

Cathodic protection report preparation and submission for licensed pipelines – by exception only

Gas and pipeline infrastructure
safety guidelines

Energy Safe Victoria

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Who we are

We are Victoria's safety regulator for electricity, gas and pipelines.

Our role is to ensure that Victorian gas and electricity industries are safe and meet community expectations. We are also responsible for licensing and registering electricians, and educating the community about energy safety.

More information is available on the Energy Safe Victoria website: www.esv.vic.gov.au

Introduction

The purpose of these guidelines is to assist companies (transmission) as defined by the Gas Safety Act (GSA) and Pipelines Act (PA) with the preparation and submission of Cathodic Protection Report for the licensed pipelines.

All pipeline licensees are now required to submit CP reports by exception to ESV within 20 business days of when Licensees are informed that survey results do not meet protection criteria as specified in AS2832.1.

This guideline is intended to assist pipeline licensees with meeting this requirement by outlining the topics the report will cover and the information each topic will include.

Scope

This guideline only applies to licensed pipelines.

The role of standards

Regulation 22 of Pipelines Regulations 2017 requires that a pipeline must be operated in accordance with the prescribed standard AS 2885 .3 - 2012. This standard specifies that the operation, maintenance and monitoring of cathodic protection systems shall be carried out in accordance with the requirements of AS 2832.1.

Periodic survey checks are necessary to assist in assessing the effectiveness of the cathodic protection system to ensure that it continues to protect the pipeline from corrosion.

The licensees are required to carry out the survey within the maximum recommended time intervals between cathodic protection potential surveys as specified in AS 2832.1.

When do you report to ESV?

When survey results do not meet protection criteria as specified in AS2832.1, licensees are required to submit a report which contains all the information as required in this guideline.

Report structure

Pipeline licensees should submit one report per pipeline for each survey which does not meet protection criteria as specified in AS2832.1.

Each report will include the below sections and associated subsections:

1. Executive Summary
2. CP System and Pipeline Details
3. Testing criteria
4. Competency of personnel
5. Equipment compliance and calibration
6. CP output results (including registered permitted output)
7. Surge protection testing
8. Telluric Current Effects (as required)
9. Corrosion probe/coupon test (as required)
10. Conclusion
11. Attachments
 - I. Non-compliance table
 - II. Data logger summary
 - III. CP Output test results
 - IV. Surge protection test results
 - V. Pipeline profile graph
 - VI. Casing test results
 - VII. Corrosion probe/coupon test results
 - VIII. Printed chart or Winchart file of any non-compliant test point.

Report content

Topic heading	Required content
1. Executive summary	<p>This section summarises the report's key information and will include the following information:</p> <ul style="list-style-type: none"> • The reporting period covered by the report. • The licensed pipeline the report applies to, identified by pipeline license number (for example, PLX, PLXX, etc.). • Document control information • Survey date and last survey date • Brief summary of survey results.
2. CP system and pipeline details	<p>This section provides a brief overview of the CP system and pipeline. This includes but is not limited to:</p> <ul style="list-style-type: none"> • Type of CP System and commissioning date • Any connections to other structures • Licensee / contractor arrangement • Test point maximum spacing as per AS 2832.1 <p>Information to include:</p> <ol style="list-style-type: none"> i. Licence number ii. Diameter iii. Length iv. Coating (Pipe & Joints) v. Age of Pipeline vi. CP System vii. Number of test points viii. Number of resistance probes ix. Number of insulating joints x. Number of cased crossings xi. Number of surge diverters xii. Number of stray traction current drains.

Topic heading	Required content
3. Testing criteria	<p>This section provides information about the criteria for the corrosion protection of a pipeline which should be as per AS 2832.1 part 2.2.2. The pipeline should be more negative than -850mV with respect to Copper/ Copper Sulphate electrode.</p> <p>For pipelines affected by stray currents, data loggers must be used to record the voltage potential for a minimum sample rate of 15 seconds over a minimum period of 20hrs, and must include exposure to the most likely active period.</p> <p>The data logger recording shall be assessed and must meet the following criteria:</p> <ul style="list-style-type: none"> • Not be more positive than -850mV for 5% (95% protected) (this is the same criteria for telluric affects) • Not be more positive than -800mV for 2% (98% protected) • Not be more positive than -750mV for 1% (99% protected) • Not be more positive than -0mV for 0.2% (99.8% protected) <p>*Refer to Templates 3.1 & 3.2</p>
4. Competency of personnel	<p>This section will include:</p> <ul style="list-style-type: none"> • Information about competency of the tester • Information about competency of the person signing off reports: <ul style="list-style-type: none"> – relating to routine operation of the system, – interference testing – Non-routine testing • All competency and personnel qualifications should comply with the specified requirements as per AS 2832.1 part 1.4.
5. Equipment compliance and calibration	<p>This section should provide information about the instruments used for carrying out potential survey, surge protection survey, which should include:</p> <ul style="list-style-type: none"> • Test unit model and serial number • Date of last calibration • Frequency of calibration • Required level of accuracy • All test equipment specifications must be of appropriate type and meet minimum standard as per AS 2832.1 part 3.2.1

Topic heading	Required content
6. CP output results (including registered permitted output)	<p>This section should provide information regarding the frequency of tests, output current and voltages from the CP units, which should include:</p> <ol style="list-style-type: none"> i. Date ii. Location of CP unit iii. VEC registered output iv. Unit output current v. Unit output voltage.
7. Surge protection Testing	<p>This section will include:</p> <ul style="list-style-type: none"> • Information about various types of surge protection devices installed along the pipeline • Information about the type of test carried out on the surge protection devices • Information about testing equipment including calibration details as required. <p>*Refer to Template 7</p>
8. Telluric Current Effects (as required)	<p>This section should provide information about:</p> <ul style="list-style-type: none"> • Any Geomagnetic variations have been noted along pipeline. • Sections of pipeline affect by geomagnetic activities.
9. Corrosion probe/ coupon test (as required)	<p>This section should provide information about:</p> <ul style="list-style-type: none"> • Frequency of testing • Historical readings • Graphing • Corrosion rate.
10. Conclusions	<p>This section should discuss the results and provide information about any non-conformances and recommendations from:</p> <ul style="list-style-type: none"> • Potential survey • Casing test • Corrosion probe/coupon test • Surge Protection test.
11. Attachments	<p>Any additional attachments, including data logger charts.</p> <p>*Refer to attached templates.</p>