

<b>SURVEY EQUIPMENT CALIBRATION AND CONTROL</b>	Identifier: PRD-5012 Revision*: 6 Page: 1 of 6
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Subcontractor/Supplier	Program Requirements Document	For Additional Info: <a href="http://EDMS">http://EDMS</a>	Effective Date: 01/12/23
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Manual: Subcontractor Requirements

Change Number: 376436

\*The current revision can be verified on EDMS.

## 1. PURPOSE

This Program Requirements Document (PRD) provides the minimum requirements for calibrating and controlling *subcontractor/supplier* (see def.) surveying equipment for the Idaho Cleanup Project (ICP) per the subcontract requirements, when performing work activities at ICP.

## 2. APPLICABILITY

This PRD applies to ICP subcontractor/suppliers when specified by a subcontract.

Supplemental requirements may be specified for all or part of the work scope as determined to be appropriate by the *contractor* (see def.). The subcontractor/supplier shall implement the requirements of this PRD and all supplemental requirements, when and as specified by the subcontract, as defined on Form 540.10, “Subcontractor Requirements Manual (SRM) Applicability.”

## 3. RESPONSIBILITIES

Performer	Responsibilities
Contractor	Calibrate survey equipment.
Subcontractor/Supplier	<p>Train personnel working to this procedure in accordance with PRD-5001, “Training and Indoctrination.”</p> <p>Submit calibration request and equipment to the contractor for calibration prior to initial use on the project.</p> <p>Tag and segregate “out-of-calibration” survey equipment.</p> <p>Obtain recalibration at specified intervals or when calibration has been compromised.</p> <p>Obtain recalibration upon completion of the survey equipment’s final use on the project.</p> <p>Perform periodic functional checks of survey equipment.</p> <p>Record each usage of survey equipment in the usage record.</p> <p>Document survey activities in survey field logbooks.</p> <p>Maintain original and backup copies of electronic survey data.</p>

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#### 4. REQUIREMENTS

- 4.1 Subcontractor/supplier personnel responsible for operating, controlling, and/or calibrating construction surveying equipment shall be trained to the requirements of this PRD in accordance with PRD-5001.
  - 4.1.1 Training records shall include supplier personnel qualifications for operation and maintenance of optical survey equipment.
- 4.2 Survey equipment shall be stored, handled, and maintained:
  - A. In accordance with the manufacturer's recommendations
  - B. In a manner that ensures survey equipment integrity, accuracy, and precision
  - C. In a manner that prevents damage or degradation to the survey equipment and attached *calibration status indicators* (see def.).
- 4.3 Prior to initial use on each project, the subcontractor/supplier shall submit Form 432.49, "Subcontractor/Supplier Request for M&TE Calibration Services," along with the following equipment to the contractor for calibration in accordance with PRD-5015, "Control of Measuring and Test Equipment."
  - A. Transits and theodolites
  - B. Total stations
  - C. Optical levels
  - D. Electronic distance measurers
  - E. Tapes/chains
  - F. Level rods
  - G. Tension handles
  - H. Thermometers, barometers, and scales used to support survey work.
- 4.4 The subcontractor/supplier shall conform to calibration intervals established by the contractor and/or as specified by survey equipment manufacturer's instructions.
- 4.5 If deemed necessary by the survey party chief, manufacturer, or the contractor, calibration frequency may be increased.

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- 4.6 Unless otherwise approved by the contractor, contractor-specified survey equipment identified in this PRD shall be calibrated upon completion of its intended use.
- 4.7 Unless otherwise directed by the contractor, the subcontractor/supplier shall submit surveying equipment for final calibration no later than 10 working days after the final usage, or before the last day of the subcontract performance period, whichever occurs first. Survey instruments shall remain on the ICP/INL calibration recall system and evaluate calibrations under the calibration Out-of-Tolerance Notification, as applicable.
- 4.8 Before initial use and at least biannually, the subcontractor/supplier shall perform basic functional checks for each of the following type of survey equipment.
- 4.8.1 Transits and theodolites shall receive the following basic functional checks:
- A. Plate and telescope bubble check
  - B. Cross hair check (vertical and horizontal checks to include collimation and trunion axis)
  - C. Standards check (vertical axis)
  - D. Eyepiece centering
  - E. Optical plummet check
  - F. Other checks and adjustments as recommended by the manufacturer's operation and maintenance manual.
- 4.8.2 Optical levels shall receive the following basic functional checks:
- A. Level bubble check
  - B. Cross hair check (horizontal)
  - C. Line-of-sight check (two peg method)
  - D. Other checks and adjustments as recommended by the manufacturer's operation and maintenance manual.
- 4.8.3 Electronic distance measurers shall receive the following basic functional checks:
- A. Horizontal distance check to a National Geodetic Survey (NGS) calibration baseline

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**NOTE:** *The location of local baselines is available from the contractor.*

- B. Other checks in accordance with the manufacturer's operation and maintenance manual.

4.8.4 Survey tapes and chains shall receive the following basic functional checks:

- A. Check against a calibrated tape or an established baseline, such as the NGS calibration baseline

**NOTE:** *The location of local baselines is available from the contractor.*

- B. Corrections for temperature fluctuations, tension, slope, and sag compensated for in accordance with manufacturer's recommendations and/or industry standards.

4.8.5 Level rods shall receive the following basic functional checks:

- A. Check against a calibrated or functionally checked tape
- B. If possible, a comparison to an equal standard while the level rod is fully extended and adjusted.

4.8.6 If required by the manufacturer or deemed necessary by the survey party chief or the contractor, the subcontractor/supplier shall perform more frequent functional checks and/or adjustments.

4.8.7 All functional checks performed by the supplier shall be recorded on Form 432.47, "Subcontractor/Supplier Survey Functional Check Record."

4.9 Tag out-of-service instruments and follow the CWI/INL calibration Out-of-Tolerance Notification, as applicable. Supplier survey equipment identified in this PRD shall be tagged out-of-service using Form 416.13, "Out of Service-Calibrate Before Use," and reported to the contractor in accordance with PRD-5015, when:

- A. Calibration or functional check has expired or is found out-of-tolerance
- B. Equipment will not calibrate
- C. Equipment is noted as malfunctioning, damaged, or otherwise suspect.

4.10 Each usage of subcontractor/supplier survey equipment identified in this PRD shall be recorded on Form 432.48, "Subcontractor/Supplier Survey M&TE Calibration Usage Record."

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- 4.11 All subcontractor/supplier survey activities shall be documented in survey field logbooks.
- 4.11.1 Recorded information shall be neat, legible, and include, as a minimum:
- A. All pertinent information
  - B. Measurements
  - C. Observations
  - D. Benchmark references with applicable number
  - E. Equipment identification number
  - F. Survey date
  - G. Personnel performing work
  - H. Weather conditions.
- 4.11.2 Survey field logbooks shall be maintained on a daily basis with each entry signed and dated by the lead member of the survey crew.
- 4.12 Any subcontractor/supplier survey information collected with electronic data collectors shall be maintained on a stable computerized system with backup disk copies available.
- 4.13 Upon request by the contractor, the manufacturer's operation and maintenance manuals and instructions for all listed subcontractor/supplier survey equipment shall be made available to the contractor for reference.
- 4.14 Documentation required by this PRD shall be completed, maintained, and stored in a single location in a secure and protected environment during the full performance period of the subcontract or purchase order.
- 4.14.1 All required documentation shall be legible, reproducible, free from erasure, correction fluid, and/or correction tape, and completed in black, indelible ink only.
- 4.14.2 When a correction to documentation is required, a single line shall be drawn through the information to be deleted; additional information, if needed, shall be recorded adjacent to the information being changed; and the individual revising the document shall initial and date each entry adjacent to the correction.
- 4.14.3 When completed, all blanks or blocks shall be filled in on each document. If there is no relevant information, the blank or block shall be marked "NA."
- 4.14.4 All required documentation shall be made readily available for contractor review and/or audit.

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- 4.14.5 All required documentation shall be submitted to the contractor when required by the subcontract in accordance with PRD-5003, “Vendor Data Control.”

## **5. DEFINITIONS**

See LST-27, “Glossary,” for definitions of the following terms:

*Calibration Status Indicator*

*Contractor*

*Subcontractor/Supplier*

## **6. REFERENCES**

Form 416.13, “Out of Service-Calibrate Before Use”

Form 432.47, “Subcontractor/Supplier Survey Functional Check Record”

Form 432.48, “Subcontractor/Supplier Survey M&TE Calibration Usage Record”

Form 432.49, “Subcontractor/Supplier Request for M&TE Calibration Services”

Form 540.10, “Subcontractor Requirements Manual (SRM) Applicability”

PRD-5001, “Training and Indoctrination”

PRD-5003, “Vendor Data Control “

PRD-5015, “Control of Measuring and Testing Equipment”

## **7. APPENDIXES**

None