MECHANIC	COMPAIR
232160TL	ELEVATOR SERVICES - ELEVATOR TECHNICIAN	ELEV
211160T3	ELECTRIC-INDUSTRIAL - INDUSTRIAL ELECTRICIAN	ELHV
211460T3	LOW VOLTAGE NORTH - INDUSTRIAL ELECTRICIAN	ELLV
211660T9	POWER GENERATION - POWER GENERATION EQUIP MECH	GEN
2412YS06	HEAVY EQUIPMENT MAINT - HEAVY EQUIPMENT MECHANIC	HE-MAINT
2411YS03	CRANE - CRANE OPERATOR/RIGGER	HE-OPS
221160V3	HVAC A/C - A/C MECHANIC	HVAC/HVACN/HVACS
211260O1	ELECTRIC-LINEMAN - LINEMAN	LINE
231760T3	LIFTS-CRANES-BRIDGES - INDUSTRIAL ELECTRICIAN	MA-BRFXC
231760TD	LIFTS-CRANES-BRIDGES - SUPPORT SERVICES MECHANIC	MA-BRFXC
2317YS01	LIFTS-CRANES-BRIDGES - BRIDGETENDER	MA-BTENDR
231560TI	SHEET METAL & MACHINE SHP - MACHINIST	MA-MACHIN
231560TG	SHEET METAL & MACHINE SHP - SHEET METAL WORKER	MA-METAL
231560TH	SHEET METAL & MACHINE SHP - WELDER	MA-WELD
221360U1	PLUMBING SYSTEMS - ALARM TECHNICIAN	PLUMB
221360TB	PLUMBING SYSTEMS - PLUMBER	PLUMB
212160U1	FIRE PROTECTIVE SYSTEMS - ALARM TECHNICIAN	PS
211560T3	R&T SERVICES - INDUSTRIAL ELECTRICIAN	RELAYTST
2421YS05	ROADS & HEAVY EQUIPMENT - EQUIPMENT/TRUCK DRIVER, MEDIUM	ROADS
2421YS07	ROADS & HEAVY EQUIPMENT - HEAVY EQUIPMENT OPERATOR	ROADS
2421YS10	ROADS & HEAVY EQUIPMENT - LANDFILL MONITOR	ROADS
231660TJ	ASBESTOS - ASBESTOS ABATEMENT INSULATOR	STR-ASBEST
2313YS02	CARPENTER - CARPENTER	STR-CARPS
2312YS20	CORROSION - STRUCTURAL PAINTER	STR-CORR
231160TD	FACILITIES MECHANICAL - SUPPORT SERVICES MECHANIC	STR-MM
232360K3	INSTIT SERV SUPT SHOP - LABORER	STR-MOVES
232260K2	MOVE SHOP - DRIVER MEDIUM	STR-MOVES
232260K3	MOVE SHOP - LABORER	STR-MOVES
2314YS18	ROOFER - ROOFER	STR-ROOF
2312YS21	SCAFFOLD - STRUCTURAL PAINTER	STR-SCAFF
2320YS17	DETAIL PAINT - PAINTER DETAIL	STR-SIGNS
221460TA	WASTE WATER SYSTEMS - WATER & WASTE OPERATOR MECH	WW

APPENDIX G: CREW

CREW	DESCRIPTION
STR-ASBEST	Asbestos Shop
BOILER	Boiler Shop
MA-BTENDR	Bridgetender
STR-CARPS	Carpenter Shop
CCC	Complex Control Console
COMPAIR	Compressed Air Shop
STR-CORR	Corrosion Control
MA-BRFXC	Cranes – Fixed
ELEV	Elevator Shop
ELHV	Electrical High Voltage
ELLV	Electrical Low Voltage
GEN	Generator Shop
HE-MAINT	Heavy Equipment Shop
HE-OPS	HE Operations and Mobile Cranes
HVAC	HVAC Shop
HVACN	HVAC Shop – North
HVACS	HVAC Shop – South
LINE	Lineman Crew
MA-MACHIN	Metal Shop – Machinist
MA-METAL	Metal Shop
STR-MM	Facilities Maintenance Mechanics
STR-MOVES	Move Crew
PLUMB	Plumbers
PS	Protective Systems (FA & ESS)
RELAYTST	Relay & Testing Services
ROADS	Roads & Landfill
STR-ROOF	Roof Crew
STR-SCAFFOLD	Scaffold
STR-SIGNS	Sign Shop
MA-WELD	Metal Shop – Welder
WW	Water & Waste

APPENDIX H: CUSTOMER CODE

sorted by Customer code

Code	Description
A100	USAF
Y2	Y2 - Environment Compland Restor
B1	B1 - Boeing CST-100
BF00	SLS
BP	BP - BFF Task Order Work
C1	C1 - Institutional CoF Project
C3	C3 - LSP CoF Projects
C5	C5 - SIES Projects
C6	C6 - GSDOP CoF Projects
F300	Orion
F4	F4 - Orion Task Order Work
G2	G2 - Comm Crew Prm (CCP)-Proj
H2	Hurricane Irma
HT	Hurricane Task Orders
INTL	INTL - BOSS Internal Support
K100	GSDOP
KA	KA - GSDOP Tsk Order Work
L2	L2 - Reinvestment Projects
L500	CMO Institution
L6	L6 - CMO Special Projects
L7	L7 - AMO Special Projects
L9	L9 - CMO Task Order Work
LD	LD - CMO Move Mods Projects
LU	LU - AMO Enhance Use Lease Fdg
M1	NASA Miscellaneous
N2	N2 - NOTU Task Order Work
NO00	NOTU
R2	KSC Recycling Effort Projects
R3	R3 - Resale Funding
R400	Delaware North
R7	R7 - Reimburse Special Project
RD	RD - Delaware North TO Work
S100	ISS
S2	S2 - ISS Task Order Work
SF	SF - Space Florida Projects
SX	SX - Space X Projects
UL	UL - ULA Task Order Work
V100	LSP
V2	V2 - LSP Task Order Work

W2	W2 - Advanced Exploration Sys
X300	X-37 OTV
XC	XC - X-37 Boeing TO Work
XX	XX - To Be Identified
A2	A2 - USAF Projects

APPENDIX I: FAILURE CLASS

Failure Class:

FAILURE CLASS	DESCRIPTION
EHV	Electrical – High Voltage
ELV	Electrical – Low Voltage
FMT	Fleet Management Systems
HVC	Heating, Ventilation & Air Conditioning
MEC	Mechanical
PPL	Propellants Systems
PSY	Protective Systems
RDG	Roads & Grounds
SPE	Special Equipment
STR	Structural
WWS	Water & Waste System

RECORDS

The following records shall be retained by the organizations listed below:

Record	Responsible Organization
New Work Requests, Excel Spreadsheet	BOSS SIC/Test Conductors
Contingency Work Order Log, Excel Spreadsheet	BOSS SIC/Test Conductors
Contingency Service Request Log, Excel Spreadsheet	BOSS SIC/Test Conductors
FAM-F-2016FP, Blank Maximo Work Order - FP (individual Work Orders)	Follow Procedure MSI-I-0001
FAM-F-2017, Blank Maximo Service Request (individual SRs)	SC Jones, Brevard Achievement, etc.
PM Deferral E-mail, Maximo Contingency	FSEU/Engineering
Contingency Outage Log, Excel Spreadsheet	Mission Support Office
MSO-F-0003, Request for Utility Outage	Mission Support Office
PR Manual Log	Materials Management
WCC form WCC-F-2001A, WCC Labor, Scope, and Material	Materials Management/Warehouse/Receiving as needed
KSC Form 28-630, Freight Chit/Document Number Contingency	Freight Chit
KSC Form 26-105, Equipment Fuel List	Transportation Management

AFFECTED DIVISIONS/OFFICES

Program Management Office
Engineering
FSEU OM&E
Information Technology
Logistics
Project Integration Office
Quality, Safety & Environmental
Work Control Center

MANAGEMENT ROLES AND RESPONSIBILITIES

FSEU Operations & Maintenance (BOSS) Manager: Ensures compliance within the FSEU Division to the requirements stated in this procedure.

Work Control Manager: Ensures compliance within the Work Control Division to the requirements stated in this procedure.

Technical Operations Manager: Ensures compliance at the Technical Operations level to the requirements stated in this procedure.

FUNCTIONAL ROLES AND RESPONSIBILITIES

BOSS SIC/Test Conductors – The BOSS SIC/Test Conductors will be the only group authorized to generate new Work Orders or Support Requests when Maximo is not available.

REFERENCE DOCUMENTS

The following documents are referenced in this procedure:

Document Number	Title
FAM-F-2016FP	Blank Maximo Work Order
FAM-F-2017	Blank Maximo Service Request
KSC Form 26-105	Fueling Sheet
KSC Form 28-630	Freight Chit/Document Number Contingency
MSI-I-0001	Master Schedule Integration Planning and Scheduling Instruction
MSO-F-0003	Request for Utility Outage
MSO-P-0002	Outage Procedure
NPR 8831.2F	Facilities Maintenance and Operations Management
WCC-F-2001A	WCC Labor, Scope, and Material
WCC-P-2023	Electronic Work Request System Processing

Please verify you are using the most current version of any form or referenced procedure.

ADDITIONAL RESOURCES

The following documents are not referenced in this procedure but are provided for additional reference:

Document Number	Title
WCC-I-2000	Emergency Trouble Call Response Instruction
WCC-P-0004	BOSS Work Management Procedure

ACRONYMS

ACAM	Activation, Configuration and Asset Management
BA	Brevard Achievement
BOA	Basic Ordering Agreement
BOSS	Base Operations and Spaceport Services
CAC	Condition Assessment Code (Safety/Environmental)
ETC	Emergency Trouble Call
EWRS	Electronic Work Request System
FSEU	Facilities/Systems/Equipment/Utilities
FSEU OM&E	Facilities/Systems/Equipment/Utilities Operations Maintenance & Engineering
IM	Inventory Management
JON	Job Order Number
JSTC	Call Sign for LCC Support Test Conductor
KSC	Kennedy Space Center
LO/TO	Lockout/Tagout (also LOTO)
LSA	Logistics Spares Analysis
MO	Manufacturing Order (CostPoint term)
MRP	Materials Requirement Planning
NASA SI	National Aeronautics & Space Administration Spaceport Integration & Services Directorate
NDC	NASA Domain Controller
NDE	Non-Destructive Evaluation
OPR	Office of Primary Responsibility
P&E	Planning & Estimating
PC	Purchase Card
PCR	Problem-Cause-Remedy (codes for Failure reporting)
PM	Preventive Maintenance
PO	Purchase Order
POC	Points of Contact
PR	Purchase Request
QSE	Quality, Safety & Environmental
RTC	Routine Trouble Call
S&D	Storage & Distribution
SE	System Engineer
SME	System Maintenance Engineer
SPA	Spare Parts Analysis
SR	Service Request
TOC	Table of Contents
TMO	Transportation Management Office
WBS	Work Breakdown Structure
WCC	Work Control Center
WF	Work Flow
WON	Work Order Number/Work Order

DEFINITIONS

BOSS: Base Operations and Spaceport Services

Customer: Identifies customer charging for the requested work.

EWRS (Electronic Work Request System): Web-based application that automates work request submittal, review and approval process for planned work. Use is limited to users with assigned NDC accounts to submit requests for ISC support/service.

ETC (Emergency Trouble Call): Emergency trouble calls require immediate action to eliminate hazards to personnel or equipment, to prevent loss or damage to Center property, or to restore essential services that have been disrupted. This category does not apply to non-facility work requirements.

FSEU: Facilities, Systems, Equipment, and Utilities for which BOSS has responsibility to operate and maintain. Also refers to the BOSS Division which has responsibility for those actions.

Hazard: Condition that has the potential to result in or contribute to injury, death or equipment damage.

JON: The number used to track internal sources of government funding for task charging.

JSTC: Call Sign for LCC Support Test Conductor

MO (Manufacturing Order): This is a CostPoint term for the record equivalent to the Work Order number (WON).

Outage: Planned or unintentional interruption or termination of a utility service such as electricity, water, steam, chilled water, or communication.

P&E (Planning & Estimating): Group within FSEU, above the shop level, that is responsible for developing Maximo work instructions for projects to include estimate of hours to perform job, detailed tasks for each crew, shops required to complete tasks and order materials to be used.

PCR (Problem-Cause-Remedy): The Problem-Cause-Remedy (PCR) hierarchy for Failure Reporting provides a shorthand method by which Work Order data can provide broad insight and trending into the health of a system or classification of assets. This data can assist the SE in determining the root cause of failures common to their assigned assets.

RTC (Routine Trouble Call): Unplanned minor facility problems that are too small to be estimated (usually less than about 20 work hours or \$2,000). They generally are responded to by grouping according to craft and location. Performance standard requires (1) response within 14 days following notification, and (2) permanent repairs completed within 30 calendar days following notification.

SE (System Engineer): The System Engineer, sometimes previously referred to as System Maintenance Engineer, who is responsible for the day-to-day maintenance of FSEU (facilities, systems, equipment, and utilities), including troubleshooting and documenting problems, and documentation of maintenance and operations procedures.

WON: Unique eight-digit tracking number assigned in Maximo to an approved work request. Approved WONs will be assigned an initial Work Type, Work Flow type, Work Order Status, and Work Order Priority and tracked through the WON life cycle until closure. **NOTE:** Term is also used to refer to the actual Maximo Work Order.

REVISION RECORD

The following revisions have been applied to this document:

Revision Number	Change Description	Date
0	Initial Release	10/1/2015
1	Updated various form number and names. Corrected supply chain and other business process descriptions.	6/21/2017
2	Updated business processes and form numbers in support of the BOSS contract	3/11/2020
3	Updated Logistics processes in support of the BOSS contract	04/24/2020

DOCUMENT APPROVALS

4/24/2020

X Barbara Ivey White

Barbara I. White
Deputy Program Director
Signed by: cards

4/24/2020

X Richard P Tully

Richard P. Tully
Work Control Manager
Signed by: cards