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# JASON-3 LAUNCH SITE READINESS

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**Launch Site Integration Manager**



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# Jason-3 Launch Site Documentation Status



- **Launch Site Support Plan (LSSP), LSP-PLN-333.01-JASON-3-LSSP**
  - Preliminary LSSP released December 2012
  - Baseline LSSP signed and released October 2014
  - LSSP revision processed in April to capture recent evolution of requirements
- **Range Documentation**
  - OR: Complete, NASA Generic Tests OR, Revision 5 dated 19 November 2010
  - OD: Complete, OD 3200 released 23 August 2011
  - Environmental Impact Analysis (via AF Form 813), approved 14 September 2012
- **Safety Documentation**
  - AFSPCMAN 91-710 Tailoring - Closed
  - Safety Data Package III - Closed
    - » Safety Review III held on 24 March 2015
    - » Jason-3 Certificate of Safety Compliance issued 24 April 2015



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# Spacecraft Deliverables Status



- **7 of 50 items remain open but all are on schedule**

Item #	Item	Need Date
LS3.1	Submit foreign national access documentation	10.May.2015
LS2.5.4	Submit final transportation plan/schedule and arrival day badging request	02.Jun.2015
LS3.5	Submit Personnel Medical Certifications for crane operators	02.Jun.2015
LS5.1	Provide Launch Day Mishap Debris Team POC	07.Jun.2015
LS2.5.6	Work Time Policy Review	09.Jun.2015
LS3.4	Maintain Solvent Tracking Log	09.Jun.2015
LS4.5	Submit Safety Verification Tracking Log (SVTL)	09.Jun.2015



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# Launch Site Procedures



- **Procedures distributed for review in early April**
  - 55 Total, 13 Hazardous
- **Procedures to be used for Jason-3 largely consist of same or reissued Jason-2 procedures**
- **Comment generation is still in work**
  - Known updates needed to correct facility/LV references and add cover pages to hazardous procedures
- **Launch Site Integration Manager will track procedures approval status**



## SLC-4 Readiness



- **PPF cleanroom and control rooms are operational and ready to support Jason-3 processing**
  - Final cleaning is in process
- **PPF mezzanine observation area is nearing completion with only bathroom area remaining**
- **Bldg. 725 office areas have been configured for Jason-3 personnel occupancy**
  - Network and phone configurations are in final stages of preparation and on schedule to support
- **All support items in the LSSP are ready or are scheduled to support**
  - COFR Delivered 18 April and reviewed by NASA. In approval cycle
- **Pad is operational**



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## Building 836 Readiness



- **Lab 3 GSE area configured for Jason-3 GSE**
  - 50 hz power is available and setup in the room
- **Office areas on schedule to support Jason-3 personnel**
  - Window installation is active for conference room and office
  - Office configuration to be complete 2 weeks prior to spacecraft arrival at Vandenberg
- **All support items in the LSSP provided by NASA are ready or are scheduled to support**



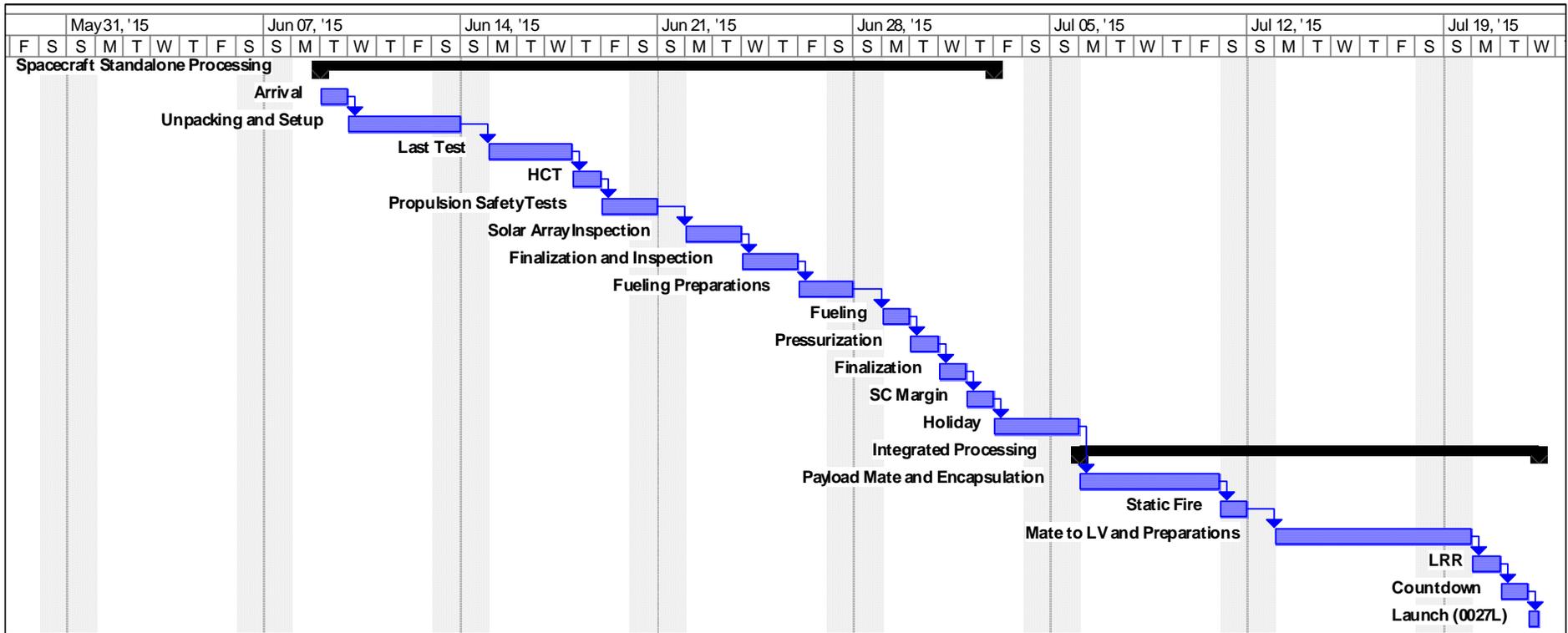
# Launch Site Processing Calendar

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LAUNCH SERVICES PROGRAM

- Integrated calendar is in place to reflect spacecraft and launch vehicle operations
- Range resources along with spacecraft and launch vehicle status are constantly monitored to manage schedule risks





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# JASON-3 GROUND OPERATIONS REVIEW CONCLUSIONS

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# Jason-3 Ground Operations Review (GOR)



- **The Jason-3 GOR was successfully completed 28 April 2015**
  - **The purpose of the GOR was to:**
    - » **Certify that NASA/KSC planning activities are complete and that resources and facilities are ready to support receipt and processing of Jason-3 at Vandenberg Air Force Base**
    - » **Ensure the Jason-3 team, observatory, equipment and procedures will be ready and available to support the start of launch site operations**
    - » **Ensure that the current configuration of the Jason-3 spacecraft and processing planned by the Project are consistent with those for which launch site personnel have been planning**
    - » **Certify that documentation is complete and/or approved to support receipt of Jason-3 at Vandenberg for processing**
    - » **Identify and document any constraints which may exist to preclude shipment or processing of the Jason-3 spacecraft at Vandenberg**
- **Parties agreed that they are ready pending completion of scheduled work**
  - **Participants included CNES, Thales-Alenia Space, JPL, NASA/KSC, SpaceX, Range, and Analex**



## GOR Open Items (1 of 3)



- **Certificate of Facility Readiness (CoFR)**
  - **Received 18 April 2015; initial review and evaluation is complete**
    - » **Content includes rqmt-by-rqmt disposition of PPF LSSP**
    - » **30-day runs of clean room environmental data**
      - **Particulate performance – No excursions - CLOSED**
      - **Temperature and humidity – No excursions - CLOSED**
      - **Hydrocarbon – No excursions - CLOSED**
  - **LSP CoFR walkdowns were conducted on 20 and 27 April 2015**
    - » **“Punch-list” items identified are being resolved**
  - **Spacecraft customer walkdown**
    - » **JPL/CNES/TAS team inspected the facility on 29 April 2015**
      - **Items noted are being resolved**
  - **Subsequent to GOR, CoFR package was approved**



## GOR Open Items (2 of 3)



- **Compatibility testing for plastic films and adhesive tapes – OPEN**
  - **Samples received by KSC for 7 materials on 13 April**
    - » **Currently undergoing tests for flammability, electrostatic discharge, and N2H4 compatibility**
    - » **Test results starting to trickle in, no concerns to report yet**
    - » **We will continue to monitor progress of testing**
  - **RF Hat material recently (15 April) identified as an additional material needing N2H4 compatibility testing**
    - » **Sample shipped to KSC for testing**
  - **AMR insulation material recently (23 April) identified as additional material possibly needing N2H4 compatibility testing**
    - » **Samples to be shipped to KSC for testing upon receipt**



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## GOR Open Items (3 of 3)



- **Questions have surfaced in recent weeks concerning the suitability of the contracted offloader**
  - **LSP has been relaying questions between CNES/TASI and the offloader contractor in effort to disposition questions**
  - **LSP needs positive affirmation that additional information has satisfied concerns before shipment**



# Open Launch Site Action Items



#	Action Item Description	Actionee	Closure / Due Date	Status	Comments/Status
040	Develop launch day anomaly resolution process between SX and LSP chief engineers	KSC/Piloto	23.May.2015	Open	GOWG #5 - Item to be worked during launch operations discussions.
048	To precise the list of personnel involved in airport, access of badge ...	CNES/TASI	28.Apr.2015	Open	November 3-4, 2014 TIM - Up to 4 persons will be arriving via aircraft. Thales - PAPIN Fabrice, MONTET Sylvie-Magali, QC (TBD), CNES - PAUTHE Corine
071	Update helium pressurization procedure and define acceptable leak rates	SX/Labine	25.Mar.2015	Open	Discussion during 11 March telecon yielded that additional information concerning monitoring and response is needed to provide sufficient assurance. Revised presentation received on 25 March. JPL is preparing additional verbiage in presentation to capture entire story in one cohesive package
075	Provide photo process for closeouts	SX/Scheiman	09.Jun.2015	Open	April 28, 2015, GOR
076	Ensure that >40L of usable propellant will be provided in 4BW cylinders procured for Jason-3 fueling operation	KSC/Trenkle	09.Jun.2015	Open	April 28, 2015, GOR



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# JASON-3 LAUNCH SITE SECURITY

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# Badging & Training



- **Vandenberg Access**

- Names have been received from USA citizens supporting Jason-3 mission and have been submitted to Vandenberg Visitor Control
- For non-USA Citizens, a 30-day approval process is required
  - » Badging data for 27 of 28 CNES persons has been received and submitted to Vandenberg for approval (4 approved thus far)
  - » Badging data for 45 of 55 Thales-Alenia persons has been received and submitted to Vandenberg for approval (1 approved thus far)
  - » Credentials will be good until end of August

- **SLC-4 Access**

- Names being provided to SpaceX for badging purposes
  - » Training consists of a presentation and a quiz
    - Presentation can be done in advance of arrival
    - Quiz submitted upon arrival to complete Safety badge requirements
  - » Training will be available in English and in French
  - » Delayed training/badging workarounds are available for persons arriving and immediately needing to support an operation



# VAFB Escorting Plan



- **NASA/KSC will arrange for a contractor to provide escort services for CNES and Thales personnel:**
  - **The level is determined by spacecraft schedule (number of personnel, work hours, etc).**
    - » See escort schedule page for a preliminary support schedule
  - **Service available for all VAFB entrance and exit traffic**
    - » Escorts will pick up Jason-3 personnel at building located outside of the South gate and return them to their vehicles there.
    - » Service available for all intra-VAFB traffic such as to/from SLC-4, NASA Bldg. 836, etc
- **Meeting attendance and other single person traffic will often be escorted by JPL and NASA/KSC personnel**
- **While being escorted on VAFB – the escort must keep possession of each foreign individual’s visitor badge**
  - This will also apply to JPL or other personnel when escorting foreign individuals.
- **This is similar approach to Jason-1, CALIPSO, and Jason-2**



# Shuttle Driver/Escort Schedule



DAYS	Escort Shift Hours	Escorts	Vehicles
L-45 to L-1 (Arrival, Setup and Electrical Checkout, Fueling)  Spacecraft Start Time: 0530 (pickup) Spacecraft End Time: 2000 (end of shift)  6 days per week	0500-1700	3 Drivers	Three vans for use at SLC-4 (11-12 passenger)
	1700-2300	3 Drivers	Three vans for use at SLC-4 (11-12 passenger)
L-16 to Launch ( SLC-4and B836)  Spacecraft Start Time: 0530 (pickup) Spacecraft End Time: 2000 (end of shift)  6 days per week	0500-1700	2 Drivers	Two vans for use at SLC-4 (11-12 passenger)
		1 Driver	One van for use at B836
	1700-2300	2 Drivers	Two vans for use at SLC-4 (11-12 passenger)
		1 Driver	One van for use at B836
Launch to L+10	0700 – 1900	2 Drivers	Two vans for use at SLC-4 (11-12 passenger)



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# JASON-3 LAUNCH SITE BACKUPS

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# Detailed Processing Calendar (1/3)



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LAUNCH SERVICES PROGRAM

Sun, May 31 L-52	Mon, Jun 01 L-51	Tue, Jun 02 L-50	Wed, Jun 03 L-49	Thu, Jun 04 L-48	Fri, Jun 05 L-47	Sat, Jun 06 L-46
				AIRCRAFT OFFLOADER ARRIVAL AND SETUP AT AIRFIELD	ADVANCE TEAM ARRIVES TO PREPARE FOR S/C ARRIVAL	ARRIVAL PREPARATIONS
Sun, Jun 07 L-45	Mon, Jun 08 L-44	Tue, Jun 09 L-43	Wed, Jun 10 L-42	Thu, Jun 11 L-41	Fri, Jun 12 L-40	Sat, Jun 13 L-39
ARRIVAL PREPARATIONS	MAIN TEAM ARRIVAL AND BADGING  ARRIVAL PREPARATIONS	JASON-3 ARRIVAL AT VAFB  CONTROL ROOM/PROCESSING BAY PREPARATION  OFFICE AREA & PC/LAN INSTALLATION  PPF AVI CHECKOUT ("H4")	MGSE AND S/C SHIPPING CONTAINER CLEANING AND TRANSFER IN AIRLOCK  S/C GROUNDING STRAP INSTALLATION  EGSE INSTALLATION & VALIDATION IN PROCESSING BAY AND CONTROL ROOM  OFFICE AREA & PC/LAN INSTALLATION  TE/PAD AVI VERIFICATION ("H1")	S/C SHIPPING CONTAINER CLEANING/OPENING  S/C VISUAL INSPECTION  S/C TRANSFER TO TILT DOLLY  ACCELEROMETERS DISMOUNTING  AMR DEBAGGING AND INSPECTION  AMR PURGE INSTALLATION  SCOE RF/GSSL/OCTS VALIDATIONS  LINE TGSE RS VALIDATION  OFFICE AREA & PC/LAN INSTALLATION  LVRR	A1 DOLLY FIXTURE ON THE FLOOR  S/C TRANSFER TO A1 DOLLY  OFFICE AREA & PC/LAN INSTALLATION  DMRP VALIDATION	OFFICE AREA & PC/LAN INSTALLATION  DMRP VALIDATION  PROPULSION SAFETY TEST
Sun, Jun 14 L-38	Mon, Jun 15 L-37	Tue, Jun 16 L-36	Wed, Jun 17 L-35	Thu, Jun 18 L-34	Fri, Jun 19 L-33	Sat, Jun 20 L-32
	LAST TEST	LAST TEST  MOVE TE TO PAD	LAST TEST  SPACECRAFT SIMULATOR CHECKOUT ("SC1")	HCT CTA PF/OL & HCT CSS	PROPULSION SAFETY TESTS & LEAK TESTS	PROPULSION SAFETY TESTS & LEAK TESTS  ADAPTER AND PAF AVI CHECKOUTS ("H5")
Sun, Jun 21 L-31	Mon, Jun 22 L-30	Tue, Jun 23 L-29	Wed, Jun 24 L-28	Thu, Jun 25 L-27	Fri, Jun 26 L-26	Sat, Jun 27 L-25
	SOLAR ARRAY INSPECTION  GPS TEST CAP & ALIGNMENT CUBES REMOVAL  SPACECRAFT SIMULATOR CHECKOUT ("SC3")	SOLAR ARRAY INSPECTION  GPS TEST CAP & ALIGNMENT CUBES REMOVAL	HYDRAZINE DELIVERY & STABILIZATION  S/C FINALIZATION & INSPECTION  S/C CLEANING  SCAPE TRAINING	HYDRAZINE STABILIZATION  S/C FINALIZATION & INSPECTION  S/C CLEANING  THRUSTER TC REMOVAL FROM BDE & VERIFICATION	MOVE HYDRAZINE INTO PROCESSING BAY  S/C FUELING PREPARATIONS  HYDRAZINE STABILIZATION	FUELING DRY RUN  FUELING PREPARATION  PRE-FUELING READINESS REVIEW  MCDT INSTALLATION & VALIDATION IN B836



# Detailed Processing Calendar (2/3)

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Sun, Jun 28 L-24	Mon, Jun 29 L-23	Tue, Jun 30 L-22	Wed, Jul 01 L-21	Thu, Jul 02 L-20	Fri, Jul 03 L-19	Sat, Jul 04 L-18
	S/C INSPECTION BEFORE FUELING  KEY POINT #4  DRUMS INSPECTION  S/C FUELING <b>SLC-4 HANGAR CLEAR</b>  DRUM REMOVAL FROM PROCESSING BAY  MCDT INSTALLATION & VALIDATION IN B836	S/C PRESSURIZATION <b>SLC-4 HANGAR CLEAR</b>  MCDT INSTALLATION & VALIDATION IN B836  EGSE KILL SWITCH VALIDATION VIA PHONE	F/D VALVE FINALIZATION  S/C MECHANICAL FINALIZATION AFTER FUELING  S/C STANDALONE REHEARSAL	S/C PROCESSING MARGIN DAY	HOLIDAY	HOLIDAY
Sun, Jul 05 L-17	Mon, Jul 06 L-16	Tue, Jul 07 L-15	Wed, Jul 08 L-14	Thu, Jul 09 L-13	Fri, Jul 10 L-12	Sat, Jul 11 L-11
HOLIDAY	INSTALL SOFTRIDE IN AIRLOCK  FAIRING FINAL CLEAN AND SAMPLING IN AIRLOCK  ADAPTER SAFE-TO-MATE  <b>PRE-MATE REVIEW TELECON</b>	MATE PAYLOAD TO ADAPTER/PAYLOAD ATTACHMENT FITTING  PAYLOAD HARNESS AND SEP SYSTEM MATE  POST PAYLOAD MATE AVI CHECKOUT AND PAF MLI INSTALLATION  <b>SC POWER-ON TEST</b>	S/C PYRO PLUG AND BATTERY CONNECTION  S/C BATTERY CHARGE (5 HOURS)	S/C BATTERY CHARGE (8 HOURS)  REMOVE-BEFORE-FLIGHT ITEMS REMOVAL  MOVE FAIRING TO PPF AND ROTATE TO VERTICAL  PAYLOAD FAIRING SAMPLE RESULTS AVAILABLE  PRE-ENCAPSULATION CHECKOUT  FAIRING ENCAPSULATION	S/C BATTERY CHARGE (5 HOURS)  1ST/2ND STAGE MATE  MATE LV TO TE  LV/TE AVI CHECKOUT ("H3")  SC SIMULATOR CHECKOUT ("SC2")  <b>SPACEX STATIC FIRE READINESS REVIEW (AM)</b>  <b>NASA FRR/LMCM #1 (PM) (RRC 7-5)</b>	LV ROLL TO PAD  WDR/STATIC FIRE <b>SLC-4 COMPLEX CLEAR</b>



# Detailed Processing Calendar (3/3)

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LAUNCH SERVICES PROGRAM

Sun, Jul 12 L-10	Mon, Jul 13 L-9	Tue, Jul 14 L-8	Wed, Jul 15 L-7	Thu, Jul 16 L-6	Fri, Jul 17 L-5	Sat, Jul 18 L-4
S/C BATTERY CHARGE (10 HOURS)	S/C BATTERY CHARGE (5 HOURS)  LV ROLL TO HANGAR  PAYLOAD SAFE TO MATE AVI CHECKS	S/C BATTERY CHARGE (5 HOURS)  BASTILLE DAY  FAIRING ROTATION TO HORIZONTAL AND MATE TO LV  POST-MATE AVI CHECKOUT	S/C BATTERY CHARGE (5 HOURS)  MATE TO LV CONTINUED  PAYLOAD FAIRING HELIUM BOTTLE FILL  PAYLOAD FAIRING FINAL CLOSEOUTS	S/C BATTERY CHARGE (5 HOURS)	S/C BATTERY CHARGE (5 HOURS)  LMCM #2/MDR (RRC 7-12)  TEA-TEB ISO OPEN	S/C BATTERY CHARGE (5 HOURS)  LMCM #2/MDR (alternate)  FTS END-TO-END TEST  FTS FINAL ORDNANCE & PIN PULL  SLC-4 HANGAR CLEAR
Sun, Jul 19 L-3	Mon, Jul 20 L-2	Tue, Jul 21 L-1	Wed, Jul 22 L+0	Thu, Jul 23 L+1	Fri, Jul 24 L+2	Sat, Jul 25 L+3
LV ROLL OUT AND PIN  QC CONNECT & LEAK CHECKS  REMOVE FAIRING CART  FAIRING FINAL CLOSEOUTS & DOOR INSTALL	SPACEX LRR (AM)  PRESS CONFERENCE/ SCIENCE/BRIEFING (AM)  NASA LRR (PM) (RRC 12-5)  AF LRR (PM)  LV TO VERTICAL  SC POWER-ON TEST  S/C BATTERY CHARGE (8 HOURS)  AZIMUTH ALIGN	CREW SYNC DAY  SOCIAL MEDIA EVENT (AM)  S/C BATTERY CHARGE (5 HOURS)  COUNTDOWN (CTS ~1800L)  SLC-4 COMPLEX CLEAR	LAUNCH (0027L)  SLC-4 COMPLEX CLEAR			