Appendix A

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In this Appendix, SDG&E addresses specific room for improvement and issues raised by Energy Safety in *Action Statement on 2021 Wildfire Mitigation Plan Update – San Diego Gas & Electric*. In section 5.7 of the Action Statement, Energy safety discusses the data governance section of the WMP Guidelines, and the associated room for improvement and issues and remedies for SDG&E’s spatial data. The following list addresses each of Energy Safety’s “room for improvement” or “issues and remedies” that were described in section 5.7 of the Action Statement.

SDG&E is always working to continuously improve and expand the dataset provided. Majority of the feedback in the Action Statement has already been self-corrected through SDG&E’s ever evolving process to update data. SDG&E continues to improve, and recognizes that the best way for further improvement is to maintain an open two-way feedback system between the utilities and Energy Safety.

**Room for Improvement**

*Spatial data in the Quarterly Data Report (QDR) submission: SDG&E has not made significant*

*progress compared to the previous quarterly data submission. The data submitted for Q4 2020*

*have several fundamental issues which negatively affect the useability of the data and do not*

*meet the standard. Many of the issues indicate a lack of internal quality control review of data*

*which may have been converted from other formats or systems. Some of the more significant*

*problems were:*

1. *Locations which are obviously in error: some of the data submitted in the Grid Hardening Line feature class were substantially outside the continental U.S. and at an implausible scale*

SDG&E has reviewed the Grid Hardening Line feature class submitted in 2021-Q1 through Q3 and all data submitted are mapped accurately.

1. *Missing age data: SDG&E did not provide age data for any of its conductor or point assets. This includes even estimated age ranges, which are requested if more specific age data are not available*

SDG&E does not currently provide age data. The focus is on automation and expanding on the installation date/years associated to the assets. Age ranges will be reviewed for a future submission.

1. *Missing primary keys: primary key/unique ID fields are fundamental, and data submitted without a unique primary key are not useable. The listed feature classes or tables had some records with missing primary keys or values in primary key fields that are not unique to each record: PSPS event line (these IDs are not in the specific format), distribution outage, vegetation management inspection log, asset inspection log, grid hardening log*

SDG&E implemented a team to focus on the automation of the GIS QDR deliverable early 2021. At that time more emphasis was on validation and accuracy of primary keys and uniqueness and SDG&E has high confidence of this integrity being achieved starting in 2021-Q1 deliverable.

1. *Missing foreign keys or foreign keys not in foreign table: foreign key fields are fundamental, and data submitted without foreign keys which are present in the corresponding table are of severely limited value. A primary key is a value in a data table that is unique for each entry (record) and does not change. Primary keys allow data in tables to be linked or referenced from other tables and tracked through time and multiple submissions. The listed feature classes or tables had some records with missing foreign keys, or listed foreign keys which were not present in the corresponding table: PSPS customer meter point, veg management inspection point, asset inspection point, grid hardening point*

As stated above, SDG&E implemented a team to focus on the automation of the GIS QDR deliverable in early 2021. At that time more emphasis was on validation and accuracy of primary keys, foreign keys, and uniqueness where possible and SDG&E has high confidence of this integrity being achieved starting in 2021-Q1 deliverable. SDG&E stated in the 2021-Q3 cover letter the following which affect the availability and accuracy of the foreign keys:

* SDG&E suggested an improvement to the model to provide a way to report the one-to-many relationship between circuits, substations, and support structures.  SDG&E has bridged this using a related table for the past 3 submissions (now called AssetRelate) and instead of populating the fields where a one-to-many relationship could exist, we refer to the AssetRelate table for that structure, circuit, or substation.  This table will continue to evolve as our process matures.
* Grid Hardening – There are some null values in the AssetID field in this submission.  These are items where the support structure is still in a preliminary status in the GIS Database.  This improvement allows for these items to be included and mapped using lat/long coordinates where they would have been removed in previous submissions.
* PSPS customer meter point
  + The AssetID does not align as the Customer Meters were not included in the gdb until 2021-Q3 – please see item 6 below
* Vegetation management inspection point
  + There are no assets for Trees/Vegetation (EntityID) in the Asset Point feature classes.
  + Assets in Veg Management are associated to one or more Support Structures and one or more Circuit IDs
* Asset inspection point/ Grid hardening point
  + SDG&E does not provide the CircuitID when reporting by Point in initiatives as it is a one to many relationship between the asset and the circuit(s).

1. *Domain values not used: the WSD specified coded-value domains for 196 fields in the data schema in order to receive data with universally understood values which can be compared across utilities. In several cases, SDG&E submitted data which did not conform to the domains specified. Some of these values were essentially the same as the correct domain values, but with different punctuation or capitalization or misspellings (e.g.,“Infrared/Thermal” instead of “Remote sensing – Infrared/Thermal”). In other cases, rather than determining which value in the domain specified by the WSD was appropriate, records were given the “Other – See comment” value, when the comment field obviously included information which could have been used to correctly populate the original field (see Distribution Outages, “Basic Cause” for example). Finally, some fields contain values which are not in the specified domain and bear no obvious relationship to the information requested– see “Conductor Type” in “Primary Distribution Line” for example.*

SDG&E implemented a team to focus on the automation of the GIS QDR deliverable early 2021. At that time more emphasis was on validation and accuracy the domain values and adhering to the values in the fgdb regardless of spelling mistakes i.e. “Epuipment” vs “Equipment” and “Other – See commen” vs “Other – See comment”. SDG&E has high confidence of this integrity being achieved starting in 2021-Q1 deliverable. The only exceptions to this the Substation feature class where SDG&E uses “StepDown” as a value for SubstationType where the possible values are: Network, Loop or Radial. A note was added to the StatusReport indicating “Added domain value StepDown to differentiate from other substation types.” After further conversation StepDowns will be represented as Radial in the 2021-Q4 submission and will therefore align with the allowed domain values.

1. *Missing data: SDG&E has not provided any explanation why they are only able to provide the location of 556 customer meters.*

SDG&E addressed this in the 2021-Q3 submission and made note of it in the cover letter as follows: Expansion of CustomerMeter Feature Class from only Primary Meters to include all Customer Meters in the HFTD.  This now allows us to align the AssetID from the Grid Hardening Point Initiatives to the Customer Meter Feature Class.

1. *Use of coded values: as an example, “Tree Species” in “Distribution VM Outage” contains coded information which is not explained in metadata and is therefore not useful to the WSD.*

This was brough to SDG&E’s attention in October at the first meeting with OEIS Data Manager, Stephen Lai, and was corrected in the 2021-Q3 submission.