

**WP 07-EU1307**

Revision 3

# Installing Wire Convergence Meters

Technical Procedure

EFFECTIVE DATE: 09/08/05

John VandeKraats  
APPROVED FOR USE

**TABLE OF CONTENTS**

INTRODUCTION ..... 3

REFERENCES ..... 3

EQUIPMENT AND MATERIALS ..... 3

PREREQUISITE ACTIONS ..... 4

PERFORMANCE ..... 4

1.0 INSTALLING WIRE CONVERGENCE METERS ..... 4

2.0 INITIAL READING ..... 5

## **INTRODUCTION <sup>1</sup>**

This procedure includes the steps necessary to install remotely and manually read wire convergence meters (WCMs). This work includes drilling the anchor holes, installing the WCM, and taking the initial reading.

The record produced by the use of this procedure is the GIS Initial Data Sheet (Attachment 1 of WP 07-EU1303). Completed data sheets are maintained in accordance with the Geotechnical Engineering Records Inventory and Disposition Schedule.

## **REFERENCES**

### **BASELINE DOCUMENTS**

- WP 07-1, WIPP Geotechnical Engineering Program Plan

### **REFERENCED DOCUMENTS**

- WP 07-EU1303, Geomechanical Instrument Data Processing

## **EQUIPMENT AND MATERIALS**

- Wire convergence meter
- Small diameter nylon-coated aircraft cable
- Expansion anchors
- An anchor bolt with stainless steel eyebolt
- Mounting bracket (size and shape as suggested by manufacturer)
- Rotary hammer drill
- Masonry auger bits
- Box of wire cable crimps and crimping tool
- Digital volt meter (DVM)
- Potentiometer interface box (PIB)
- Nut-locking adhesive (Loctite)

## PREREQUISITE ACTIONS

- Personnel performing this procedure shall examine their work place, tools, and equipment for unsafe conditions and practices. Unsafe conditions or practices shall be corrected before any work is performed in work area.
- The cognizant engineer shall determine the location for installation of the WCM.

## PERFORMANCE

### 1.0 INSTALLING WIRE CONVERGENCE METERS

- 1.1 Check the operation of the WCM prior to installation by connecting it to P1 of the PIB.
- 1.2 Connect the voltmeter to P2 of the PIB.
- 1.3 Set the PIB selector switch to the "WCM" position.
- 1.4 Ensure the voltmeter is set to read DC voltage.
- 1.5 Slowly extend the WCM while observing the voltmeter reading. A properly functioning instrument should indicate an increasing voltage as the wire is extended.
- 1.6 Proceed to Step 1.8 if the instrument is operating properly.
- 1.7 If the instrument is not operating properly, repair or replace instrument and repeat Steps 1.1 through 1.6.
- 1.8 Anchor the WCM bracket against the rock.
- 1.9 On the opposite surface, install an anchor bolt with eyebolt.
- 1.10 Ensure the WCM is attached to the mounting bracket.
- 1.11 Attach a precut and identified WCM extension cable (i.e., determined by the installation location) to the gauge quick connection.
- 1.12 Make a small loop in the extension cable end and crimp it with a wire rope crimp.
- 1.13 Pull the WCM extension cable (wire rope will reel out of the WCM) to the eyebolt installed in Step 1.12 **AND** attach by looping through the eyebolt and crimping with a wire rope crimp.

## 2.0 INITIAL READING

---

### NOTE

Initial instrument voltmeter readings should be recorded on a GIS Initial Data Sheet.

---

- 2.1 Connect the transducer to connector P1 on the PIB.
- 2.2 Connect the voltmeter to connector P2 on the PIB.
- 2.3 Ensure the voltmeter is set to read DC voltage.
- 2.4 Read the voltage with the PIB interface selector switch set to the "Vex" position and record the data on a GIS Initial Data Sheet.
- 2.5 Read the voltage with the PIB selector switch set to "Vin" position and record the data on a GIS Initial Data Sheet.
- 2.6 Read the instrument output voltage ( $V_{out}$ ) with the PIB interface selector switch set to the "WCM" position and record the data on a GIS Initial Data Sheet.