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 ideas on what you'd like to see in future editions, please get with Jody, 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

Preventive Maintenance Workorder Reports
Corrective Maintenance Workorder Reports
FSD Info Exchange
FSD Quality Connection

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 in your browser and you can search for any text string. This should work on any web page.

This page updated 3/3/01

Email: pdxweb@secra.mails if you have comments or need to add anything to this webpage.
Preventive Maintenance Workorders

Current Month Reports
Scheduled/Incomplete
Completed
Cancelled
Deferred
Monthly Summary

Next Month Reports
Scheduled/Incomplete
Completed
Cancelled
Deferred
Monthly Summary

Deferred Monthly Summary
worked/deferred/cancelled, etc.

Diligent tracking of PM's

Maintenance standards updated

Job plan database

Consistent match between equipment and

How did we get here?
### 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 PTTP)

#### 655 Completed Workorders

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
<th>On Time</th>
<th>Late</th>
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</thead>
<tbody>
<tr>
<td>FIRE &amp; EMERG. MEDICAL</td>
<td>35</td>
<td>0</td>
<td>35</td>
</tr>
<tr>
<td>MAINTENANCE ENGINEER</td>
<td>153</td>
<td>0</td>
<td>153</td>
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<tr>
<td>ELECTRICAL SHOP</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>MECHANICAL/PLUMBING</td>
<td>17</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>EQUIPMENT SYSTEMS SH</td>
<td>205</td>
<td>0</td>
<td>205</td>
</tr>
<tr>
<td>EQUIPMENT MAINTENAN</td>
<td>61</td>
<td>1</td>
<td>60</td>
</tr>
<tr>
<td>EQUIPMENT OPERATION:</td>
<td>6</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>MARINE OPERATIONS</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>TRANE SUBCONTRACTS</td>
<td>137</td>
<td>28</td>
<td>109</td>
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#### 4.6% or 30 Workorders Completed Late

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<tr>
<td>Lead Crew 6220</td>
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<tr>
<td>Lead Crew 6411</td>
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<tr>
<td>Lead Crew 6442</td>
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<td>Lead Crew 6443</td>
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<td>Lead Crew 6444</td>
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<td>Lead Crew 6451</td>
<td></td>
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<td>Lead Crew 6452</td>
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<tr>
<td>Lead Crew 6454</td>
<td></td>
</tr>
<tr>
<td>Lead Crew 6462</td>
<td></td>
</tr>
<tr>
<td>Lead Crew 6910</td>
<td></td>
</tr>
</tbody>
</table>

#### Scheduled/Incomplete Workorders

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

#### 2 Deferred Workorders

<table>
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<tr>
<th>Crew</th>
<th>Workorders</th>
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<tbody>
<tr>
<td>Lead Crew 6451</td>
<td>1</td>
</tr>
<tr>
<td>Lead Crew 6910</td>
<td>1</td>
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</tbody>
</table>

#### 15 Cancelled Workorders

<table>
<thead>
<tr>
<th>Crew</th>
<th>Workorders</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>
<td>ELECTRICAL SHOP</td>
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<tr>
<td>Lead Crew 6444</td>
<td>EQUIPMENT SYSTEMS SH</td>
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<tr>
<td>Lead Crew 6454</td>
<td>MARINE OPERATIONS</td>
</tr>
<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
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   13-03-2001

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   - Business Systems Integration
   - Preventive Maintenance Process
   - Automator Engineering Database

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

5b. **GRANT NUMBER**

5c. **PROGRAM ELEMENT NUMBER**

5d. **PROJECT NUMBER**

5e. **TASK NUMBER**

5f. **WORK UNIT NUMBER**

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   - Veronica Ciaruffoli
   - Mike Matteson

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    - c. THIS PAGE
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