Liquid Nitrogen Plant for the National Transonic Facility

Solicitation NNL06153354R

NASA Langley Research Center

The National Transonic Facility

1

Liquid Nitrogen Plant for the National Transonic Facility

Solicitation NNL06153354R

NASA Langley Research Center

Pre-Proposal Conference
May 17, 2006

2

Agenda

1:00 p.m.	Opening Remarks	Kim Duncan
	Acquisition Overview	Kim Duncan
	Project Overview	George Sydnor
2:00 p.m.	Site Tour	George Sydnor Ellen Carpenter
4:30 p.m.	Return to Conference Room	
	Collect Questions	Kim Duncan
	Closing Remarks	Kim Duncan

3

Liquid Nitrogen Plant for the
National Transonic Facility
Solicitation NNL06153354R
NASA Langley Research Center

Reasons for Conducting Conference

- *Provide an opportunity for potential Offerors to view the site and gather field data*
- *Answer any prior submitted industry questions on the proposed requirements including statement of work, schedule, proposal instructions, evaluation approaches, contract terms and conditions*
- *Increase chance to award contract without discussions*

4

Conference Guidelines

- *General questions pertaining to LaRC will be addressed at this conference*
- *Questions pertaining to the RFP must be submitted in writing*
- *List of attendees, conference presentation, and response to questions received will be posted on the NAIS web site*
- *Response to questions at this conference should not be construed as a revision unless subsequently confirmed by a formal amendment to the RFP*
- *Use of cameras is allowed on site tour*
- *Everyone must stay together as a group*
- *Safety*

Liquid Nitrogen Plant for the
National Transonic Facility
Solicitation NNL06153354R
NASA Langley Research Center

Proposal Preparation Instructions

- *Assure proposal contains all necessary information, required documentation, and is complete in all aspects. The evaluation is based upon actual material presented and not on the basis of what is implied. See FAR Clause 52.215-1 Instructions to Offerors – Competitive Acquisition.*
- *Ensure that the cost proposal is consistent with the technical proposal in all respects since the cost proposal may be used as an aid to determine the offeror's understanding of the technical requirements. Discrepancies may be viewed as a lack of understanding.*
- *NASA may reject any proposal that fails to comply with all cost proposal instructions, including those for electronic submissions, as incomplete and technically unacceptable.*

Proposal Preparation Instructions (con't.)

- *No advance payments*
- *Progress Payments (52.232-16) for Exhibit A, Statement of Work and Appendix D, On-Site Work Requirements – See I.6*

Liquid Nitrogen Plant for the
National Transonic Facility
Solicitation NNL06153354R
NASA Langley Research Center

Method of Evaluation

(Section M, Paragraph M.2)

- *Proposals received in response to this solicitation will be evaluated by a Source Evaluation Team (SET) in accordance with NFS 1815.3.*
- *The Source Selection Authority (SSA), after consultation with the SET and other advisors, will select the offeror that can perform the contract in a manner most advantageous to the Government, all factors considered.*

Proposal Evaluation Factors

(Section M, Paragraph M.3)

- *Technical Proposal – Volume I*
  - *Factor 1 – Mission Suitability*
    - *Subfactor 1 – Liquid Nitrogen (LN2) Plant Production Capacity*
    - *Subfactor 2 – Project Management*
    - *Subfactor 3 – Plant Efficiency, Reliability, and Maintainability*
    - *Subfactor 4 – Small Disadvantaged Business (SDB) Participation Program*
    - *Subfactor 5 – Safety and Health*

Liquid Nitrogen Plant for the
National Transonic Facility
Solicitation NNL06153354R
NASA Langley Research Center

Proposal Evaluation Factors (con't.)

(Section M, Paragraph M.3)

- *Business Proposal – Volume II*
  - *Factor 2 – Cost/Price Analysis*
- *Past Performance – Volume III*
  - *Factor 3 – Past Performance*

Rating System

- *Mission Suitability subfactors and the total Mission Suitability factor shall be evaluated using the following adjectival ratings, definitions, and percentile ranges on the next slide*.

Liquid Nitrogen Plant for the
National Transonic Facility
Solicitation NNL06153354R
NASA Langley Research Center

Rating System (con't.)

ADJECTIVAL RATING	DEFINITIONS	PERCENTILE RANGE
Excellent	A comprehensive and thorough proposal of exceptional merit with one or more significant strengths. No deficiency or significant weakness exists.	91-100
Very Good	A proposal having no deficiency and which demonstrates over-all competence. One or more significant strengths have been found, and strengths outbalance any weaknesses that exist.	71-90
Good	A proposal having no deficiency and which shows a reasonably sound response. There may be strengths or weaknesses, or both. As a whole, weaknesses not off-set by strengths do not significantly detract from the offeror's response.	51-70
Fair	A proposal having no deficiency and which has one or more weaknesses. Weaknesses outbalance any strengths.	31-50
Poor	A proposal that has one or more deficiencies or significant weaknesses that demonstrate a lack of overall competence or would require a major proposal revision to correct.	0-30

Rating System (con't.)

- *Past Performance will be assigned one of the following ratings: Excellent, Very Good, Good, Satisfactory, Poor/Unsatisfactory or Neutral – these ratings are defined in Section M, Paragraph C.*
  - *Excellent - Of exceptional merit; exemplary performance in a timely, efficient, and economical manner; very minor (if any) deficiencies with no adverse effect on overall performance; and experience that is highly relevant to this procurement.*
  - *Very good - Very effective performance; fully responsive to contract requirements; contract requirements accomplished in a timely, efficient, and economical manner for the most part; only minor deficiencies with minimal effect on overall performance; and experience is very relevant to this procurement.*

Liquid Nitrogen Plant for the
National Transonic Facility
Solicitation NNL06153354R
NASA Langley Research Center

Rating System (con't.)

- *Good - Effective performance; fully responsive to contract requirements; reportable deficiencies, but with little identifiable effect on overall performance; and experience is relevant to this procurement.*
- *Satisfactory - Meets or slightly exceeds minimum acceptable standards; adequate results; reportable deficiencies with identifiable, but not substantial, effects on overall performance; and experience is at least somewhat relevant to this procurement.*

Rating System (con't)

- *Poor/Unsatisfactory - Does not meet minimum acceptable standards in one or more areas; remedial action required in one or more areas; deficiencies in one or more areas which adversely affect overall performance.*
- *Neutral - no record of relevant past performance or past performance information is not available.*

Liquid Nitrogen Plant for the
National Transonic Facility
Solicitation NNL06153354R
NASA Langley Research Center

Relative Importance of Evaluation Factors

(Section M, Paragraph M.4)

- *The weights to be used in the scoring of the Mission Suitability subfactors are presented below:*

• *LN2 Plant Production Capacity*	*450*
• *Project Management*	*200*
• *Plant Efficiency, Reliability and Maintainability*	*200*
• *SDB Participation Program*	*50*
• *Safety and Health*	*100*
	Total 1000

Relative Importance of Evaluation Factors (con't)

(Section M, Paragraph M.4)

- *The numerical weights assigned to the above subfactors are indicative of the relative importance of those evaluation areas. Overall, in the selection of a Contractor(s) for contract award, Mission Suitability and Past Performance are approximately equal to one another and more important individually than Price. All evaluation factors other than Price, when combined, are significantly more important than Price.*

Liquid Nitrogen Plant for the
National Transonic Facility
Solicitation NNL06153354R
NASA Langley Research Center

Project Personnel

Procurement	
Contracting Officer	*Panice Clark*
Source Selection Authority	*Kim Stone*
Contract Specialist	*Kim Duncan*
Technical	
*Project Manager & COTR**	*George Sydnor*
*Deputy Project Manager & Alt. COTR**	*Ellen Carpenter*

* *COTR – Contracting Officer's Technical Representative*

Procurement Schedule

Synopsis Issued	04/13/06
RFP Issued	05/03/06
Pre-Proposal Conference	05/17/06
Offers Due	
Volume III – Past Performance	05/17/06
Volume I – Technical Proposal	06/02/06
Volume II – Business Proposal	06/02/06

Liquid Nitrogen Plant for the
National Transonic Facility
Solicitation NNL06153354R
NASA Langley Research Center

Project Overview

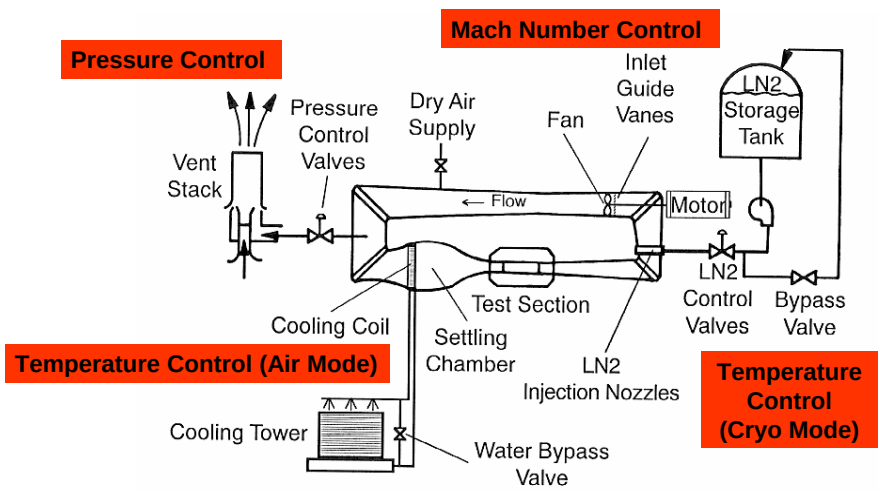
Description of the National Transonic Facility (NTF)

A fan-driven, closed-circuit, continuous flow, pressurized cryogenic wind tunnel

Mach Number:	*0.1 to 1.2*
Pressure:	*15 to 125 psia*
Temperature:	*-250°F to 150°F*
Reynolds #:	*146 million/ft @ M=1*
Test Gas:	*Nitrogen, Dry Air*
Drive Power:	*101 MW, 45 MW*
Speed Range:	*60-600 rpm*
Circuit Length:	*497 ft.*
Test Section:	*8.2 ft x 8.2 ft*
Area:	*67.2 ft²*
Length:	*25 ft*
Operational:	*1984*
Upgrades:	*1997*

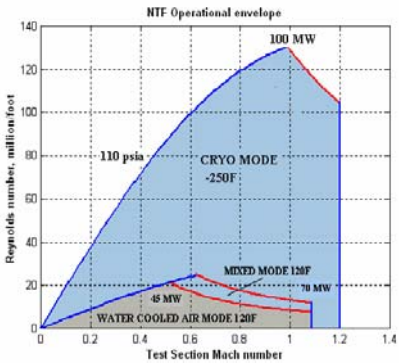
Liquid Nitrogen Plant for the National Transonic Facility
Solicitation NNL06153354R
NASA Langley Research Center

NTF Simplified Schematic



Importance of the NTF

- *Highest Reynolds number test capability at subsonic & transonic speeds in the world.*
  - *Mach and Reynolds number in wind tunnel testing must be matched with flight conditions to produce wind tunnel results that reproduce flight conditions*
  - *LN2 is used to cool the facility and operating at these cryogenic temperatures achieves high Reynolds number conditions*
- *The NTF is part of a DoD and NASA strategy to support the U.S. subsonic and transonic testing requirements*
- *Agency strategy has consolidated domestic transonic tunnel research by closing less capable tunnels and recognizing NTF as a national asset*



NTF's multi-mode Rn capability

- ***Cryogenic mode*** *(nitrogen only)*
- ***Mixed mode*** *(nitrogen & water cooling)*
- ***Air mode*** *(air only)*

Liquid Nitrogen Plant for the National Transonic Facility
Solicitation NNL06153354R
NASA Langley Research Center

Basis of Need

- *The National Transonic Facility has recently been placed in NASA's Shared Capability Assets Program and incorporated into the reshaping of NASA's Aeronautics Program. The requirements for the Liquid Nitrogen Supply System for the National Transonic Facility are defined to improve facility productivity by providing additional test time for users and faster cryogenic test cycles. Several factors were taken into consideration in the development of the LN2 requirement: historical facility usage, discussions with external users, and NASA's Aeronautics and Space Exploration program needs. Total projected usage based on the above is 50,000 tons of LN2 per year and will be used in ten continuous two-week test cycles requiring approximately 5000 tons per test. A minimum supply of 370 tons per day will meet this new requirement utilizing NTF's existing storage capability.*

Work Included and Period of Performance

- *The Contractor shall provide a completely Designed, Furnished, and Installed (DFI) LN2 plant for the NTF. The Contractor shall provide a "Turnkey" project; providing all materials, labor, and resources to: engineer, design, procure, fabricate, inspect, test, deliver, install, commission, train document, and demonstrate performance of an LN2 plant that meets the requirements set forth in the Statement of Work (SOW).*
- *Total funding constraint is $16.5M.*
- *Offerors that fail to comply with these funding constraints will be eliminated from further consideration.*
- *All requirements are detailed in Exhibit A, Statement of Work.*

Liquid Nitrogen Plant for the
National Transonic Facility
Solicitation NNL06153354R
NASA Langley Research Center

Work Included and Period of Performance (con't.)

- *Any offer for a plant that produces less than 370 tons per day will be considered technically unacceptable and rejected without further consideration. NASA will place greater value on a plant that will produce more than 370 tons per day, provided it meets the requirements of the SOW and does not exceed the price limitations set forth in Solicitation, Section L.9.C. Business Proposal – Volume II, Factor 2 – Cost/Price Analysis.*
- *Period of performance for meeting the requirements of the SOW is 730 consecutive calendar days from the date of contract award.*

Liquid Nitrogen Plant for the National Transonic Facility
Solicitation NNL06153354R

NASA Langley Research Center

LN2 Plant Requirements

Exhibit A, SOW Section 1.2.3

- *Project management including personnel, plans, schedules, submittals, progress meetings, risk mitigation, and progress reporting.*
- *Engineering and design including studies, calculations, analyses, design reviews, presentations, drawings, specifications, hazard reviews, and test plans.*
- *Providing new air separation equipment, including all piping, instrumentation and controls, safety devices, electrical equipment, and heat exchanging equipment delivered to the site.*
- *Providing new liquefaction equipment including all piping, instrumentation and controls, safety devices, electrical equipment, analyzers, and cooling equipment delivered to the site.*

27

Liquid Nitrogen Plant for the National Transonic Facility
Solicitation NNL06153354R

NASA Langley Research Center

LN2 Plant Requirements (con't.)

Exhibit A, SOW Section 1.2.3

- *Site management, construction meetings, risk mitigation, and progress reporting.*
- *Unpacking and rigging of LN2 plant equipment. Any shipping or handling damage shall be the responsibility of the Contractor and shall be repaired or replaced prior to installation.*
- *Assembly and installation of LN2 plant equipment.*
- *Initial fills of all chemicals, lubricants, refrigerant gases, adsorbent materials, analyzer calibration gases, ink, paper, and insulation materials.*
- *Building modifications.*
- *Connection to the existing 6.6 kV, 3 phase, 60 cycle power 0.distribution system in Building 1241.*
- *Installation of the lightning protection system.*
- *Cooling water supply construction and integration.*

28

LN2 Plant Requirements (con't.)

Exhibit A, SOW Section 1.2.3

- Connection to the existing instrument air system in Building 1241 for a start-up air supply.
- New interface piping to the NTF LN2 storage system, including all subcoolers, pumps, valves, filters, analyzers, and instrumentation.
- New interface to the NTF control system, including plant control hardware and software.
- Site preparation and equipment erection.
- Control system checkout, including instrumentation calibrations, activation, and operation. Set and connect the control room.
- Installation, connection, and startup of all equipment, piping, wiring, and auxiliaries.
- Commissioning of the LN2 plant, training, performance demonstration, and warranty.

Liquid Nitrogen Plant for the
National Transonic Facility
Solicitation NNL06153354R
NASA Langley Research Center

Site Map has been deleted intentionally. If you would like a copy of this, please submit a request in writing in accordance with Solicitation Section L.9.2.

Site Map has been deleted intentionally. If you would like a copy of this, please submit a request in writing in accordance with Solicitation Section L.9.2.

Site Preparation Work for Building 1241

- Building previously housed wind tunnel variable speed drives auxiliaries
- NASA's on-site Contractor was issued a task order to:
  - Remove rotating machinery and obsolete switchgear
  - Prepare 6.6kV switchgear for interface
  - Cover equipment pads for personnel protection
  - Pressure wash building

Building 1241 Interior

Before equipment removal

After equipment removal (1)

(2)

(3)

(4)

LN2 Plant Interfaces

- *LN2 Subsystem – SOW Section 3.1.3.a*
- *Electrical 6.6kV – SOW Section 3.1.4.b*
- *Tunnel Controls Interface – SOW Section 3.4.14.1*
- *Cooling Water Tower (if required) – SOW Section 3.1.3.e*
- *Utilities*
    - *Instrument air - SOW Section 3.1.3.d*
    - *Potable water -SOW Appendix B*

Liquid Nitrogen Plant for the
National Transonic Facility
Solicitation NNL06153354R
NASA Langley Research Center

Site Tour

- *Building 1241 and Parking Lot*
- *Existing Cooling Water Tower*
- *LN2 Subsystem Tie-in area*
- *800 Ton Run Tank, 3000 Ton Storage Tank*
- *Remote control room in Building 1236*
- *Return to conference room to submit questions*