

Villa Park Dam

Monitoring Survey

Legend

- Benchmarks
- Monitoring Stations



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Data LDEO-Columbia, NSF, NOAA

Villa Park Dam - Main Dam

Monitoring Survey

Legend

■ Monitoring Stations

1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00 10+42

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Image Landsat / Copernicus

200 ft



Villa Park Dam (Main Dam) (E08D01) - Monitoring Survey

This earthen dam was built in 1963. The first survey was performed in 1963. This report displays all surveys from 1963 to present. Horizontal displacement is compared to dam survey line. Vertical displacement are compared to the 1963 survey.

Chart Details

Horizontal Movement Perpendicular to Dam Axis - shows all data from each year.

Control points "VP-18" ("VP-18A" after 1993) and "VP-19" are held for ***Out From Line*** and along line calculations.

Positive numbers represent monitored stations to the right of line (downstream), negative numbers represent monitored stations to the left of line (upstream).

Horizontal Movement Along Dam Axis (difference from planned stationing) - shows all data from each year.

Control points "VP-18" ("VP-18A" after 1993) are held for stationing calculations.

Positive numbers mean that the distances measured to each station are greater than planned stationing, negative number means less than planned stationing.

Vertical Movement - shows all data from each year.

Vertical differences are calculated comparing the elevation to the "1963 survey" elevation.

Detailed information pertaining to monument descriptions and survey information can be found at OC Survey Divison, Geodetic Control Unit.

All values are shown in U.S. Feet.

Horizontal Datum = CCS83, zone VI, 1991.35 Epoch Adjustment

Vertical Datum = NGVD29, OCS 1976 Adjustment

Villa Park Dam (Main Dam) (E08D01) - Monitoring Survey

Report Summary

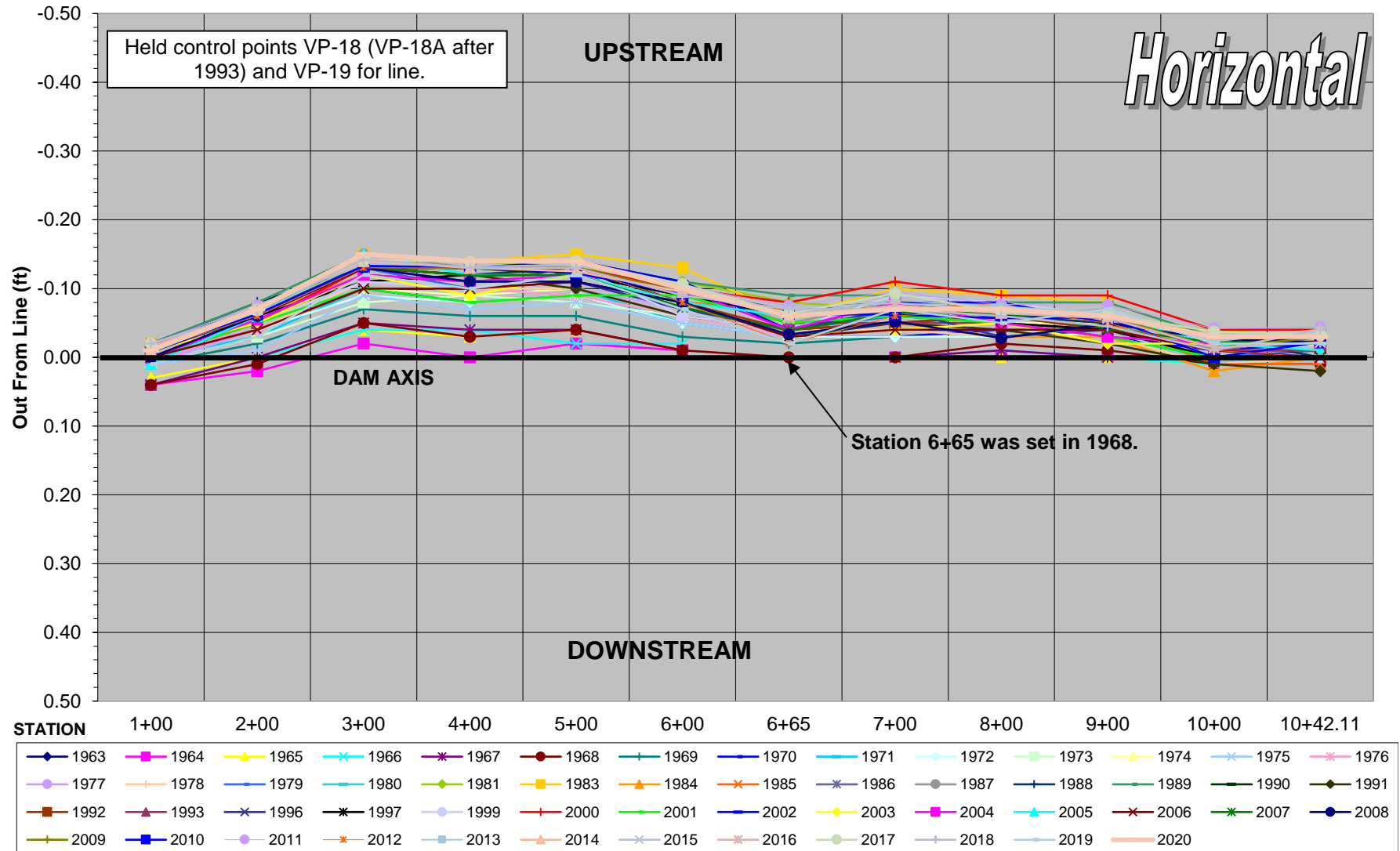
1963-1973	Gradual subsidence measured due to settling of dam. Upstream horizontal movement measured, mostly concentrated around stations 3+00 thru 5+00.
1974-1977	Upstream horizontal movement and subsidence still measured. Rates are Gradually slowing.
1978-1988	Subsidence continues at a very slow rate. Horizontal appears stable.
1989-2000	Vertical subsidence has discontinued. Horizontal appears stable.
2001	No significant movement detected.
2002	No significant movement detected.
2003	No significant movement detected.
2004	No significant movement detected.
2005	No significant movement detected.
2006	No significant movement detected.
2007	No significant movement detected.
2008	No significant movement detected.
2009	No significant movement detected.
2010	No significant movement detected.
2011	No significant movement detected.
2012	No significant movement detected.
2013	No significant movement detected.
2014	No significant movement detected.
2015	No significant movement detected.
2016	No significant movement detected.
2017	No significant movement detected.
2018	No significant movement detected.
2019	No significant movement detected.
2020	No significant movement detected.
2021	
2022	

Horizontal Datum = CCS83, zone VI, 1991.35 Epoch Adjustment

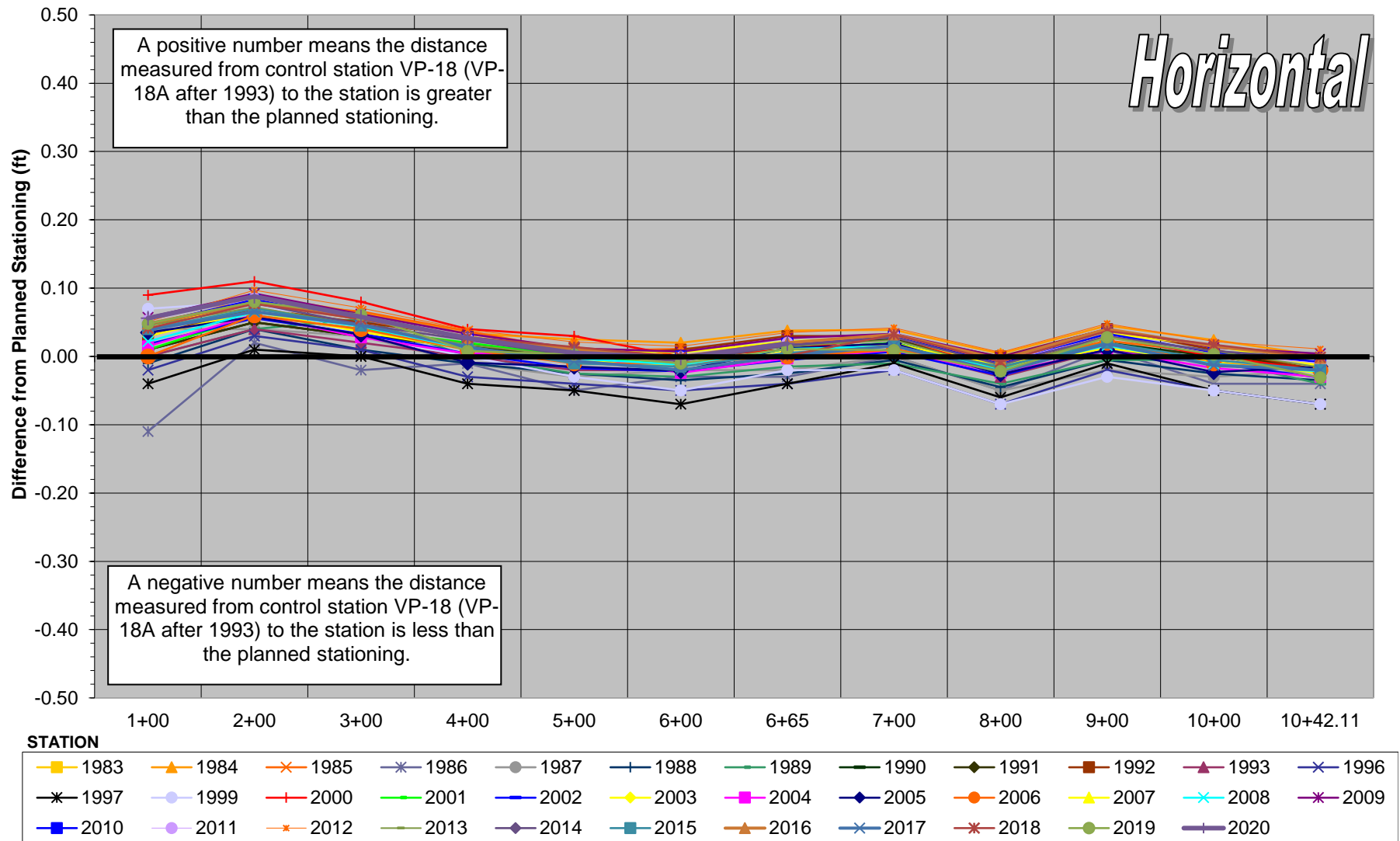
Vertical Datum = NGVD29, OCS 1976 Adjustment

Villa Park (Main) Dam

Horizontal Movement Perpendicular to Dam Axis (Out From Line) - Plan View

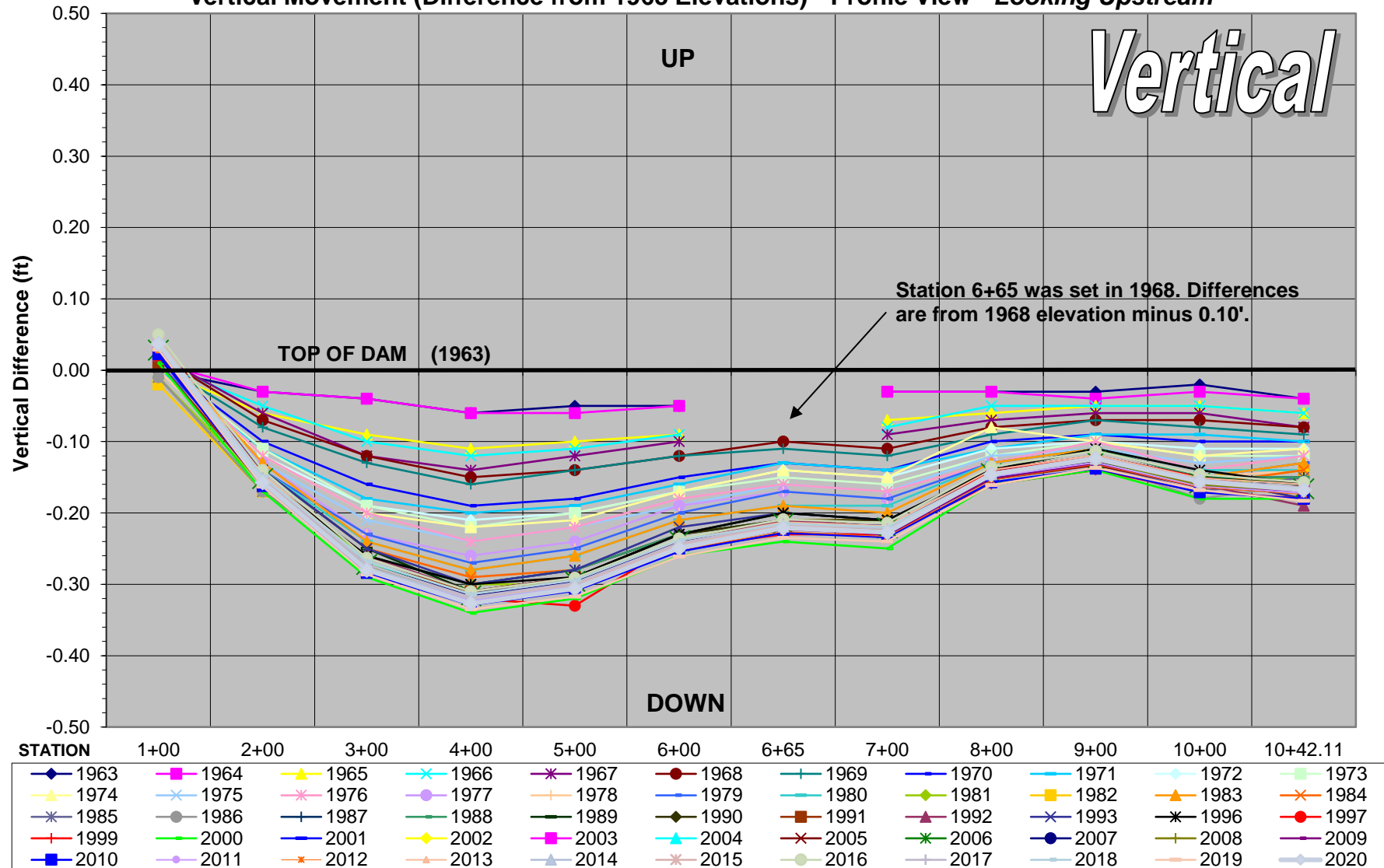


Villa Park (Main) Dam Horizontal Movement Along Dam Axis (Difference from Planned Stationing)



Villa Park (Main) Dam

Vertical Movement (Difference from 1963 Elevations) - Profile View - Looking Upstream



Villa Park Dam - Auxillary Dam

Monitoring Survey

Legend

■ Monitoring Stations

1590 (VP-32)

112+00

VP-31

110+00

109+00

108+00

107+00

106+00

105+00

104+00

1050 (VP-30)

1586 (VP-19)

101+00

1587 (100+00)

Google Earth

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300 ft



Villa Park Dam (Auxiliary Dam) - Monitoring Survey

The first survey was performed in 1980. This report displays surveys from 1980 to present.

Horizontal displacement is compared to dam survey line. Vertical displacement is compared to 1980 survey.

Chart Details

Horizontal Movement Perpendicular to Dam Axis - shows all data from each year.

Station "100+00" and "VP-19" are held for ***Out From Line*** calculations for station 101+00.

Station "VP-19" and "VP-30" are held for ***Out From Line*** calculations for station 102+00.

Station "VP-30" and "VP-32" are held for ***Out From Line*** calculations for station 104+00 to 112+00.

Positive numbers represent monitored stations to the right of line, (upstream), negative numbers represent monitored stations to the left of line (downstream).

Horizontal Movement Along Dam Axis (difference from planned stationing) - shows all data from each year.

Station "VP-30", VP-32 and "VP-19" are held for ***Along Line*** calculations.

Control point VP-30 and VP-19 are held for stationing calculations.

Positive numbers mean that the distances measured to each station are greater than planned stationing, negative number means less than planned stationing.

Vertical Movement - shows all data from each year.

Vertical differences are calculated comparing the elevation to the "1980 survey" elevation.

Detailed information pertaining to monument descriptions and survey information can be found at OC Survey Division, Geodetic Control Unit.

All values are shown in U.S. Feet.

Horizontal Datum = CCS83, zone VI, 1991.35 Epoch Adjustment

Vertical Datum = NGVD29, OCS 1976 Adjustment

Villa Park Dam (Auxiliary Dam) - Monitoring Survey

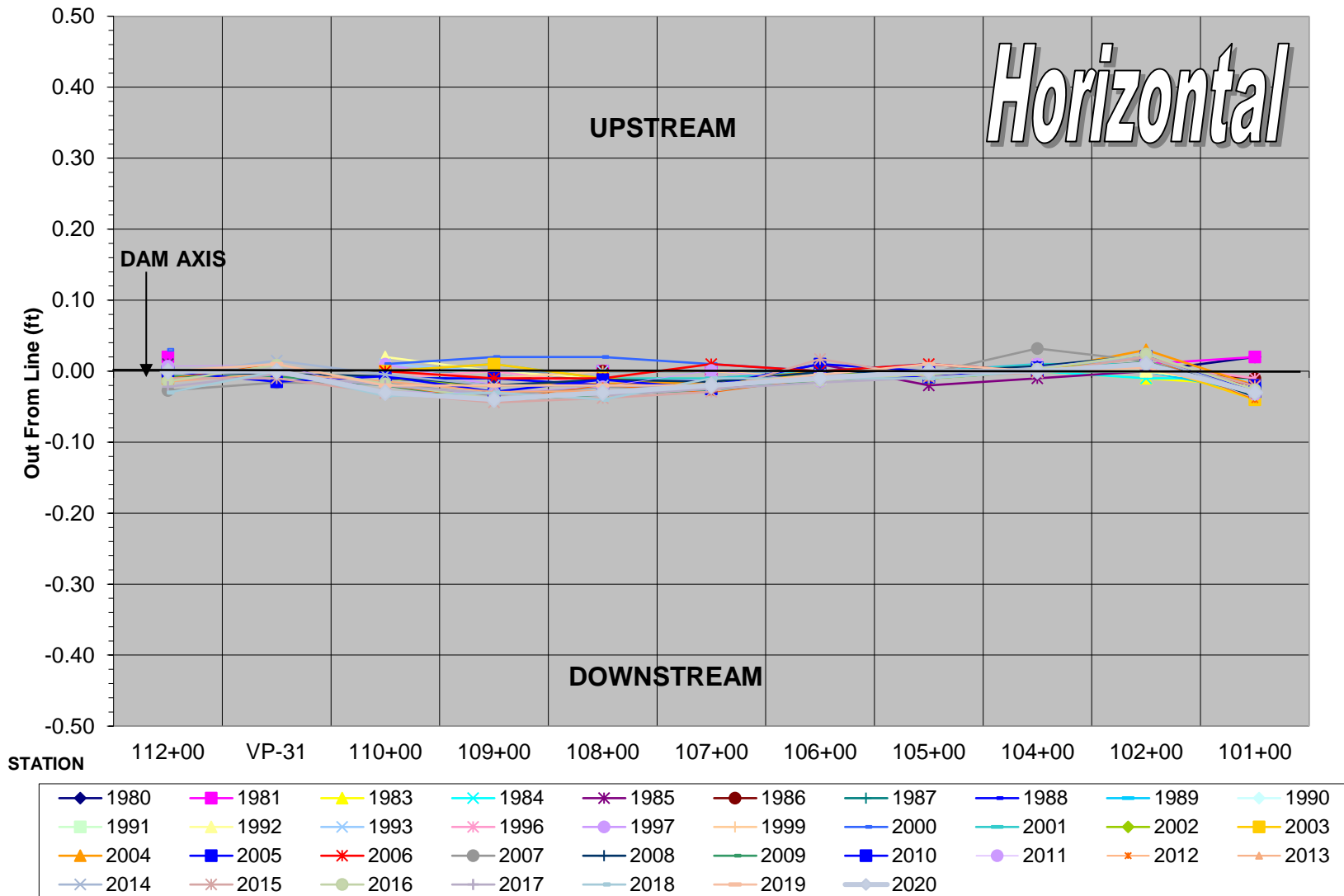
Report Summary

1980-1990	Monuments appear to be stable horizontally and vertically. No significant movement detected.
1991-2000	Monuments continue to be stable horizontally and vertically. No significant movement detected.
2001	No significant movement detected.
2002	No significant movement detected.
2003	No significant movement detected.
2004	No significant movement detected.
2005	No significant movement detected.
2006	No significant movement detected.
2007	No significant movement detected.
2008	No significant movement detected.
2009	No significant movement detected.
2010	No significant movement detected.
2011	No significant movement detected.
2012	No significant movement detected.
2013	No significant movement detected.
2014	No significant movement detected.
2015	No significant movement detected.
2016	100+00 shows subsidence of 0.10'. No significant movement detected.
2017	No significant movement detected.
2018	No significant movement detected.
2019	No significant movement detected.
2020	No significant movement detected.
2021	
2022	

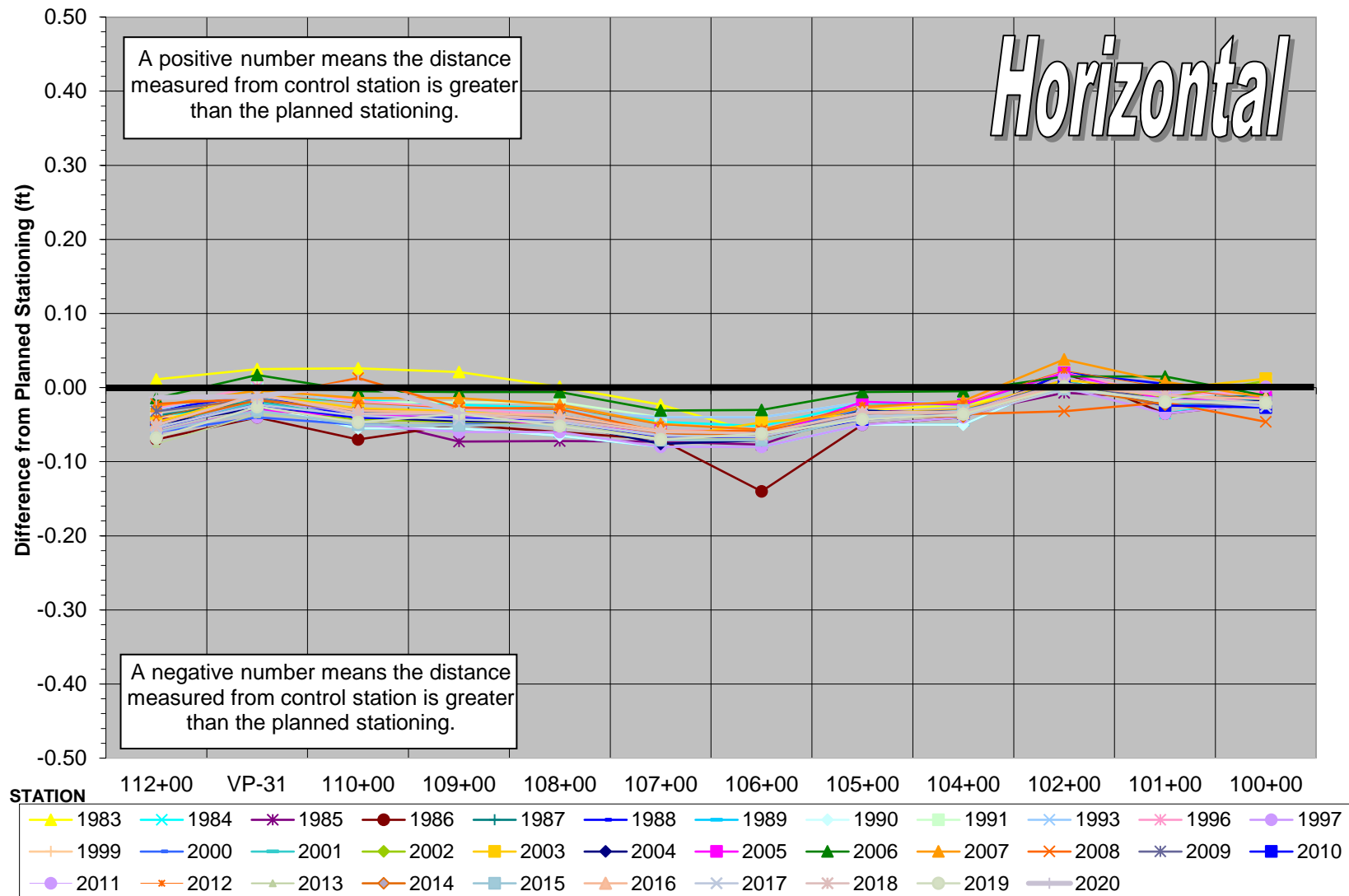
Horizontal Datum = CCS83, zone VI, 1991.35 Epoch Adjustment

Vertical Datum = NGVD29, OCS 1976 Adjustment

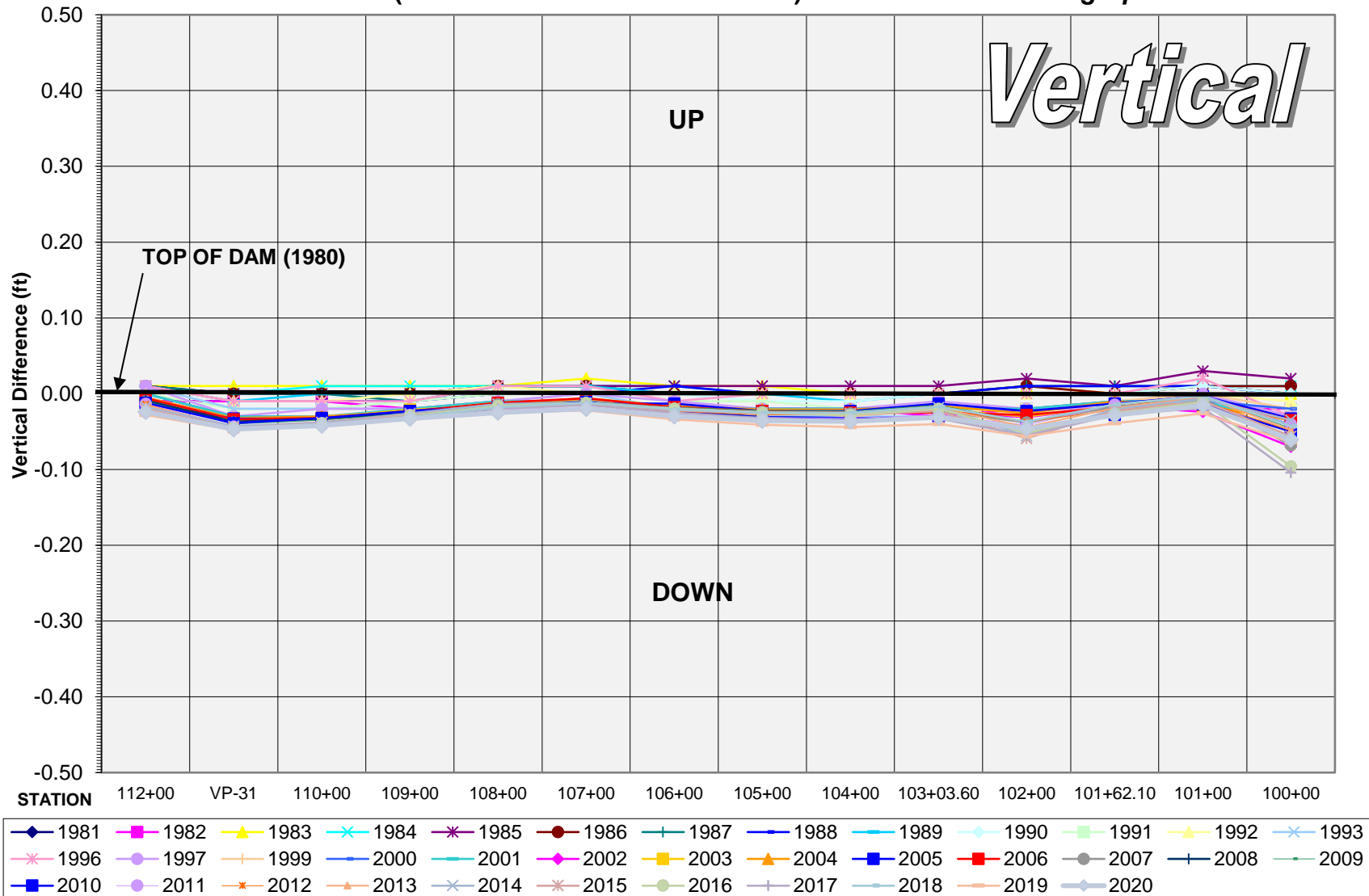
Villa Park (Auxiliary) Dam
Horizontal Movement Perpendicular to Dam Axis (Out From Line) - Plan View



Villa Park (Auxiliary) Dam Horizontal Movement Along Dam Axis (Difference from Planned Stationing)



Villa Park (Auxiliary) Dam
Vertical Movement (Difference from 1980 Elevations) - Profile View - Looking Upstream



Villa Park Dam - Outlet Structure

Monitoring Survey

Legend

■ Monitoring Stations



Google Earth

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Villa Park Dam (Outlet Structure) - Monitoring Survey

The first vertical survey was performed in 1964 and the first horizontal survey in 1965. This report displays all surveys from 1964 to present. Horizontal displacement is compared to dam survey line, vertical displacement is compared to 1964 survey.

Chart Details

Horizontal Movement Perpendicular to Tunnel Axis - shows all data from each year.

Stations "VP16, VP16A, and VP16B" and "6+65" are held for ***Out From Line*** calculations. "VP-16B" was set in place of "VP-16A" in 2000 due to the instability of the ground around the monument. All ***Out From Line*** calculations will be done from "VP-16B" and "Main Dam 6+65" after 1999.

Positive numbers represent monitored stations to the right of line (northeasterly), negative numbers represent monitored stations to the left of line (southwesterly).

Horizontal Movement Along Dam Axis (difference from planned stationing) - shows all data from each year.

Control point VP-16A / VP-16B is held for stationing calculations.

Positive numbers mean that the distances measured to each station are greater than planned stationing, negative number means less than planned stationing.

Vertical Movement - shows all data from each year.

Vertical differences are calculated comparing the elevation to the "1964 survey" elevation.

Detailed information pertaining to monument descriptions and survey information can be found at OC Survey Divison, Geodetic Control Unit.

All values are shown in U.S. Feet.

Horizontal Datum = CCS83, zone VI, 1991.35 Epoch Adjustment

Vertical Datum = NGVD29, OCS 1976 Adjustment

Villa Park Dam (Outlet Structure) - Monitoring Survey

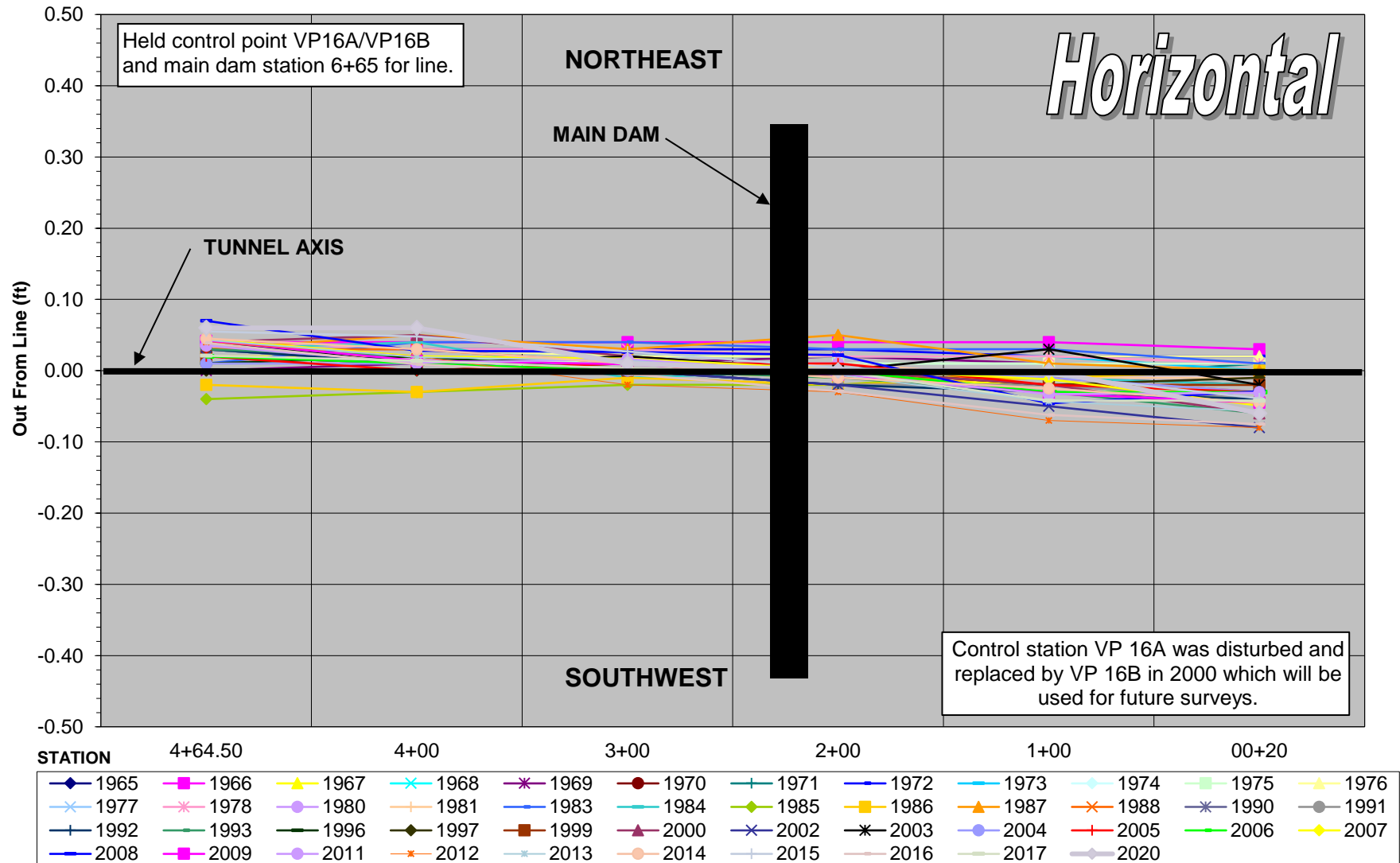
Report Summary

1964-1984	Horizontally stable. Vertical subsidence occurs due to settling of dam
1985-1999	Horizontally stable. Vertical subsidence seems to stop. No significant movement detected.
2000	Horizontal chart differs from previous surveys due to change in control stations. Vertical appears stable. No significant movement detected.
2001	No survey performed due to excessive water in tunnel.
2002	No significant movement detected.
2003	No significant movement detected.
2004	No significant movement detected.
2005	No significant movement detected.
2006	No significant movement detected.
2007	No significant movement detected.
2008	No significant movement detected.
2009	No significant movement detected.
2010	VP Tunnel not monitored. GPS Point #1039 (VP-16B) was underwater; point is unusable until the water is drained from this area.
2011	No significant movement detected.
2012	No significant movement detected.
2013	No significant movement detected.
2014	No significant movement detected.
2015	No significant movement detected.
2016	No significant movement detected.
2017	No significant movement detected.
2018	Structure not monitored due to unsafe conditions.
2019	Structure not monitored due to unsafe conditions.
2020	No significant movement detected.
2021	
2022	

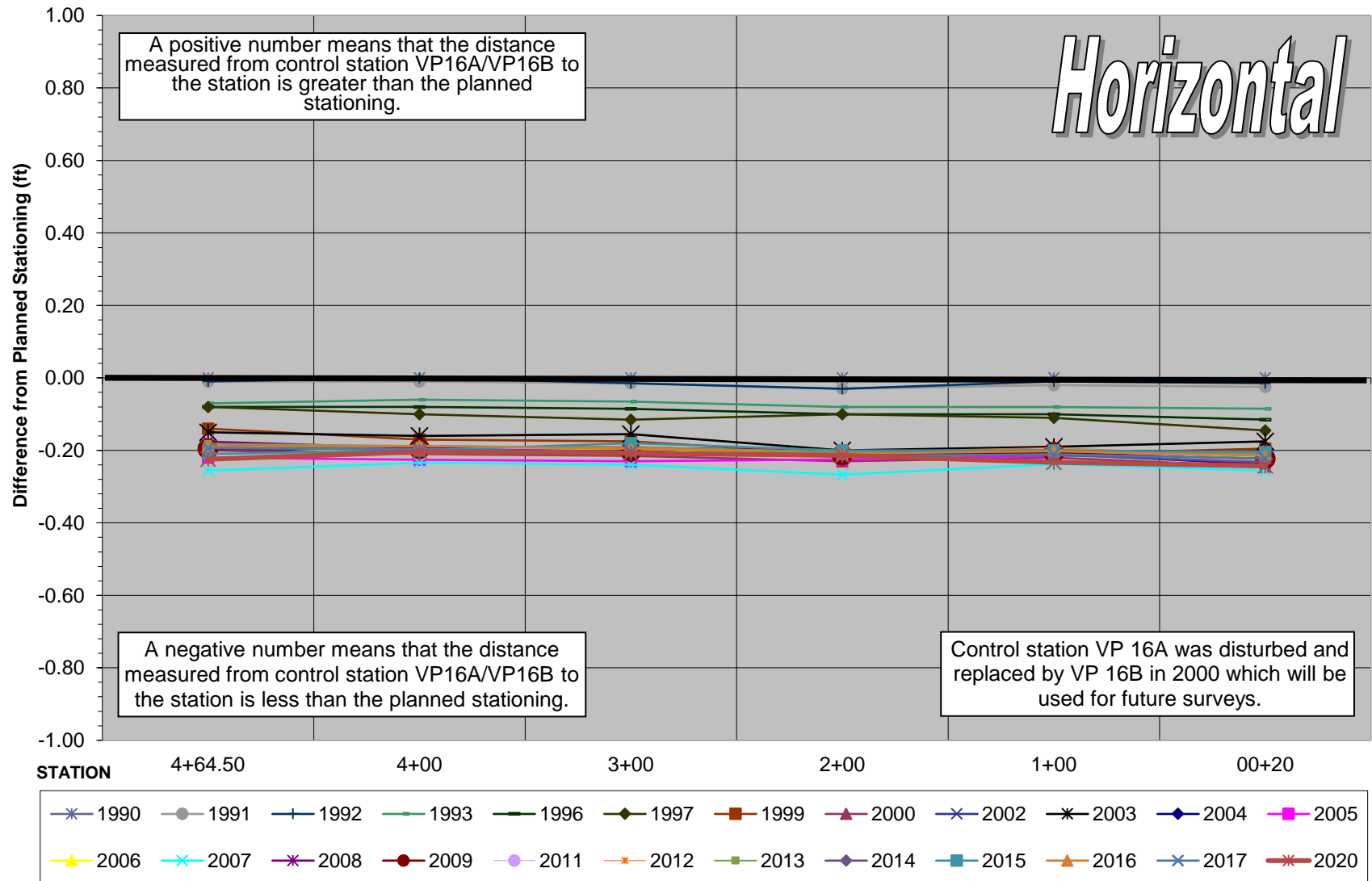
Horizontal Datum = CCS83, zone VI, 1991.35 Epoch Adjustment

Vertical Datum = NGVD29, OCS 1976 Adjustment

Villa Park (Outlet) Dam Horizontal Movement Perpendicular to Tunnel Axis (Out From Line) - Plan View



Horizontal



Vertical

