

| <b>Day 1 – Robotic Arc DED AM Advanced Capabilities Workshop</b> |   |   |  |
|--|---|---|--|
| <b>Wednesday, June 23<sup>rd</sup> - 10:00am – 8:00 pm EDT</b>   |   |   |  |
| Time   | Presenter   | Organization                                    | Title  |
| 10:00 – 10:15  | Dennis Harwig   | EWI   | Welcome  |
| 10:15 – 11:00  | Jennifer Wolk   | ONR   | Keynote – Changing the Manufacturing Paradigm  |
| 11:00 – 11:30  | Susan Hovanec   | NSWCCD  | Navy Technical Publication – Process Requirements for Metal Directed Energy Deposition             |
| 11:30 – 12:00  | Mary Qiao<br>Dongchun /<br>Marcus Cridland  | ABS   | ABS Guide – Additive Manufacturing   |
| 12:00 – 12:15  | Networking Break  |   |  |
| 12:15 – 12:40  | Dennis Harwig /<br>Nick Kapustka  | EWI   | DED Qualification Schemes for New Navy Technical Publication                                       |
| 12:40 – 1:00   | Mike Carney /<br>Nick Kapustka  | EWI   | Arc DED Standard Qualification Build Results   |
| 1:00 – 2:00  | Lunch Speaker - EWI (TBE) – EWI Metal AM Test-beds & Additive Manufacturing Consortia |   |  |
| 2:00 – 2:30  | Susan Hovanec /<br>Mary Qiao<br>Dongchun /<br>Marcus Cridland                         | NSWCCD<br>ABS                                   | Panel Discussion – Next Steps in DED Standards Requirements to Support Shipbuilding Implementation |
| 2:30 – 3:00  | Jon Caliguri  | DSI   | PowerMill Background & Workflow  |
| 3:00 – 3:15  | Susan Witt<br>Jon Caliguri  | EWI<br>DSI                                      | Implementation Requirements & Training Program Developments  |
| 3:15 – 3:45  | Mike Carney   | EWI   | Robotic DED System Setups - User Experience with Multiple Configurations                           |
| 3:45 – 4:15  | Keith Michaud   | Navus<br>Automation                             | Large-Scale Robotic Gantry - Test-bed & Shipyard Commercialization                                 |
| 4:15 – 4:30  | Networking Break  |   |  |
| 4:30 - 5:00  | Mike Carney   | EWI   | Robotic DED Project Demonstration Builds   |
| 5:00 – 5:30  | Dennis Harwig   | EWI   | Robotic DED Test-beds for Collaboration  |
| 5:30 – 6:15  | Shawn Wilber<br>Westley Downs<br>TBE<br>Mike Carney<br>Buck Barber                    | Austal USA<br>NASSCO<br>Ingalls<br>EWI<br>Navus | Panel Discussion – Robotic DED Technology Needs for Shipbuilding Implementation                    |
| 6:15 – 8:00  | Networking Reception  |   |  |

| <b>Day 2 – Robotic Arc DED AM Advanced Capabilities Workshop</b> |                                   |                     |  |
|--|-----------------------------------|---------------------|--|
| <b>Thursday, June 24<sup>th</sup> - 8:00 am – 2:00 pm EDT</b>    |                                   |                     |  |
| <b>Time</b>  | <b>Presenter</b>                  | <b>Organization</b> | <b>Title</b>   |
| 8:00 – 10:00   | Nick Kapustka                     | EWI                 | EWI Demonstrations and Lab Tour –<br><b><i>NOT VIRTUAL – videos will be provided for those who cannot attend in person</i></b> |
| 10:00 - 10:15  | Dennis Harwig                     | EWI                 | Welcome  |
| 10:15 - 11:30  | Kelvin Hamilton /<br>Brian Dinola | Autodesk            | Keynote - Democratizing DED in the Supply Chain  |
| 11:30 - 12:00  | Benedetto<br>Antonio di Castri    | RAMLAB              | Implementation Success Story - Metal Parts on Demand   |
| 12:00 – 12:45  | Lunch                             |                     |  |
| 12:45 – 2:00   | Nick Kapustka                     | EWI                 | Demo Discussions / Q&A   |

| <b>Demonstration Title</b>   |
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| NAVSEA Standard Qualification Build <ul style="list-style-type: none"> <li>• Fanuc 6-axis System</li> <li>• Describe build setup and robotic process</li> </ul>  |
| Cryogenic Cooling – Support Process for High Duty DED <ul style="list-style-type: none"> <li>• Air Products System</li> <li>• Describe cryogenic cooling system &amp; application opportunities</li> </ul> |
| ASME Pipe Reducer <ul style="list-style-type: none"> <li>• Motoman 7-axis System</li> <li>• Describe build approach and lessons-learned</li> </ul>   |
| Large Propeller Blade <ul style="list-style-type: none"> <li>• Navus 11-axis Gantry</li> <li>• Describe build approach and lessons-learned</li> </ul>  |
| EWI Lattice IRD Build <ul style="list-style-type: none"> <li>• Fanuc 8-axis System</li> <li>• Describe build setup and robotic process</li> </ul>  |
| UR5 Cobot Tele-Welding System <ul style="list-style-type: none"> <li>• 2F welding with tele-weld control</li> </ul>  |