



This Amendment **007** of **RFP #5000077976/B** is issued to replace the years for Phase 1 and Phase 2 work.

PART 1 - GENERAL INFORMATION

1.2 Summary

DELETE

The contract entails two phases spanning two years: **Phase 1**, 36 weeks following the contract award starting in 2023-24 and an **OPTIONAL – Phase 2**, 72 weeks following the contract award ending in 2024-25.

INSERT

The contract entails two phases spanning two years: **Phase 1**, 36 weeks following the contract award starting in **2024-25** and an **OPTIONAL – Phase 2**, 72 weeks following the contract award ending in **2025-26**.

PART 7 - RESULTING CONTRACT CLAUSES

7.4 Term of Contract

7.4.1 Period of the Contract

DELETE

The period of the Contract is from date of Contract to March 31, 2025 inclusive.

INSERT

The period of the Contract is from date of Contract to March 31, **2026** inclusive.

ANNEX A - STATEMENT OF WORK

SW.4.0 PROJECT REQUIREMENTS

SW.4.1 Tasks and Deliverables

REPLACE BY:

The contract entails two phases spanning two years:

Phase 1 for 2024-25 to assess the properties of three steel pipes and fittings and as an **option Phase 2 for 2025-26** to measure the degradation properties of additional three steel pipes and fittings. The required materials for these assessments will be provided by CanmetMATERIALS in the form of skelps or pipe segments and the contractor is responsible for cutting, machining and test sample preparations. The planned test matrix are demonstrated in the following tables.

Table 1- Planned assessments in Phase 1, **2024-25** fiscal year



Supplied materials as plate/skelp	E647: FCG @3000 psi H2, 1 Hz, R=0.5 at low and high ΔK (Compact tension in TL orientation no side groove)	E1820: J_Q and K_Q @3000 psi H2 (Compact tension in TL orientation with side groove)	Timeline
Fitting #1 Grade & WT TBD	x3 Plus x1 in air	x3 Plus x1 in air	Within 36 weeks of contract award
X65LM 600 WT 0.4"	x3 Plus x1 in air	x3 Plus x1 in air	Within 36 weeks of contract award
X70HM 565 WT 0.4"	x3 Plus x1 in air	x3 Plus x1 in air	Within 36 weeks of contract award

Table 2 - Planned assessments (Optional) Phase 2, 2025-26 fiscal year

Supplied materials as plate/skelp	E647: FCG @3000 psi H2, 1 Hz, R=0.5 at low and high ΔK (Compact tension in TL orientation no side groove)	E1820: J_Q and K_Q @3000 psi H2 (Compact tension in TL orientation with side groove)	Timeline
Fitting #2 Grade & WT TBD	x3 Plus x1 in air	x3 Plus x1 in air	Within 72 weeks of contract award
X65LM 565 WT 0.4"	x3 Plus x1 in air	x3 Plus x1 in air	Within 72 weeks of contract award
X70HMo 565 WT 0.4"	x3 Plus x1 in air	x3 Plus x1 in air	Within 72 weeks of contract award

To address the planned assessments as depicted in Table 1 and 2, the following tasks will be carried out for Phase 1 (Table 3) and for the **optional** Phase 2 (Table 4).

Table 3 - Detailed tasks, deliverables and milestones for Phase 1 (2024-2025)

Tasks	Description	Deliverables	Timeline
1	CMAT will provide one fitting steel and two steel pipes	Acknowledge the receipt of the initial materials	Within 2 weeks of contract award
2	The contractor will design suitable geometry and dimensions of the samples which are required for tensile (ASTM E8), Fatigue (ASTM E647) and Fracture toughness (ASTM E1820) tests and machine triplicate samples.	Three base-line tensile samples , three base-line fatigue in air, three base-line fracture toughness in air and eighteen compact tension samples for fatigue and fracture in	Within 4 weeks of contract award



		hydrogen machined. Drawings for these samples are provided.	
3	The contractor will conduct baseline tensile , fatigue and toughness measurements in air for the supplied three steel pipes/fitting	Preliminary data and results from base-line testing in air, as well as test procedures (via monthly web conference).	Within 10 weeks of contract award
4	The contractor will conduct in-situ tests in pressurized hydrogen gas to assess fatigue crack growth rate and fracture toughness J_Q/K_{JQ} for the supplied Fitting #1 Grade in triplicate.	Preliminary data and results from in-situ fatigue and fracture testing in hydrogen, as well as test parameters and procedures (via monthly web conference)	Within 14 weeks of contract award
5	The contractor will conduct in-situ tests in pressurized hydrogen gas to assess fatigue crack growth rate and fracture toughness J_Q/K_{JQ} for the supplied X65LM 600 WT 0.4" in triplicate.	Preliminary data and results from in-situ fatigue and fracture testing in hydrogen , as well as test parameters and procedures (via monthly web conference)	Within 20 weeks of contract award
6	The contractor will conduct in-situ tests in pressurized hydrogen gas to assess fatigue crack growth rate and fracture toughness J_Q/K_{JQ} for the supplied X70HM 565 WT 0.4" in triplicate.	Preliminary data and results from in-situ fatigue and fracture testing in hydrogen , as well as test parameters and procedure (via monthly web conference)	Within 26 weeks of contract award
7	The contractor will conduct post-test fractography on a partial subset of specimens using optical and scanning electron microscopy.	Preliminary results from post-test fractography (via monthly web conference)	Within 30 weeks of contract award
8	The contractor will summarize the data, analysis and findings in a final technical reports and host a web conference to review the results.	Final report and presentation for Phase One.	Within 36 weeks of contract award

Table 4 - Detailed tasks, deliverables and milestones for (Optional) Phase 2 (2025-2026)

Tasks	Description	Deliverables	Timeline
1	CMAT will provide one fitting steel and two steel pipes	Acknowledge the receipt of the initial materials	Within 38 weeks of contract award
2	The contractor will design suitable geometry and dimensions of the samples which are required for tensile (ASTM	Three base-line tensile samples , three base-line fatigue in air, three base-line fracture toughness in air	Within 40 weeks of contract award



	E8), Fatigue (ASTM E647) and Fracture toughness (ASTM E1820) tests and machine triplicate samples.	and eighteen compact tension samples for fatigue and fracture in hydrogen machined. Drawings for these samples are provided.	
3	The contractor will conduct baseline tensile , fatigue and toughness measurements in air for the supplied three steel pipes/fitting	Preliminary data and results from base-line testing in air, as well as test parameters and procedures (via monthly web conference).	Within 46 weeks of contract award
4	The contractor will conduct in-situ tests in pressurized hydrogen gas to assess fatigue crack growth rate and fracture toughness J_Q/K_{JQ} for the supplied Fitting #2 Grade in triplicate.	Preliminary data and results from in-situ fatigue and fracture testing in hydrogen, as well as test parameters and procedures (via monthly web conference)	Within 50 weeks of contract award
5	The contractor will conduct in-situ tests in pressurized hydrogen gas to assess fatigue crack growth rate and fracture toughness J_Q/K_{JQ} for the supplied X65LM 565 WT 0.4" in triplicate.	Preliminary data and results from in-situ fatigue and fracture testing in hydrogen , as well as test parameters and procedures (via monthly web conference)	Within 56 weeks of contract award
6	The contractor will conduct in-situ tests in pressurized hydrogen gas to assess fatigue crack growth rate and fracture toughness J_Q/K_{JQ} for the supplied X70HMo 565 WT 0.4" in triplicate.	Preliminary data and results from in-situ fatigue and fracture testing in hydrogen , as well as test parameters and procedures (via monthly web conference)	Within 62 weeks of contract award
7	The contractor will conduct post-test fractography on a partial subset of specimens using optical and scanning electron microscopy.	Preliminary results from post-test fractography (via monthly web conference)	Within 66 weeks of contract award
8	The contractor will summarize the data, analysis and findings in a final technical reports and host a web conference to review the results.	Final report and presentation for Phase One.	Within 72 months of contract award

ALL OTHER TERMS AND CONDITIONS REMAIN THE SAME.