

Test Facility Request System (TFRS) Augmentations (TFRS 2.0)

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Test Facility Request System (TFRS) Augmentations Agenda



- Background
- Current TFRS Process
- Problem
- Questions - 1
- Solution
- Demonstration
- Benefits of Integrating Staffing and Scheduling
- Project Implementation
- Questions - 2

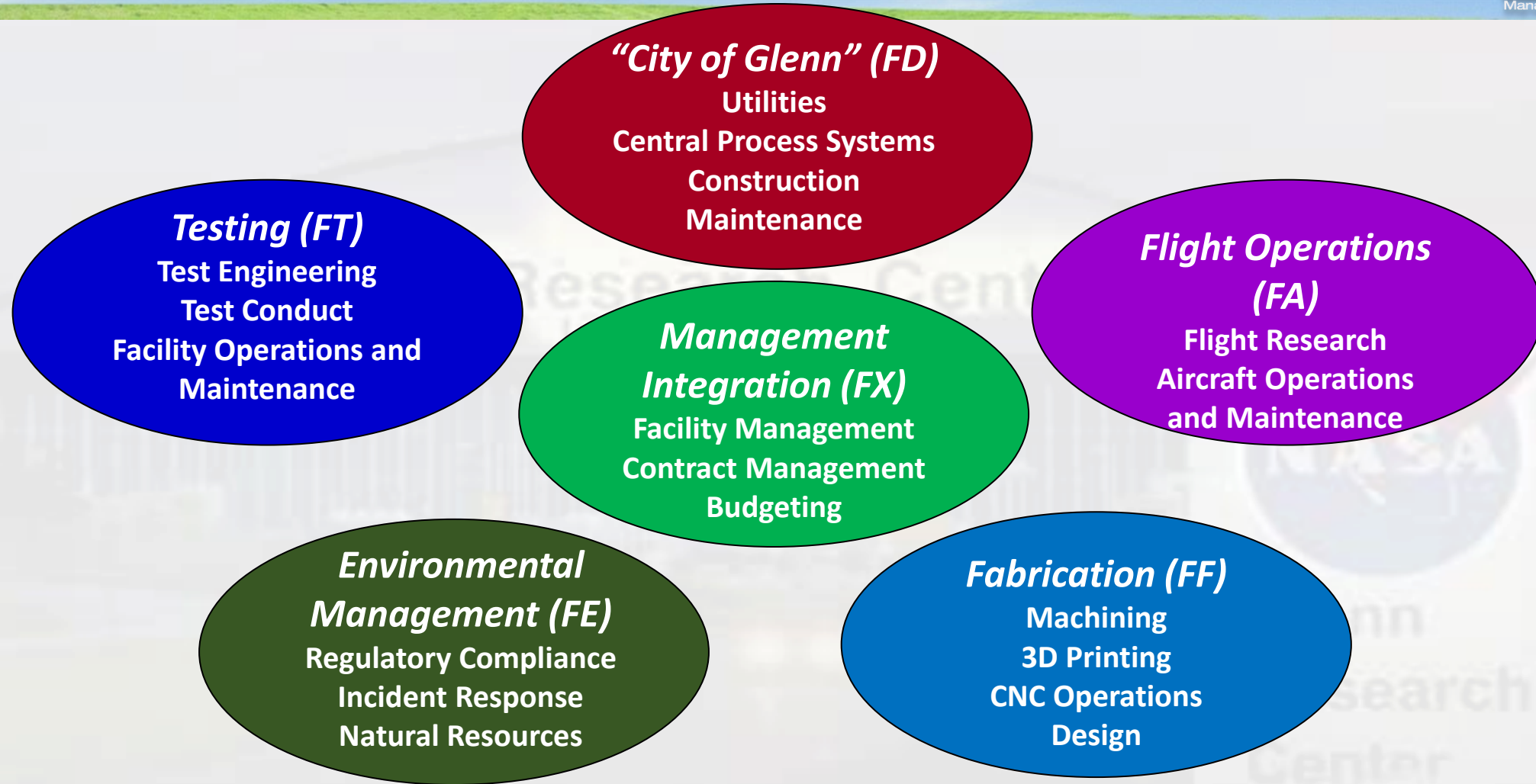
NASA GRC – Lewis Field Test Facility Test Facilities



AAPL - Aero-Acoustic Propulsion Laboratory
CPRC - Chemical Propulsion Research Complex
CRCC - The Creek Road Cryogenics Complex
ECL - Exercise Countermeasures Laboratory
EPPL - The Electric Propulsion and Power Laboratory
EPRB - Electric Propulsion Research Building
ERB - Engine Research Building
IRT - Icing Research Tunnel
GEER - Glenn Extreme Environments Rig
PSL - Propulsion Systems Laboratory
PSF - Power Systems Facility
8'x6' Supersonic/9'x15' Low Speed Wind Tunnels
10'x10' Supersonic Wind Tunnel

Includes over 400 R&D Laboratories
FY22 - 248 Approved Test Requests
FY23 to date – 195 Approved Test Requests

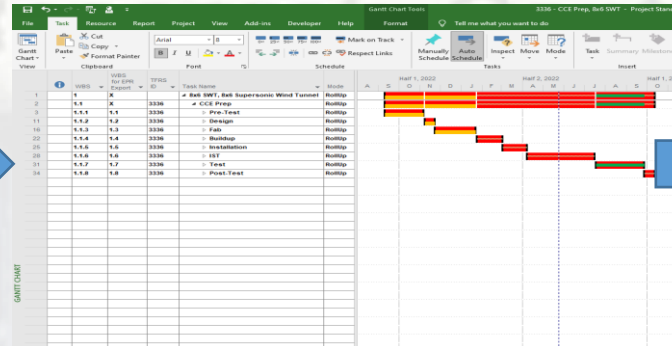
Facilities, Test and Manufacturing Directorate - Code F



Test Facility Request System (TFRS) - Current



- Test Facility Request System (Existing online tool)
 - Oracle Database
 - Developed for entry and approval for annual forecasting of test services
 - Aero and Space test facilities are grouped into 10 Capability Asset Groups (CAG) covering distinct test areas
 - (for example, Aero Acoustics, Fuel Cells, In Space Propulsion and Power, etc.)

A screenshot of the TFRS web interface. It shows a 'Demand Entry - New' form with various fields for Test Name, Requester, Facility, and dates. A large blue arrow points from this form towards the Gantt chart.

Summary
Gantt
Chart

Project
Review
Boards
(PRBs)

- TFR is initiated using online tool
- TFR goes through approval process

- Facility Manager (FM) updates Master Facility Schedule
- FM works with Branch Chief (BC) to determine Test Start Date, level of effort, and any non-labor costs
- BC & Deputy Branch Chief (DBC) periodically meet to determine if labor updates are required

• Problem

- Current system is static
- Limits managers' abilities to keep up with changing test schedules, corresponding labor, evolving requirements, and unanticipated testing anomalies

- Project Scheduler (One Pager) creates charts for monthly Project Review Boards (PRBs)



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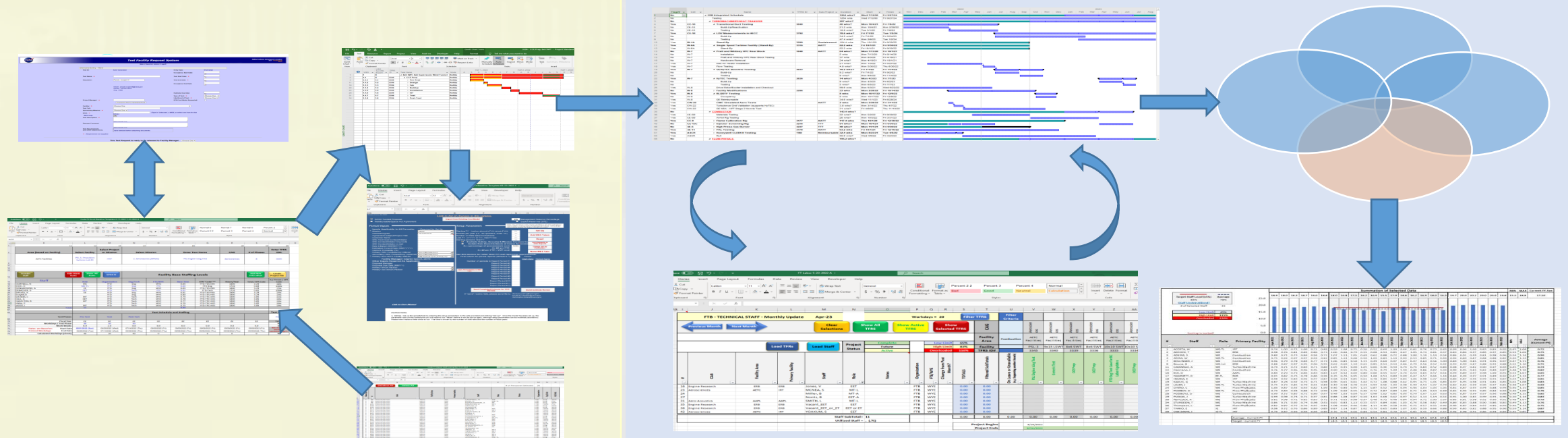
Questions



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The logo for the Facilities Management Integration Division (FX) features a stylized blue and red 'FX' monogram. Above the monogram, the word 'FACILITIES' is written in a curved, grey font. Below the monogram, the words 'Management Integration Division' are written in a blue, sans-serif font. The entire logo is set against a dark blue background with a subtle pattern of white stars.

- **Solution Overview**
 - Leverage existing tools to update TFRS to a dynamic facility scheduling and workforce planning tool
 - MS Project, Excel
 - Macros
 - Standard Templates will provide a means to capture historical test data
 - Creation of database to source information to the labor and schedule dashboard.



Test Facility Request System (TFRS 2.0) - Dynamic



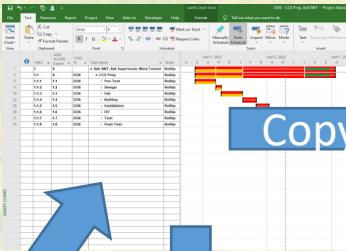
Executed for New TFR Only!

1a. TFRS (Online Tool)

New
TFR?

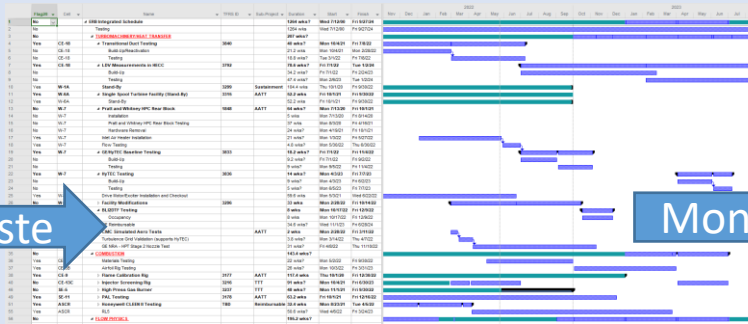
Copy & Paste

2. Test Schedule



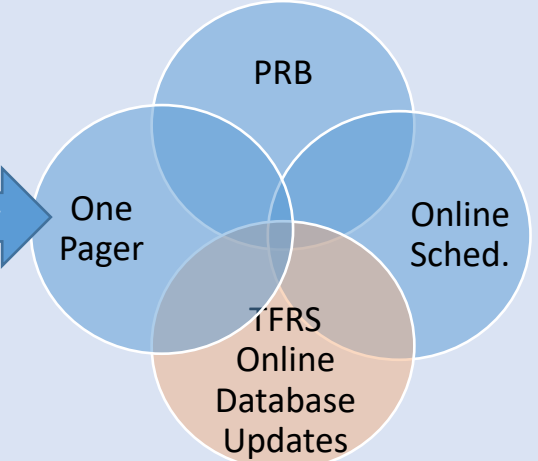
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4. Test Facility Master Schedule



Monthly

6. Deliverables



1b. TFRs Schedule and Labor Tool (SaLT)

AUTO

3. Estimated Pricing Report

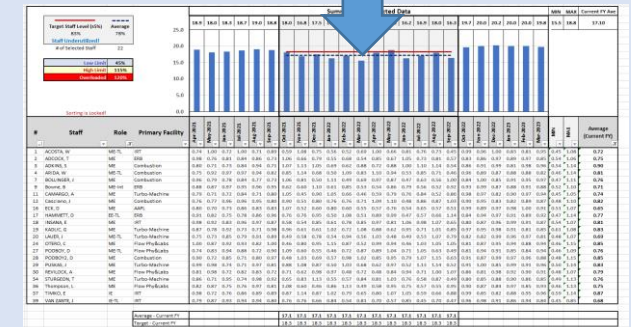
1c. Master FT Skills List

a. Updated
Schedule

b. Updated
Staffing

Automated

5. Branch Labor Tool (BLT)



7. Labor Report

Demonstration

[TFRS Demo 1](#)

[TFRS Demo 2](#)

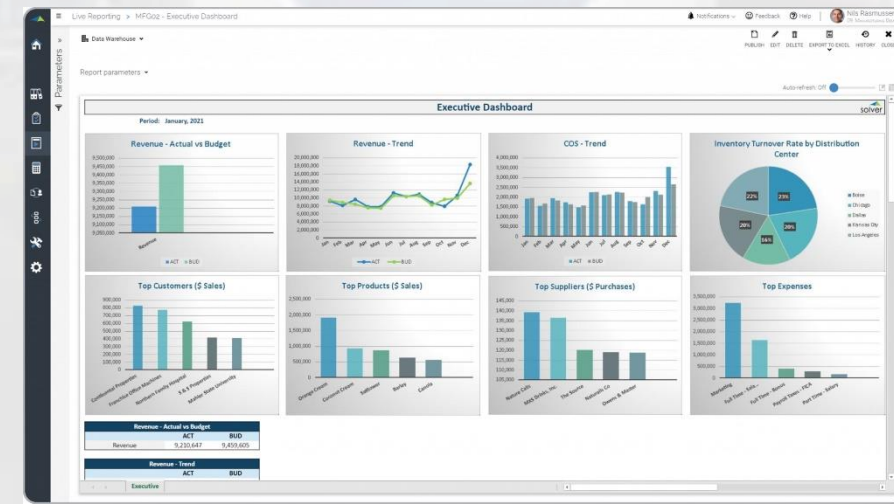
[TFRS Demo 3](#)

[TFRS Demo 4](#)

Benefits of Integrating Staffing and Scheduling - (TFRS 2.0)



- Current data for planning
- Facility supply/demand optimization
- Staff supply/demand optimization
 - Minimize staff overloading/underutilization
 - Locate periods of possible discipline shortages
 - Provide insight for on-the-job training to fill skill deficits
 - Increase awareness of staff availability by selected criteria (Person, CAG, Facility, Discipline)
- Standardization of facility schedules
- Added selectable, test schedule change reasons
 - Customer Hardware Delay, Additional/late Requirements, Test Article Failure/Repair, Procurement Delays, Etc.
- Future Enhancements
 - Automation of inputs and interfaces
 - Dashboard (top level schedule, monthly labor updates, schedule change reasons, etc.)



Implementation Status - (TFRS 2.0)



• Status

- Initial coaching and feedback obtained from a subset of FMs and BCs
- MS Project Schedule baseline standards have been established
- Training Videos for half of the TFRS 2.0 tools have been completed
- Using current test facility schedules to populate TFRS 2.0 Tools for upcoming center Staffing Review
- Pilot Training and initial rollout for 8'x6'/9'x15' WT facility
- Initial rollout for ERB Facility
- Initial rollout for PSL Facility
- Full facility rollout of TFRS 2.0 planned for mid-May

• Issue/Resolution Example

- Flag and Text Number field coordination and balancing

GEER	Zero G	IRT	Aircraft Ops	TFRS 2.0	Highlighted cells are Coded in SaLT
Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Flag1
Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Flag2
Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Flag3
Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Flag4
Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Reserved for Schedulers Labor (Yes or No)	Flag5
Build Up/TearDown Testing	Build Up/TearDown Testing	Build Up/TearDown Testing	Build Up/TearDown Testing	Build Up/TearDown Testing	Flag6
Planning Non Exclusive	Planning Non Exclusive	Planning Non Exclusive	Planning Non Exclusive	Planning Non Exclusive	Flag7
Maintenance Exclusive	Maintenance Exclusive	Maintenance Exclusive	Maintenance Exclusive	Maintenance Exclusive	Flag8
Maintenance Non Exclusive	Maintenance Non Exclusive	Maintenance Non Exclusive	Maintenance Non Exclusive	Maintenance Non Exclusive	Flag9
				Reserved for FMs	Flag10
				Reserved for FMs	Flag11
				Reserved for FMs	Flag12
				Reserved for FMs	Flag13
				Reserved for FMs	Flag14
				Reserved for FMs	Flag15
				Reserved for FMs	Flag16
				Reserved for FMs	Flag17
				Reserved for FMs	Flag18
				Reserved for FMs	Flag19
				Reserved for FMs	Flag20
WYE Eng Hrs	WYE Eng Hrs	WYE Eng Hrs	WYE Eng Hrs	WYE Eng Hrs	Number1
WYE Tech Hrs	WYE Tech Hrs	WYE Tech Hrs	WYE Tech Hrs	WYE Tech Hrs	Number2
FTE Eng Hrs	FTE Eng Hrs	FTE Eng Hrs	FTE Eng Hrs	FTE Eng Hrs	Number3
FTE Tech Hrs	FTE Tech Hrs	FTE Tech Hrs	FTE Tech Hrs	FTE Tech Hrs	Number4
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Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Number6
Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Number7
Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Number8
Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Number9
Space PRB	Space PRB	Aero PRB	Aero PRB	Aero PRB	Number10
Integr Infra & Test Status	Integr Infra & Test Status	Integr Infra & Test Status	Integr Infra & Test Status	Integr Infra & Test Status	Number11
				ERB Combustion	Number12
				ERB Flow Physics	Number13
				ERB Small Labs	Number14
				ERB Turbo	Number15
				Bldg 16, 56 & 301	Number16
				Bldg 301	Number17
				Bldg 16 & 56	Number18
				VF6	Number19
TFRS ID#	TFRS ID#	TFRS ID#	TFRS ID#	TFRS ID#	Number20

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Questions

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Backup



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“Dynamic” TFRS 2.0 Process

For each TFR

- TFR is initiated
- FM copies High level data from TFRS into the Schedule and Labor Tool (SaLT)
- BC and FM determine
 - Test Start Date
 - Customizable Name and duration of 1st level Test tasks (e.g. Pre-Test, Buildup, Test, Post-Test)
 - Non-Labor Costs (if known)
- BC & DBC select Test Skills from Master FT Skills List and Auto-Transfer to SaLT
- BC & DBC determine level of effort for each skill
- FM creates an individual spreadsheet Tab for the TFR (Excel Macro)
- Within SaLT, FM Auto-creates a TFR-specific MSProject Schedule and then an EPR from MSProject
 - FM copies the TFR-specific MSProject Schedule into the Facility Master MSProject Schedule
 - FM copies completed EPR into the on line TFRS system
- BC Auto-transfers TFR and Schedule data into the BLT

Monthly

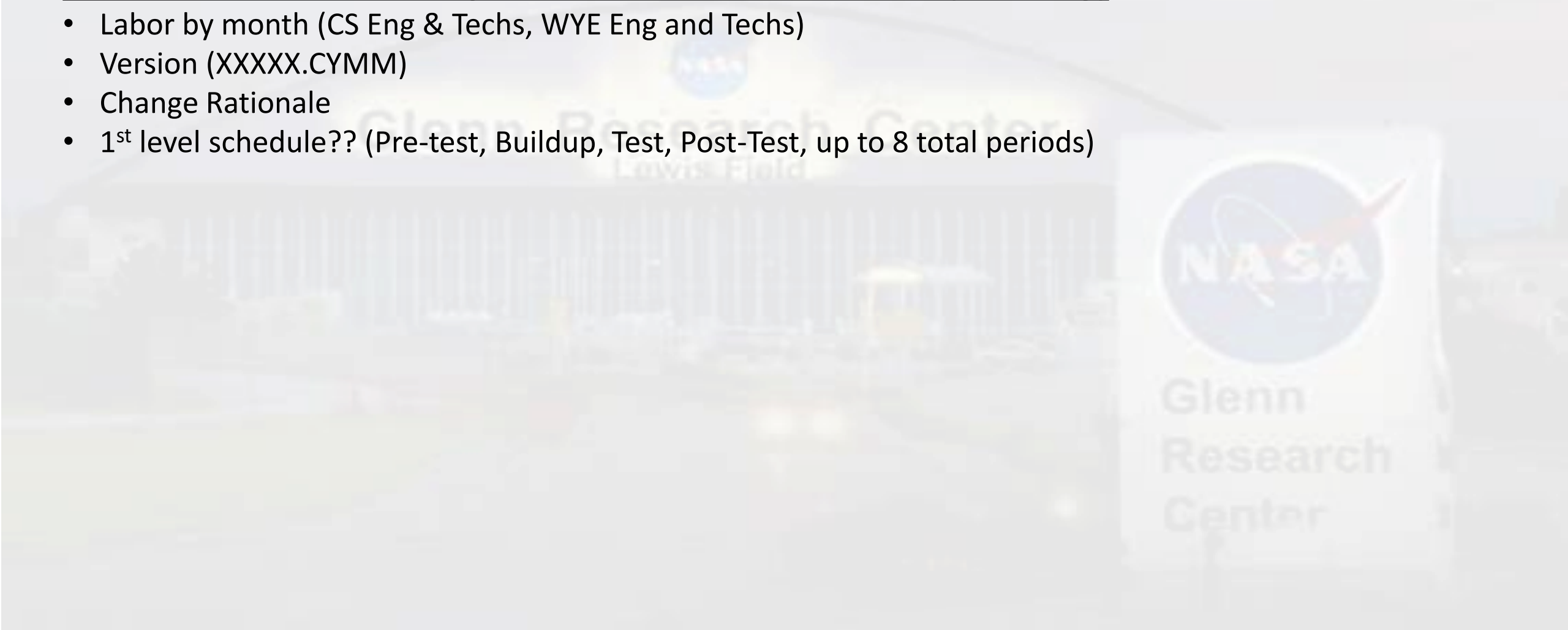
- FM updates Test Facility Master Schedule as needed
- Updated project dates auto transferred to BLT
- BC updates labor in BLT
- Updated labor auto transferred to Test Facility Master Schedule
- Monthly deliverables developed from updated Test Facility Master Schedule
- Labor reports can be generated from TFRS On Line Database (i.e. Dashboard)

Project Data to TFRS 2.0 On Line Database



Data to transfer from Project to TFRS Online Database (Monthly)

- Labor by month (CS Eng & Techs, WYE Eng and Techs)
- Version (XXXXX.CYMM)
- Change Rationale
- 1st level schedule?? (Pre-test, Buildup, Test, Post-Test, up to 8 total periods)



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[illegible]

	10x10	8x6/9x15	PSL	ERB	VF	AAPL	GEER	Zero G	IRT	Aircraft Ops		Highlighted cells are Coded in SaLT
Flag1 Flag2 Flag3 Flag4 Flag5 Flag6 Flag7 Flag8 Flag9 Flag10 Flag11 Flag12 Flag13 Flag14 Flag15 Flag16 Flag17 Flag18 Flag19 Flag20	Reserved for Schedulers	Reserved for Schedulers	Reserved for Schedulers	Reserved for Schedulers	Reserved for Schedulers	Reserved for Schedulers	Reserved for Schedulers	Reserved for Schedulers	Reserved for Schedulers	Reserved for Schedulers	Reserved for Schedulers	Flag1
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	Reserved for Schedulers	Reserved for Schedulers	Reserved for Schedulers	Reserved for Schedulers	Reserved for Schedulers	Reserved for Schedulers	Reserved for Schedulers	Reserved for Schedulers	Reserved for Schedulers	Reserved for Schedulers	Reserved for Schedulers	Flag4
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	Build Up/TearDown	Build Up/TearDown	Build Up/TearDown	Build Up/TearDown	Build Up/TearDown	Build Up/TearDown	Build Up/TearDown	Build Up/TearDown	Build Up/TearDown	Build Up/TearDown	Build Up/TearDown	Flag6
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					-						Reserved for FMs	Flag11
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					-						Reserved for FMs	Flag18
		-	-	-	-	-	-	-	-	-	Reserved for FMs	Flag19
			-		-						Reserved for FMs	Flag20
Number1	WYE Eng Hrs	WYE Eng Hrs	WYE Eng Hrs	WYE Eng Hrs	WYE Eng Hrs	WYE Eng Hrs	WYE Eng Hrs	WYE Eng Hrs	WYE Eng Hrs	WYE Eng Hrs	WYE Eng Hrs	Number1
Number2	WYE Tech Hrs	WYE Tech Hrs	WYE Tech Hrs	WYE Tech Hrs	WYE Tech Hrs	WYE Tech Hrs	WYE Tech Hrs	WYE Tech Hrs	WYE Tech Hrs	WYE Tech Hrs	WYE Tech Hrs	Number2
Number3	FTE Eng Hrs	FTE Eng Hrs	FTE Eng Hrs	FTE Eng Hrs	FTE Eng Hrs	FTE Eng Hrs	FTE Eng Hrs	FTE Eng Hrs	FTE Eng Hrs	FTE Eng Hrs	FTE Eng Hrs	Number3
Number4	FTE Tech Hrs	FTE Tech Hrs	FTE Tech Hrs	FTE Tech Hrs	FTE Tech Hrs	FTE Tech Hrs	FTE Tech Hrs	FTE Tech Hrs	FTE Tech Hrs	FTE Tech Hrs	FTE Tech Hrs	Number4
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Number7	Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Reserved for Schedulers*	Number7
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Number9	Aero PRB	Aero PRB	Aero PRB	Aero PRB	Space PRB	Space PRB	Space PRB	Space PRB	Aero PRB	Aero PRB	Aero PRB	Number9
Number10	Space PRB	Space PRB			Space PRB	Space PRB	Space PRB	Space PRB	Space PRB	Space PRB	Space PRB	Number10
Number11	Integr Infra & Test Status	Integr Infra & Test Status	Integr Infra & Test Status	Integr Infra & Test Status	Integr Infra & Test Status	Integr Infra & Test Status	Integr Infra & Test Status	Integr Infra & Test Status	Integr Infra & Test Status	Integr Infra & Test Status	Integr Infra & Test Status	Number11
Number12				ERB Combustion							ERB Combustion	Number12
Number13				ERB Flow Physics							ERB Flow Physics	Number13
Number14				ERB Small Labs							ERB Small Labs	Number14
Number15				ERB Turbo							ERB Turbo	Number15
Number16					Bldg 16, 56 & 301						Bldg 16, 56 & 301	Number16
Number17					Bldg 301						Bldg 301	Number17
Number18					Bldg 16 & 56						Bldg 16 & 56	Number18
Number19					VF6						VF6	Number19
Number20	TFRS ID#	TFRS ID#	TFRS ID#	TFRS ID#	TFRS ID#	TFRS ID#	TFRS ID#	TFRS ID#	TFRS ID#	TFRS ID#	TFRS ID#	Number20
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Text2		Test Project		Milestone/Level	Text R of Bar				POC		Reserved for FMs	Text2
Text3		Test POC		Program	Text Inside Bar				ITC		Reserved for FMs	Text3
Text4		Text 11 (Lead Eng ?????)			Chamber Size				SAA		Reserved for FMs	Text4
Text5					Source				+Days		Reserved for FMs	Text5
Text6					Date				Alt Ex		Reserved for FMs	Text6