Accura Surveys Ltd.

Dimensional Control Consultants

NKOM BestFit Software training

Day 1

a) Intro myself (30+ years, where software used), timekeeping.
b) Introduction and software review (location of software, folders, tutorial, menus, popup & undo)
c) Explain coord file, survey file (open with notepad), Sokkia SDR / Leica GSI format. Set SDR33
d) Circle fitting, levelling, flatness and making vertical - exercises 2 & 3
e) Review prisms, spikes, retros, reflectorless.
f) Spike calibration (practical) - using retro, Accura Spike and NKOM spike. Set spike in TT.
g) Practical – survey control, circle fit & download data (in SDR format). Align wall
h) Prism contant for Nikon, Sokkia, Topcon. (reduce Leica by 34.4). ie tape is 0 in Sokkia

Lunch break

i) Basic introduction to codes (start and end). Use of one file for day / project
j) Download raw co-ordinate file - exercise 5 (explain multiple set-ups in one file)
k) Coding and naming in Sokkia. Use name part for name, ZZZ for code (remember to remove).
l) Practical - second set up with code seperators. Download & separate. Keep files
m) Explain use of alignment of points (create 2 pts in new file – align to N & level)
n) Use of multiple alignment – exercise 4 (spool)
o) Explain point naming (ie P001.1, T01, C001.1) , circle fitting and control (dot not applic to sdr).
p) Explain 2D and 3D fit of co-ordinate files. When used. Fit previous 2 set-ups. Exercise 9.
q) Practical - instrument checks, calibration, FL/FR readings to tape, linking 2 set-ups.

Day 2

a) Review of previous day. Review pt setting and alignment. Exercise 10 (independent).
b) Discuss 3D Best-Fit (vibration & inclined set-ups, compensator). Floating FPSOs.
c) Practical – add 3rd set-up (inclined). 3D BestFit.
d) Fitting to design / creating datums for structure – first part of exercise 7
e) Discuss locating errors in fits & transfering control between levels
f) BestFit configuration (tolerance setting and logging) - exercise 6

Lunch break

g) Discuss flange point naming and basic calculations - exercise 11
h) Practical –survey flanges from single set-up
i) Discuss flange angle calculations / presentation of results – exercise 12 & 13
j) Practical survey of spool with survey widgets and drawing flange angles
k) Review use of pipe data pro to find flange type and sizes
l) Review use of drawing template and red-line mark up (basic just for spool).
m) First part of exercise 16
n) Plotting in Cad – exercise 15. Try flange mirror.

Day 3

a) Review of previous day
b) Explain circle fits (reflectorless and non R), problems with surveying less half.
c) Forcing radius – exercise 17. Circle fits on line
d) Review bearing & distance & grid vertical angles
e) Explain use of roll back. I use for final file (revert back to position).
f) Discuss temperature correction for shrinkage (standard is 20C, when to survey etc).
g) Exercise 19 – reflectorless jacket survey (circle fitting, circle fitson line, temperature corr.)

Lunch break

h) Reporting of results – examples folder , deviation arrows, drawing template, report template
i) Combining all methods – exercises 26
j) Importing raw data as H, V, Slope Distance – exercise 23 (why use?)
k) Reflectorless pipework surveys – exercise 27 & 28
l) Reflectorless practical outside.
m) Field work notes, calculations and checking – discuss.

Day 4

a) Review of previous day
b) Exercise 14 – spool 3D fitting to design
c) Use of BestFit line – data file in tutorial folder. Show explamples of results – alignment radii
d) Explain bundle fit – why use. Exercises 21 & 22
e) Discuss red-line mark-ups and use of PipeData – exercises 31
f) Structure inclination & pitch & roll. Exercise 8 (time pending).
g) Discuss weighted BestFit briefly.
h) PPM & Earth curviture
i) Recap and any questions.