

**Electronic Transfer of  
Geotechnical  
and  
Geoenvironmental Data  
AGS4  
(Edition 4.0)**

**Guidance Document**

***In Situ Standard Penetration Testing***

## ACKNOWLEDGEMENTS

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Comment and feedback from the wider geotechnical industry has also been fundamental to the ongoing evolution of the AGS Format, ensuring that the needs of the geotechnical and geoenvironmental industry and its clients continue to be met.

## DOCUMENT HISTORY

Revision	Description	Date
0	First Issue	1 Mar 2011

# 1 Scope

The following guidelines should be applied to the reporting of In Situ Standard Penetration Tests (SPT) in the ISPT Group. Alternative usages are of course possible but this guidance document should be used in the first instance. Particulars on the test methodologies and data presentation are contained within BS EN ISO 22476-3: 2005. National practice in the UK has been to retain those features from BS 1377 which were more refined, notably the 25 blow limit on the seating drive and recording blows in 75mm increments, as discussed by Hepton & Gosling in Ground Engineering November 2008. These features are included in Amendment 1 to BS EN ISO 22476-3 in preparation during 2010.

# 2 Definitions

- For readers unfamiliar with the following terms, Seating drive, Main test drive, Seating penetration, Full test drive penetration, N-value, SPT hammer, Energy ratio please refer to BS EN ISO 22476-3:2005

### 3 Background

The ISPT Group detailed below is featured in pg 74 of the AGS4 document.

Group Name: ISPT - Standard Penetration Test Results					
Status	Heading	Suggested Unit / Type		Description	Example
*	LOCA_ID		ID	Location identifier	327-16A
*	ISPT_TOP	m	2DP	Depth to top of test	13.50
	ISPT_SEAT		0DP	Number of blows for seating drive	14
	ISPT_MAIN		0DP	Number of blows for main test drive	35
	ISPT_NPEN	mm	0DP	Total penetration for seating drive and test drive	450
	ISPT_NVAL		0DP	SPT 'N' value	35
	ISPT_REP		X	SPT reported result	6,8/8,9,9,9 N=35
	ISPT_CAS	m	2DP	Casing depth at time of test	12.00
	ISPT_WAT	m	XN	Depth to water at time of test	2.50 or Dry
	ISPT_TYPE		PA	Type of SPT test	S
	ISPT_HAM		X	Hammer serial number from manufacturer	AB1234
	ISPT_ERAT	%	0DP	Energy ratio of the hammer	60
	ISPT_SWP	mm	0DP	Self-weight penetration	25
	ISPT_INC1		0DP	Number of blows for 1st Increment (Seating)	6
	ISPT_INC2		0DP	Number of blows for 2nd Increment (Seating)	8

Group Name: ISPT - Standard Penetration Test Results					
Status	Heading	Suggested Unit / Type		Description	Example
	TEST_STAT		X	Test status	Checked
	FILE_FSET		X	Associated file reference (eg test result sheets)	FS11

#### Notes for Guidance

- If the test was extended to 100 blows (as described in ISO 22476-3), then data variable under ISPT\_ROCK should be "Y".
- Where appropriate or requested, SPT equipment calibration certificates could be referred to in the FILE\_FSET field.

## 4 Guidance

The ISPT\_INC1, ISPT\_INC2, ISPT\_PEN1 and ISPT\_PEN2 fields should only be used for reporting the seating drive. If the seating drive is terminated during the first increment on the 25 blow limiting criterion, then ISPT\_INC2 and ISPT\_PEN2 are left blank. The first increment of the main test drive is always reported in ISPT\_INC3 and ISPT\_PEN3.

In some countries the test procedure requires three main test drive increments of 150mm each, rather than six increments of 75mm each. If this procedure is adopted, then report the increments in ISPT\_INC1, ISPT\_INC3 and ISPT\_INC5, and the corresponding ISPT\_PEN1, ISPT\_PEN3 and ISPT\_PEN5 fields.

When a full test drive penetration of 300mm has been achieved, following the seating drive, the N value should be reported in the ISPT\_NVAL field as a number. That is, report 35, do not report N=35.

When full test drive penetration has not been achieved, leave the ISPT\_NVAL field empty.

In the ISPT\_REP field put the test result as reported on the paper borehole log. This may be in a format specific to the Provider. For example, an N Value of 35 may be reported on the log as: 35, N=35, [35] or 3,5/9,7,9,10=35 etc. A test which reaches the limiting blow count before achieving full penetration may be reported on the log as: 50/160mm, 50/160, (50) or 8,10/15,12,23 for 10mm etc.

The SPT hammer(s) identification number or manufacturers serial number should be presented within ISPT\_HAM. It is important to ensure the entry in ISPT\_HAM is contained in the calibration certificate that can be included as an associated file.

The energy ratio value is obtained from calibration of the SPT hammer. The energy value, presented as a percentage, should be reported in the ISPT\_ERAT field. SPT hammer calibration certificates can be referenced as an associated file.

When an SPT is carried out in soft rock, in which case the limiting criterion for the test drive is 100 blows, then the data variable for the ISPT\_ROCK field should be entered as "Y". A standard format SPT test would have "N" entered in the ISPT\_ROCK field.

The weather and any environmental conditions that may affect the test result should also be recorded within ISPT\_ENV.

The test status field TEST\_STAT should be completed with the checked status of each test before submission.

SPT equipment calibration certificates should be referred to in the FILE\_FSET field.