IS01

NASA Enterprise Applications Competency Center (NEACC)

Incident Escalation Procedure

REVISION E

Approved for Release – Distribution is Unlimited

APPROVING AUTHORITY

[redacted]

DOCUMENT HISTORY LOG

Status (Baseline/ Revision/ Canceled)	Document Revision	Effective Date	Description
Baseline		09/01/2008	[redacted]
Revision	A	04/10/2009	
Revision	B	04/03/2010	
Revision	C	07/26/2011	
Revision	D	10/26/2012	
Revision	E	01/31/2014	

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1.0 INTRODUCTION

1.1 Purpose

The purpose of this procedure is to document the process for restoring normal service operation as quickly as possible with minimum disruption to the business, thus ensuring that the best achievable levels of availability and service are maintained. This is accomplished through ensuring proper notification of the appropriate support personnel and management in the event that a Severity 1 or 2 Service Request (SR) has not been resolved within pre-defined metric response times. After this response time milestone has passed, the notification process begins and shall be escalated to the next higher level of management in increments. An effective escalation and notification process speeds system recovery related to a service outage by locating resources that apply a resolution to the incident in a timely manner.

This document:

- Describes the key elements of escalation and notification
- Describes the escalation process information flow
- Provides the escalation/notification procedure to clearly delineate the responsibilities among all responsible parties

1.2 Applicability

This procedure is applicable to the National Aeronautics and Space Administration (NASA) Enterprise Applications Competency Center (NEACC) application and system support processes and to the NASA Information Support Center (NISC) Help Desk, NEACC's Tier 1 Interface for users.

1.3 Applicable Documents

- NEACC-FMS-PROC-OPS-003, Daily Service Review (DSR) Procedure
- NEACC-FMS-PROC-OPS-004, Root Cause Analysis (RCA) Procedure
- NEACC-FMS-PROC-OPS-005, Service Restoration Team (SRT) Procedure

1.4 References

- NASA Procedure Regulation (NPR) 1441.1D NASA Records Retention Schedule (NRRS)
- NEACC-MISM-GUIDE-SE-001, Marshall Space Flight Center (MSFC) Integrated Service Management (MISM) Activity Scheduling System

1.5 Definitions

Table 1 – Definitions

Term	Definition
Chief Information Office (CIO) Daily Stand Up (DSU)	A daily meeting held to review production performance issues (service exceptions and changes) and activities planned for the next 2 weeks. (See Table 6 – Daily Status Meetings Schedule) (See NEACC-FMS-PROC-OPS-003, Daily Service Review (DSR) Procedure for additional information.
Incident	Any event which is not part of the standard operation of a service and which causes, or may cause, an interruption to, or a reduction in the quality of that service.
NEACC	The NEACC manages the agency-wide development, implementation, and operation of NASA's administrative/ business applications and associated computing services. These include applications within the scope of the NEACC, as well as other Agency Chief Information Office (CIO)-sponsored initiatives. Computing services are delivered from the NEACC Data Center (NDC) facility located at MSFC and support a wide range of Mission and Mission Support customers.
NISC	Provides 24/7 helpdesk support for users of NEACC supported systems.
RCA	The process that documents the analysis of an incident that critically impacts users or system functionality, what was done to resolve the incident, and the action plan to reduce or eliminate the incident from reoccurring (see NEACC-FMS-PROC-OPS-004, Root Cause Analysis (RCA) Procedure for additional information).
Service Level Agreement (SLA)	A documented agreement between organizations that details service, maintenance outage windows, and return to service requirements based on severity quality metrics.
Service Provider	The organization responsible for providing a service to the client, and providing support in the event that the service is unavailable (Sometimes referred to as an Application Owner).
Service Restoration Team (SRT)	A team of people who are organized to restore service after interruptions in accordance with the terms of the appropriate Service Level Agreement (NEACC-FMS-PROC-OPS-005, Service Restoration Team (SRT) Procedure).

1.6 Acronyms and Abbreviations

Table 2 – Acronyms and Abbreviations

Acronym	Term
AOM	Application Operations and Maintenance
CIO	Chief Information Office
EAST	Enterprise Applications Service Technologies
DSR	Daily Service Review
DRD	Data Requirements Description
DSU	CIO Daily Stand Up
ISRS	NEACC Service Request System
IT	Information Technology
LOB	Line of Business
MISM	MSFC Integrated Service Management
MSFC	Marshall Space Flight Center
NASA	National Aeronautics and Space Administration
NEACC	NASA Enterprise Applications Competency Center
NDC	NEACC Data Center
NISC	NASA Information Support Center
NPR	NASA Procedural Regulation
NRRS	NASA Records Retention Schedule
POC	Point of Contact
RCA	Root Cause Analysis
SBU	Sensitive But Unclassified
SLA	Service Level Agreement
SLM	Service Level Management
SME	Subject Matter Experts
SR	Service Request
SRT	Service Restoration Team

2.0 ROLES AND RESPONSIBILITIES

Table 3 – Roles and Responsibilities

Role	Responsibilities
NISC Help Desk	The NISC Help Desk shall: • Host a copy of the current on-call listing provided by the Service Level Management (SLM) Team • Provide the first line of response to any incident • Provide initial notification, incident updates and tracking, and Point Of Contact (POC) information for call lists • Alert the Application Operations and Maintenance (AOM) Team of the Severity 1 and 2 incidents • Log incident notification communication and time of notification within the incident record
Application Operations and Maintenance (AOM) Team	The AOM Team shall: • Assess incident impact • Escalate notification of Severity 1or 2 incidents to the appropriate Line of Business (LOB) Manager or service provider if the incident cannot be resolved within the allotted timeframe **NOTE:** *In the event that the AOM Team cannot reach the LOB Manager, the AOM team member shall contact the Technical Director. • Use the severity classifications shown in Table 4 to help triage the system, and to help determine if the assigned severity to the system is at the appropriate level
Line of Business (LOB) Manager	The LOB Manager shall: • Provide information to NASA Management and team leads regarding Severity 1 or Severity 2 tickets that were successfully resolved in the allotted timeframe. The recommended distribution list is MSFC-DL-CC-SRT@NASA.GOV • Initiate the SRT if required, consistent with NEACC-FMS-PROC-OPS-005 Service Restoration Team (SRT) Procedure • Support any RCA activities, as required, and ensure the incident is kept up to date • Notify the service providers as applicable • Coordinate with the SLM Team to ensure an accurate and effective on-call listing • Ensure customer communication is taking place • Escalate to Level 2 NASA Product Lead

Role	Responsibilities
Contractor Technical Director	The Contractor Technical Director shall: • Perform the same roles and responsibilities as the LOB Manager in the event where multiple LOBs are impacted by an incident • Assess the severity of the incident when a single LOB is impacted, along with actions being taken, anticipated resolution time; assisting with coordination of restoration activities • Notify Level 3 "NASA Management" of incident. • Escalate to the Contractor Program Manager if the incident has not been resolved in 2 hours • Coordinate with additional NEACC resources as required to address the incident
Service Restoration Team (SRT)	The SRT Team shall: • Coordinate the restoration of service when a Severity 1 or Severity 2 incident occurs that cannot be resolved by the on-call support personnel (Detailed in NEACC-FMS-PROC-OPS-005, Service Restoration Team (SRT) Procedure) • Perform incident analysis with the purpose of restoring service. The primary concern is restoration of service, not determination of the root cause (See NEACC-FMS-PROC-OPS-004, Root Cause Analysis (RCA) Procedure for more information on RCA process initiation) SRT members consists of: • Service Provider Representatives, SLM Facilitator, Scribe and Customer Care Communications, Subject Matter Experts (SMEs),Vendor Representatives, LOB Manager, Contractor Technical Director, NASA Management, and others as required
Contractor Program Manager	The Contractor Program Manager shall: • Assess the incident if it is escalated to Level 3 NASA Management through the DSU meeting, Program Management direction, maintenance agency request, or by Level 2 actions • Coordinate additional resources to support the issue if necessary • Coordinate with the NASA Level 3 NASA Manager as required

Role	Responsibilities
NASA Management	Level 1 through Level 4 NASA Management shall: • Provide oversight and evaluation of direction and effectiveness of contractor staff in accordance with agency requirements and guidelines • Provide requirements and priorities to contractors and other agency supporting staff as required by the situation
SLM Team	The SLM Team shall: • Maintain the on-call listing for this process (See Appendix A) • Develop and distribute communications to external users to alert them of outages that impact the NEACC • Assist in capturing incident artifacts and other records and ensure they are included within the incident record
Service Provider(s)	Also known as Vendor, Maintenance Agency, Application Provider, or Application Manager. Within the scope of this document, they are referred to as a Service Provider. The Service Provider shall: • Apply appropriate resources to assess and work the incident and coordinate status with the LOB Manager and/or AOM Team • Support the SRT in the event that one is convened
RCA Team	The RCA Team shall: • Document the event after service restoration • Develop and implement solutions based on the findings from that analysis (Refer to NEACC-FMS-PROC-OPS-004, Root Cause Analysis (RCA) Procedure)

3.0 PROCEDURE

3.1 Guidelines For Setting Severity Categories

The guidelines for setting the severity category of incidents, questions, or requests are defined in the NEACC Severity Classification Guide (see Table 4).

When an incident is identified, the NISC shall perform an initial technical evaluation, shall troubleshoot the issue, and shall provide diagnostics within their responsibilities. The NISC will contact and consult with the AOM Team regarding any Severity 1 or Severity 2 incidents reported and dispatch the ticket as directed by the AOM Team.

In some cases, an automated alarm may initiate a Severity 1 or 2. In this case, the NISC shall ensure the severity, and bundle these events within a master ticket if they are duplicated prior to notification to the AOM Team.

If the service provider is unable to resolve the incident within the predefined time limit, notification of the incident shall be escalated in accordance with the sequence as described in this procedure.

3.1.1 Severity Classifications

The NISC, AOM Team, and LOB Managers shall make the initial assessment of the severity of the impact to the system or application, based on the criteria listed in the table below.

The guide is intended to help triage the severity and to help determine if the assigned severity to the incident is at the appropriate level.

Table 4 – Severity Classification Guide

SEVERITY 1
A complete loss of critical business Function/System/Application. Either (1) Service is not operational or unavailable to users, or (2) Service is operational, but major features are unavailable or not functioning correctly, and no alternative is available. Examples include: • Application Servers • Competency Center Business Applications • Communication Servers • Web Site/Intranets
SEVERITY 2
A partial loss of critical business Function/System/Application. Incidents are degrading the performance of critical systems. Multiple users are impacted.
SEVERITY 3
A degradation or loss of non-critical business Function/System/Application, but the problem may be circumvented through another solution.
SEVERITY 4
A degradation or loss of non-critical business Function/System/Application for individual users. Things such as cosmetic errors or inconsistencies in appearance or presentation, but with no impact to functionality. Could require miscellaneous support, such as user assistance, password reset, application access, etc.

3.1.2 Procedure For Adjusting Severity

In the event that an incident has decreased in severity, or requires an escalation to the next level of severity, the LOB Manager (*Contractor Technical Director) shall have the responsibility and accountability for making the final determination to adjust the level of severity (either up or down). This determination may be made based on factors from other sources, or a change in the situation of the incident. Any changes to Severity 1 or 2 incidents are reviewed in the DSR, consistent with NEACC-FMS-PROC-OPS-003, Daily Service Review (DSR) Procedure, as well as the other daily meetings listed in Table 6. If the decision is made to downgrade a Severity 1 or 2 to a lower level, the LOB Manager (*Contractor Technical Director) shall ensure the appropriate NASA Product Owner is advised and concurs with the decision.

3.2 Escalation and Notification Process

The escalation process begins when the NISC Help Desk issues a Severity 1 or 2 SR.

Time-driven escalation deals with the concept that defined time intervals (such as metrics) forces communication to occur regardless of where the problem is in the incident resolution process. Time-driven escalation requires that incidents with high severity are escalated to higher levels faster (in shorter time intervals) than lower severity incidents.

For example, if an incident has been logged as a Severity 1 at 9 PM, and the incident has not been resolved by 10 PM, escalation of the incident to the next higher level of management shall occur.

Note: *While response times are given at specific intervals, there is no restriction to notifying higher levels sooner than the response times stated. These response times are a maximum response time requirement only.*

Until the incident is resolved, each level shall escalate to the next level in accordance with the defined thresholds on the NASA Escalation/Notification Process Flow. If the incident is resolved within the allotted time limit window, then the resolution shall be documented in the incident record/SR and no further escalation takes place. Each level shall be responsible for verifying that the next level receives notification and performs further escalation, if the notification cannot be verified.

Response times shall be provided to the NISC for documenting into the trouble ticket diary. As a rule, the procedure shall be contacting the appropriate individual, waiting five (5) minutes for receipt of the notification, attempting contact again, waiting another five (5) minutes, and then escalating to the next level of management.

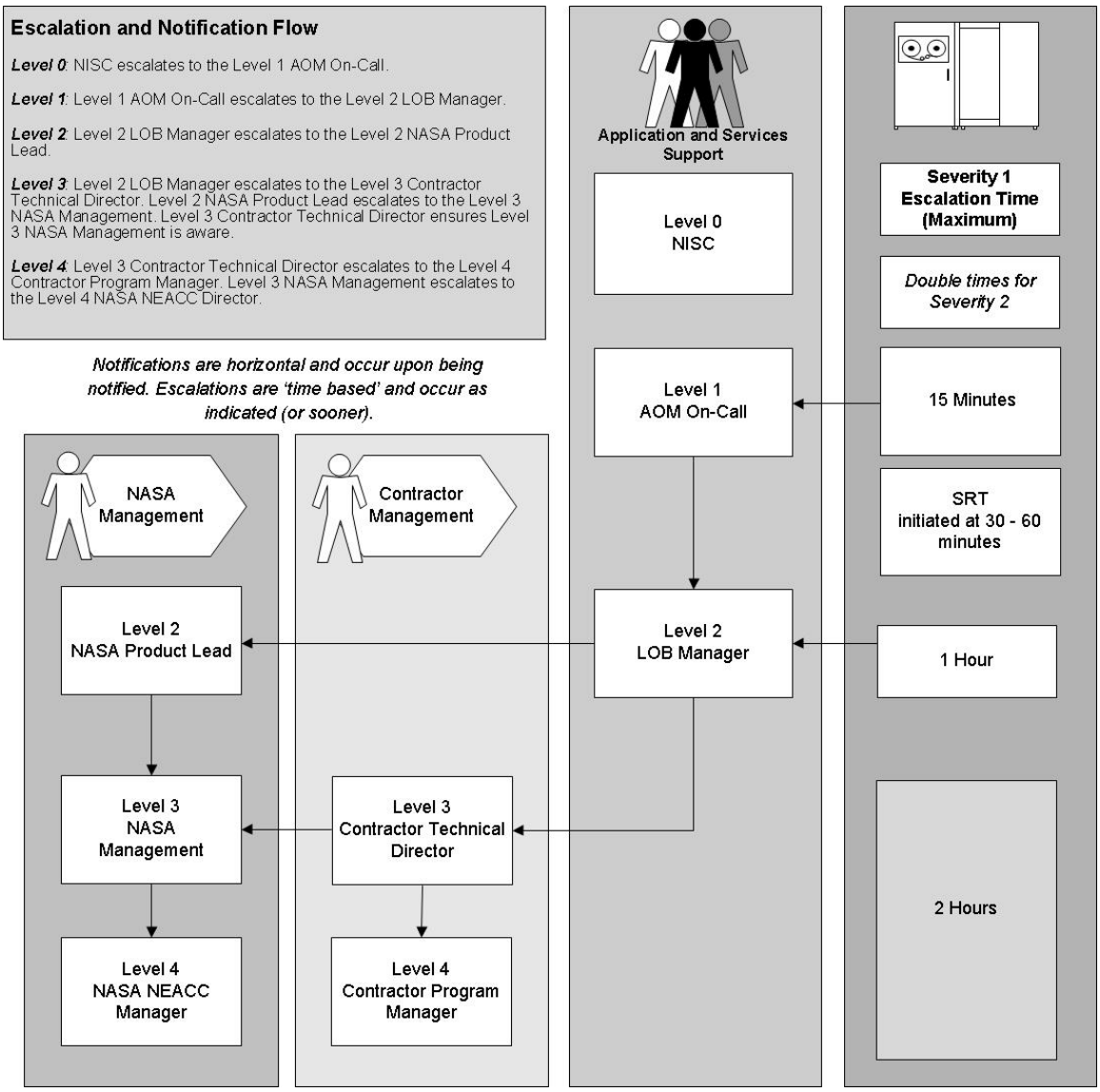

Figure 1 – Incident Escalation Flow Chart

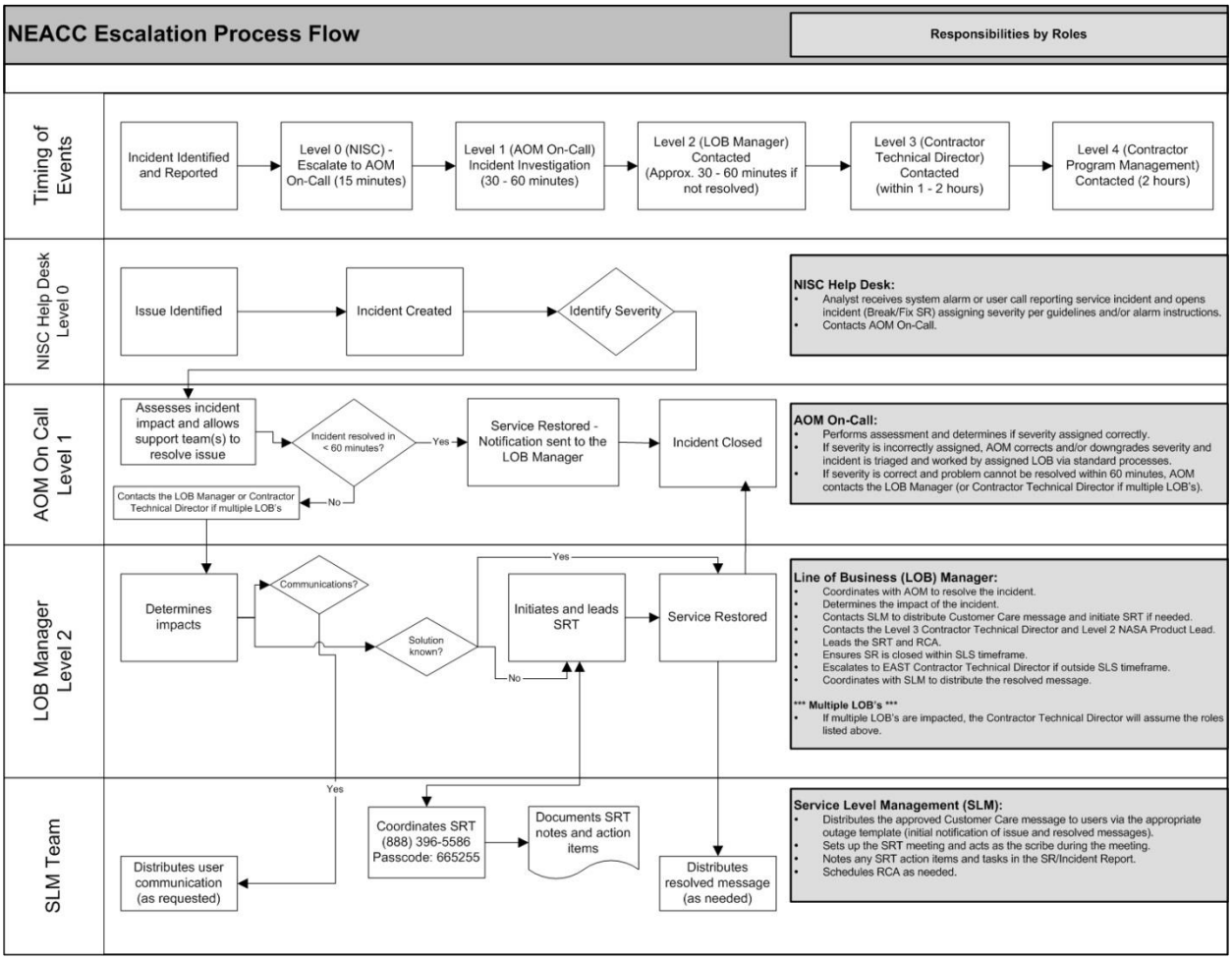

Figure 2 – NEACC Escalation Process Flow Diagram

Level 0 – The NISC

Upon receipt of the initial call into the NISC, an initial technical evaluation shall be conducted to set or confirm the severity level.

Note, if the Service Provider identifies the problem, the Service Provider shall be responsible for notifying the NISC of the problem so escalation procedures may be invoked.

All suspected Severity 1 and 2 incidents dealing with the NEACC shall be escalated using this procedure.

1. The service provider on-call personnel and the NISC shall follow up with the LOB Manager by sending an email documenting the incident and subsequent resolution.
2. The NISC shall initiate escalation and contact the AOM Team within the escalation window.

3. The AOM Team and LOB Manager shall work with the NISC to notify the appropriate service provider on-call support personnel who are assigned to the application or system that is experiencing problems.
4. In the event that the NISC cannot contact the AOM Team and/or LOB Manager, the NISC shall escalate to the SLM On Call POC, and continue this process until proper contact has been confirmed.

Level 1: AOM On Call (15 Minutes)

Once the AOM On Call receives notification from the NISC of the incident, they shall immediately acknowledge receipt of the notification. After gathering information, the AOM On Call shall determine if the incident can be resolved in the Level 1 window.

This means communicating with the on-call support personnel who are attempting to resolve the incident. Appendix D includes an example checklist of questions that can be asked by the AOM Team when they receive the initial notification. If the incident is resolved within the Level 1 window, an SRT shall not be convened and the AOM Team shall provide status to the next level of management no later than 7:00 AM the next business day.

In the event that an SR is downgraded in severity, the following steps shall be used:

1. The on-call personnel take action to resolve the incident, and work with the LOB Manager to assess the situation and determine if the ticket can be downgraded to a lower Severity using the following criteria:
   - If it is not a total loss of critical business functions, then the ticket can be downgraded to a Severity 2, depending on the judgment of the LOB Manager in discussion with the on-call support personnel.
   - If the incident is just a partial loss of critical business functions, the ticket can be downgraded to a Severity 3, depending on the judgment of the LOB Manager in discussion with the on-call support personnel.
   - If it is a problem that only affects an individual user, then the ticket can be downgraded to a Severity 4, depending on the judgment of the LOB Manager in discussion with the on-call support personnel.

If the incident has not been resolved within the required Level 1 window, the LOB Manager shall:

1. Coordinate with any involved on-call support personnel as required to determine the severity of the incident and anticipated resolution.
2. Escalate to the Level 2 LOB Manager .

Level 2: LOB Manager (after 1 hour)

Once notified, the LOB Manager shall:

1. The LOB Manager shall initiate additional support to resolve the incident. This additional support is called the SRT (Refer to NEACC-FMS-PROC-OPS-005, Service Restoration Team (SRT) Procedure for more information).
2. Ensure the trouble ticket is updated appropriately with information about the current situation (This function may be delegated to another organization such as the NISC).
3. Ensure that appropriate customer notification procedures have been followed, depending on the nature of the issue. (Refer to IS01-NEACC-PROC-OPS-007, Customer Notification & Communications Procedure and NEACC-MISM-GUIDE-SE-001, MSFC MISM Activity Scheduling System) See Appendix B for an overview of these processes.
4. Coordinate with their Level 2 NASA Product Lead to the applicable application or system (refer to the On-Call Listing in Appendix A).
5. Coordinate with the on-call support personnel and the SRT, if one has been initiated, to determine the status of the incident. All status information is documented in the trouble ticket.
6. Coordinate additional resources and staffing as required to resolve the incident
7. Escalate to the Contractor Techncial Director if the incident has not been resolved after two (2) hours.
8. Ensure the Contractor Technical Director is prepared to provide an update on the item at either the CIO Status Update or DSR meetings the next day (See Table 6 for schedules).

Level 3: Contractor Techical Director Manager (2 hours):

Once notified, the Contractor Deputy Program Manager shall:

1. Monitor the situation and direct additional resources and support to resolve the incident as necessary.
2. Coordinate with Level 3 NASA Management as required to provide status and receive direction.
3. Notify the Contractor Program Manager if the incident is still unresolved after four (4) hours.

Level 4: Contractor Program Manager (4 hours):

Once the Contractor Program Manager has been notified of the problem, they shall:

1. Monitor the situation and direct additional resources and support to resolve the incident as necessary.
2. Coordinate with NASA NEACC Manager as required to provide status and receive direction.

3.2.1 Notification of Resolution

Once the incident is resolved, the resolution shall be communicated to all the individuals that were notified during the escalation procedure, and the incident record/SR shall be appended with the final solution. The LOB Manager or Contractor Technical Director (or designee) shall ensure they are prepared to provide a status update at the CIO DSU and DSR meetings as needed following resolution.

Note: *If a Severity 1 or 2 incident is resolved in less than the allotted time for Level 0, the key NASA contacts shall be notified via e-mail or phone by 7:00 AM the following business day.*

3.3 Response Time Metrics

Events are initiated as shown in the following groups. These groups indicate the relevant metrics for each group that drive the response times during an escalation of incidents. These are broken out for each organization. Refer to the severity classifications in Table 4 for the definition of severities.

Table 5 – Incident Escalation SLA Standards

Definition	Severity	Time
Immediate and total loss of application accessibility shall be resolved	1	4 anytime hours
Immediate and total loss of application accessibility shall be resolved	1	8 anytime hours
Significant loss of critical business functions shall be resolved	2	8 Primary Business hours (Customer Clock)
Significant loss of critical business functions shall be resolved	2	16 Primary Business Hours (EAST Clock)
Partial loss of critical business functions shall be resolved	3	24 Primary Business hours
Partial loss of critical business functions shall be resolved	3	48 Primary Business Hours
Incidents or partial loss of critical business functions for individual users shall be resolved	4	8 business days

3.4 Daily Status Reports

The following table indicates the daily status reports that are covered by this procedure.

Table 6 – Daily Status Meetings Schedule

Meeting	Time	Location	Responsibility
CIO DSU (Covers entire contract)	0800-0830 CST	[redacted]	Contractor Technical Director and designees (attendees)

Meeting	Time	Location	Responsibility
NEACC DSR (Covers all NEACC Applications)	0830-0845 CST	[redacted]	SLM Team (meeting chair)

3.5 On-Call Listing

3.5.1 Maintaining the On-Call Listing

The SLM Team shall be responsible for collecting the information contained in the tables and working with the managers from each service provider to ensure the data is accurate. Each level of management and the service provider team leads shall ensure the information contained in the various escalation tables is accurate, complete, and any necessary changes submitted to SLM.

The on-call listing shall be distributed by e-mail with each update to the NISC, the LOB Managers, and to the other management staff outlined in this process. (See Appendix A for an example of the on-call listing). The On-Call listing shall also be posted on the bReady portal in the DSR folder.

3.6 Audit of Escalation/Notification Procedures

Evaluation of escalation procedures shall be performed through the review of daily incident management tickets, SRT and RCA reports, and through feedback from management. In addition, the DSR may be used to verify escalation compliance on Severity 1 or 2 incidents.

During an escalation procedure audit, the following questions shall be answered with this document:

- Who is responsible for escalation?
- Where are the escalation procedures and notification lists located?
- Who is responsible for updating these lists?
- Are these lists clear, easy to follow and client specific?
- What is the mechanism/tool used for escalation and notification?

4.0 RECORDS

As dictated by the NASA Procedure Regulation (NPR) 1441.1D NASA Records Retention Schedule (NRRS).

Table 7 – Records Applicable To This Document

Name of Record	Storage Location	SBU/PII*	Retention Schedule	Responsible Party	E-mail	Phone No.
On-Call Listing	[redacted]	No/No	2/27/J/2 (2800)	[redacted]	[redacted]	[redacted]
NISC Trouble Ticket	[redacted]	No/No	2/27/J/2 (2800)	[redacted]	[redacted]	[redacted]
NEACC Supported Applications List	[redacted]	No/No	2/27/C/a (2800)	[redacted]	[redacted]	[redacted]
NEACC SR	[redacted]	No/No	2/27/C/a (2800)	[redacted]	[redacted]	[redacted]

* SBU = Sensitive But Unclassified; PII = Personally Identifiable Information

APPENDIX A: TYPICAL ON-CALL LISTING

A.1.0 INTRODUCTION

Contact the Service Level Management Team at MSFC-DL-CC-SLM-TEAM@mail.nasa.gov for the most up to date version.

Updated file is stored on bReady.

Table 8 – NEACC LOB On-Call Listing

	NASA Enterprise Applications Compentency Center (NEACC) Line of Business (LOB)	Escalation Number	LOB Manager	Alternate	On Call Number
BI	Business Intelligence	[redacted]			
ESB	Enterprise Service Bus				
FIN	Financial				
HCW	Human Capital Workforce				
ICAM	Identity Credential Access Management				
LOG	Logistics				
NSS	NEACC Support Systems				
OOE	Office of Education				
PLM	Product Lifecycle Management				
PROC	Procurement				
AOM	*Applications Operations Management*				
NISC	*NASA Information Support Center (NISC)*				
SLM	*Service Level Management (SLM)*				
	NEACC EAST Technical Director				
	NEACC EAST Program Manager				
	Dedicated SRT Teleconference Line				

APPENDIX B: ESCALATION CHECKLIST

B.1.0 INTRODUCTION

In order to assist the AOM Team or the LOB Managers when taking a call, the SLM Team developed the following checklist as a guide to assist with the assessment of an incident. Some questions may not pertain to the individual incident, and as such the checklist is only meant as a guide

Table 9 – SLM Incident Assessment Checklist

What is the SR Number and Severity	SR _____ SEV _____
What time was SR openned	_____
Incident Impact and scope identified	_____
Should severity be changed	_____
Appropriate resources are working incident	_____
Has notification been sent	_____
Should additional notification take place	_____
Is an SRT required if so identify participants and time	_____
Team actions for resolution identified	_____
Estimated time to resolution	_____
If resolved is SR complete and closed	_____
Any additional communication required	_____

APPENDIX C: POINTS OF CONTACT

Table 10 – Points of Contact

Name	Position	Center	Phone
[redacted]	Document Owner	NEACC	[redacted]
	Document Owner	NEACC	