WASTE TREATMENT PLANT PROJECT REQUEST FOR INTEREST

Glass Forming Chemicals Delivery

Requisition Number:	TBD
Submit Interest By:	May 8th, 2025
Quality Level:	Commerical
Award Type:	TBD

ESTIMATED SCHEDULE

Issue Request for Proposal:	August 2025
Award and Notice to Proceed:	December 2025

PROJECT DESCRIPTION AND LOCATION

The Hanford Tank Waste Treatment and Immobilization Plant (WTP) is a complex of radioactive waste treatment processing facilities designed and constructed by Bechtel National, Inc. for the Department of Energy (DOE). The facility will process the Hanford Site tank waste and convert the waste into a stable glass form.

The Project site is located in the 200 East Area of the Hanford Reservation near Richland, Washington, along the Columbia River. The Low Activity Waste (LAW) Facility is located on the WTP complex. In the LAW facility, low activity waste is mixed with one batch of 12 individual glass forming chemicals (GFCs) and vitrified in two joule-heater melters. The individual GFCs must be a consistent and reliable composition to meet glass quality and throughput requirements. The vitrified waste (glass) is poured into stainless steel containers which are transported offsite after cooling. When fully operational, the LAW Facility will produce 30 MT/day glass, operating 24 hrs/day, 7 days/wk. Four GFC batches/day, ranging from 12,000 to 25,000 lbs/batch, will be required to support this throughput. The project design life is 40 years.

SCOPE OF WORK

The scope of a potential GFC delivery contract would include all or a portion of:

1. procure GFCs
2. store GFCs
3. assemble batch per BUYER specified recipe, load batch into a tanker
    a. Onsite BUYER supplier quality oversight may be required for each batch assembly
4. deliver GFC batch, by truck/tanker, to the RPP-WTP site
5. pneumatically unload truck/tanker of GFC batch to the LAW Facility (equipment similar that depicted in Figures 1 and 2 below)
6. handling of GFCs must comply with safety and health requirements / regulations

While the SELLER does not have to be local, the above scope must be performed within (approximately) 60 miles of the WTP Site.

Estimated Period of Performance: Five years with 5 one-year extensions

Procure GFCs

- 12 individual GFCs are currently required: Aluminum Silicate, Boric Acid, Calcium Silicate, Ferric Oxide, Lithium Carbonate, Magnesium Silicate, Silica, Sodium Carbonate, Sucrose, Titanium Dioxide, Zinc Oxide, and Zirconium Silicate.
- Tables 1 and 2, attached, provide the chemical composition and physical properties required for these materials.
- Initial approval of all GFC sources/manufacturers by BUYER is required. Any changes to GFC sources/manufacturers are required to be approved by the BUYER prior to purchase.

Store GFCs

- The supplier would be responsible for storing all individual GFCs, with a supply backlog of approximately 2-3 million pounds.

Assemble batches

- Batch recipes are provided by the BUYER and may be changed with 24-hours notice.
- Obtain the necessary equipment to layer individual GFCs and verify weight % (individual GFCs must be within 2wt%), to ensure GFC batch aligns with recipe.
- Batch size could range from 12,000 to 25,000 lbs.
- Anticipated delivery rate is 4 batches per day.

Deliver GFCs to WTP site

- Plan and control the shipping of the GFC material to the LAW facility.
- Provide capability for storage of GFC batch, in the event the LAW facility is not able to accept delivery

Pneumatically Unload GFC batches to LAW Facility

- Supply equipment and utilities necessary for pneumatically conveying GFC material to the LAW Facility
- Verify offload of a full GFC batch (by weight)
- Unloading of GFCs must occur within a 1-hour window

Out of scope activities (to be performed by the BUYER) would include:

- Testing of GFCs by an accredited laboratory (SELLER would have to ship a sample of the GFC to the laboratory selected by the BUYER, and approved prior to preparing a batch)
- Disposal of rejected GFCs (individual or batch)

Table 1 GFC Chemical Compositions

GFC BULK MATERIAL	COMPOSITION (weight %)																							
	Al_2O_3	B_2O_3	CaO	CdO	Cl	Cr_2O_3	F	Fe_2O_3	K_2O	Li_2O	MgO	MnO	Na_2O	NiO	PbO	P_2O_5	SO_3	SiO_2	ThO_2	TiO_2	U+Th	UO_3	ZnO	ZrO_2	Other
Silica (SiO_2)	1.0 max	report	0.2 max	report	report	report	report	0.1 max	0.14 max	report	0.08 max	0.01 max	0.02 max	report	report	report	0.01 max	97.0 min	report	0.1 max	report	report	report	report	report
Zinc Oxide (ZnO)	report	report	report	0.02 max	report	report	report	0.86 max	report	report	report	0.01 max	0.029 max	report	0.04 max	report	report	report	report	report	report	report	93.4 min	report	0.171 max
Ferric Oxide (Hematite, Fe_2O_3)	0.1 min 3.0 max	report	1.0 max	0.003 max	report	0.35 max	report	77.0 min	1.50 max	report	0.002 min 1.1 max	0.028 min 0.52 max	0.50 max	0.008 max	0.004 max	0.04 min 0.54 max	0.02 min 0.60 max	0.02 min 9.0 max	report	0.25 max	report	report	0.12 max	report	0.3 max
Zirconium Silicate (Zircon, $ZrSiO_4$)	0.03 min 2.5 max	report	0.05 max	report	report	report	report	0.007 min 0.5 max	report	report	0.1 max	0.003 max	report	report	report	0.2 max	report	29.6 min 34.0 max	0.05 max	0.003 min 2.6 max	0.011 min 0.05 max	0.08 max	0.005 max	60.5 min 67.5 max	1.0 max
Lithium Carbonate (Li_2CO_3)	0.002 max	report	2.2 max	report	0.015 max	0.02 max	report	0.04 max	0.01 max	40.0 min 40.494 max	0.1 max	report	0.2 max	report	0.002 max	report	0.17 max	report	report	report	report	report	0.001 max	report	0.021 max
Sodium Carbonate (Soda Ash, Na_2CO_3)	report	report	0.15 max	report	0.4 max	0.06 max	report	0.01 max	report	report	0.01 max	report	57.815 min 58.6 max	report	0.001 max	report	0.1 max	0.02 max	report	report	report	report	report	report	0.055 max
Boric Acid (H_3BO_3)	report	56.0 min 59.1 max	report	report	0.009 max	report	report	0.002 max	report	report	report	report	report	report	report	report	0.1 max	report	report	report	report	report	report	report	0.006 max
Aluminum Silicate (Kyanite, Al_2SiO_5)	50 min 60 max	report	0.04 max	report	report	report	report	0.4 min 1.75 max	0.077 max	report	0.04 max	report	0.5 max	report	report	0.2 max	report	38.7 min 42 max	report	0.20 min 1.6 max	report	report	report	report	report
Titanium Dioxide (Rutile, TiO_2)	5.2 max	report	0.672 max	report	report	0.75 max	report	2.5 max	report	report	0.05 max	0.02 max	0.5 max	report	0.003 max	0.1 max	0.07 max	10.5 max	0.01 max	80.0 min	report	0.01 max	1.9 max	2.5 max	1.5 max
Magnesium Silicate (Olivine, Mg_2SiO_4)	0.03 min 0.8 max	report	0.35 max	report	report	0.8 max	report	4.095 min 10.68 max	0.01 max	report	45 min 50 max	0.20 max	0.30 max	0.2 min 0.52 max	report	report	report	39.0 min 43.85 max	report	report	report	report	report	report	report
Calcium Silicate (Wollastonite, $CaSiO_3$)	0.13 min 0.9 max	report	44.78 min 50.2 max	report	report	report	report	0.1 min 0.92 max	0.23 max	report	1.6 max	0.02 min 0.184 max	0.1 max	report	report	report	report	46.52 min 53.0 max	report	0.006 min 0.083 max	report	report	report	report	0.53 max
Sucrose ($C_{12}H_{22}O_{11}$)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

NOTE: min = minimum; max = maximum; minimum value = zero when not specified; and maximum value = 100 when not specified.

Table 2 GFC Physical Properties

GFC Bulk Material	**Particle Size Sieve Analysis (mesh)	Density Bulk-Loose (lbm/ft^3)	*Moisture Weight %
Silica (SiO_2)	40 maximum 90% -200	46.3 minimum	0.2 maximum
Zinc Oxide (ZnO)	99% -325	33.8 minimum	0.2 maximum
Ferric Oxide (Hematite, Fe_2O_3)	94%-200 85% -325	88.9 minimum	0.3 maximum
Zirconium Silicate (Zircon, $ZrSiO_4$)	100 maximum 95% -325	91.2 minimum	0.1 maximum
Lithium Carbonate (Li_2CO_3)	99% -30	50.2 minimum	0.1 maximum
Sodium Carbonate (Soda Ash, Na_2CO_3)	100 nominal	62.8 minimum	0.3 maximum
Boric Acid (H_3BO_3)	98% -20	53.1 minimum	0.25 maximum
Aluminum Silicate (Kyanite, Al_2SiO_5)	97%-100 65% -325	56.1 minimum	0.1 maximum
Titanium Dioxide (Rutile, TiO_2)	100 maximum 70% -325	42.9 minimum	0.2 maximum
Magnesium Silicate (Olivine, Mg_2SiO_4)	40 maximum 94% -200	59.7 minimum	0.2 maximum
Calcium Silicate (Wollastonite, $CaSiO_3$)	95%-200 85% -325	46.4 minimum	0.2 maximum
Sucrose ($C_{12}H_{22}O_{11}$)	20 nominal	50.9 minimum	0.1 maximum

NOTE: Properties must be confirmed by SELLER for each GFC bulk delivery.
*Moisture is the weight loss after drying 2 hours at 107°C for all GFC's, except Boric Acid which is 4 hours at 60°C.
**Particle size of +XXX is amount retained on top of mesh, and -XXX is amount that passed through the mesh.

QUALITY ASSURANCE (QA) REQUIREMENTS

Programmatic Quality Assurance (QA) requirements for subcontracts or purchase orders performed in the WTP Jobsite will be:

	Non-Permanent or Temporary Work - Generally no QA program required
X	Commercial Quality - Based on DOE Order 414.1C
	Nuclear Level Quality - Based on ASME NQA-1 2000

Bechtel may require, as an element of bidder pre-qualification, submission of a representative sample QA Program or Table of Contents copy. For Nuclear Level Quality subcontracts, the successful bidder's QA Program must be approved prior to award of the subcontract or purchase order.

BIDDER REGISTRATION AND PRE-QUALIFICATION

The BNI Acquisition Services Subcontracts/Purchasing group is responsible for collection, evaluation, and internal publication of potential bidders' information for the purpose of pre-qualifying them to bid on any particular subcontract or purchase order.

As part of this process, BNI requires all potential offerors to register at the Supplier and Contractor Portal at: https://www.Bechtel.com/supplier/

If your company has registered previously, then only supplemental information should be sent to the Bechtel National, Inc. representative noted below.

Information to be provided by potential bidders must include:

- Dun and Bradstreet Number
- Company Name
- Company Address
- Contact Phone Number
- Contact Person
- Email Address
- Safety Data and Information
- Applicable Work Experience and Projects
- Size of Business (Small, Large)

WTP BACKGROUND

Information about the WTP Project can be found on http://www.hanfordvitplant.com

CONTACT

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