CAP   *CHANDRA*

Command Action Procedure

CAP # 1556	**Originator:** P. Nulsen
Date: 11/09/2020	**Commands Checked By:** K. Gage, D. Patnaude
Participants HRC/OC	
Required for Execution: CC	**Time of CAP execution:**

Title:
Manual enable of SCS 91 for HRC-S LETG checkout observation of Capella

Description/Rationale:
In preparation for the return to science of HRC-S, the HRC team wants to monitor the OBC commanding the HRC-S detector in real time. All commanding for the HRC-S LETG observation of Capella (ObsID 24839) will be in the NOV0920 loads, scheduled to take place during the comm pass starting at DOY 315:03:30Z. SCS 91 will be disabled in the daily loads in advance of this comm pass to prevent the detector HV being ramped up if comm is not established. This CAP will enable SCS 91during the comm, before the start of ObsID 24839.

Restrictions/Warnings/Notes:
- Except for enabling SCS 91, all commanding for ObsID 24839 will be executed in the daily loads.
- SCS 91 will be activated at 2020:315:03:55:28. The CAP needs to enable SCS 91 before this time.

Yes ☐ No ☒ **CAP requires enabling of a disabled command? If yes, provide a list of Disabled Commands**

CARD Items:

Schedule Requirements/Load Interaction:
CAP execution window: __315:03:30Z____ to _315:03:55Z_____
CAP duration: _____5 min_____
CAP verified against ___NOV0920A____ daily loads if applicable: N/A ☐

Yes ☒ No ☐	Daily load commands exist during execution window of CAP
Yes ☒ No ☐	CAP requires specific DSN comm. or timing requirements
Yes ☐ No ☒	CAP will be run concurrently with another CAP
Yes ☒ No ☐	CAP requires commanding in the load to be executed to ensure success
Yes ☒ No ☐	Daily load requires the CAP to be completed to ensure success
Yes ☐ No ☒	CAP uses SCS slots. If yes, performs SCS cleanup

Comments:
- SCS 91 must be disabled in the loads prior to CAP execution
- The CAP will be executed during the comm pass starting at 315:03:30Z
- Commanding for the HRC-S observation should begin at least 20 mins after the start of comm
- The CAP interacts with commanding in the daily loads to complete ObsID 24839

Initial Conditions/Spacecraft Configuration:
- The CAP requires that commanding for the LETG observation of Capella, ObsID 24839, be in the daily loads
- SCS 91 must be disabled

CAP depends upon or changes the state of:

☐	Telemetry Format	☐	SIM Table Position
☐	Safing Monitor En\Dis State (inc. RadMon)	☐	Grating Positions
☐	OBSID	☐	SI Mode
☐	Momentum State	☐	ACIS Parameter Blocks
☐	Attitude	☐	HRC Configuration
☐	PCAD Mode	☒	SCS States or Contents
☐	S/C Unit Configuration (H/W or S/W)	☐	Dither State
☐	Ground System Configuration/Settings	☐	FSW Element
☐	S/C Clock (VCDU)		

Comments:
- The CAP enables SCS 91

Risk/Comm. Loss/Worst Case Scenario:

What happens if comm. is lost during CAP execution?
If comm is lost during the CAP execution window, then the HRC-S high voltage may not be raised to the level required for the observation. In that case, no science data will be collected.

What is the worst case scenario for CAP execution? (Assuming the CAP is executed correctly)
If the CAP is executed correctly, in the worst case, OBC commanding may fail to raise the HRC-S high voltage to the observing level and no science data will be collected.

Required Products (Scripts, Displays, SOPs, etc.):

Product Name	Version	On-Console
O_PROT_SCSCTRL	3.2	☒
F_MAIN.dec (GRETA display)	2.74	☒
F_HRC_ALL.dec (GRETA display)	2.3	☒
I_HRC_SOH.dec (EHS display)	3.10	☒

Command Load Name	Checksum (if applicable)	In ODB
		☐

Instructions:

1. Verify that **SCS 91** is **disabled**

2. On HRC go, use script **O_PROT_SCSCTRL** to enable **SCS 91**

3. HRC verifies proper start to **ObsID 24839**

4. **(OPTIONAL) Contingency commanding**

   At the direction of HRC, use script **O_PROT_SCSCTRL** to activate **SCS 88**

SOT Manager/Lead:	JV (Verbal)		**Mission Planning Manager:** JS3 - Verbal	
OC or Ops Manager:	JW - Verbal		**FOM:** SBH- Verbal	
Sys. Engineer:	PV - Verbal		**Flight Director:** *Scott J Wolk*	