

S2915: Lead Ladle Replacement

NSRP All Panel Meeting 2025

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Advanced Technology International

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Agenda

- Overview
- Objectives
- Project Team
- Technical Goals
- Benefits / Pay Off
- Project Schedule
- Technical Approach
- Technical Content and Status
- Transition/Implementation Plan
- Next Steps
- Q & A

Overview

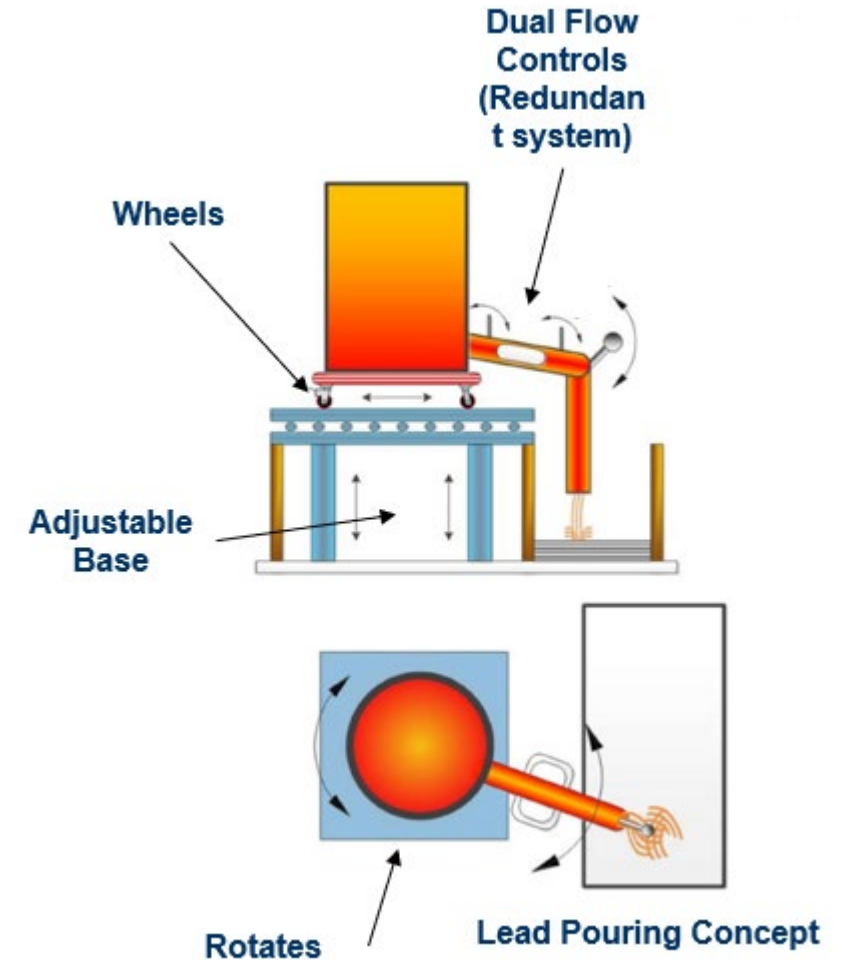


• Issue Description:

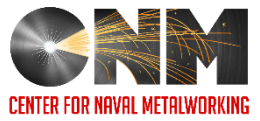
- Molten lead (Pb) is required to be Poured in Place (PiP) into numerous structural bays in the desired application area(s).
- 3 main challenges for lead work:
 - Cleanliness
 - Lead quality management
 - Heat management
- Multiple employees are required to manipulate and pour a ladle of molten lead weighing 50 lbs and keep the bay hot enough to ensure proper quality.
 - Each bay requires 30 – 40 ladles of lead
 - Awkward, tiring, hazardous operation
 - Labor intensive, repetitive motion limits amount of time each person can work
 - PPE required

Objectives

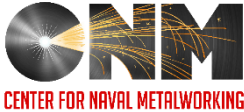
- Find a system that allows for continued, safe delivery of molten lead without use of a ladle.
- Project Goals:
 - Safety
 - Improve ergonomics
 - Decrease lead exposure
 - Reduce Span Time
 - Reduce manual labor
 - Decrease cycle time per bay
 - Reduce job prep and clean up
 - Reduce Man Hours for lead pouring activity
 - Will allow for before and after comparison for ROI calculations



Project Organizational Structure



ManTech Metrics



| Goal 1: Reduce Lead Pouring Span time | | | | | | | | |
|---------------------------------------|----------------|-----------------------------|-----------------------------|---------------------------------------|---------------------|-------------------|------------------|------------------------------|
| Parameter | Baseline Value | Requirement Threshold Value | Requirement Objective Value | How to Measure | Date to be Achieved | Achievement Value | Achievement Date | How Demonstrated |
| Platform A Labor Hours | 32 days | 30% | 35% | Conduct GDEB evaluations and document | End of Task 8 | TBD | Planned 02/2026 | Comparison to baseline value |
| Platform B Labor Hours | 32 days | 30% | 35% | Conduct GDEB evaluations and document | End of Task 8 | TBD | Planned 02/2026 | Comparison to baseline value |
| Goal 2 : Reduction in labor hours | | | | | | | | |
| Activity | Baseline Value | Requirement Threshold Value | Requirement Objective Value | How to Measure | Date to be Achieved | Achievement Value | Achievement Date | How Demonstrated |
| Platform A - Lead Pouring Labor Hours | 827 hours | 30% | 35% | Conduct GDEB evaluations and document | End of Task 8 | TBD | Planned 02/2026 | Comparison to baseline value |
| Platform B - Lead Pouring Labor Hours | 827 hours | 30% | 35% | Conduct GDEB evaluations and document | End of Task 8 | TBD | Planned 02/2026 | Comparison to baseline value |

Goal 1: Reduce Pouring Span Time ↓

Goal 2: Reduce Labor Hours ↓

Benefits / Payoff / Business Case Update

- ManTech Project Cost = \$853K
- ManTech Implementation Costs
 - Capital Budget \$ 300K
 - Training & Qualification (TBD) \$ 360K
 - Total \$ 660K
- Investment = ManTech Project Costs + ManTech Implementation Costs
= \$853K + \$660K = \$1.51M
- Cost Savings*
 - \$1.68M for 10 units of Platform A
 - \$0.84M for 5 units of Platform B
 - \$2.52M Total
- 5-Year ManTech ROI Calculation = $\frac{(\$2.52M - \$1.51M)}{\$1.51M} = 0.66$

^Disclaimer: If EB Capital, it will be prioritized based on all emerging needs throughout the enterprise.

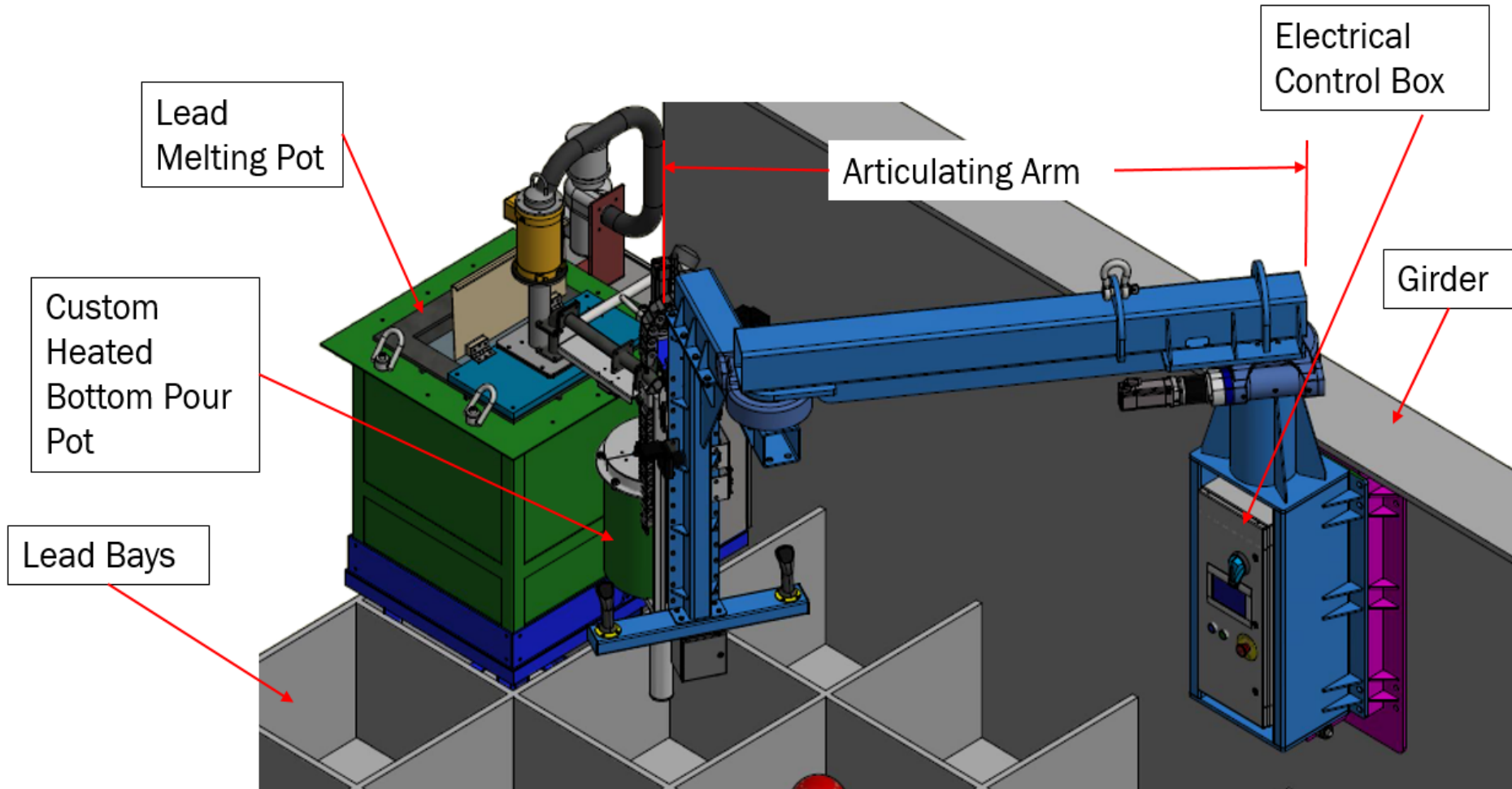
**Disclaimer: Any engineering rough order of magnitude (EROM) projections contained herein are provided for Technical decision making only and are not to be considered formal platform savings by GDEB nor should they be used for permanent planning. Such EROM projections are considered to be engineering estimates only. Any potential cost savings resulting from this project will be addressed as part of the contracting process of the impacted program or project.*

Technical Approach

- This project was designed to be accomplished in two phases.
- Phase I (Complete)
 - Market analysis and requirements development
 - Prototype design and development plan document
 - Down-select to commercialization partner
 - Phase I report and review as the basis for a Go/No-Go decision
- Phase II (POP end date 3rd Quarter FY 2025)
 - Task 6 - Prototype development and demonstration (Arc Specialties)
 - Task 7 - Test plan development (Complete)
 - Task 8 - Shipyard will conduct on-site demonstrations for the IPT
 - Task 9 - Final Business Case, Implementation Plan, Reports & Review



Task 6 Technical Update/Discussion

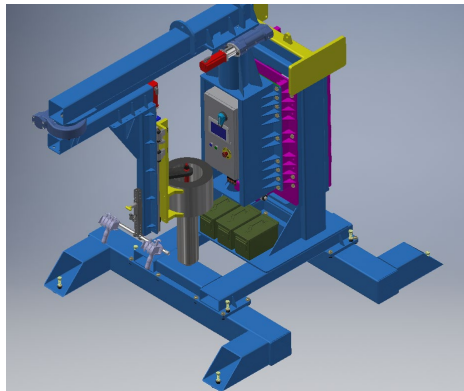


Above: Rendered Prototype Unit as installed for use by GDEB

Task 6 Technical Update/Discussion

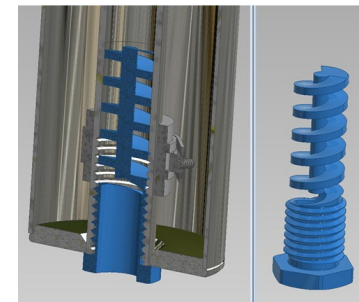


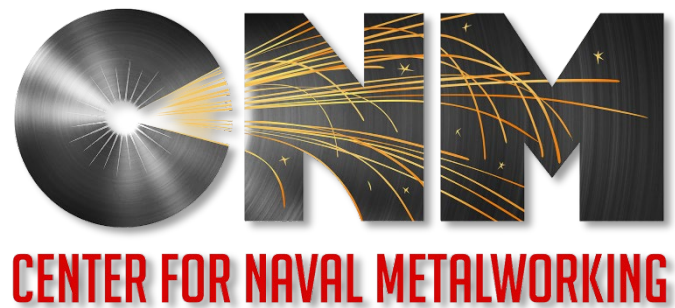
Above: Melting pot with transfer pump with stand attached
Right: Prototype system at ARC Specialties facility in Houston, TX
Below: Rendered drawing of prototype unit nested on skid




Task 6 Technical Update/Discussion

- Challenges/Issues
 - Preventing/ skimming dross from pots as system is cycled
 - Splashing from pouring mitigated by new nozzle design (right)
- Upcoming Activity
 - Prototype demo at Arc Specialties
 - Transfer of system from vendor to GDEB
 - Final acceptance and reporting
- Deliverables
 - Del #9 – Prototype Test Report





Questions?



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The logo features the letters 'ONNM' in a bold, black, sans-serif font. The 'O' is a vinyl record with a bright white light reflecting off its center. The 'N' and 'M' are filled with a dark, textured pattern of orange and yellow starbursts and streaks, suggesting a dynamic or energetic theme. The background is white with a large, stylized graphic of a red grid or mesh pattern that curves across the bottom of the slide.