Southern California Edison
RTRP A.15-04-013

DATA REQUEST SET A.15-04-013 RTRP-CPUC Deficiency Report-SCE-004 Supplemental 2

To: ENERGY DIVISION
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Question 12:

Define utility separation requirements for the underground 230-kV transmission line from existing utilities in 68th Street and Pats Ranch Road.

If the telecommunication line would also be undergrounded with the 230-kV transmission line, provide the necessary utility separation requirements and the configuration of the telecommunication cable and transmission line within the duct bank. Provide a typical detail and cross-section for the underground duct banks.

Response to Question 12:

Attached please find a drawing of a draft conceptual double circuit 220 kV duct bank. Please note that this drawing is conceptual, representing typical underground vaults preliminarily deemed appropriate for the Riverside Transmission Reliability Project (RTRP) based on planning level assumptions, analyses performed to date, and known conditions. The precise design and location of these vaults are subject to change following completion of final engineering, identification and/or verification of field conditions, completion of underground surveys, availability of labor, material, and equipment, compliance with applicable environmental and permitting requirements, and other factors.

In general, the double circuit 220 kV duct banks are separated 10 feet (ft.) edge to edge from one another. To mitigate against any unknown electrical lines or other heat generating utilities, the design calls for a 10 ft. outer buffer from the edge of both duct banks. This is to ensure optimal ampacity rating of the 220 kV cable.

The separation requirement between the double circuit duct bank and non-heat generating utilities is minimum of 12 inches (in.) for paralleling or minimum of 6 in. for crossing (as required by California Public Utilities Commission General Order (G.O.) 128). However, RTRP facilities may require greater separation from other existing utilities due to concerns associated with the high voltage of the proposed 220 kV RTRP underground transmission line (*e.g.* stray voltages, cathodic protection, heating from the transmission line impacting their pipes, *etc* .).

Typically, the telecommunication cable can be run in a 5 in. conduit (labeled as F1 and F2 in the

attached drawing) within the same duct bank as the 8 in. conduit utilized for the power cables (labeled as 1A1, 1B1, 1C1, S2, S2, S3, 1A2, 1B2, and 1C2 for one circuit and 2A1, 2B1, 2C1, S2, S2, S3, 2A2, 2B2, and 2C2 for the second circuit). The separation between the 5 in. conduit and the 8 in. conduit is approximately 10 in.

For convenient reference, SCE has also attached the *Riverside Transmission Reliability Project (RTRP) 230 kV Underground Alternatives Desktop Study* (July 2015) which was provided as Attachment 6 to SCE's response to Question No. 3 of Deficiency Report No. 1.