STENNIS SPACE CENTER

PM PROGRAM EVOLUTION

Presented by: Veronica Ciaruffoli
Facilities Systems Department Manager
WHAT DO WE PM

• 142 buildings with over 10,000 pieces of tagged equipment
• Approximately 2,000,000 SF of floor space
• 7 1/2 miles of man-made canals
• Approximately 25 miles each of HV, natural gas, and potable water lines
• 45 miles of maintained roadways
WHERE WE FOUND OURSELVES ON 8/29/99

- Inaccurate, incomplete equipment database
- Equipment, crew, job plan mismatches
- Inaccurate, incomplete maintenance history database
- Nonexistent man-hour/job plan estimates
- 20% of PMs being performed
- Non Y2K compliant CMMS
WHERE WE FOUND OURSELVES ON 8/29/99

- A PM process that was fragmented relative to the work control process
- A contract that did not address all equipment needing PM activity
- PMs worked to Maintenance Instructions vice Maintenance Task Sheets
- Work illogically grouped by system & geography
STRATEGIES

• Establish a dedicated PM team within FSD

• Establish rapport with customer through partnering

• Include crafts in process development
WHERE WE ARE TODAY

- Performance rating >97%
- Crafts participating in problem solving
- Contracts in place to support outsourcing
- Accurate equipment database
- Accurate job plan man hour estimates
- Levelized and logically grouped work
HOW DID WE GET HERE?

- Established MAXIMO "superuser" position within FSD
- Developed labor reports
- Daily meetings with PM Team Manager, CMMS Manager, Work Control Manager
HOW DID WE GET HERE?

- Weekly status meeting with Project Manager, MIS, Business Mgr, Work Control Mgr, and MAXIMO Superuser
- Published weekly newsletter (MAX Facts) to educate the work force on the application of MAXIMO
RONNA'S NOTES

I want to take this opportunity to thank you all for your involvement in making MAXIMO a routine part of our maintenance operation. It hasn't been easy to get as far as we have - and there's a way to go, but with everyone's cooperation, we'll make steady improvements. This program can't be worked only by the 4 people in the FSD Maintenance Support Section. It's going to take active involvement from the shops, supervisors, systems engineers, work control, and management, in order to make it a success, and I believe we have that involvement. We have received numerous questions, concerns, and suggestions from you which have helped identify problems, and I'd like to see that continue.

This is our first issue of 'MAX FACTS' We intend to use this as an informational as well as learning tool. If you have any idea on what you'd like to see in future editions, please get in touch, Beth, or Bonnie.

Again, thank you for putting us on our way to a well managed maintenance program.

FROM THE PM COORDINATOR:

The PM Coordinator Team is finding errors on PM work orders that have more than one crew listed. Supervisors - Please check these.

Coordinate your portion of the work order with the other crews for final completion. If the work order comes to the PM Coordinator completed by only one crew, the charge number is taken off the pick list and the next crew has nothing to charge to. It is a very difficult task to have the charge number reactivated. We are considering several options at this time to correct this. Some of the options are: Two crews - two work orders, linked work order numbers, and reminders in the job plan to coordinate all crews.

The PM program is going through a lot of changes. If you have any questions or comments, please drop me an email (jody.malley@ssc.nasa.gov) for publication in the next MAX FACTS.

QUESTION OF THE WEEK:

What's up with all those dates in MAXIMO?

ANSWER: PM work orders have three sets of date fields with start and finish dates: (1) TARGET, (2) ACTUAL, and (3) SCHEDULED DATES.

TARGET START DATE - When the work can begin. For PM Work orders, it is based on the last TARGET START date plus the interval (weekly, monthly, quarterly, etc.).

TARGET COMPLETION DATE - The end of the PM window in which we can accomplish the task on schedule per the contract. For weekly PM's, we have 4 days. Monthly's have 14 days and so on.

SCHEDULED DATES At the present time, these are blank on PM work orders. We hope to change that in the future and use it to record the time frame in which we actually have the work scheduled to be done.

ACTUAL FINISH When the work was done

OUTAGE/CONSTRUCTION NOTICES:

During September - B-8100 high bay will have new metal siding installed. Access to the north elevation of the building will be periodically blocked off.

Coming soon - The exterior of the new south wing of B-1100 will be painted soon. Watch for barricades.

New high voltage electric lines are being installed along Propellant Boulevard. Use caution driving there.
HOW DID WE GET HERE?

- Designed and implemented FSD Web page containing pertinent maintenance information
FSD HOME PAGE

Facilities Systems Department

Press here --- Preventive Maintenance Workorder Reports  --- Press here

Press here --- Corrective Maintenance Workorder Reports  --- Press here

Press here --- FSD Info Exchange  --- Press here

Press here --- FSD Quality Connection  --- Press here

Important users note: The "Scheduled/Incomplete" reports were modified to sort on Target Completion Date rather than Workorder Number. If you need to search for a Workorder number while viewing the report, simply Hold down the "CTRL" key and press "F". The "Ctrl-F" keystroke activates the FIND function on your browser and you can search for any text string. This should work on any web page.

This page updated 3/01

Email: Facilities@execserver if you have comments or need to add anything to this webpage.
### Preventive Maintenance Workorders

<table>
<thead>
<tr>
<th>Previous Month Reports</th>
<th>Current Month Reports</th>
<th>Next Month Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheduled/Incomplete</td>
<td>Scheduled/Incomplete</td>
<td>Scheduled/Incomplete</td>
</tr>
<tr>
<td>Completed</td>
<td>Completed</td>
<td>Completed</td>
</tr>
<tr>
<td>Cancelled</td>
<td>Cancelled</td>
<td>Cancelled</td>
</tr>
<tr>
<td>Deferred</td>
<td>Deferred</td>
<td>Deferred</td>
</tr>
<tr>
<td>Monthly Summary</td>
<td>Monthly Summary</td>
<td>Monthly Summary</td>
</tr>
</tbody>
</table>

Automatically Updated Daily

Automatically Updated Hourly

Automatically Updated Daily

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**MSS**

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12
HOW DID WE GET HERE?

• Consistent match between equipment and job plan database
• Maintenance standards upgraded
• Diligent tracking of PM's worked/deferred/canceled, etc
Summary of PM Workorders
Targeted for the period
2/1/01 through 2/28/01

(Where SWR# begins with 85F, 86A, 86FC, P3H, PTME, PTMF, and PTPP)

<table>
<thead>
<tr>
<th>Completed Workorders</th>
<th>Workorders Completed On Time</th>
<th>Workorders Completed Late</th>
</tr>
</thead>
<tbody>
<tr>
<td>95.4 % or 625</td>
<td>4.6 % or 30</td>
<td></td>
</tr>
<tr>
<td>Lead Crew 6220</td>
<td>FIRE &amp; EMERG. MEDICAL</td>
<td></td>
</tr>
<tr>
<td>Lead Crew 6411</td>
<td>MAINTENANCE ENGINEER</td>
<td></td>
</tr>
<tr>
<td>Lead Crew 6442</td>
<td>ELECTRICAL SHOP</td>
<td></td>
</tr>
<tr>
<td>Lead Crew 6443</td>
<td>MECHANICAL/PLUMBING</td>
<td></td>
</tr>
<tr>
<td>Lead Crew 6444</td>
<td>EQUIPMENT SYSTEMS SH</td>
<td></td>
</tr>
<tr>
<td>Lead Crew 6451</td>
<td>EQUIPMENT MAINTENAN</td>
<td></td>
</tr>
<tr>
<td>Lead Crew 6452</td>
<td>EQUIPMENT OPERATION:</td>
<td></td>
</tr>
<tr>
<td>Lead Crew 6454</td>
<td>MARINE OPERATIONS</td>
<td></td>
</tr>
<tr>
<td>Lead Crew 6462</td>
<td>HVAC</td>
<td></td>
</tr>
<tr>
<td>Lead Crew 6910</td>
<td>TRANE SUBCONTRACTS</td>
<td></td>
</tr>
</tbody>
</table>

Scheduled/Incomplete Workorders

2 Deferred Workorders

<table>
<thead>
<tr>
<th>Deferred Workorders</th>
<th>Workorders</th>
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<tbody>
<tr>
<td>Lead Crew 6451</td>
<td>EQUIPMENT MAINTENAN/</td>
</tr>
<tr>
<td>Lead Crew 6910</td>
<td>TRANE SUBCONTRACTS</td>
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</table>

15 Cancelled Workorders

<table>
<thead>
<tr>
<th>Cancelled Workorders</th>
<th></th>
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<tbody>
<tr>
<td>Lead Crew 6411</td>
<td>MAINTENANCE ENGINEER</td>
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<td>Lead Crew 6442</td>
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<td>MARINE OPERATIONS</td>
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<tr>
<td>Lead Crew 6462</td>
<td>HVAC</td>
</tr>
</tbody>
</table>

672 Workorders Total
OPTIONS CONSIDERED

• Outsourcing:
  – Better Quality
  – Higher Cost
  – Less Flexibility

• Temporary labor for peaks:
  – Smaller recruiting base resulting in permanent employees with less skills
WHAT TO DO NEXT

- Improve support infrastructure
  - Work Control
  - MIS
  - Logistics
  - Contracts
  - Database Configuration Control
WHAT TO DO NEXT

- Continue selling MSS methods to customer and crafts
- Establish meaningful performance criteria
FSD Performance History
PM Workorders

100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%

JUN '00  AUG '00  OCT '00  DEC '00

- Incomplete
- Late
- On-Time
The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

**1. REPORT DATE (DD-MM-YYYY)**
13-03-2001

**4. TITLE AND SUBTITLE**
IT Group Exchange Forum (3 presentations)
Business Systems Integration
Preventive Maintenance Process
Automaker Engineering Database

**5a. CONTRACT NUMBER**
NAS13-99030

**5b. GRANT NUMBER**

**5c. PROGRAM ELEMENT NUMBER**

**5d. PROJECT NUMBER**

**5e. TASK NUMBER**

**5f. WORK UNIT NUMBER**

**6. AUTHOR(S)**
Craig Bramley
Veronica Ciaruffoli
Mike Matteson

**7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)**
Mississippi Space Services

**8. PERFORMING ORGANIZATION REPORT NUMBER**
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**11. SPONSORING/MONITORING REPORT NUMBER**

**12. DISTRIBUTION/AVAILABILITY STATEMENT**
Publicly Available STI per form 1676

**13. SUPPLEMENTARY NOTES**
Conference - IT Group Exchange

**14. ABSTRACT**

**15. SUBJECT TERMS**

**16. SECURITY CLASSIFICATION OF:**

<table>
<thead>
<tr>
<th>a. REPORT</th>
<th>b. ABSTRACT</th>
<th>c. THIS PAGE</th>
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**17. LIMITATION OF ABSTRACT**

<table>
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<table>
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<tr>
<th>19b. NAME OF RESPONSIBLE PERSON</th>
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<tbody>
<tr>
<td>Craig Bramley</td>
</tr>
</tbody>
</table>

**19b. TELEPHONE NUMBER (Include area code)**
(228) 688-6541

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std. Z39-18