Appendix 4
GeoGauge Verifier Mass Guide

Humboldt GeoGauge® *Verifier Mass* Guide

For use with C series Humboldt GeoGauge

Purpose
To verify or check the operation of the C series Humboldt H-4140 GeoGauge by running a measurement on top of the Verifier Mass. It is not intended to calibrate the GeoGauge.

Equipment Required
H-4140.20 Verifier Mass Assembly (10 kg with installed rubber isolation mounts)

Operation

1. Place the Verifier Mass Assembly on a relative flat and rigid surface. The surface at this location should be approximately level. A concrete floor that is generally crack-free and well supported is ideal.

2. Wipe clean the ring foot at the bottom of the GeoGauge. Clean the v-groove around the seal between the foot and gauge body. Inspect the ring foot surface for deep gouges, nicks, protrusions or raised nicks. The ring foot should be relatively flat. Remove excessive protrusions or raised nicks by setting the GeoGauge on a flat abrasion sheet placed on a flat steel plate. Rotate the GeoGauge via its handle 2 – 3 times until the protrusions are approximately flat with the ring foot surface. Wipe off the abrasion dust from the ring foot.

3. Turn on GeoGauge. Set the GeoGauge to display stiffness in S.I. (metric) units.

4. Smear a small amount of any lubricating oil on the shoulder of the Verifier Mass.

5. Gently set the GeoGauge's ring foot in position over the shoulder of the Verifier Mass.

6. Rotate the gauge on the mass a random amount.

7. Firmly press the MEAS button to make a measurement of the Verifier Mass stiffness.

8. After 75 seconds the measured stiffness will be displayed. Record the stiffness.

9. Remove the GeoGauge from the Verifier Mass. Reset it back onto the Verifier Mass. When repeating measurements, it is important to remove the GeoGauge from the Verifier Mass between measurements to account for placement and operator bias. Place the GeoGauge on the Verifier at different rotational orientation each time.

10. Normally, five (5) measurements will be sufficient. Average the measurements for a

result. Record all measurements and save the records for long term monitoring of GeoGauge operation. The values from each verifier measurement will oscillate up and down a small percentage and the average stiffness should be used to compare with the expected stiffness. It is not necessary to verify daily. Weekly or once a month or when questions about the validity of the stiffness/modulus measurements occur, then the use of the Verifier Mass is justified.

11. An average stiffness of roughly -8.6 to -9.8 MN/m is expected on the Verifier Mass. If this is not achieved, contact Humboldt for assistance.

The GeoGauge is built to withstand normal field instrument handling. The gauge can still be damaged from mishandling and abuse. It cannot be over-emphasized that proper care and maintenance will give the owner long life and reliability from the instrument.

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Appendix 5
GeoGauge Data Download Guide