

Attachment 5b: X2 Results (CalSim 3)

Appendix 4F

Attachment 5b: X2 Results (CalSim 3)

The following results of the CalSim 3 model are included for X2 position conditions for the following scenarios:

- Baseline Conditions (082624)
- Proposed Project plus CVP Proposed Action, Sacramento and Feather River VAs (091124)
- Proposed Project plus CVP Proposed Action, Sacramento and Feather River VAs, includes TUCPs (091124)

Title	Model Parameter	Table Numbers	Figure Numbers
X2 Position	X2_PRV	4F-5-1-1a to 4F-5-1-2c	4F-5-1a to 4F-5-1r

Report formats:

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type).
- Monthly pattern charts (long-term average and average by water year type) including all scenarios.
- Monthly exceedance charts (all months) including all scenarios.

Table 4F-5-1-1a. X2 Position, Baseline Conditions 082624, Monthly Distance (Km)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
10% Exceedance	93.9	92.7	90.7	86.0	79.8	77.4	78.6	82.1	87.0	90.1	91.8	92.9
20% Exceedance	92.4	91.9	89.0	83.3	74.4	71.6	75.6	78.6	82.3	85.6	89.1	91.6
30% Exceedance	91.8	90.7	87.4	81.1	68.0	66.0	71.5	76.6	81.2	85.2	88.3	90.4
40% Exceedance	91.0	90.1	86.4	73.2	65.1	64.0	67.9	72.8	80.6	83.3	87.1	89.8
50% Exceedance	89.5	88.0	84.5	69.4	60.8	61.7	64.0	69.0	77.7	82.5	85.8	88.5
60% Exceedance	80.1	85.4	80.0	65.2	57.0	57.4	61.5	65.9	76.2	80.2	83.9	80.1
70% Exceedance	80.0	84.5	72.0	59.0	54.3	55.3	60.1	62.8	70.2	78.3	82.5	80.0
80% Exceedance	80.0	83.5	63.4	53.9	52.7	52.9	55.0	58.3	64.4	75.4	82.0	79.9
90% Exceedance	79.9	77.0	56.9	52.2	51.7	51.8	53.0	54.8	59.7	72.3	80.4	79.7
Full Simulation Period Average ^a	86.1	86.1	78.3	69.1	63.3	62.5	65.6	69.1	75.0	80.9	85.2	85.6
Wet Water Years (32%)	84.0	82.5	67.8	56.6	53.2	53.5	56.2	58.9	64.5	73.1	79.7	78.0
Above Normal Water Years (9%)	85.6	86.3	78.1	61.4	57.0	56.7	60.5	63.9	70.7	78.0	83.1	80.0
Below Normal Water Years (20%)	85.5	86.8	82.2	71.8	63.4	61.4	64.6	68.4	76.9	82.2	85.8	88.5
Dry Water Years (21%)	86.4	87.0	82.5	77.9	69.6	68.0	71.8	75.8	81.1	85.2	88.4	90.8
Critical Water Years (18%)	90.2	90.7	87.7	82.0	76.9	76.2	78.7	82.8	86.6	89.6	91.8	92.9

Table 4F-5-1-1b. X2 Position, Proposed Project plus CVP PA Sac Feather VAs 091124, Monthly Distance (Km)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
10% Exceedance	93.9	92.6	90.4	85.1	78.1	75.4	79.1	83.4	87.3	90.2	92.1	92.8
20% Exceedance	92.5	91.8	89.2	82.3	74.1	70.9	74.5	78.6	82.1	85.7	89.3	91.7
30% Exceedance	91.8	90.9	87.5	80.1	67.7	65.1	70.9	77.4	81.4	85.1	88.6	91.0
40% Exceedance	90.8	89.8	86.6	73.4	64.2	63.5	67.7	73.8	80.7	83.2	86.5	89.8
50% Exceedance	89.5	88.0	84.4	69.3	60.7	60.9	64.2	70.4	78.6	81.9	85.4	88.7
60% Exceedance	80.1	85.2	79.4	64.2	57.0	57.1	61.5	67.1	76.3	79.9	83.4	80.1
70% Exceedance	80.0	84.4	71.6	58.9	54.2	54.9	59.6	63.5	69.5	78.2	82.7	79.9
80% Exceedance	80.0	83.6	62.7	53.9	52.6	52.9	54.9	58.3	64.0	74.8	82.3	79.9
90% Exceedance	79.9	76.8	56.8	52.2	51.6	51.8	53.1	55.0	59.5	71.7	81.5	79.8
Full Simulation Period Average ^a	86.2	86.1	78.1	68.8	62.9	62.1	65.4	69.7	75.1	80.7	85.3	85.8
Wet Water Years (32%)	84.1	82.4	67.4	56.4	53.1	53.5	56.3	59.3	64.3	73.1	80.1	78.4
Above Normal Water Years (9%)	85.6	86.6	78.5	61.8	56.9	56.4	59.7	63.8	70.4	76.9	82.7	79.9
Below Normal Water Years (20%)	85.6	86.7	82.2	71.5	63.1	60.6	64.4	69.8	77.2	81.4	85.5	88.7
Dry Water Years (21%)	86.3	86.9	82.5	77.9	69.4	67.1	71.1	76.3	81.3	85.3	88.6	91.1
Critical Water Years (18%)	90.5	90.8	87.3	80.8	75.8	75.8	79.0	83.5	87.1	89.8	91.9	92.9

Table 4F-5-1-1c. X2 Position, Proposed Project plus CVP PA Sac Feather VAs 091124 minus Baseline Conditions 082624, Monthly Distance (Km)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
10% Exceedance	0.0	-0.1	-0.3	-1.0	-1.7	-2.0	0.6	1.3	0.3	0.1	0.3	-0.1
20% Exceedance	0.1	0.0	0.2	-1.0	-0.3	-0.7	-1.1	0.0	-0.1	0.2	0.2	0.2
30% Exceedance	0.0	0.2	0.0	-1.0	-0.3	-0.9	-0.6	0.8	0.3	-0.1	0.3	0.5
40% Exceedance	-0.2	-0.3	0.2	0.2	-0.9	-0.6	-0.2	1.0	0.1	-0.1	-0.6	0.0
50% Exceedance	0.0	0.0	-0.1	0.0	-0.1	-0.8	0.2	1.4	0.8	-0.7	-0.4	0.2
60% Exceedance	0.0	-0.1	-0.6	-1.0	-0.1	-0.2	0.0	1.3	0.2	-0.3	-0.5	0.0
70% Exceedance	0.0	-0.1	-0.4	-0.1	-0.1	-0.4	-0.5	0.8	-0.6	-0.1	0.2	-0.1
80% Exceedance	0.0	0.1	-0.8	0.0	0.0	0.0	0.0	0.0	-0.4	-0.7	0.3	0.0
90% Exceedance	0.0	-0.2	-0.2	0.0	0.0	0.0	0.0	0.2	-0.3	-0.6	1.1	0.1
Full Simulation Period Average ^a	0.1	0.0	-0.2	-0.3	-0.4	-0.4	-0.2	0.6	0.1	-0.2	0.1	0.2
Wet Water Years (32%)	0.1	-0.1	-0.4	-0.2	-0.1	0.0	0.1	0.4	-0.2	-0.1	0.4	0.4
Above Normal Water Years (9%)	0.0	0.3	0.4	0.3	-0.1	-0.3	-0.8	0.0	-0.2	-1.2	-0.4	-0.1
Below Normal Water Years (20%)	0.1	-0.1	-0.1	-0.3	-0.3	-0.7	-0.2	1.4	0.3	-0.8	-0.4	0.3
Dry Water Years (21%)	-0.1	-0.1	0.0	0.0	-0.2	-0.9	-0.8	0.5	0.2	0.0	0.3	0.3
Critical Water Years (18%)	0.3	0.1	-0.3	-1.1	-1.2	-0.4	0.3	0.8	0.5	0.2	0.1	0.0

^a Based on the 100-year simulation period.

* All scenarios are simulated at current climate condition and 0 cm sea level rise.

* Water Year Types defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

* Water Year Types results are displayed with water year - year type sorting.

Table 4F-5-1-2a. X2 Position, Baseline Conditions 082624, Monthly Distance (Km)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
10% Exceedance	93.9	92.7	90.7	86.0	79.8	77.4	78.6	82.1	87.0	90.1	91.8	92.9
20% Exceedance	92.4	91.9	89.0	83.3	74.4	71.6	75.6	78.6	82.3	85.6	89.1	91.6
30% Exceedance	91.8	90.7	87.4	81.1	68.0	66.0	71.5	76.6	81.2	85.2	88.3	90.4
40% Exceedance	91.0	90.1	86.4	73.2	65.1	64.0	67.9	72.8	80.6	83.3	87.1	89.8
50% Exceedance	89.5	88.0	84.5	69.4	60.8	61.7	64.0	69.0	77.7	82.5	85.8	88.5
60% Exceedance	80.1	85.4	80.0	65.2	57.0	57.4	61.5	65.9	76.2	80.2	83.9	80.1
70% Exceedance	80.0	84.5	72.0	59.0	54.3	55.3	60.1	62.8	70.2	78.3	82.5	80.0
80% Exceedance	80.0	83.5	63.4	53.9	52.7	52.9	55.0	58.3	64.4	75.4	82.0	79.9
90% Exceedance	79.9	77.0	56.9	52.2	51.7	51.8	53.0	54.8	59.7	72.3	80.4	79.7
Full Simulation Period Average ^a	86.1	86.1	78.3	69.1	63.3	62.5	65.6	69.1	75.0	80.9	85.2	85.6
Wet Water Years (32%)	84.0	82.5	67.8	56.6	53.2	53.5	56.2	58.9	64.5	73.1	79.7	78.0
Above Normal Water Years (9%)	85.6	86.3	78.1	61.4	57.0	56.7	60.5	63.9	70.7	78.0	83.1	80.0
Below Normal Water Years (20%)	85.5	86.8	82.2	71.8	63.4	61.4	64.6	68.4	76.9	82.2	85.8	88.5
Dry Water Years (21%)	86.4	87.0	82.5	77.9	69.6	68.0	71.8	75.8	81.1	85.2	88.4	90.8
Critical Water Years (18%)	90.2	90.7	87.7	82.0	76.9	76.2	78.7	82.8	86.6	89.6	91.8	92.9

Table 4F-5-1-2b. X2 Position, Proposed Project plus CVP PA Sac Feather VAs w/TUCPs 091124, Monthly Distance (Km)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
10% Exceedance	93.8	92.4	90.4	85.1	78.1	77.4	80.2	83.9	88.8	91.5	92.8	92.8
20% Exceedance	92.5	91.7	88.6	83.0	74.0	70.9	75.3	78.6	82.2	85.8	89.3	91.7
30% Exceedance	91.8	90.4	87.5	81.1	67.4	65.1	70.9	77.4	81.5	85.3	88.6	91.0
40% Exceedance	90.8	89.6	86.3	73.3	64.5	63.4	67.7	73.9	80.7	83.2	86.5	89.8
50% Exceedance	89.5	87.8	84.2	69.3	60.7	61.0	64.2	70.4	78.6	81.8	85.4	88.7
60% Exceedance	80.1	85.2	79.4	64.1	57.0	56.9	61.5	66.9	76.3	79.9	83.4	80.1
70% Exceedance	80.0	84.4	71.6	58.9	54.1	54.9	59.5	63.5	69.5	78.2	82.7	79.9
80% Exceedance	80.0	83.6	62.7	53.9	52.6	52.9	54.9	58.3	64.0	74.8	82.3	79.9
90% Exceedance	79.9	76.8	56.8	52.2	51.6	51.8	53.1	55.0	59.5	71.7	81.5	79.8
Full Simulation Period Average ^a	86.1	86.0	78.1	68.9	62.9	62.1	65.7	69.9	75.3	81.0	85.6	85.8
Wet Water Years (32%)	84.1	82.4	67.4	56.4	53.1	53.5	56.3	59.3	64.3	73.1	80.1	78.4
Above Normal Water Years (9%)	85.5	86.0	78.1	61.8	56.8	56.2	59.6	63.8	70.4	76.9	82.7	79.9
Below Normal Water Years (20%)	85.6	86.7	82.1	71.5	63.0	60.6	64.4	69.7	77.1	81.4	85.5	88.7
Dry Water Years (21%)	86.3	86.9	82.5	77.9	69.4	67.1	71.2	76.3	81.2	85.3	88.7	91.0
Critical Water Years (18%)	90.4	90.5	87.3	81.5	75.8	76.3	80.6	84.7	88.4	91.7	93.3	93.0

Table 4F-5-1-2c. X2 Position, Proposed Project plus CVP PA Sac Feather VAs w/TUCPs 091124 minus Baseline Conditions 082624, Monthly Distance (Km)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
10% Exceedance	0.0	-0.2	-0.3	-1.0	-1.7	0.0	1.6	1.8	1.9	1.3	0.9	-0.1
20% Exceedance	0.1	-0.2	-0.4	-0.4	-0.4	-0.7	-0.2	0.0	-0.1	0.2	0.2	0.2
30% Exceedance	0.0	-0.3	0.1	0.0	-0.6	-0.8	-0.6	0.9	0.3	0.1	0.3	0.5
40% Exceedance	-0.1	-0.5	-0.1	0.1	-0.6	-0.6	-0.2	1.2	0.2	-0.1	-0.6	0.0
50% Exceedance	0.0	-0.2	-0.2	0.0	-0.1	-0.7	0.2	1.4	0.8	-0.8	-0.4	0.2
60% Exceedance	0.0	-0.2	-0.6	-1.2	-0.1	-0.4	0.0	1.0	0.2	-0.3	-0.5	0.0
70% Exceedance	0.0	-0.1	-0.4	-0.1	-0.2	-0.4	-0.6	0.8	-0.6	-0.1	0.2	-0.1
80% Exceedance	0.0	0.1	-0.8	0.0	0.0	0.0	-0.1	0.0	-0.4	-0.7	0.3	0.0
90% Exceedance	0.0	-0.2	-0.2	0.0	0.0	0.0	0.0	0.2	-0.3	-0.6	1.1	0.1
Full Simulation Period Average ^a	0.1	-0.2	-0.2	-0.2	-0.4	-0.4	0.1	0.8	0.3	0.1	0.3	0.2
Wet Water Years (32%)	0.1	-0.1	-0.4	-0.2	-0.1	0.0	0.1	0.4	-0.2	-0.1	0.4	0.4
Above Normal Water Years (9%)	-0.1	-0.2	0.0	0.3	-0.2	-0.4	-0.9	-0.1	-0.2	-1.2	-0.4	-0.1
Below Normal Water Years (20%)	0.1	-0.1	-0.1	-0.3	-0.4	-0.8	-0.2	1.3	0.2	-0.8	-0.4	0.2
Dry Water Years (21%)	-0.1	-0.1	0.0	0.0	-0.3	-0.9	-0.6	0.5	0.2	0.0	0.3	0.3
Critical Water Years (18%)	0.2	-0.3	-0.4	-0.5	-1.1	0.1	1.9	1.9	1.9	2.1	1.5	0.1

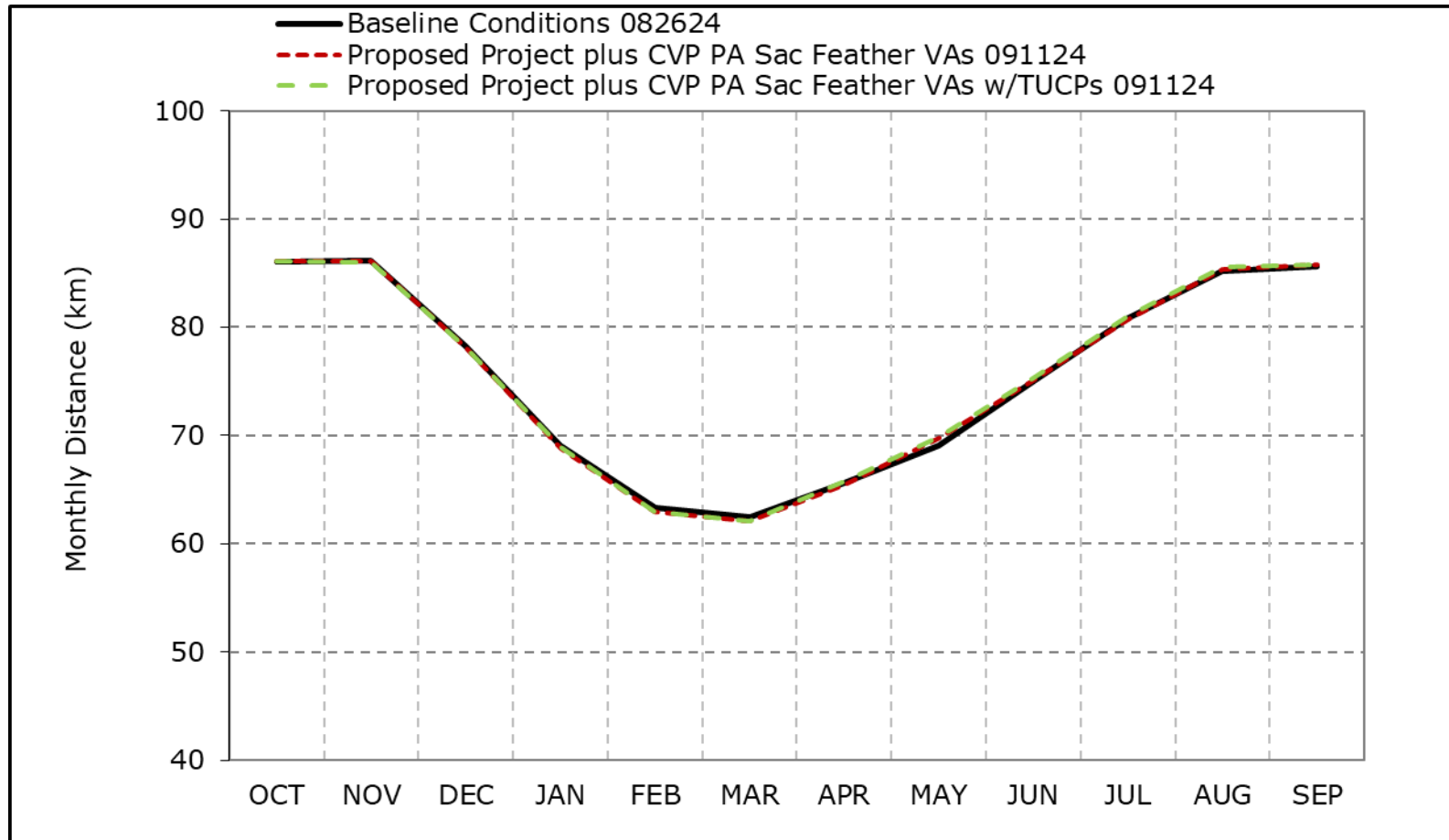
^a Based on the 100-year simulation period.

* All scenarios are simulated at current climate condition and 0 cm sea level rise.

* Water Year Types defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

* Water Year Types results are displayed with water year - year type sorting.

Figure 4F-5-1a. X2 Position, Long-Term Average Distance

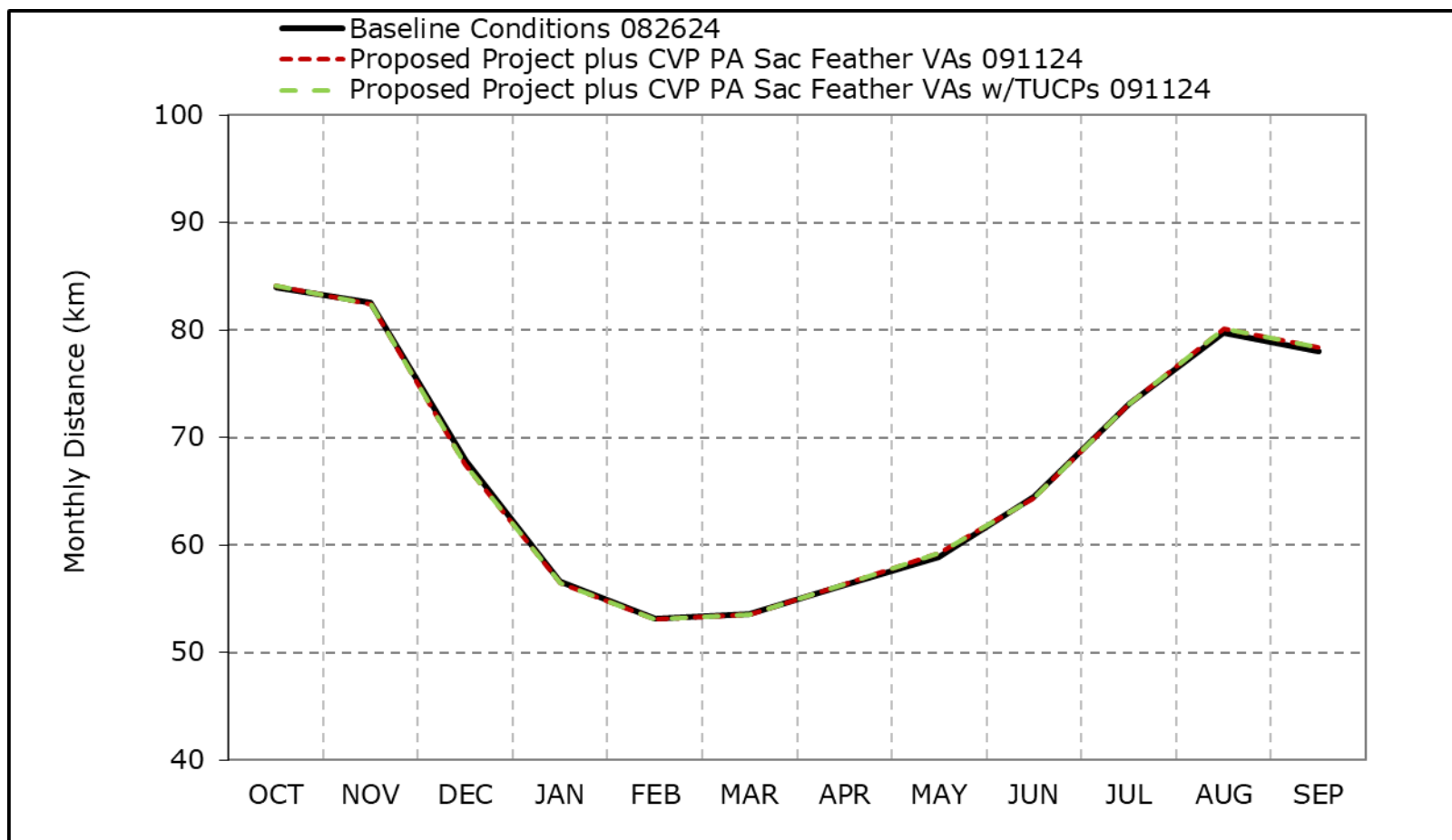


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with water year - year type sorting.

*All scenarios are simulated at current climate condition and 0 cm sea level rise.

Figure 4F-5-1b. X2 Position, Wet Year Average Distance

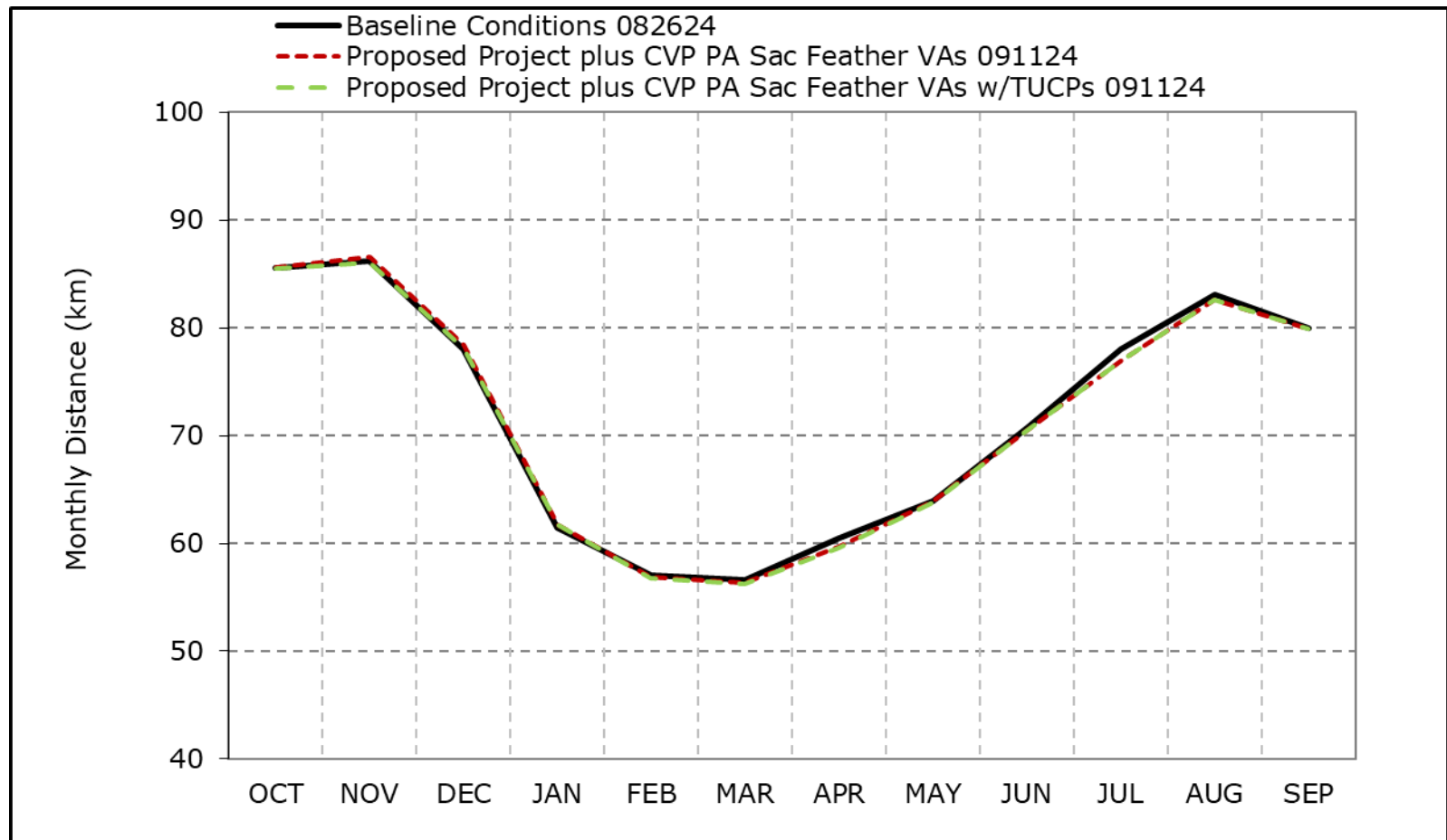


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with water year - year type sorting.

*All scenarios are simulated at current climate condition and 0 cm sea level rise.

Figure 4F-5-1c. X2 Position, Above Normal Year Average Distance

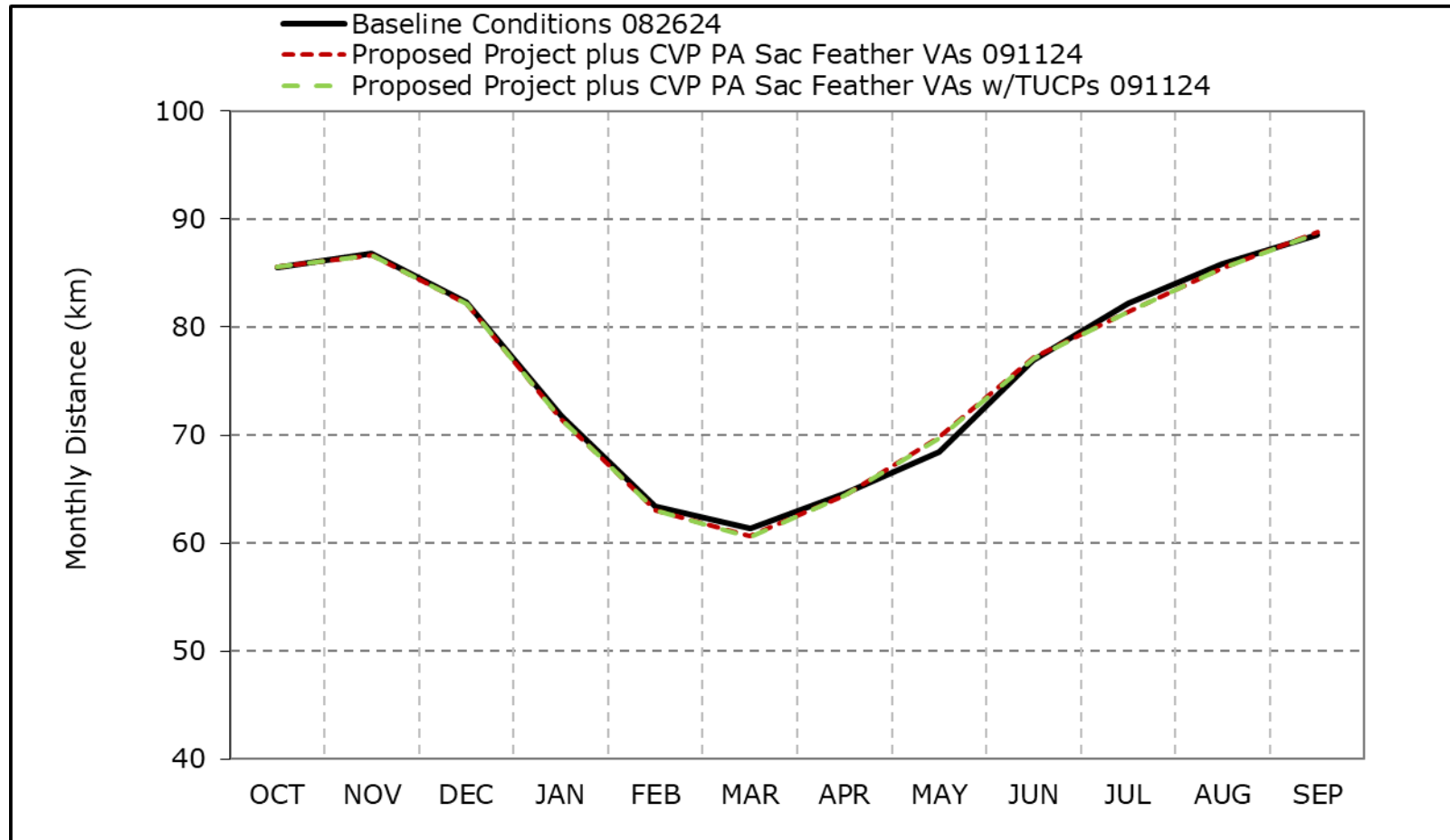


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with water year - year type sorting.

*All scenarios are simulated at current climate condition and 0 cm sea level rise.

Figure 4F-5-1d. X2 Position, Below Normal Year Average Distance

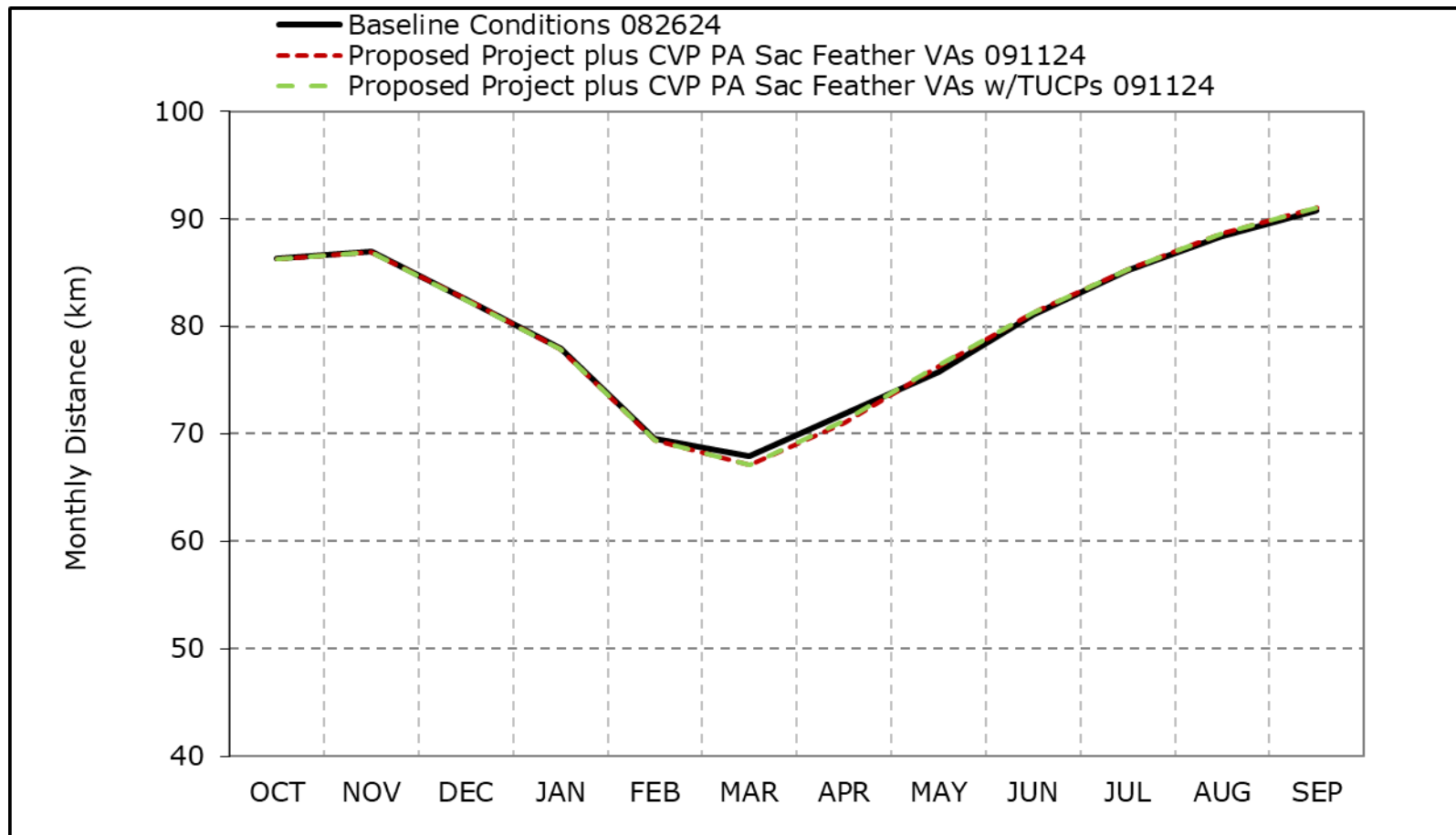


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with water year - year type sorting.

*All scenarios are simulated at current climate condition and 0 cm sea level rise.

Figure 4F-5-1e. X2 Position, Dry Year Average Distance

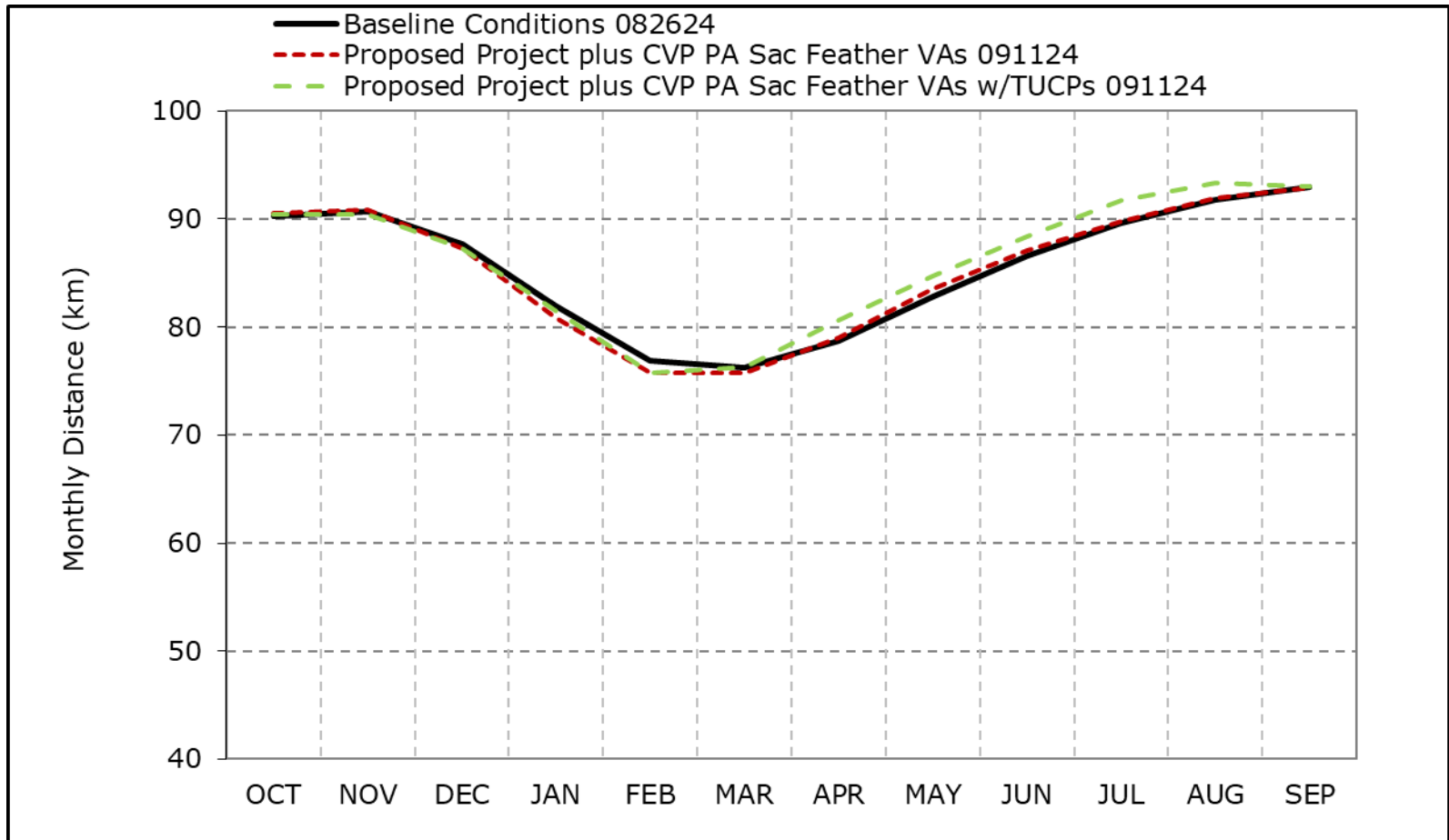


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with water year - year type sorting.

*All scenarios are simulated at current climate condition and 0 cm sea level rise.

Figure 4F-5-1f. X2 Position, Critical Year Average Distance

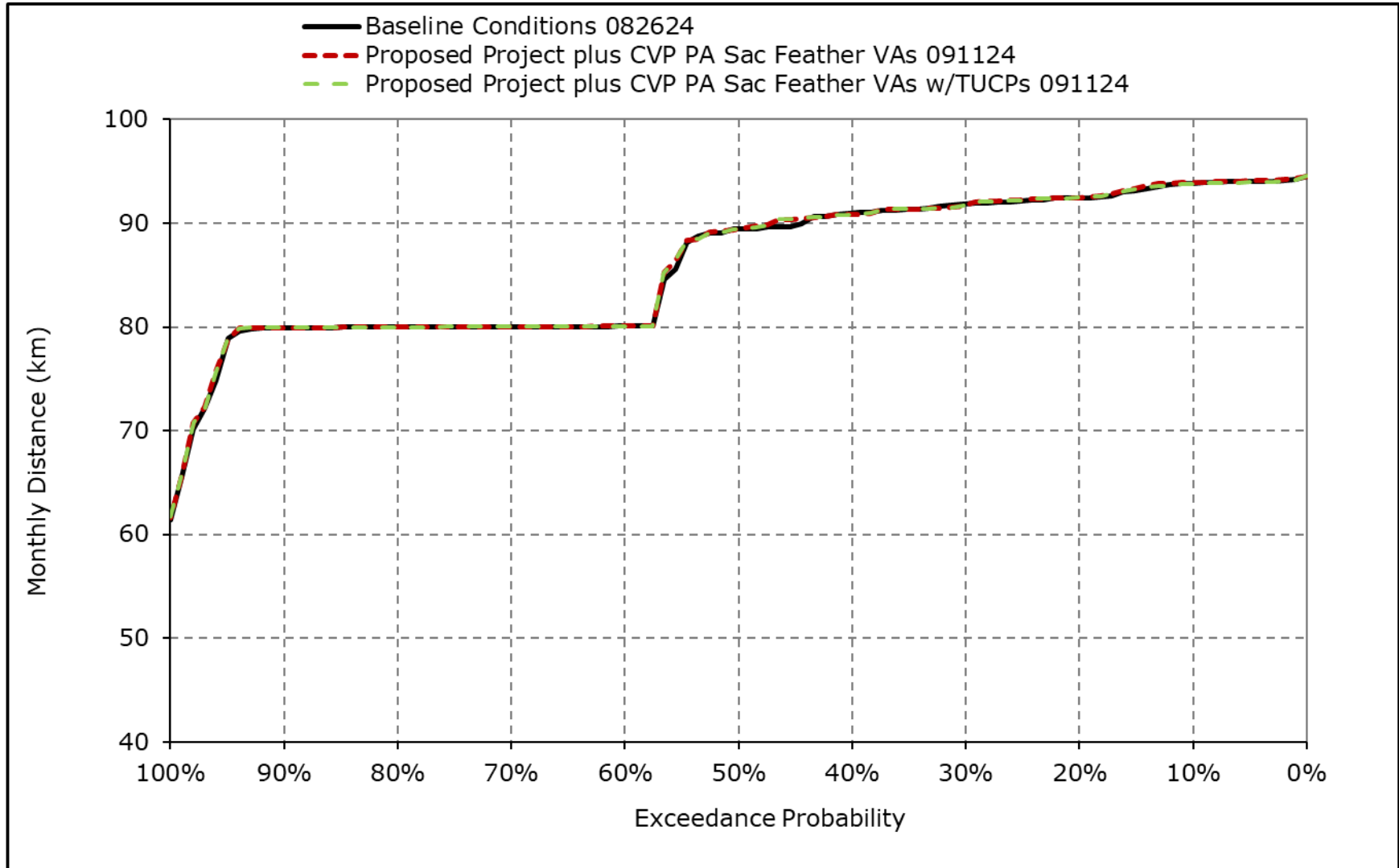


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with water year - year type sorting.

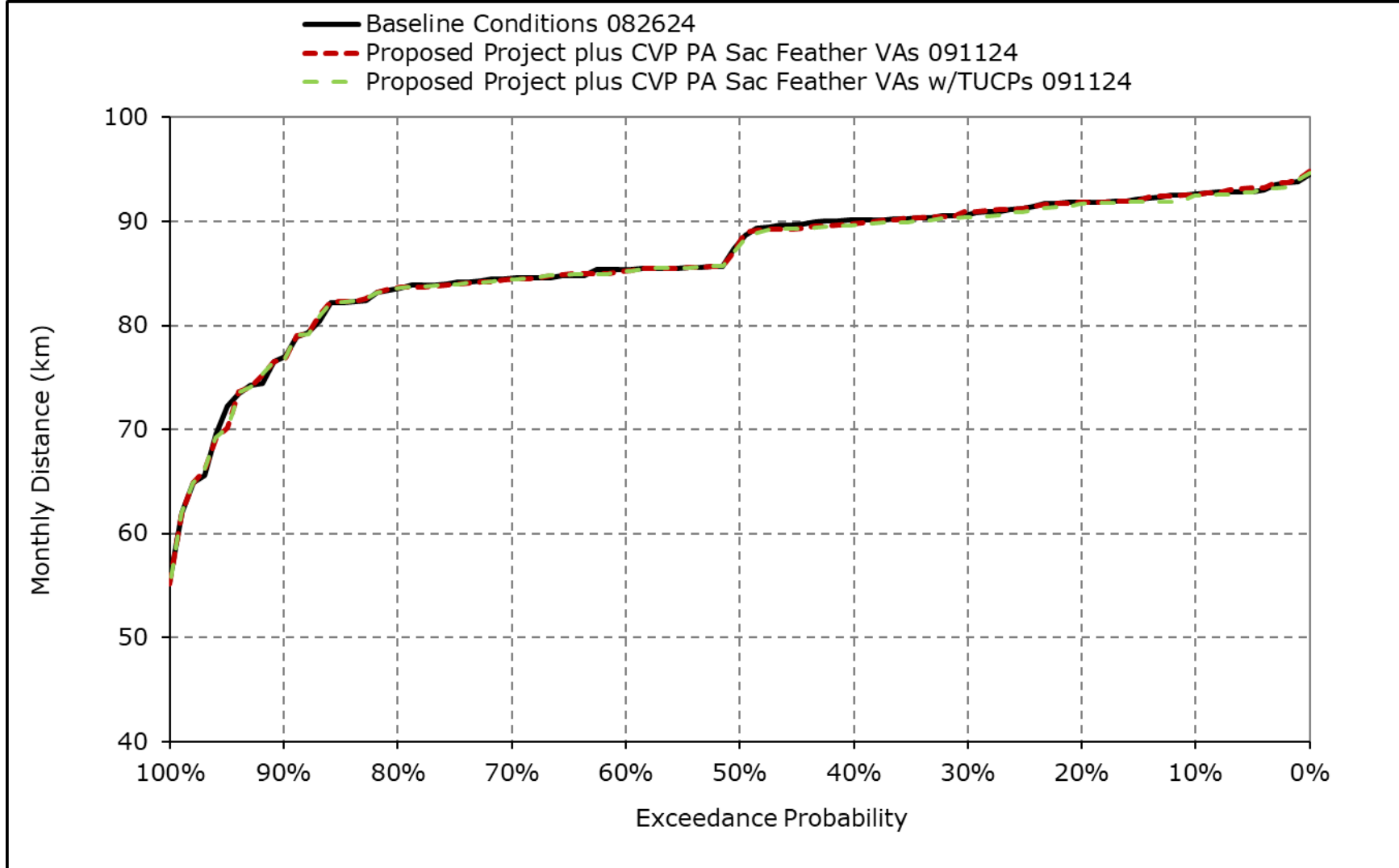
*All scenarios are simulated at current climate condition and 0 cm sea level rise.

Figure 4F-5-1g. X2 Position, October



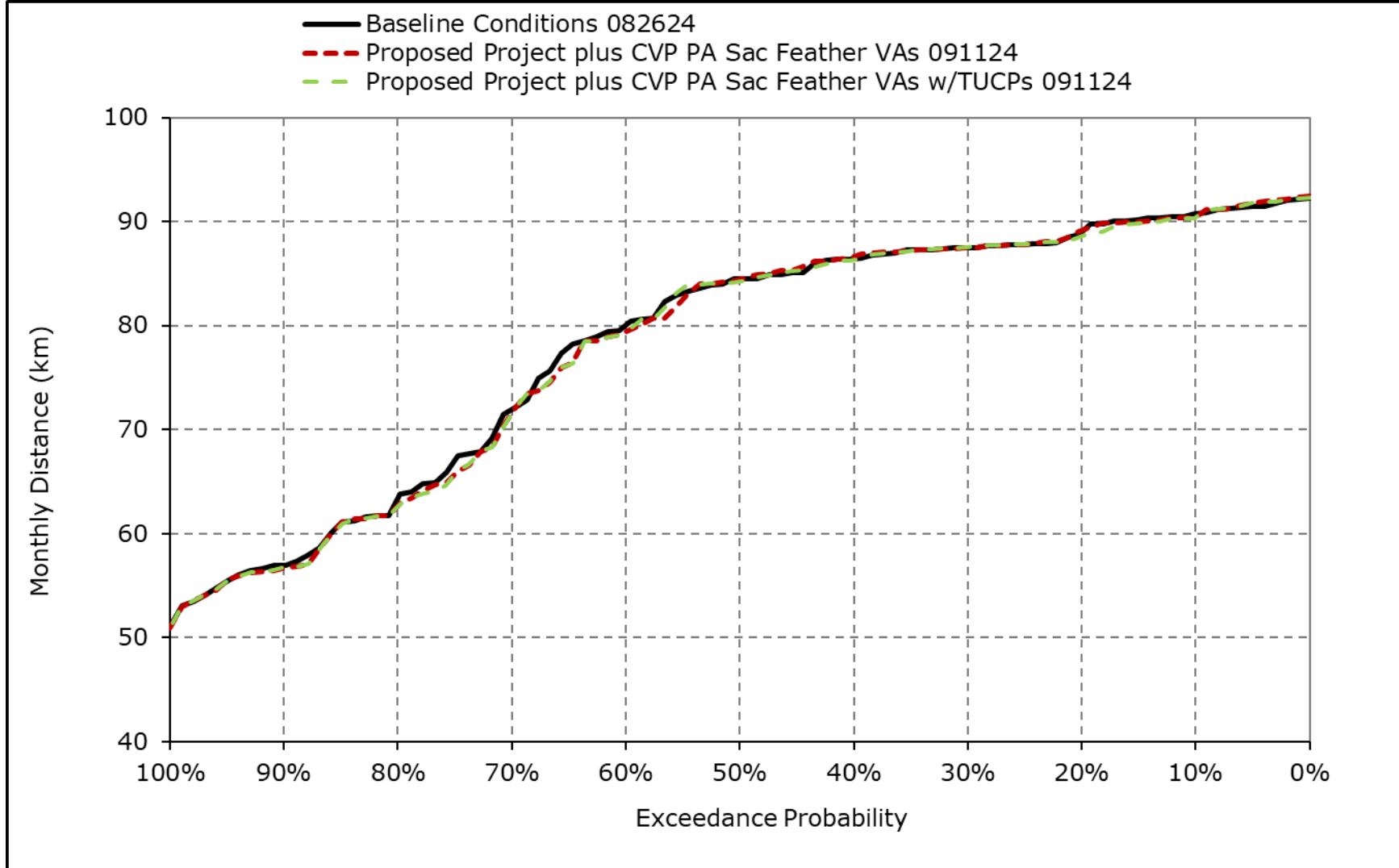
*All scenarios are simulated at current climate condition and 0 cm sea level rise.

Figure 4F-5-1h. X2 Position, November



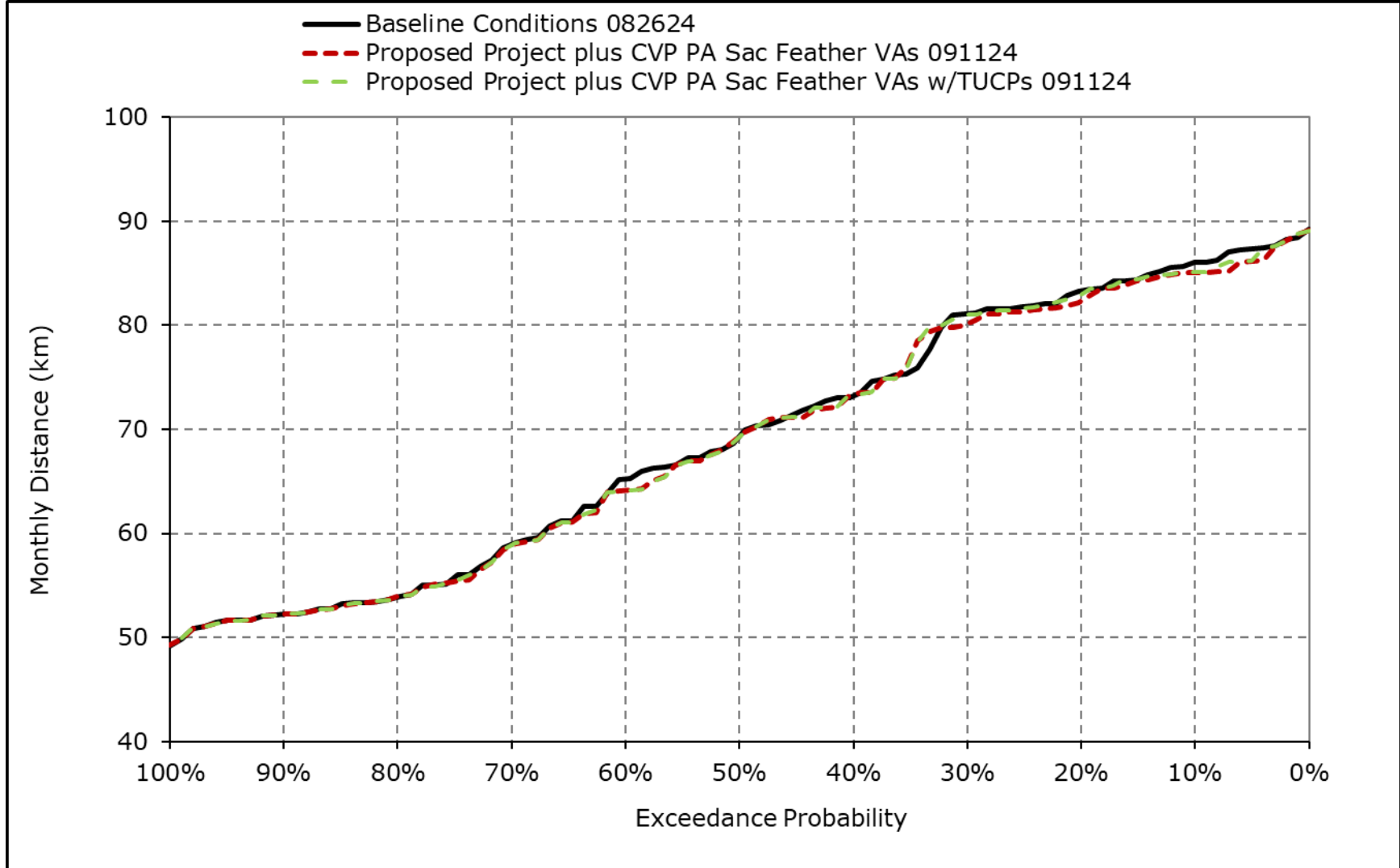
*All scenarios are simulated at current climate condition and 0 cm sea level rise.

Figure 4F-5-1i. X2 Position, December



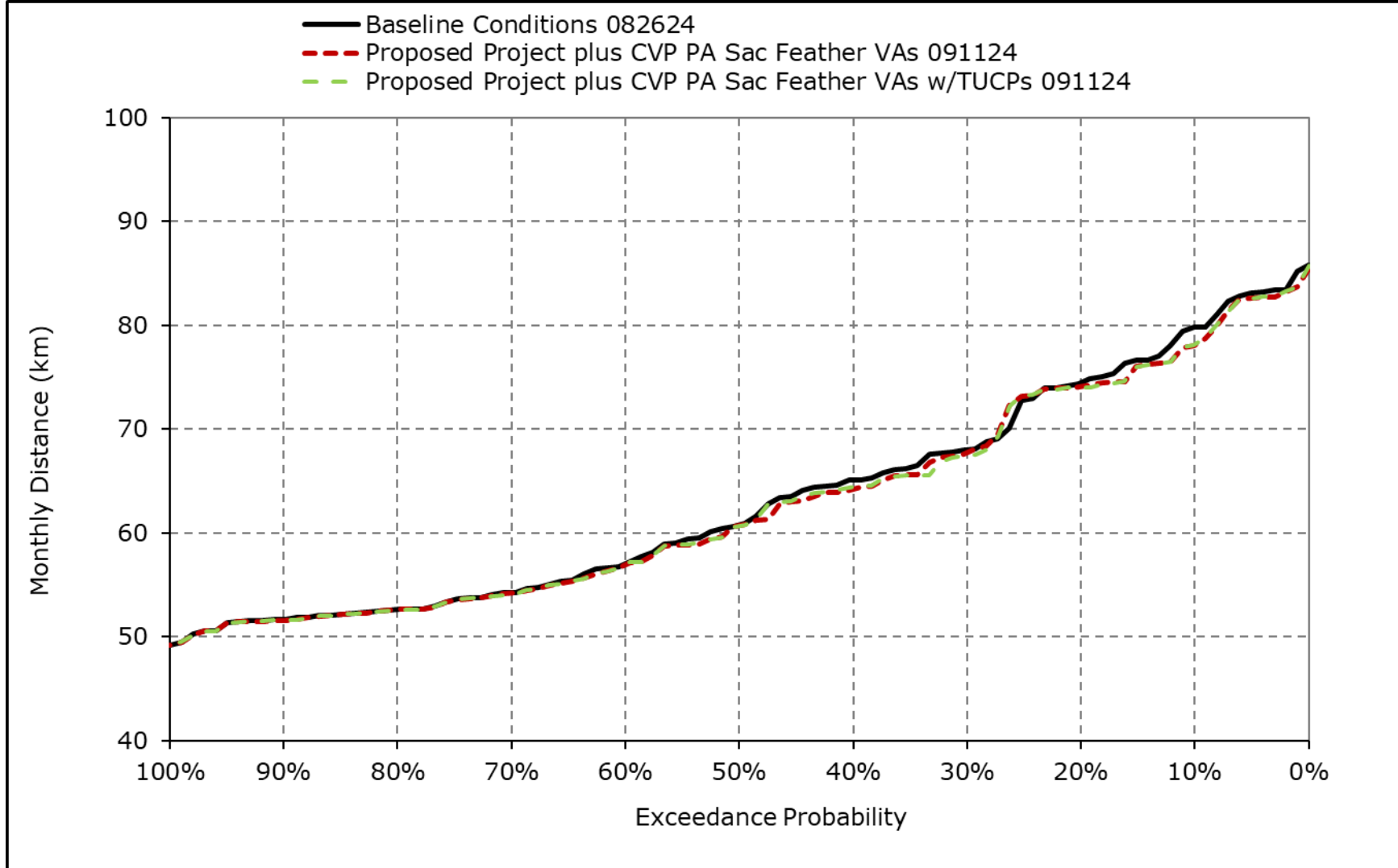
*All scenarios are simulated at current climate condition and 0 cm sea level rise.

Figure 4F-5-1j. X2 Position, January



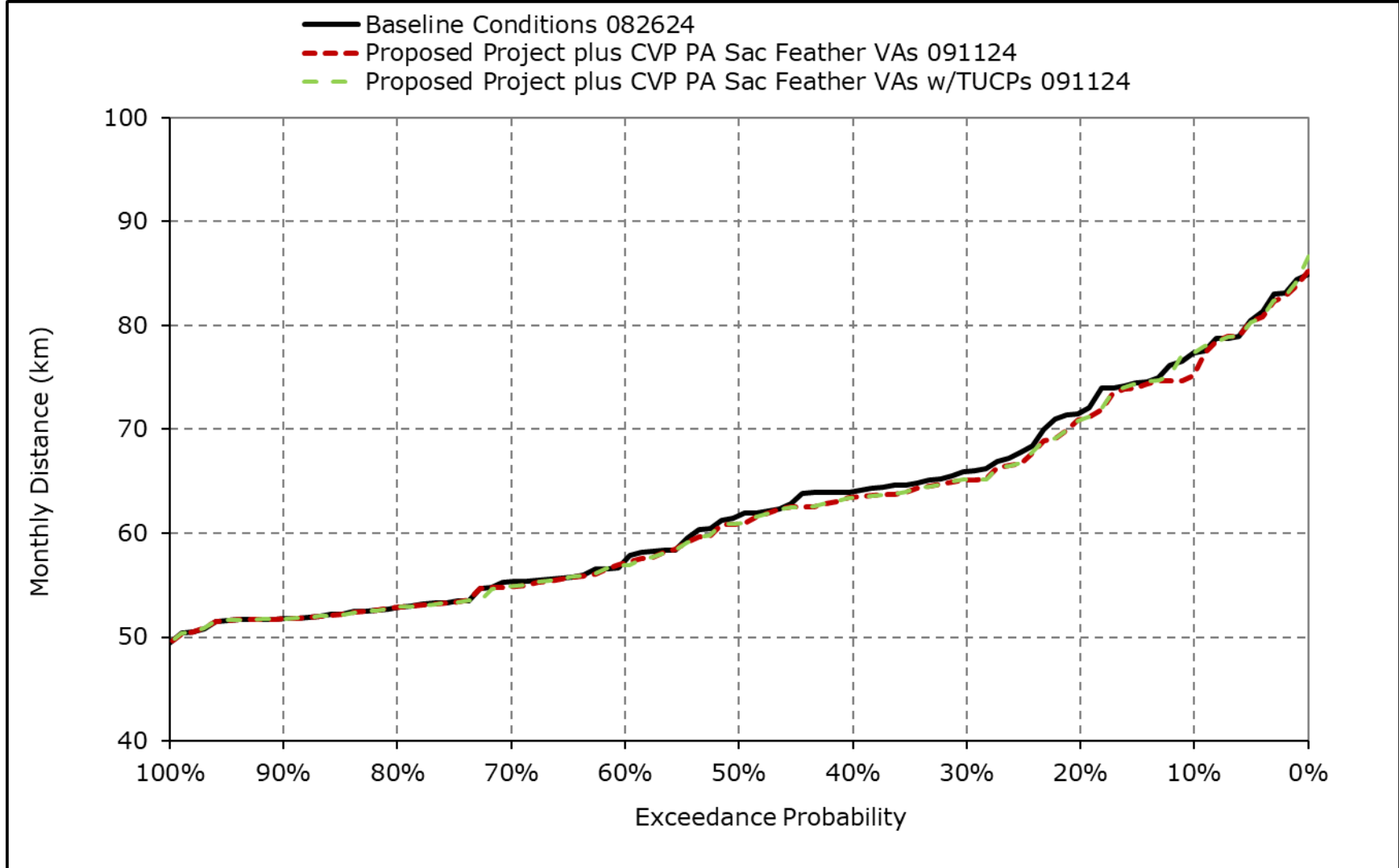
*All scenarios are simulated at current climate condition and 0 cm sea level rise.

Figure 4F-5-1k. X2 Position, February



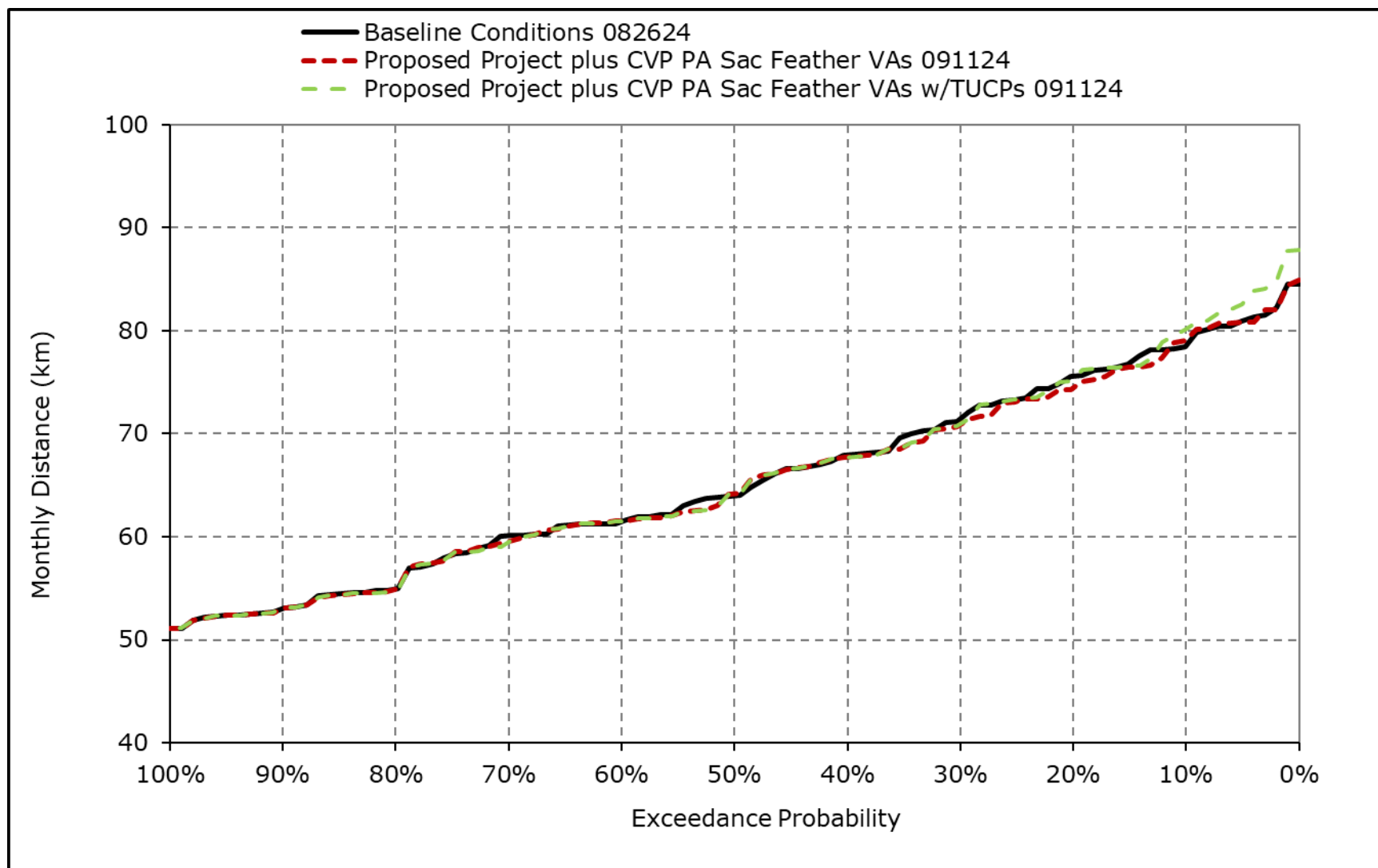
*All scenarios are simulated at current climate condition and 0 cm sea level rise.

Figure 4F-5-1I. X2 Position, March



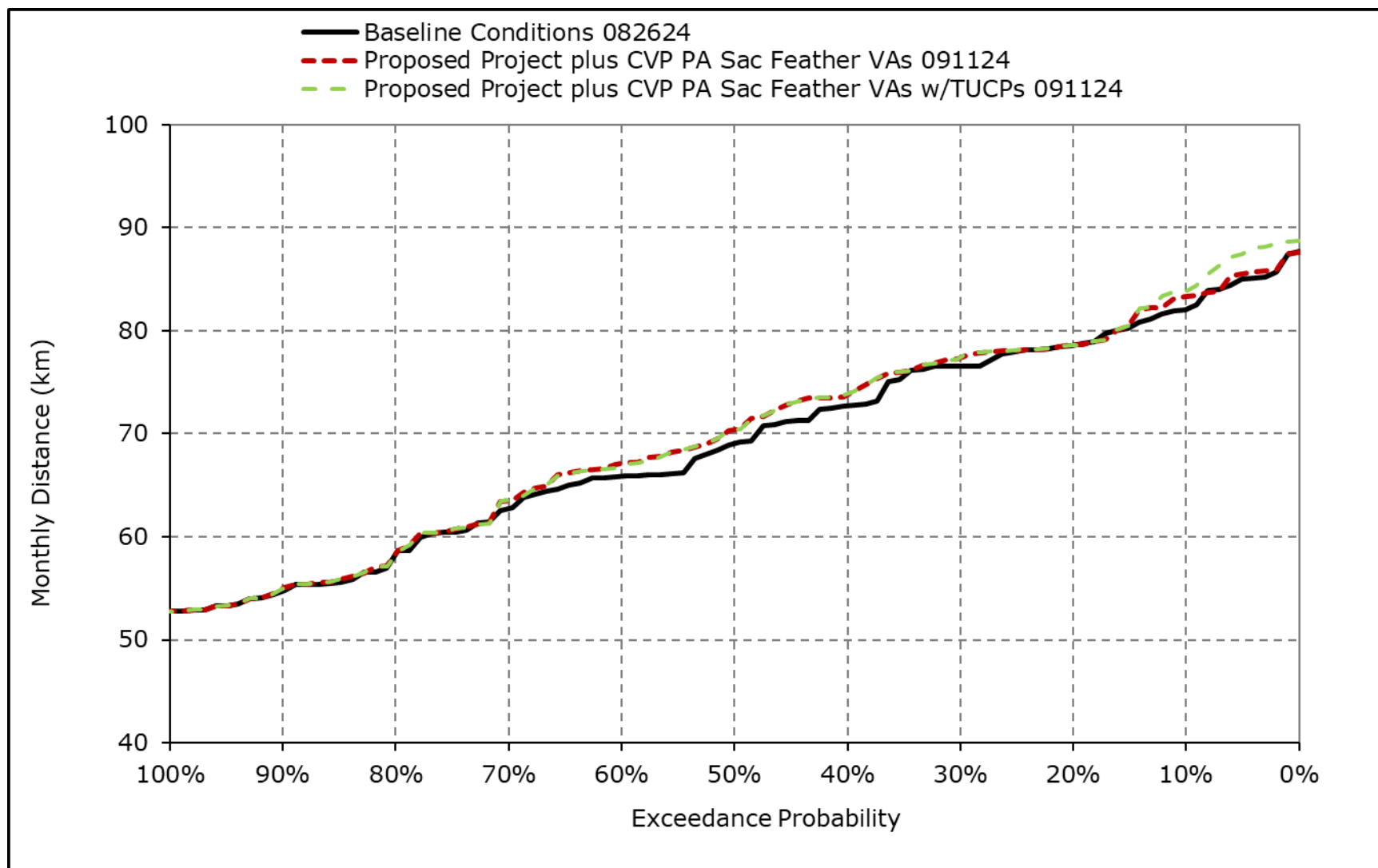
*All scenarios are simulated at current climate condition and 0 cm sea level rise.

Figure 4F-5-1m. X2 Position, April



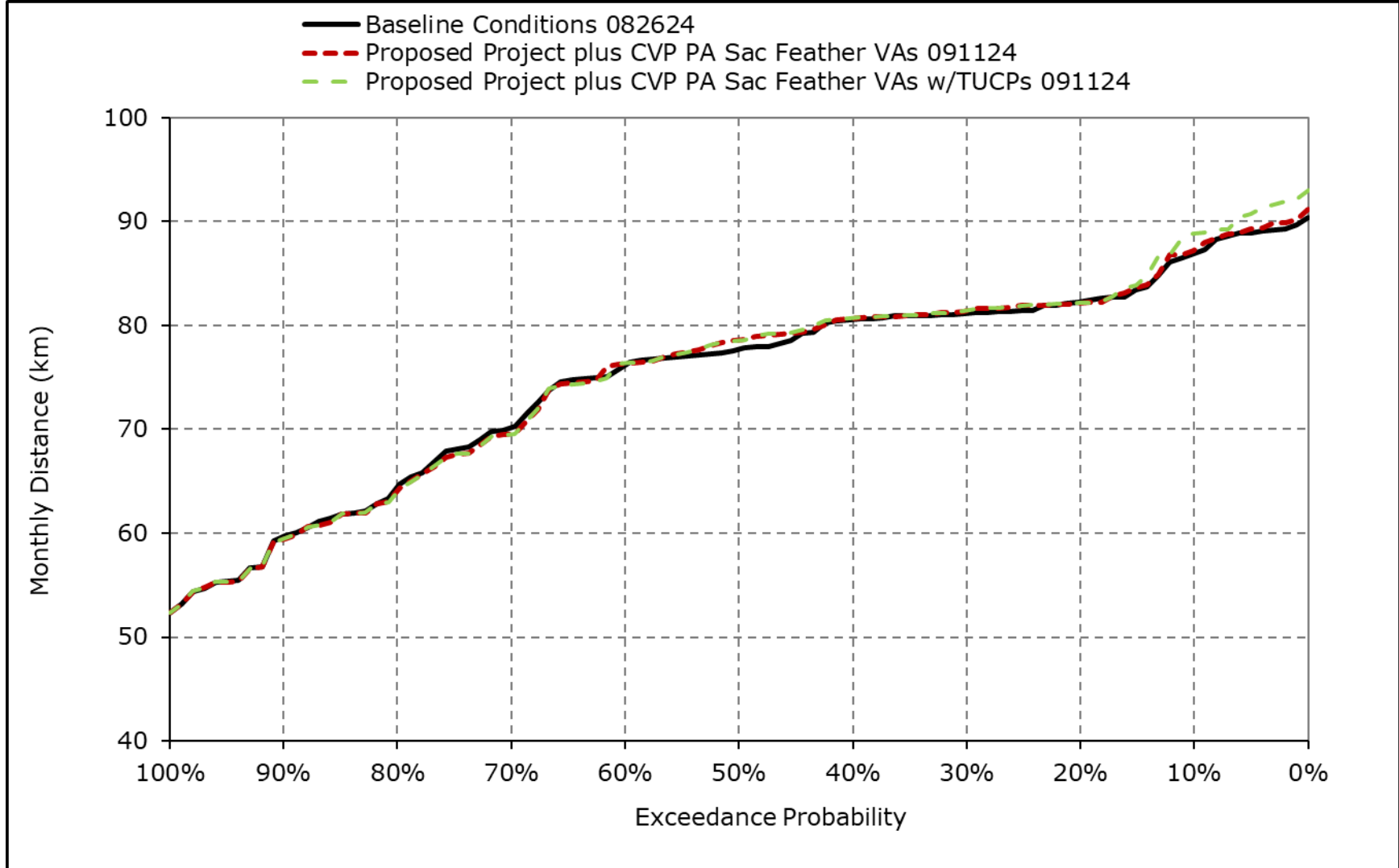
*All scenarios are simulated at current climate condition and 0 cm sea level rise.

Figure 4F-5-1n. X2 Position, May



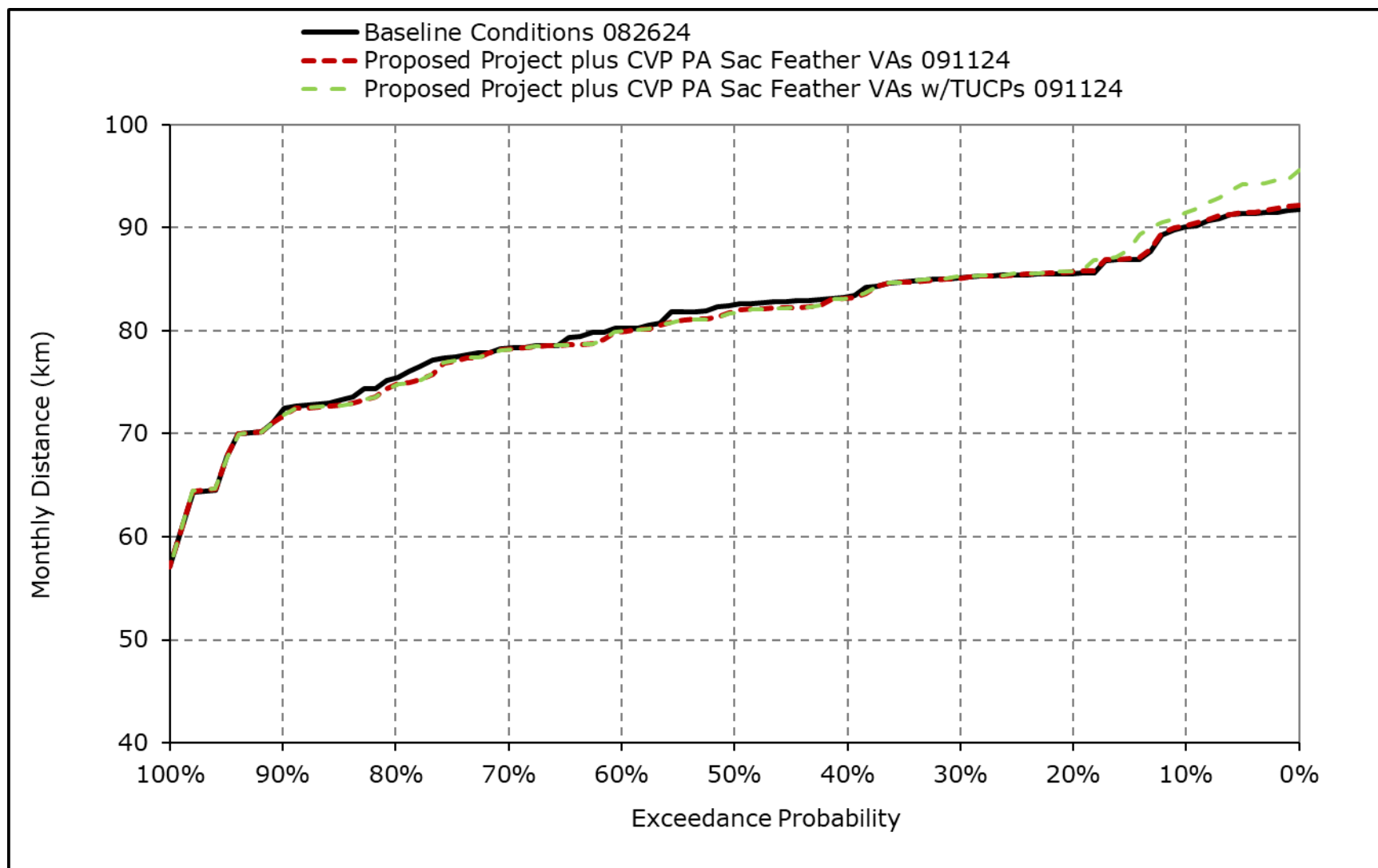
*All scenarios are simulated at current climate condition and 0 cm sea level rise.

Figure 4F-5-1o. X2 Position, June



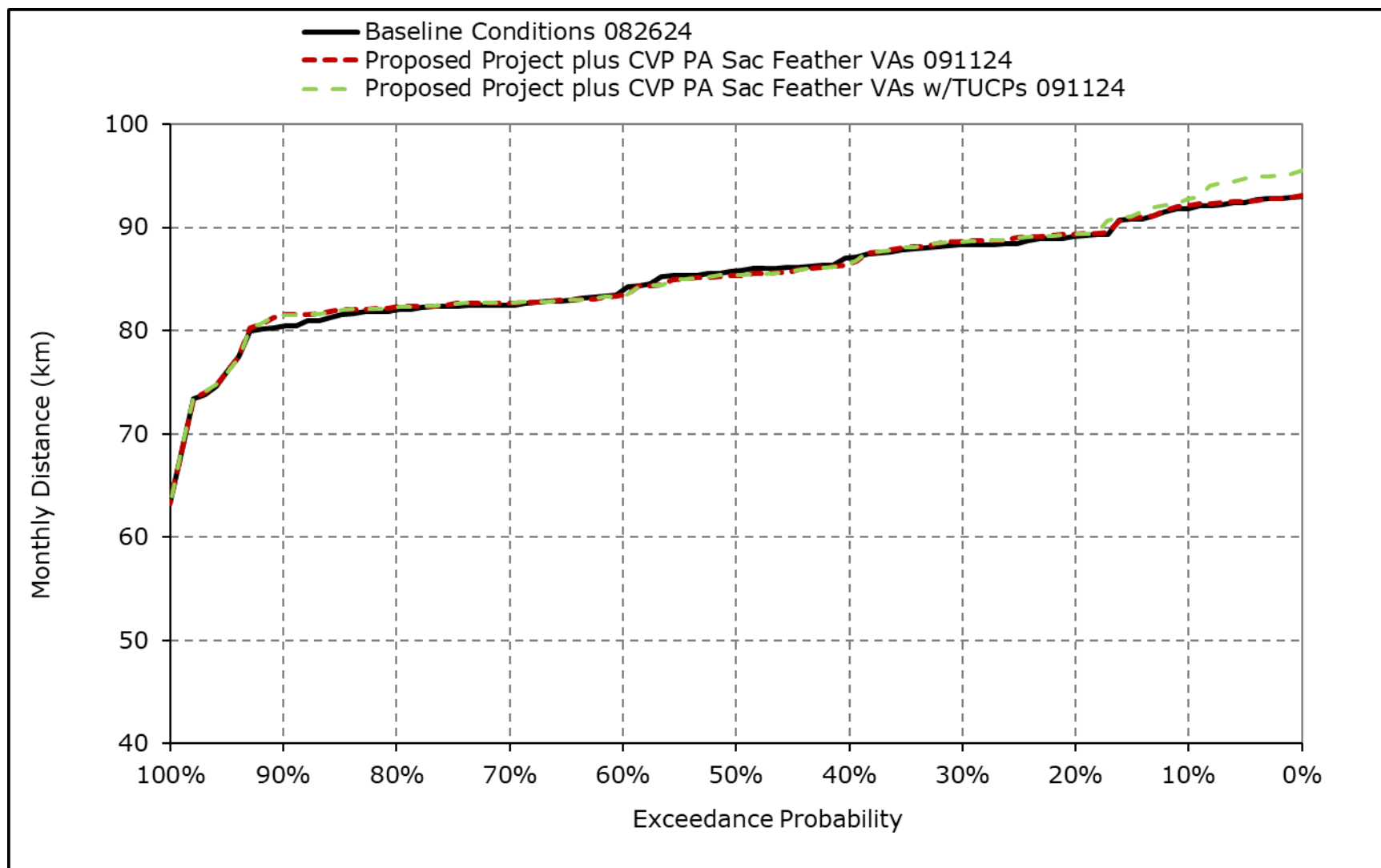
*All scenarios are simulated at current climate condition and 0 cm sea level rise.

Figure 4F-5-1p. X2 Position, July



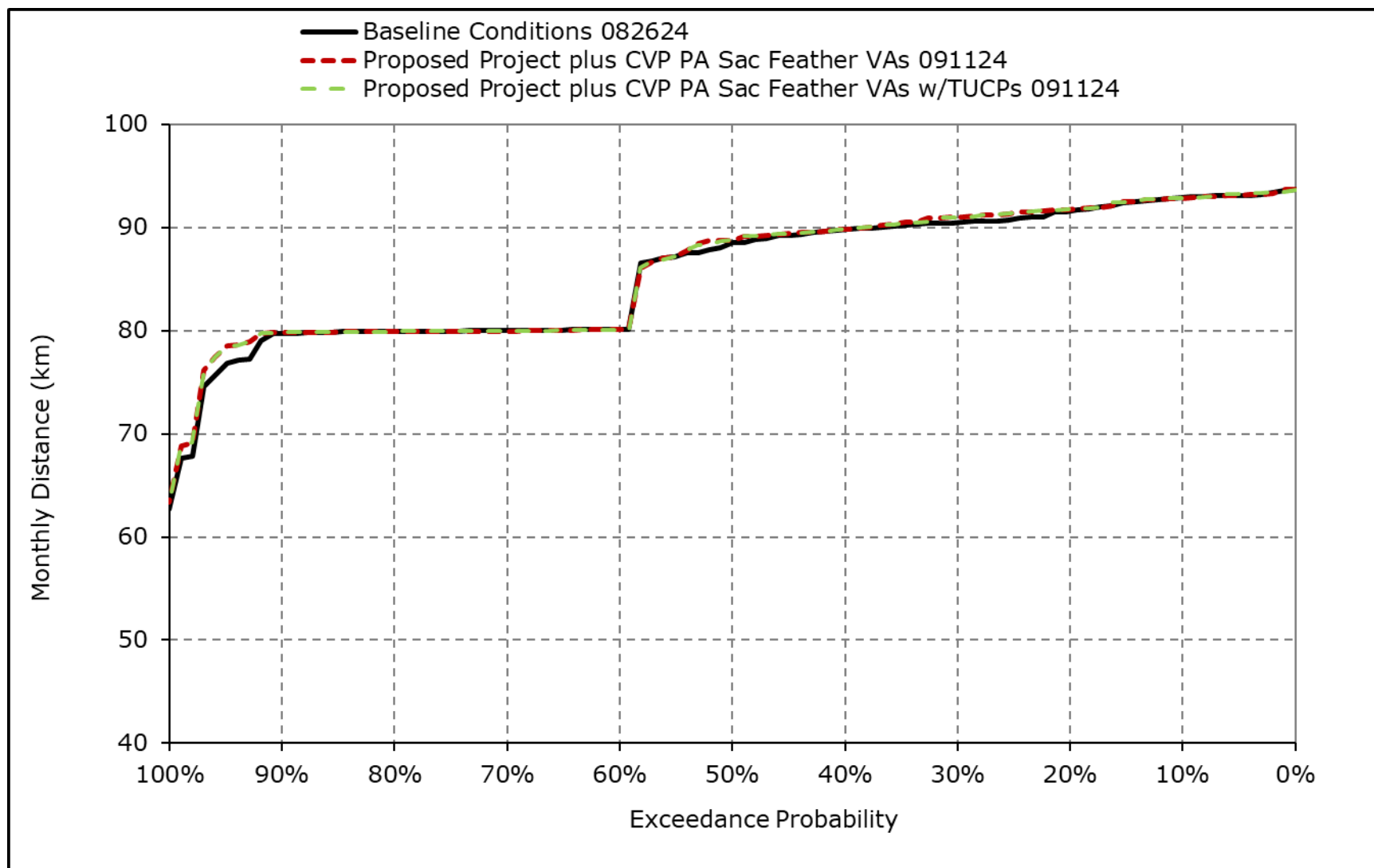
*All scenarios are simulated at current climate condition and 0 cm sea level rise.

Figure 4F-5-1q. X2 Position, August



*All scenarios are simulated at current climate condition and 0 cm sea level rise.

Figure 4F-5-1r. X2 Position, September



*All scenarios are simulated at current climate condition and 0 cm sea level rise.