NEP FACILITIES (LERC)

Nuclear Propulsion Technical Interchange
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SPACE SIMULATION FACILITIES
Lewis Research Center
EPRB
ELECTRIC PROPULSION RESEARCH BUILDING(#16)

FACILITIES
VACUUM CHAMBERS (9): RANGE FROM 3FT. TO 10FT. DIA.
BELL JAR SYSTEMS (6)

CAPABILITIES
EXTREMELY HIGH (-1000 STD L/M - H₂ @ 10⁻¹ TORR) PUMPING SPEEDS
HIGH VACUUM LEVELS (10⁻⁷ TORR)
CRYOPUMPED CHAMBERS

ACTIVITIES
COMPONENT DEVELOPMENT
THRUSTER TESTING
POWER CONDITIONING INTEGRATION

EPL
ELECTRIC POWER LABORATORY (BLDG.301)

FACILITIES:
VACUUM CHAMBERS(3): 5FT. X 15FT.; 15FT. X 63FT.; 25FT. DIA. X 62FT. LONG
BELL JAR SYSTEMS(7)

MAJOR FEATURES:
CLOSED LOOP REFRIG. SYSTEM TO ODP TRAPS
FULLY AUTOMATED
<<< UTILIZATION - >>> LOW OPERATING COST & MANPOWER REQUIREMENTS

TANK 6:
* 20 OD PUMPS; 4 FORELINE BLOWERS; 3 MECHANICAL PUMPS
* > 240 KW THERMAL REJECTION LN₂ COOLED SHROUD
- SOLAR SIMULATOR

TANK 5:
2000 PUMPS; 4 FORELINE BLOWERS; 4 MECHANICAL PUMPS
41M² CRYOPANEL - GHe/LHe REFRIGERATOR/LIQUIFIER CRYO-SYSTEM

* EXPECTED IN POST 1991 COF PROJECT
- ADVOCATE: 5400; INSTALL & OP 1994/1995
Lewis Research Center
TANK 6 VACUUM FACILITY
(25 FT DIAM X 82 FT OVERALL)
### NUCLEAR ELECTRIC PROPULSION

#### LOW THRUST, ELECTRIC

<table>
<thead>
<tr>
<th>Power (kW)</th>
<th>Ion Species</th>
<th>MPD (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Xe</td>
<td>100</td>
</tr>
<tr>
<td>25</td>
<td>Xe, Kr</td>
<td>200</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mass Flow (Mg/s)</th>
<th>5.3</th>
<th>27</th>
<th>40</th>
<th>320</th>
</tr>
</thead>
<tbody>
<tr>
<td>Req'd. Press (Torr)</td>
<td>&lt;1.0x10^-5</td>
<td>&lt;1.0x10^-5</td>
<td>&lt;3.0x10^-4</td>
<td>&lt;3.0x10^-4</td>
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</tbody>
</table>

#### TANK & FACILITY

<table>
<thead>
<tr>
<th>Parameter</th>
<th>5.3</th>
<th>22</th>
<th>25.5</th>
<th>100</th>
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</thead>
<tbody>
<tr>
<td>(20) ODP/\dot{M}(Mg/s)</td>
<td>1.3x10^-5</td>
<td>3.7x10^-5</td>
<td>4.8x10^-4</td>
<td>2.3x10^-4</td>
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<tr>
<td>Actual Press (Torr)</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>155</td>
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<tr>
<td>CRYOPANEL/\dot{M}(Mg/S)</td>
<td>8.0</td>
<td>TBD</td>
<td>TBD</td>
<td></td>
</tr>
<tr>
<td>Actual Press (Torr)</td>
<td>1.2x10^-5</td>
<td>TBD</td>
<td>TBD</td>
<td>1.0x10^-4</td>
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</tbody>
</table>

#### FOCUS

[Using four (4) foreline blowers & mech. pumps = 300 Mg/sec @ 6x10^-3 Torr - Hg]