September 3, 2025

REQUEST FOR EXPRESSION OF INTEREST (EOI) – LARGE DOE CONTRACTS FOR HANFORD LOW-ACTIVITY WASTE BUBBLER FABRICATION

****This is not a request for proposal, but a request for an expression of interest ****

Prospective Offerors:

Introduction

Hanford Tank Waste Operations & Closure (H2C) is a U.S. Department of Energy (DOE) prime contractor supporting the Hanford Site near Richland Washington that is responsible for providing a continuous supply of Hanford Waste Treatment and Immobilization Plant (WTP) Low Activity Waste (LAW) melter bubbler assemblies to support the remaining 40 year design life of Hanford's WTP that is currently in start-up/commissioning operations.

H2C is issuing this EOI to both **increase Prospective Offeror awareness of the upcoming bubbler requisition, expand the current manufacturing supplier base, and survey the marketplace for interested Prospective Offerors** for fabrication of commercial-quality WTP LAW melter bubbler assemblies.

Scope

The currently planned scope of the forthcoming requisition is intended to provide an adequate supply of bubblers to support continued operation of the WTP LAW melters for up to 5 years. Therefore, each selected Prospective Offeror will be responsible for procurement of materials, **build-to-print fabrication**, testing, storage, and packaging of between **100 to 400 commercial-quality LAW Melter Bubbler Assemblies for up to 5 years**. The scope of work also currently includes **fabrication of 2 bubbler assembly stands and 10 metal bubbler shipping crates, both of which the Prospective Offeror(s) will be responsible for design**. All scope is subject to change at Buyer's discretion.

It is important for Prospective Offerors to note that the upcoming **requisition is specifically formulated with intent to be awarded independently to multiple Prospective Offerors**. To date, only one fabricator exists with experience building WTP LAW bubblers. To reduce risks associated with reliance on a single source, H2C is seeking additional fabrication partners.

Schedule

The upcoming requisition's requested schedule duration from award to completion of all scope (including shipment to Buyer designated destination) is **13 months for the first 50 bubblers**

and 10 months for every 50 bubblers thereafter (subject to change). The upcoming requisition is intended for release before the end of 2025.

Background

LESSONS LEARNED

Throughout the course of the past 300+ bubbler fabrications spanning over two decades of fabrication activity, the bubbler design drawings have benefitted from hundreds of design issue resolution cycles and drawing sheet detail revisions including many ease of fabrication improvements to design drawings (such as tolerance relief).

HANFORD WTP OPERATIONS

The WTP's purpose is to safely immobilize liquid radioactive tank waste into a solid durable glass form using vitrification. To put it simply, sand is mixed with nuclear waste in melters, heat is added to melt the sand, and the resulting mixture is poured into a disposal container where it cools into solid glass. This process transforms the waste into a solid form that is safe for permanent disposal. The WTP LAW melters began commissioning-phase limited operations in 2025 and, given the WTP's 40 year design life, the WTP is expected to be operated continuously for at least 40 years (~2065).

The image below shows a LAW melter being installed into the WTP LAW facility.

LAW BUBBLER FUNCTION

The melters require bubblers to operate efficiently and the existing supply of spare LAW bubblers is already being consumed by operations. To support continued operation, the existing inventory of spare LAW bubblers will need to be replenished with new LAW bubblers.

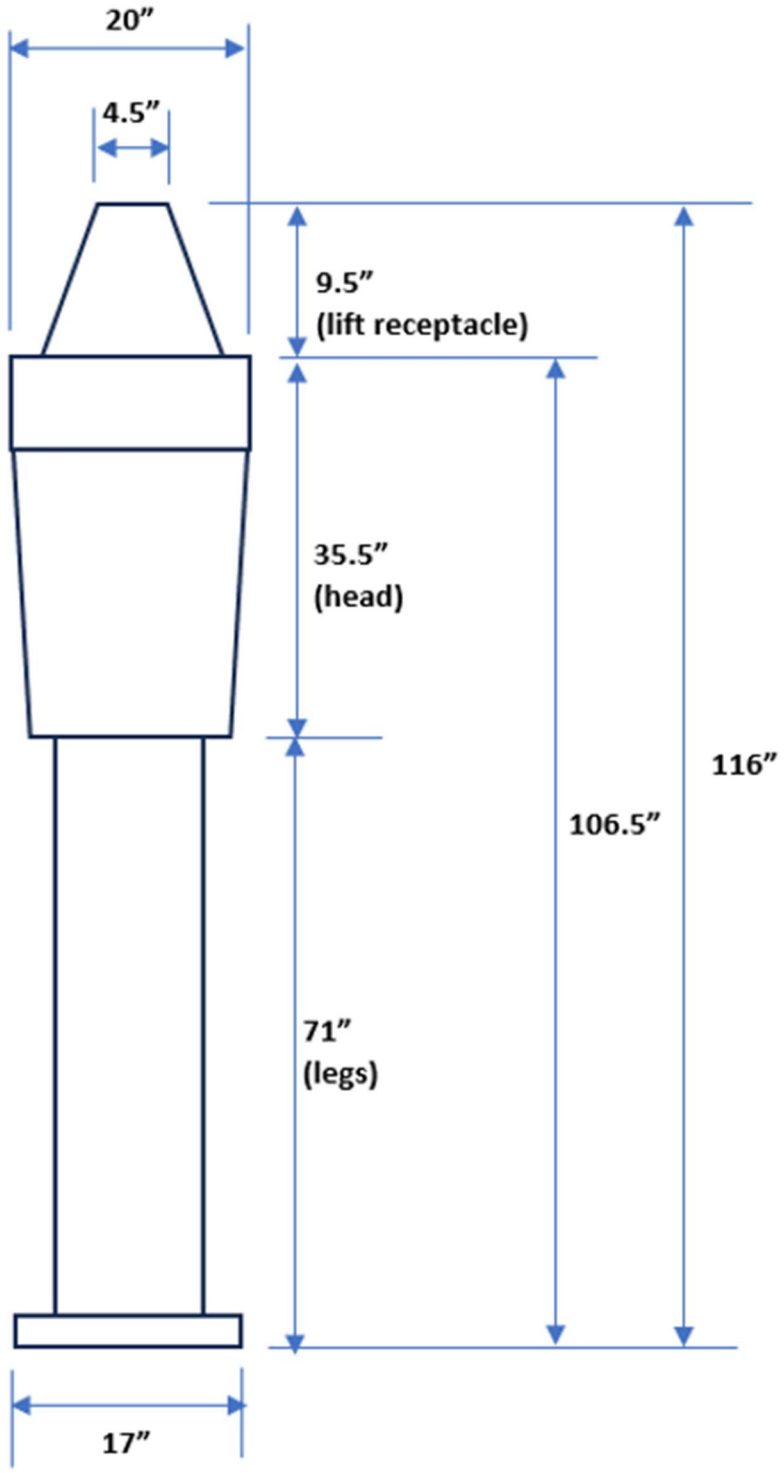
For a video representation showing melter and bubbler operations during initial startup, find the DOE-issued animation publicly available online that shows WTP LAW bubblers installed and operating in an LAW melter then fast forward to 3 minutes 20 seconds into the 6 minute video. To find the video, use a web browser and search for “Vit Plant Melter Heatup Animation” and find a video preview similar to the preview shown below.

Vit Plant Melter Heatup Animation

YouTube · HanfordVitPlant
Oct 7, 2022

Technical Details

LAW BUBBLER DESIGN



LAW BUBBLER OUTLINE SKETCH

Limited details are available for this EOI request due to business sensitive bubbler design details. **Design details other than what is attached to this EOI request will not be provided until the requisition phase**.

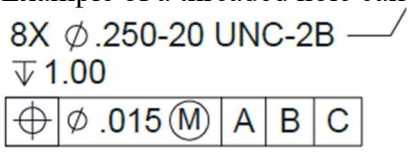
LAW bubbler significant design features and specifications are described as follows:

1. LAW bubbler assembly approximate weight is 800 lbs.
2. Bubbles are generated by 6 orifices at the bottom of bubbler assemblies.
3. Bubbler includes a thermocouple for measuring glass pool temperature.
4. Bubbler lower legs (see area marked "legs" in above sketch; the lower legs are the portion of legs submerged in the ~1150°C molten glass pool) are constructed from an exotic Inconel superalloy, MA758, that is no longer in active production for which the Buyer has already procured a private supply of this material and will be providing to Prospective Offerors after award. MA758 material stock is in the form of 1.58" diameter x 98" long solid bars in which through-holes will need to be drilled as long as 40" deep. In the past, such holes have been drilled using specialized gun-drilling subcontractors. After hole drilling work has been completed, the bubbler legs will require welding activities between two Inconel MA758 parts and welding of Inconel MA758 to Inconel 690 parts.
5. The following note applies to the bubbler legs:

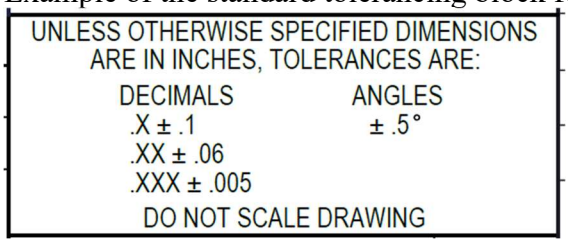
   7. ALL INCONEL SHALL BE PROTECTED FROM CARBON STEEL CORROSION. ANY METAL SURFACE THAT COMES IN CONTACT WITH INCONEL DURING FABRICATION SHALL BE STAINLESS STEEL.

6. Bubbler head's (see area marked "head" in above sketch) lower portion employs two layers of castable refractory for insulation from glass pool heat.
7. Bubbler head's upper portion, called the bubbler flange, is primarily constructed of schedule 140 20-inch carbon steel pipe that is machined to size.
8. Bubbler parts require precision machining based on various Geometric Dimensioning & Tolerancing (GD&T) specifications. Some examples of GD&T found on drawings is shown in the following screenshots below.

   a. Example of a threaded hole callout on one of the drawings:



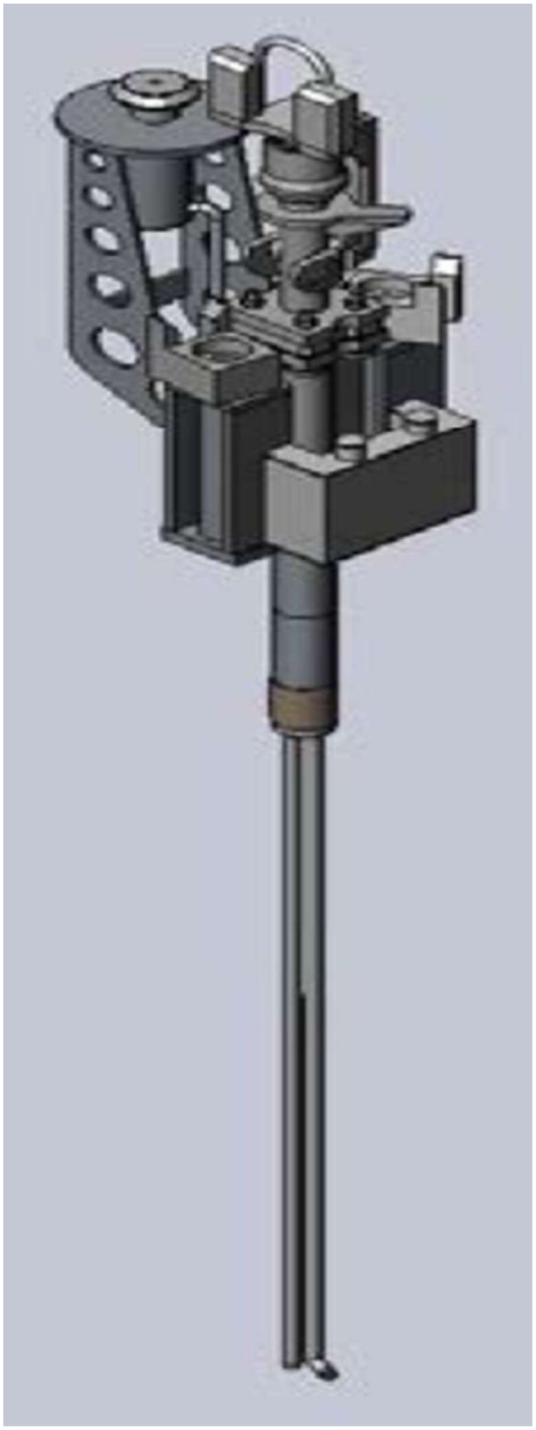
b. Example of the standard tolerancing block found on drawings:



9. Bubbler head internal components include air supply piping, fittings, and various mechanical support components. Air supply piping maximum design pressure is 135 psig.

10. Bubbler lift receptacle area (see area marked “lift receptacle” in above sketch) includes a lift receptacle, plant air connection, a temporary air supply system (battery/pump), and a sheet metal cover.

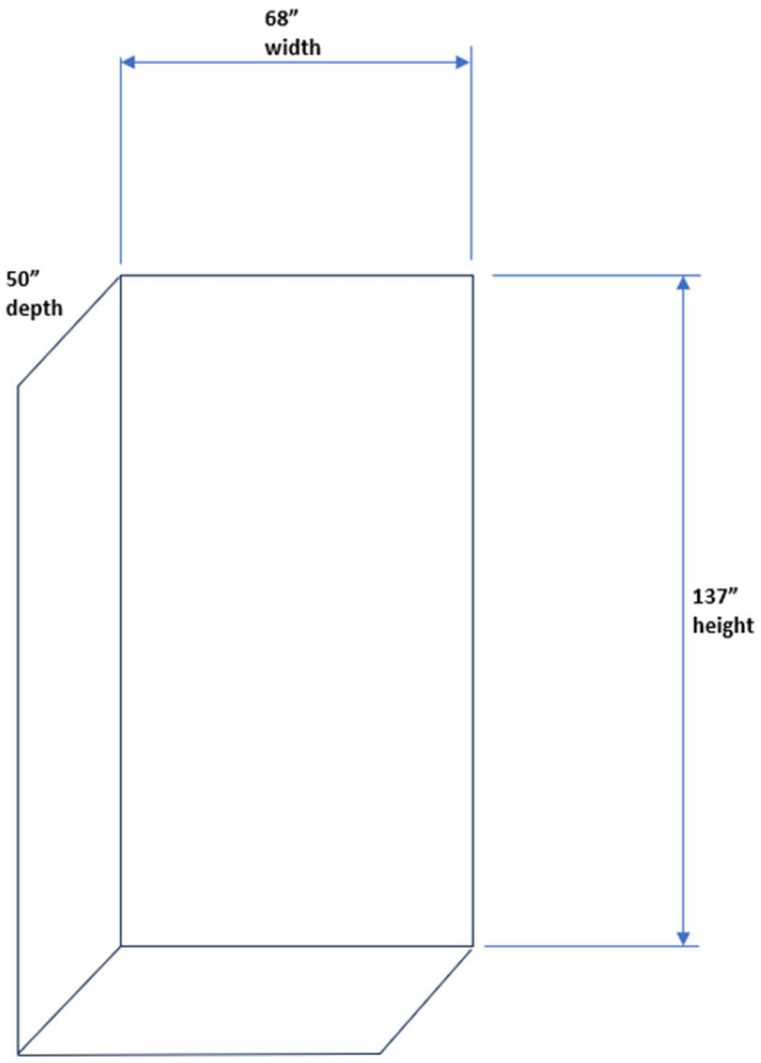
11. While bubbler legs are installed in the bubbler assembly, the bubblers must remain in the vertical orientation (including any handling, storage, and shipment activities).



GENERAL REPRESENTATION OF MELTER GLASS BUBBLER
(NOTE: This is a representative image of a generic nuclear waste melter bubbler; this is NOT an image of the WTP LAW bubbler due to business sensitive design details)

LAW BUBBLER CRATES

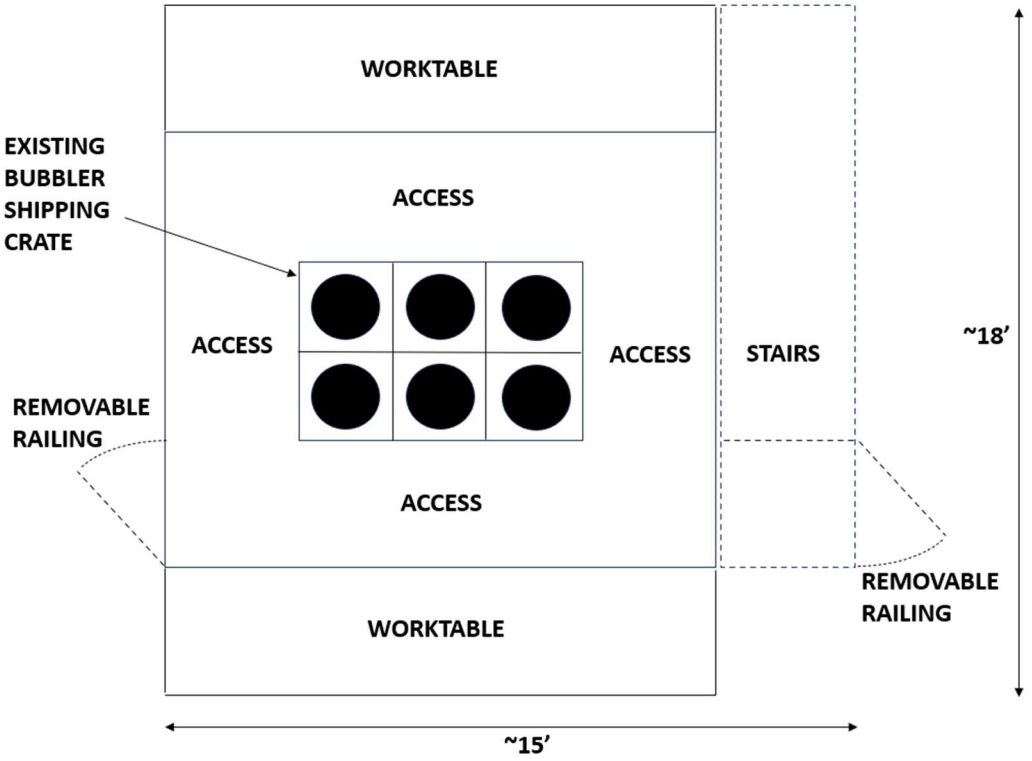
Bubblers will be stored and shipped in reusable metal bubbler shipping crates with a capacity to hold 6 bubblers. Buyer is expected to provide at least two existing metal bubbler shipping crates for Prospective Offeror use and reference. Prospective Offeror may be required to fabricate additional bubbler shipping crates for which design details are at the Prospective Offeror's discretion. Prospective Offeror's design will be subject to Buyer approval.



BUBBLER CRATE OUTLINE SKETCH

LAW BUBBLER ASSEMBLY STAND

Prospective Offeror is expected to be required to build two new bubbler assembly stands for which design details are at the Prospective Offeror's discretion. Prospective Offeror's design will be subject to Buyer approval. An example bubbler assembly stand layout built around existing metal bubbler shipping crates that would be acceptable is shown below.



EXAMPLE BUBBLER ASSEMBLY STAND LAYOUT
NOTE: This is merely an example of one acceptable layout with outline dimensions that may result from such a layout.

EOI Requirements

Prospective Offerors are expected to meet EOI REQUIREMENTS listed below to qualify for submitting an EOI letter. If offeror doesn't currently meet these requirements, please provide a brief explanation for how you would make changes to meet requirements.

R-1. Quality Program

In-scope products will be procured as commercial quality items that are NOT directly subject to NQA-1 requirements unless specific subsections are clearly specified (rare). However, Prospective Offerors are required to have and use a quality management system; commercial quality management systems including those that meet ISO-9001 should be acceptable. After the future requisition is issued, Prospective Offerors will be required to submit their quality management system for Buyer review.

R-2. Assembly Infrastructure

Prospective Offeror is expected to possess the following in-house (not subcontracted) infrastructure for assembly activities.

a. The minimum clearance required for workspace exterior doors is 12 feet to accommodate bubbler shipping containers.

b. The minimum clearance required from floor to crane hook is 22 feet plus rigging height. The 10 foot tall bubblers must be lifted out from the top of the 12 foot tall bubbler shipping containers.

c. The minimum crane capacity required is 1,000 lbs.

d. The minimum forklift weight capacity is 9,000 lbs.

R-3. Fabrication Infrastructure

Prospective Offeror is expected to possess precision machining and welding infrastructure with associated qualified personnel to perform the majority of the scope of work in-house (not subcontracted). Some (limited) subcontracted fabrication work is expected.

R-4. Temperature Limitations

Fabrication and storage areas are required to be indoor spaces with temperature control continuously maintained above 40 degrees F throughout the year due to in-scope castable refractory products that are considered susceptible to damage in freezing temperatures.

EOI Submittals

S-1. LETTER

Prospective Offerors that are interested in being kept informed on the upcoming requisition that meet EOI REQUIREMENTS listed above are **invited to SUBMIT AN EXPRESSION OF INTEREST LETTER**.

S-2. ROM

Buyer requests that Prospective Offerors provide a ROM (rough order of magnitude cost estimate) for 100 bubblers, 2 stands, and 10 crates based only on the limited information provided in this request for EOI. No additional design detail is expected to be provided so please make broad assumptions (EOI responses are non-binding and will not affect future requisition bids).

S-3. ADDITIONAL FEEDBACK (OPTIONAL)

Buyer requests that the letter include optional Additional Feedback. The advantages of providing the requested optional feedback are:

- Responses that include optional Prospective Offeror feedback will be reviewed first.
- Prospective Offeror feedback requests include requisition details and expectations for which preparing Prospective Offeror feedback will better prepare Prospective Offerors for the requisition.
- Feedback helps confirm Prospective Offerors meet minimum qualifications before adding Prospective Offerors to the requisition invitations list.
- Qualified Prospective Offerors on the invitations list will be the first to be notified of the requisition's release enabling Prospective Offerors to maximize preparation time.
- Changes may be made to the requisition to accommodate Prospective Offeror feedback.

Submission instructions are at end of this document.

Additional Feedback

The Buyer is requesting that Prospective Offerors consider providing optional feedback (Prospective Offeror benefits explained above) in EOI letter submission.

Feedback is encouraged to be very brief and to the point. For ease of Buyer review of Prospective Offeror EOI letter, **please list Prospective Offeror Feedback section identifiers in your written response** (e.g. F-2.a through F-2.n). If attachments are provided to address requested Prospective Offeror feedback, please point to the attachment page/section where the requested info can be found for ease of Buyer review.

S-4. KEY REQUIREMENTS

Please **STATE YES OR NO** if Prospective Offeror meets key requirements listed above in "EOI Requirements".

S-5. FABRICATION CAPABILITIES

Prospective Offeror must describe fabrication experience, equipment, and capabilities associated with each of the following.

Note about lacking experience: It is important to note that the Buyer expects Prospective Offeror responses to include Prospective Offeror reports of no past experience for at least one or more of the activities discussed, many of which are exceptionally rare for Prospective Offerors to be exposed to (particularly the never-seen combination of both in-house Inconel welding experience and in-house castable refractory fabrication experience).

a. Please **BRIEFLY DESCRIBE** in-house fabrication facilities and regions/cities that are likely to be involved with this scope of work.

b. Please **BRIEFLY DESCRIBE** experience with AWS code compliant welding of Inconel alloy(s), Stainless Steel, and Carbon Steel metals.

c. Please **STATE YES OR NO** if Prospective Offeror possesses in-house welding machines appropriate for Carbon Steel, INCONEL 690 & INCONEL MA758.

d. Please **STATE YES OR NO** if Prospective Offeror is experienced with welding with INCONEL filler metal 52.

e. Please **STATE YES OR NO** if Prospective Offeror possesses in-house NDE equipment and in-house certified weld inspectors.

f. Please **STATE YES OR NO** if any welding subcontractors or subcontracted equipment is expected.

g. Please **BRIEFLY DESCRIBE** experience with fabricating metals to each of the following: AWS QCI (weld inspector certification), ASNT SNT-TC-1a NDE certifications, AWS D1.1, AWS D1.6, ASME B31.3, & ASME B&PVC.

h. Please **BRIEFLY DESCRIBE** lathes/mills precision machining capability to support machining 20" Sch. 140 Carbon Steel pipe and please specify if this capability is in-house or subcontracted (either is acceptable).

i. Please **BRIEFLY DESCRIBE** experience with gun-drilling (in-house or subcontracted). In the past, precise drilling through 40" long Inconel MA758 1.57" diameter round bars was accomplished using gun-drilling.

j. Please **BRIEFLY DESCRIBE** experience with casting and drying of castable refractories to IAW API STD-936. The LAW bubbler scope will include casting and drying of 18" diameter cylindrical refractory plugs with penetrations.

k. Please **STATE YES OR NO** if Prospective Offeror possesses in-house pneumatic high pressure (4500 psig) and low pressure (5 psig) leak check testing equipment.

l. Please **STATE YES OR NO** if Prospective Offeror possesses in-house meg-ohm testing equipment.

m. Please **BRIEFLY DESCRIBE** in-house coating equipment and capabilities such as white metal blasting and bead cleaning equipment, spray booth, spray painting equipment, experience with SSPC-SP no. 10 NACE no.2 surface preparation, and experience with ASTM A-380 cleaning stainless and nickel alloys.

n. Please **BRIEFLY DESCRIBE** in-house positive material identification (PMI) capabilities for confirming metallic alloy composition.

S-6. DESIGN/ENGINEERING CAPABILITIES

While the majority of work scope is associated with build-to-print fabrication of bubblers, a small portion of the scope will involve commercial design and fabrication of bubbler assembly stand and metal shipping crates.

a. Please **STATE YES OR NO** if design/engineering work would be subcontracted. If not, please **BRIEFLY DESCRIBE** in-house engineering capabilities including approximate number and types of engineers employed by an “engineer” job title.

b. Please **BRIEFLY DESCRIBE** past design and engineering experience.

S-7. MANAGEMENT CAPABILITIES

a. Please **BRIEFLY DESCRIBE** past experience managing jobs that most closely resemble this scope of work. Please include time periods over which work was completed. Please include discussion regarding accuracy of schedule estimates for this work and describe the cause of any significant schedule delays experienced.

b. Please **BRIEFLY DESCRIBE** production control processes including material receipt, material control, and project management methods.

c. Please **BRIEFLY DESCRIBE** configuration control processes for large volumes of engineering drawings and describe how control is maintained on the production floor if a drawing sheet is revised.

d. Please **BRIEFLY DESCRIBE** how 8,000 lbs. of Buyer-provided Inconel MA-758 in bar form would be securely stored and segregated from other jobs.

e. Please **BRIEFLY DESCRIBE** any process control methods used for preventing cross-contamination between carbon steel and stainless steel work.

f. Please **BRIEFLY DESCRIBE** the project management system employed by your organization i.e., scheduling program, cost / performance system (Project Control and Reporting system)

g. Please **BRIEFLY DESCRIBE** existing production capacity and availability to perform similar scope of work through 2031. Describe any schedule challenges that may exist or any major upcoming facility or corporate/merger changes. Describe any changes that may be needed to support the requested schedule duration.

h. Please **BRIEFLY DESCRIBE** subcontractors that may be needed to support this job.

PROSPECTIVE OFFEROR's Instructions:

Please **email** all correspondence regarding this EOI to Wade Poulsen at wade_poulsen@rl.gov.

Please use **H2C-EOI-2025-BUBBLERS-XXXXX** in the e-mail subject line where "XXXXX" is the company name.

Technical **QUESTIONS are due by 9/26/25**.

Expression of interest **LETTERS are due by 10/9/25**.

EXHIBIT 1. PAST PERFORMANCE

Rev. 0 1/1/03

Please type or print at least two (2) and as many as five (5) references to recently completed or substantially complete contracts with requirements similar to those described within this solicitation.

CLIENT NAME **CONTACT NAME** **TELEPHONE NO.**	**CONTRACT NO.** **CONTRACT DATE**	**START DATE** **END DATE** **CONTRACT VALUE**	**CONTRACT TERMINATED?** (Y/N) *Explain in attachment*

NAME AND ADDRESS OF OFFEROR	**NAME OF SIGNER**
	TITLE OF SIGNER
OFFEROR *(Signature of person authorized to sign)*	**DATE**

Closing Remarks

Please be aware, this is not a Request for Proposal, but a request for an expression of interest. H2C will not award a contract(s) based on this expression of interest, nor pay for information solicited.

Thank you for your time and consideration and we look forward to hearing from you soon.

Sincerely,

Wade Poulsen

Senior Procurement Specialist

Attachments:

- Past Performance