# Standard Maintenance Reporting System (SMRS) Transmission Maintenance Procedure No. 3

**Version 5**
**Effective Date 7/20/2017**

Approved by:

| | |
|---|---|
| Transmission Maintenance Coordination Committee | 07/20/2017 |

## REVISION HISTORY

| VERSION NO. | APPROVED DATE | EFFECTIVE DATE | REVISED BY | DESCRIPTION |
|---|---|---|---|---|
| 1.0 | | | TMCC | Procedure Adopted |
| 2.0 | 1/23/2003 | 1/23/2003 | TMCC | Made “Midyear Report” Optional |
| 3.0 | 7/21/2005 | 7/21/2005 | TMCC | Revised to align with TCA Appendix C rewrite in 2004 |
| 4.0 | 10/22/2009 | 10/22/2009 | TMCC | Revised Section 3.4.3 to clarify when Midyear SMRS is required to be sent to the ISO from the PTO. Changed old company logo to new logo |
| 5.0 | 7/20/2017 | 7/20/2017 | TMCC | Updated company logo and revised format to align with corporate standard. Revised Section 3.4.1 to clarify when Planning SMR is required to be sent to the ISO from the PTO. |

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## 3.1 PURPOSE

Sections 2.4 and 6.2 of Appendix C, prescribes the need for a Standard Maintenance Report (SMR) format. New PTOs should develop a final Standard Maintenance Reporting System (SMRS) before the end of their third year under ISO Operational Control. In addition, Section 6.2 allows PTOs to present a SMR to the ISO, in either electronic or paper format.

## 3.2 SCOPE

This procedure describes the development of a SMRS and the SMRS criterion to ensure PTOs consistently gather and deliver useful information. Keeping a SMRS functional is an ongoing process and as such, this system should evolve through regular and ongoing enhancements. These enhancements may include, but are not limited to content, format, and data collection frequency.

## 3.3 FORMATS

### 3.3.1 Spreadsheets

A spreadsheet format will provide a summary of Maintenance activities performed during the reporting period (see Table 1). These listed activities represent summary level data as described in each PTOs Maintenance Practices.
Since each PTOs Maintenance Practices and record keeping methods are different, there may be some disparity in data submittals. For example, one utility may record Transmission Line Circuit patrols by circuit, while another may record the same activity by structure. Footnotes may be inserted on the spreadsheet as needed.
Each data file shall contain 8 columns: Equipment Type, No. of Facilities, Maintenance Task, Maintenance Unit, Planned, Actual, Exception from Planned, and Notes. See Table 1 for example of a SMRS spreadsheet form.

### 3.3.2 Text

Text documents if utilized, will contain the following information:

- Reason for differences between a PTO's Maintenance Practices and the submitted spreadsheet summary
- Any explanation of the spreadsheet data
- A discussion of actions or activities planned for future years.

## 3.4 SCHEDULE

### 3.4.1 Planning SMR

A Planning SMR for the current year should be created during the first quarter of each calendar year to estimate the number of substantial Maintenance activities anticipated for completion during the current year. This SMR encourages advanced planning and provides timely comparison of Maintenance activity in prior years. The Planning SMR shall be submitted to the ISO by April 1. The PTO, the effective year of the report, and SMRS_Planning shall be incorporated into the file name in that order (e.g. SCE1998SMRS_Planning).
The ISO may informally report to a PTO any identified trends and observations resulting from the comparison of previous SMRs.

### 3.4.2 Actual SMR

An Actual SMR (with text) for the previous calendar year will be submitted to the ISO by March 1st of the following calendar year. The PTO, the effective year of the report, and SMRS_Actual shall be incorporated into the file name in that order (e.g.SCE1998SMRS_Actual).

### 3.4.3 Midyear Actual SMR

A midyear Actual SMR (w/o text) for January 1 through June 30 of the current calendar year may be requested by the ISO no later than July 1. If requested, the midyear Actual SMR shall be submitted to the ISO by Sept 1. The ISO will specify the equipment types to be included in this version. The PTO, the effective year of the report, and SMRS_Midyear shall be incorporated into the file name in that order (e.g. SCE1998SMRS_Midyear).

## 3.5 SMRS REPORT DEFINITIONS

| Column Heading | Definition | Sample Input |
|---|---|---|
| Equipment Type | Asset name and/or Maintenance description. Based on lists from TCA Appendix C Section 5.2 | Line Patrol/Inspection<br>Circuit Breaker |
| No. of Facilities | Number of equipment in the population. Annotate when number includes non-ISO facilities. A separate line item shall be used. | 105 Circuits<br>1000 Transformers |
| Maintenance Task | Description of task. One or more per Equipment Type. Varies between PTOs consistent with their filed maintenance practices | Trees Removed<br>Oil Tests |
| Maintenance Unit | Unit maintenance will be tracked by. (Planned and Actuals) varies between PTOs | Circuits<br>Breakers<br>Structures |
| Planned | Annual number of tasks planned for the year. NA when planning is not applicable to the Maintenance task. | A number or “NA” |
| Actual | Actual number of tasks completed. Cumulative for the year. | A number |
| Exception From Planned | Text describing exceptions or differences between planned and actual | “Winter storm prevented completing all line patrols. Will not impact reliability. Remainder of circuits will be patrolled in following year.” |
| Notes | Text to provide information NOT related to exceptions | “Insulator inspections included in line patrol task” |

## TABLE 1 (SMR EXAMPLE SPREADSHEET FORMAT)

Each PTO's inspection and Maintenance Practices and records differ in format. Therefore, there may be some difference in data provided by each PTO. For example, one utility may record transmission line patrol by circuit, while another may record the data by structure. It is suggested to follow this example format. However, modifications to Maintenance Tasks and Maintenance Units are allowed by the ISO to accommodate the PTO in adapting their specific reporting formats.

| EQUIPMENT TYPE | NO. OF FACILITIES | MAINTENANCE TASK | MAINTENANCE UNIT | PLANNED | ACTUAL | EXCEPTION FROM PLANNED | NOTES |
|---|---|---|---|---|---|---|---|
| **Line Patrol/inspection** | | | Circuit | | | | |
| | | **Inspection** | | | | | |
| | | Ground Patrols | Circuit | | | | |
| | | Patrols | Circuit | | | | |
| | | IR/Aerial Patrols | Circuit | | | | |
| | | Climbing/Special | Circuit | | | | |
| **Vegetation Management/Right-of-way Maintenance** | | | | | | | |
| | | **Inspection** | | | | | |
| | | Trees Trimmed | Trees | | | | |
| | | Trees Removed | Trees | | | | |
| **Structures: Wood pole, lattice steel, tubular steel, concrete pole** | | | | | | | |
| | | **Inspection** | | | | | |
| | | Testing | Pole | | | | |
| | | **Maintenance** | | | | | |
| | | Wood Pole Treatment | Pole | | | | |
| | | Repair | Pole | | | | |
| | | Replace | Pole | | | | |
| **Insulators/Bushings/Arrestors (contamination control)** | | | | | | | |
| | | Wash Insulators | Switchyard | | | | |
| | | Grease Bushings | Apparatus | | | | |

| EQUIPMENT TYPE | NO. OF FACILITIES | MAINTENANCE TASK | MAINTENANCE UNIT | PLANNED | ACTUAL | EXCEPTION FROM PLANNED | NOTES |
|---|---|---|---|---|---|---|---|
| **Regulators** | | | | | | | |
| | | **Inspection** | | | | | |
| | | Visual | Regulators | | | | |
| | | Infrared | Regulators | | | | |
| | | **Diagnostics** | | | | | |
| | | TCG Oil Test | Regulators | | | | |
| | | DGA Oil Test | Regulators | | | | |
| | | Doble Tests | Regulators | | | | |
| | | **Maintenance** | | | | | |
| | | Overhauls | Regulators | | | | |
| | | Non-Routine Response | Regulators | | | | |
| **Relaying** | | | Relays | | | | |
| | | **Maintenance** | | | | | |
| | | Relay Calibration | Relays | | | | |
| | | Relay Trip Test | Relays | | | | |
| | | Non-Routine Response | Circuit | | | | |
| **Reactive Devices:** | | | | | | | |
| **Shunt Capacitors** | | | Capacitor | | | | |
| | | **Inspection** | | | | | |
| | | Visual | Capacitor | | | | |
| | | Infrared | Capacitor | | | | |
| | | **Maintenance** | | | | | |
| | | Non-Routine Response | Capacitor | | | | |
| Series Capacitors | | | Capacitor | | | | |
| | | Inspection | | | | | |
| | | Visual | Capacitor | | | | |
| | | Infrared | Capacitor | | | | |
| | | Maintenance | | | | | |
| | | Non-Routine Response | Capacitor | | | | |

| EQUIPMENT TYPE | NO. OF FACILITIES | MAINTENANCE TASK | MAINTENANCE UNIT | PLANNED | ACTUAL | EXCEPTION FROM PLANNED | NOTES |
|---|---|---|---|---|---|---|---|
| **Shunt Reactors** | | | Reactor | | | | |
| | | **Inspection** | | | | | |
| | | Visual | Reactor | | | | |
| | | Infrared | Reactor | | | | |
| | | **Diagnostics** | | | | | |
| | | TCG Oil Test | Reactor | | | | |
| | | DGA Oil Test | Reactor | | | | |
| | | Doble Tests | Reactor | | | | |
| | | **Maintenance** | | | | | |
| | | Non-Routine Response | Reactor | | | | |
| **Tertiary Reactors** | | | | | | | |
| | | **Inspection** | | | | | |
| | | Visual | Reactor | | | | |
| | | Infrared | Reactor | | | | |
| | | **Maintenance** | | | | | |
| | | Non-Routine Response | Reactor | | | | |
| **Other** | | | | | | | |

## 3.6 CONTACTS

For questions regarding subject matter covered in this procedure, please contact the Director of Grid Assets, California ISO.