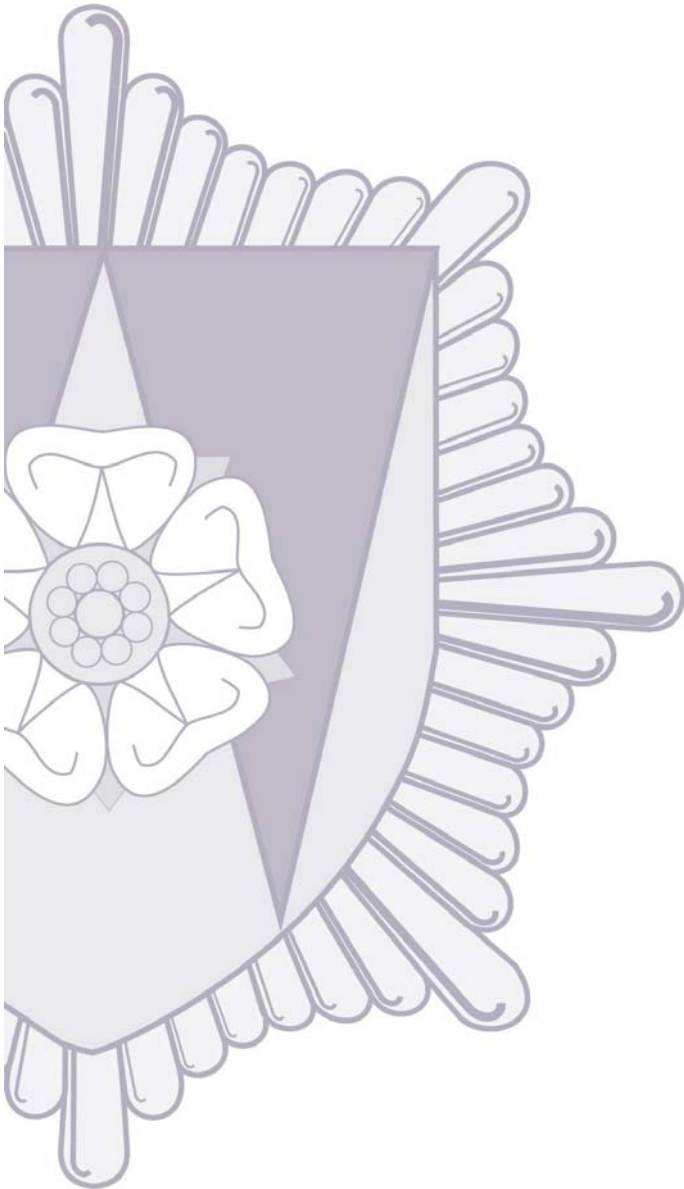


West Yorkshire Fire & Rescue Service

Fire Safety - Information Note FS-INF031

Petrol Filling Stations - Electrical Installations Of The Blue Guide



Date Reviewed:

June 2002

Next Review:

June 2007

Ref

FS-INF031

www.westyorkfire.gov.uk

PREVENTING PROTECTING RESPONDING

West Yorkshire Fire & Rescue Service – Information Note FS-INF031

The APEA/IP Guidance for the Design, Construction, Modification and Maintenance of Petrol Filling Stations has been published for some time now and recently the Electrical Working Group (EWG) met to discuss a number of issues or questions that had been raised on the guidance offered in the electrical section. The table below lists the paragraphs, and questions received and the answers given which clarified the reasons for the guidance in the first place. The working group decided that there was no need to amend the document and this information would benefit those users of the guide¹.

	Clause/ Subclause/ Line number	Paragraph/ Figure		
1	14.4.6	p.153	Where should an insulating insert be positioned in steel pipework in order to segregate steel pipework and tanks from the electrical earthing system, so that a static earthing system can be provided?	Where an old steel system exists, it is inappropriate to use inserts. It is unlikely that new installations will have underground steel pipework.
2	14.5.7	p.155	Do mobile phones/transmitters really present a fire explosion hazard on forecourts?	The Guidance gives sound advice. However, the actual use of mobile telephones at a PFS is an operational matter and is outside the scope of the Guidance.
3	14.10.1	Indented table paragraph b	Does the requirement to test portable equipment extend beyond the hazardous area?	Yes, the requirement does extend beyond the hazardous area. The testing requirements cover the whole of the filling station site.
4	14.10.2.1	p.165	If a site is undergoing refurbishment, who is the Site Operator or competent representative?	In this situation, the competent representative could be the Main Contractors. Ref 6.1. and 6.2.
5			If a contractor decides to use prefabricated lengths of cable for the pump wiring is there anything to prevent the contractor installing the cables after they have been tested?	It is considered that a competent contractor would not adopt practices such as relying on testing prefabricated lengths before they are installed.
6	14.10.2.1(a)	p.166	The high current testing specified will cause instrumentation to overheat and trip or fail to maintain the desired current. It is acceptable to reduce the test duration to say, 30 seconds?	No. The full test should be carried out. Proper instrumentation should be used. Suitable, continuously-rated instruments will satisfy this requirement and are available.
7	14.10.3.1	p.168	Many sites, including motorway service areas, are open 24 hours a day throughout the year. How can testing requiring the site to be closed be carried out?	Closing for testing does not cause a problem; it is manageable. The motorway operator can arrange to close the site, given adequate notice.
8	14.10.3	14.10.3.1	The inventory checklist is extremely comprehensive – is it intended to cover the whole of the site or just the hazardous area? There appears to be a conflict between the statement in paragraph 3 that the site MUST be closed and subsequent recommendations which state that the hazardous areas MAY have to be	Yes. The inventory checklist is intended to cover the whole of PFS site. 'Site' refers to the whole of the petrol filling station – everything within the curtilage as defined by the Licence and shown on the site plan. The site must be closed when the earth link is disconnected and when testing is carried out on main switchgear. Further partial closure of

West Yorkshire Fire & Rescue Service – Information Note FS-INF031

			closed during testing. Clarification is required. Paragraph 5 requires the contractor to prepare an inventory – surely this will be impracticable since much of the equipment for the site will not be installed when commissioning takes place.	hazardous areas may be required if they are not tested during site closure. For example, for operational reasons, individual pump islands may be closed in turn. The contractor can only complete the inventory to the point where he leaves the site. The site operator is then responsible for ensuring the inventory and site records are kept up to date.
9	14.10.3 14.10.3.2	14.10.3 14.10.3.2	It is not clear whether the document is recommending further action if the total diverted neutral current is greater than 100mA or only if the diverted neutral current in individual protective conductors exceeds 100mA. It is unlikely to be possible to test individual CPSs to dispensers, invariably there will be parallel paths.	Ref 14.3.5 and 14.10.3.2. As long as currents passing through individual protective conductors (including bonding conductors) do not exceed 100mA the risk is minimal and no further action is required. Agreed, testing should be carried out to give as accurate a result as is practicable. The sheath/armour and the separate protective core together form the protective conductor core for the final circuit to a dispenser. Measurement of the total, paralleled is therefore sufficient.
10	14.10.3	14.10.3.2	What will the test described in para 14.10.3.2 prove?	See above.
11	14.10.3	14.10.3.3	In testing programmes 3, 4, 5 & 6, the prospective earth fault current at the test socket outlet will be generally lower than would be the case when the bonding is connected. Therefore, is the specified test correct? How is it intended to establish the prospective short circuit current?	It is recognised that the prospective earth fault current may be greater than that measured at the test socket and account should be taken of this with regard to the breaking capacity of the incoming protective device. Prospective short circuit current may be determined by a phase-neutral measurement at the test socket.
12	14.10.3	14.10.3.3	In test programmes 5 & 6, the Guidance Document refers to site drawings being available. Generally, no such drawings are available; if this is the case what drawing records are required to be created?	Where not available the records to be created are prescribed in Annexes 14.6, 14.7, 14.8, 14.9 and a site plan as detailed in 14.3.1. As a minimum the site plan should show: the location of tanks, dispensers, fills and vent pipes, electrical intake and switchgear, and access points to electrical ducts. Locations of all earth electrodes should be shown. It should be noted that a site plan, should currently be attached to the petroleum licence (14.3.1, however refers to the original design intentions and all information, including drawings should be updated to reflect the 'As Installed' situation).
13	14.10.3.3.(d)	p.169	Paragraph 14.10.3.3(d) requires testing of all items in the inventory. Many of these items do not directly affect Petroleum Licensing, however, there is a risk that if such items are reported as defective, the Licensing Authority may refuse renewal of the Licence. How should this situation be addressed?	The certificate clearly states the different levels of verification. If it is believed this is being interpreted incorrectly the matter should be taken up with the HSE.
14	A14.1.1	Paragraph 2	In annex A14.1.1 Paragraph 2, the	'Relevant' refers to the site as defined in

West Yorkshire Fire & Rescue Service – Information Note FS-INF031

			meaning of the word 'relevant' is not clear – does it refer to the site or the hazardous area?	the Licence.
15	A14.1	A14.1.9.1	Surely the readings in Table 14.2 are meaningless since parallel paths will result in the continuity tests for each dispenser giving the same results.	Comment rejected by the EWG. Table 14.2 will always give the worst case result. Any readings higher than those in 14.2 should be thoroughly investigated. See also response to comment 9.
16	Annex 14.3	Clause (7) 3 rd from last line.	Annex 14.3 – what does 'from the minute to the season' mean? When carrying out tests for diverted neutral currents it is possible that the current will be higher when the site is switched off and the neutral disconnected. It is suggested that further clarification should be provided in order to interpret the results.	Explanation: it can vary from minute to minute or from season to season. See response to question 9 and record the time of day, as well as the date when tests are carried out. An annex should not be required if the person carrying out the testing is suitably qualified and experienced to interpret the results.
17	Annex 14.4	p.187	It is suggested that clarification is provided to assist in interpreting the results of prospective phase to earth fault current tests. For example, the current measured with the test link open will be lower than it would be with the bonding connected.	See response to question 11.
18	Annex 14.5	p.188	In Footnote ^(*) , change 'exceptional' to 'exceptionally', and inset commas on either side of it.	Noted and agreed.
19	Annex 14.6	p.189	In Inventory Checklist, identical or similar items, eg dispensers, should be labelled with unique number/letter.	The inventory only lists the quantity of each item, not the unique number/letter.
20	Annex 14.6	Inventory Check List (1 st Line)	Sixth item on List mentions 'kerosene'. 'Paraffin' is used in 4.4.4, p28, but 7.3.1, and 14.5.1, says 'kerosene'. Should one term be used?	For the purposes of this document, these terms may be used interchangeably.
21	Annex 14.7	First Item	Should the first line of Annex 14.6 – the Inventory Check List – be revised to read 'in the forecourt hazardous and associated non-hazardous areas'. The remainder of the site should not be part of the exercise.	Comment rejected – it is part of this exercise, which must cover the entire site.

West Yorkshire Fire & Rescue Service – Information Note FS-INF031

22	Annex 14.7	First Item	Annex 14.7. What information is required to be produced? 14.10.1 refers to circuit diagrams, 14.7 refers to a site plan. 14.11 refers to adequate diagrams. Annex 14.1.1 refers to an Initial Assessment being produced in accordance with Annex 14.7.	See response to question 12.
23	Annex 14.7	2 nd Item	From details in the Guidance Document, the absence of site drawings, test results for other areas of the site and portable equipment or an inventory checklist would result in a Category B assessment. This presumably means that the Contractor should recommend the preparation of this information prior to the next inspection. What time limit should be given for this work?	Yes, it is a Category B until this information is produced. A time limit of 3 months should be given.
24	Annex 14.7	3 rd Item	Annex 14.7 – There is no such thing as a ‘Completion Certificate’. What is meant by this statement?	For ‘Completion Certificate’, read Electrical Installation Certificate’.
25	Annex 14.8	p.166	If a site has a TN-C-S earthing system can it be given a Category A assessment if the diverted neutral current is being continuously monitored? If not, what remedial action should be taken and what should be the time limit for the remedial action?	No, where earthing is derived from a TN-C-S system (PME), the Category is ‘B’ with no time limit for rectification subject to 14.3.5 and 14.10.3.2. Guidance can be found in the PETEL circular 9/95 ‘PME Earthing Systems at Petrol Filling Stations’ issued by the HSE in July 1995.
26	Annex 14.1	Checklist for periodic visual ...	Annex 14.7 and Para 14.4.4 conflict in relation to the location of the test socket outlet. Where should the socket be located?	Correction to be issued re: A14.7. Socket should be the origin of the installation, not adjacent to forecourt distribution – see figures 14.1 and 14.3.
27			Should RA be inserted at the end of the 2 nd line of the Table. What does 4 th line require? Does 14.8 refer to the hazardous area and associated equipment only? What does ‘also check location of luminaries’ mean?	Yes. Clarifications: it is the worst performing RCD in terms of time and current. Note, all RCD test results must be recorded. Requirement is to check all functions, as stated, where present on-site. This refers to the location of delivery points and road tanker with regards to shadows.
28			Annex 14.11. It is not clear what is required from the visual inspection – should a separate annex be provided to clarify the situation?	A visual inspection is required to determine which testing programme is to be used. Separate annex not needed.
29			Should the tripping time for RCDs be increased from 100ms to 200ms?	No. 100ms is desired time.
30		p.173	Is the reference to BS EN 60074-14 correct?	No, it should be BS EN 60079-14; should also add ref to PD 60079-14 as useful guidance.