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An investigation of Westonaria formation lavas (WAF) and it's influence on the rock engineering design at Goldfield's No.4 (Ya Rona) shaft pillar extraction

Durapraj, Shyandra

2015-04-28
http://hdl.handle.net/10539/17545

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Numerical Modeling data

C.1. Shaft barrel RCF plots (F=0.7)

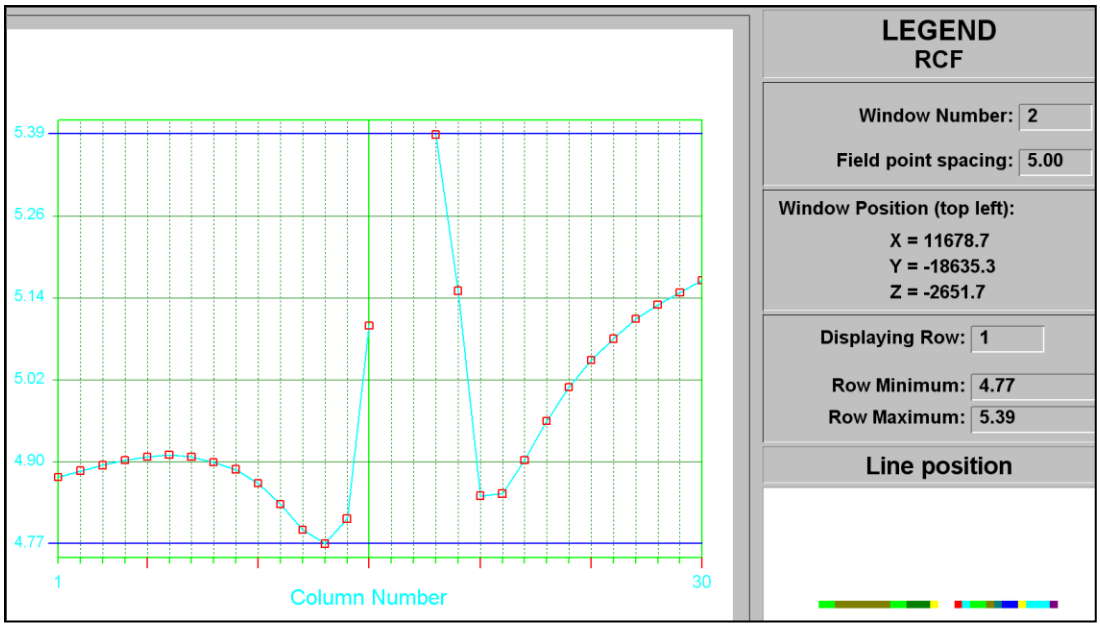

Figure C-1 RCF of shaft barrel at STEP 1

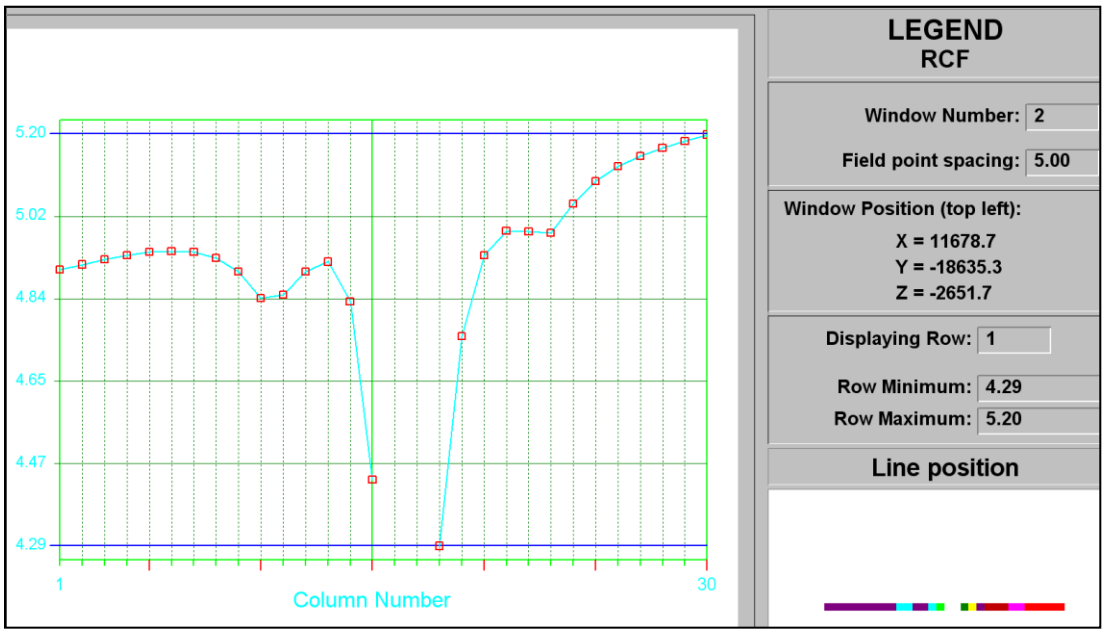

Figure C-2 RCF of shaft barrel at STEP 2

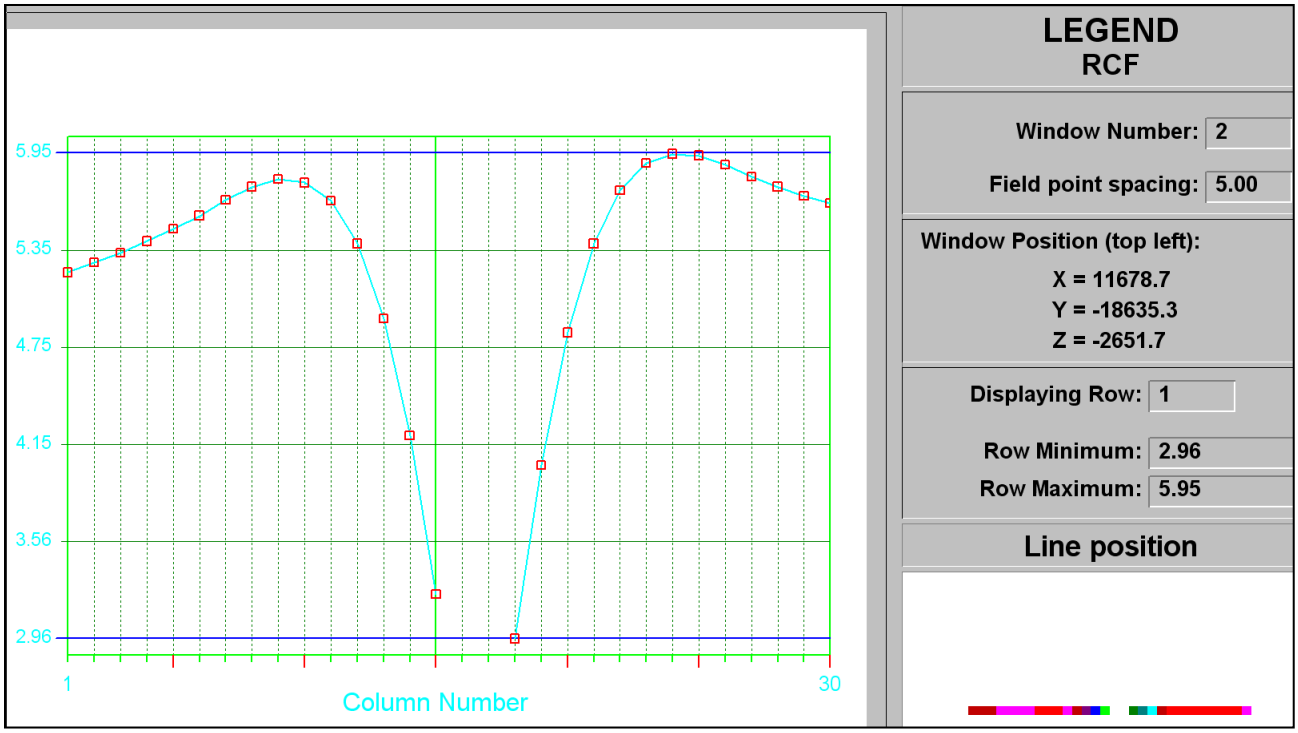

Figure C-3 RCF of shaft barrel at STEP 3

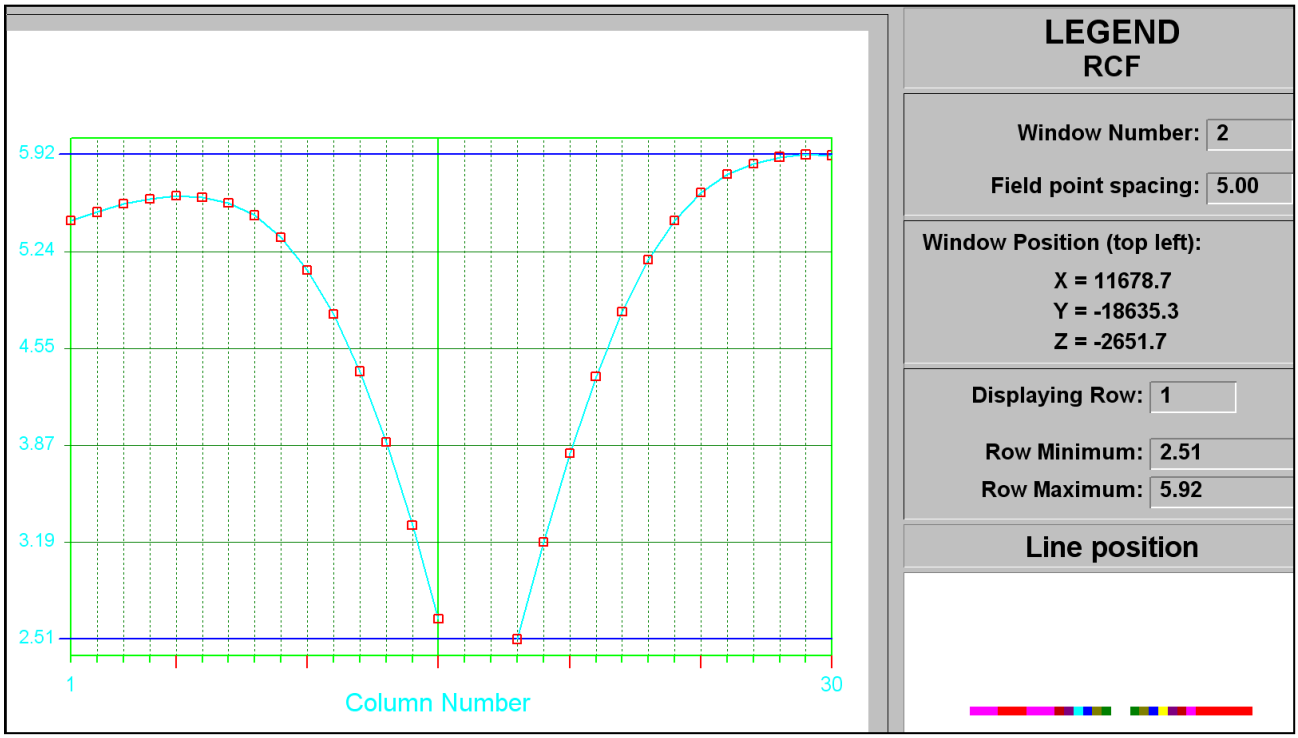

Figure C-4 RCF of shaft barrel at STEP 4

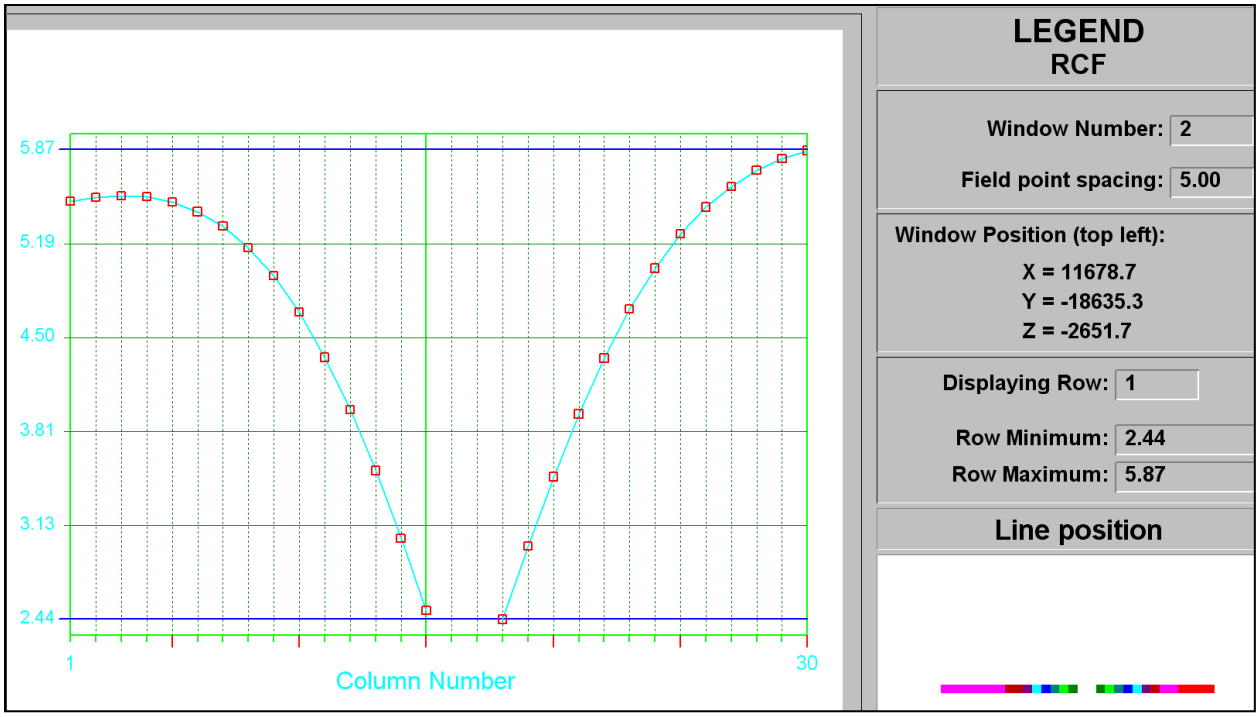

Figure C-5 RCF of shaft barrel at STEP 5

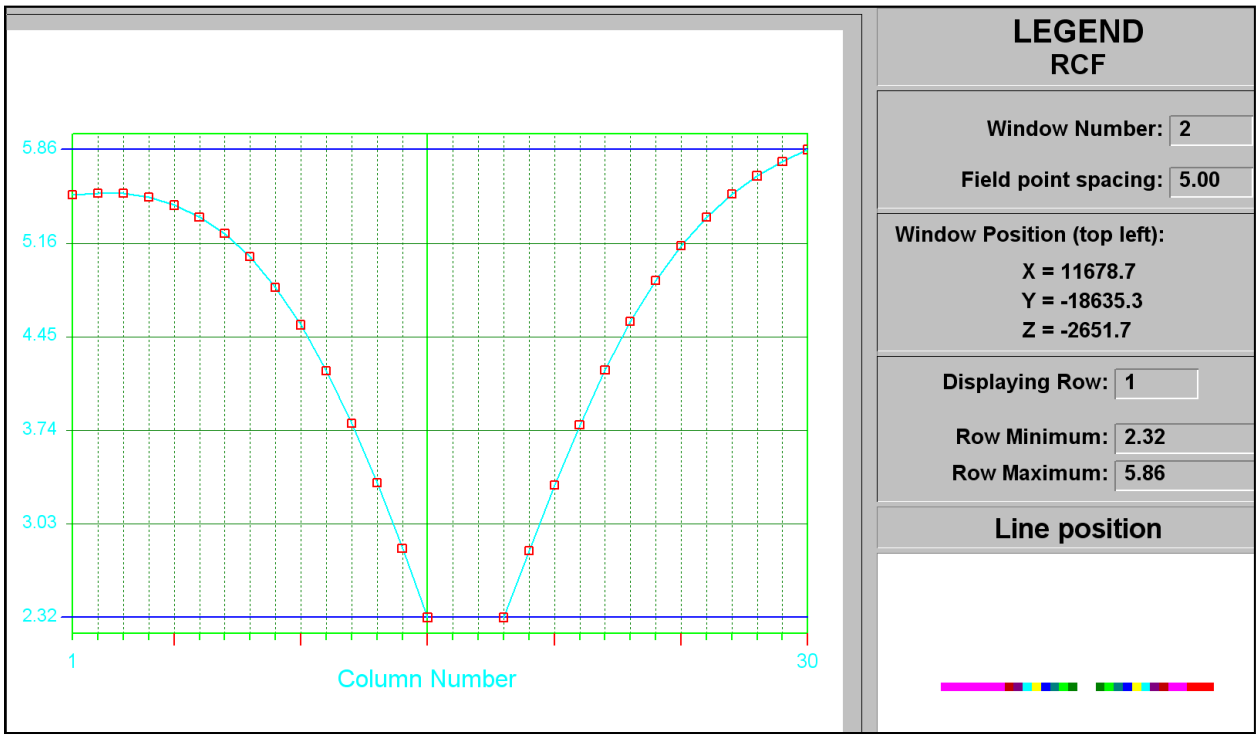

Figure C-6 RCF of shaft barrel at STEP 6

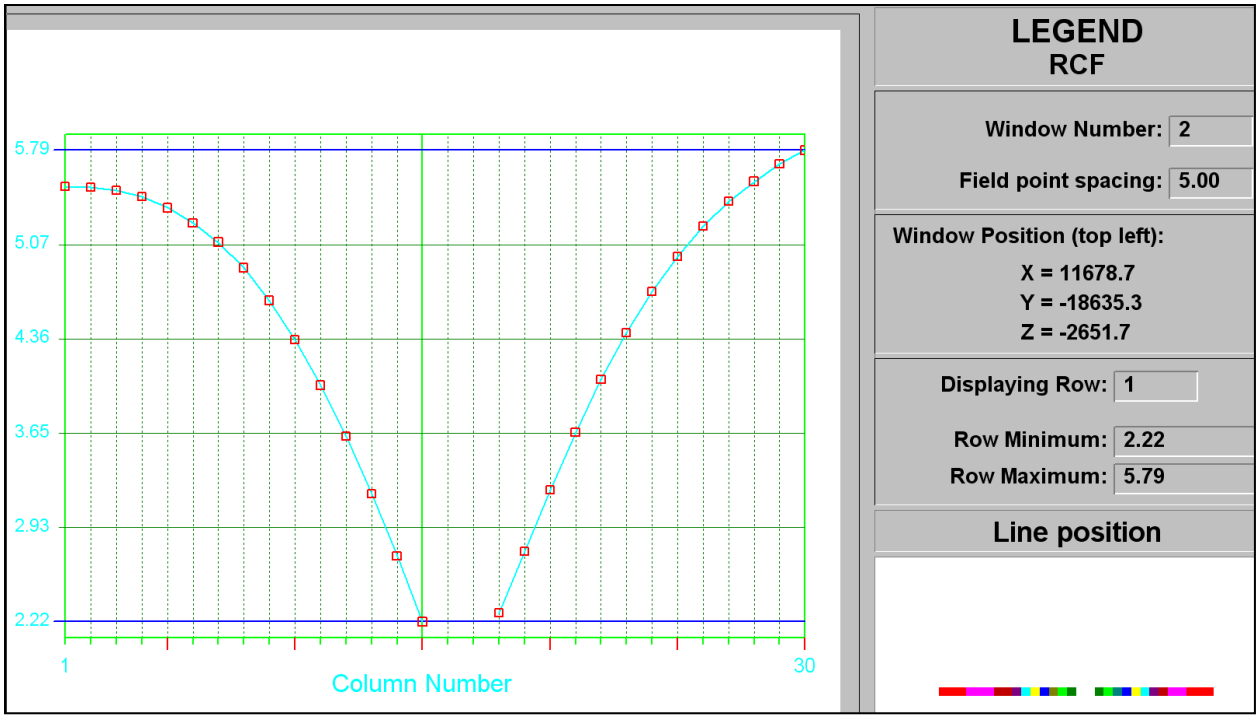

Figure C-7 RCF of shaft barrel at STEP 7

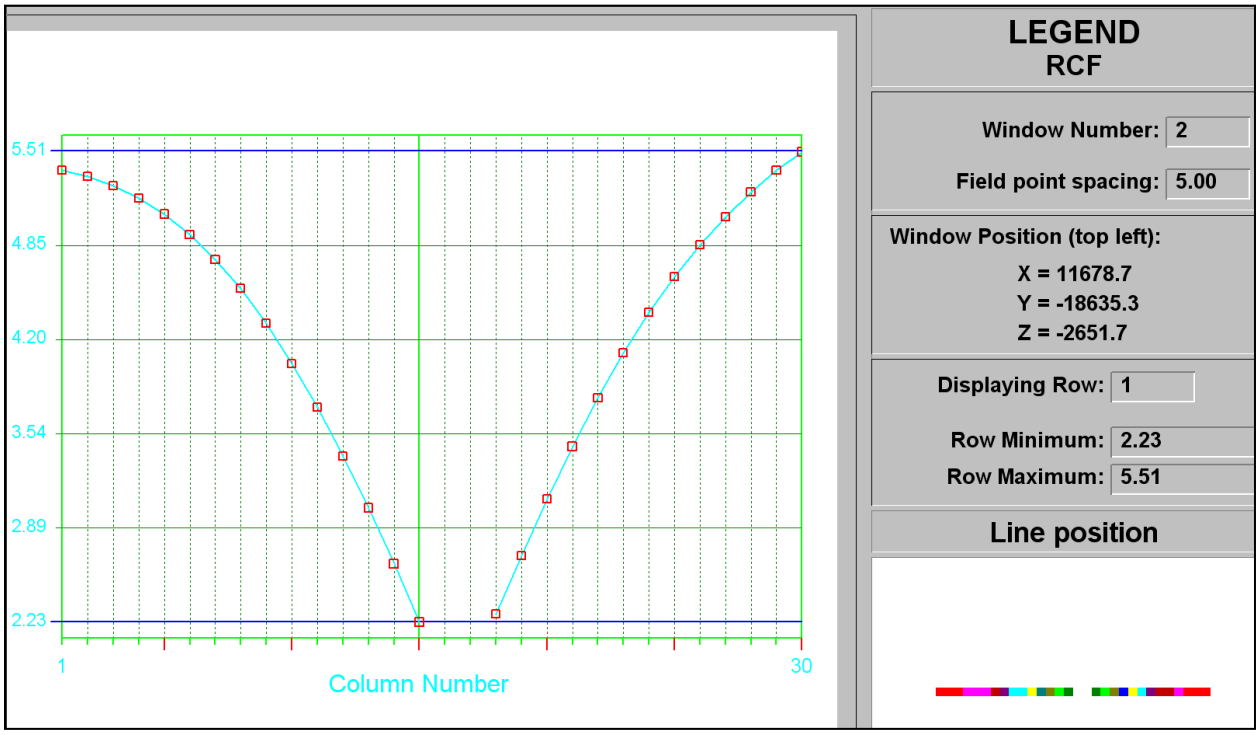

Figure C-8 RCF of shaft barrel at STEP 8

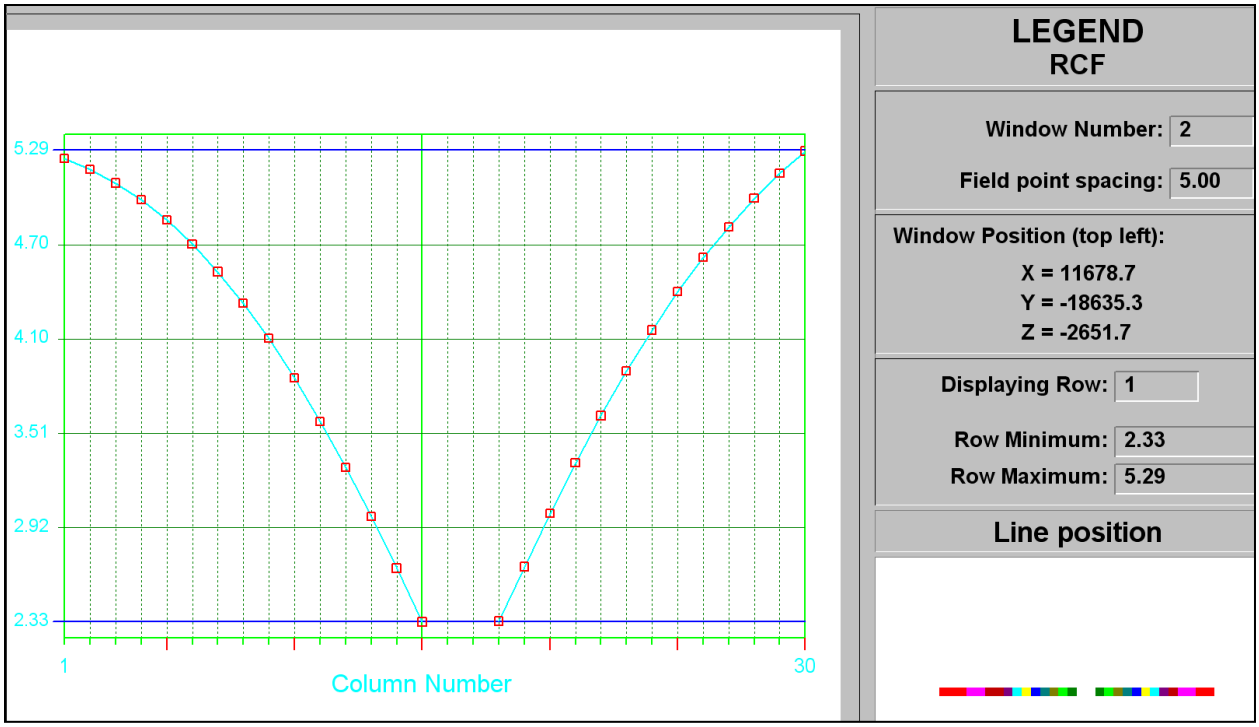

Figure C-9 RCF of shaft barrel at STEP 9

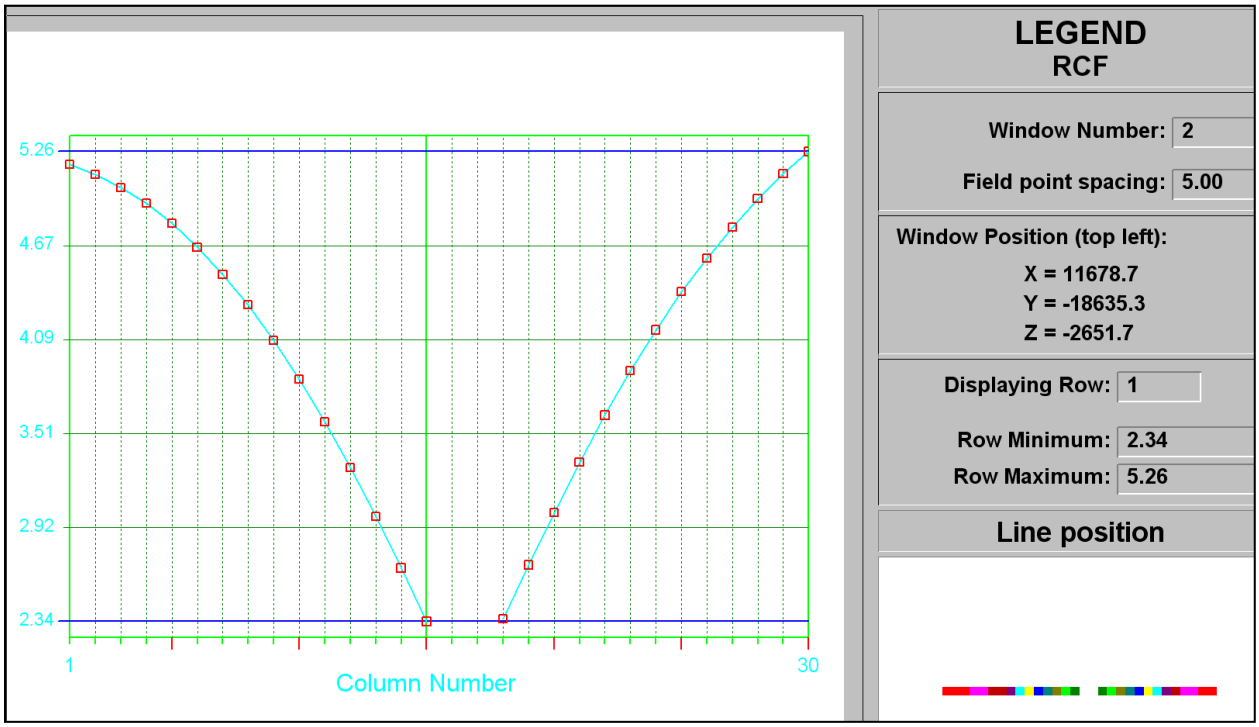

Figure C-10 RCF of shaft barrel at STEP 10

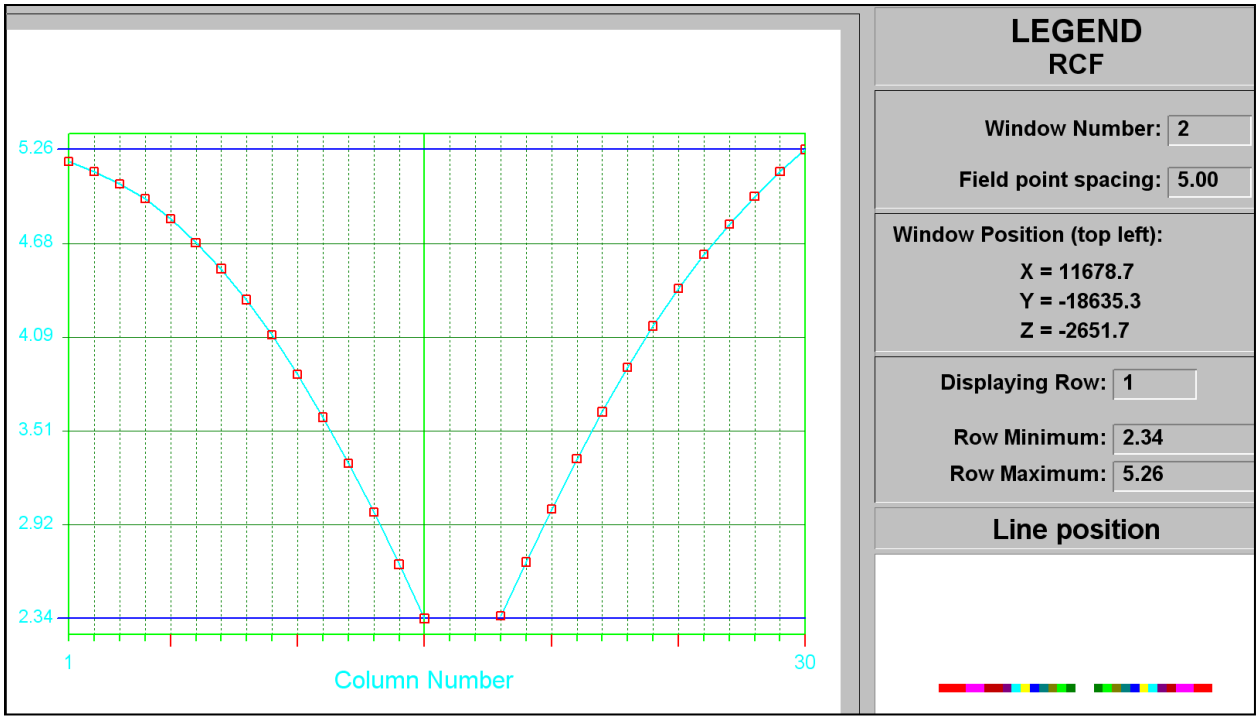

Figure C-11 RCF of shaft barrel at STEP 11

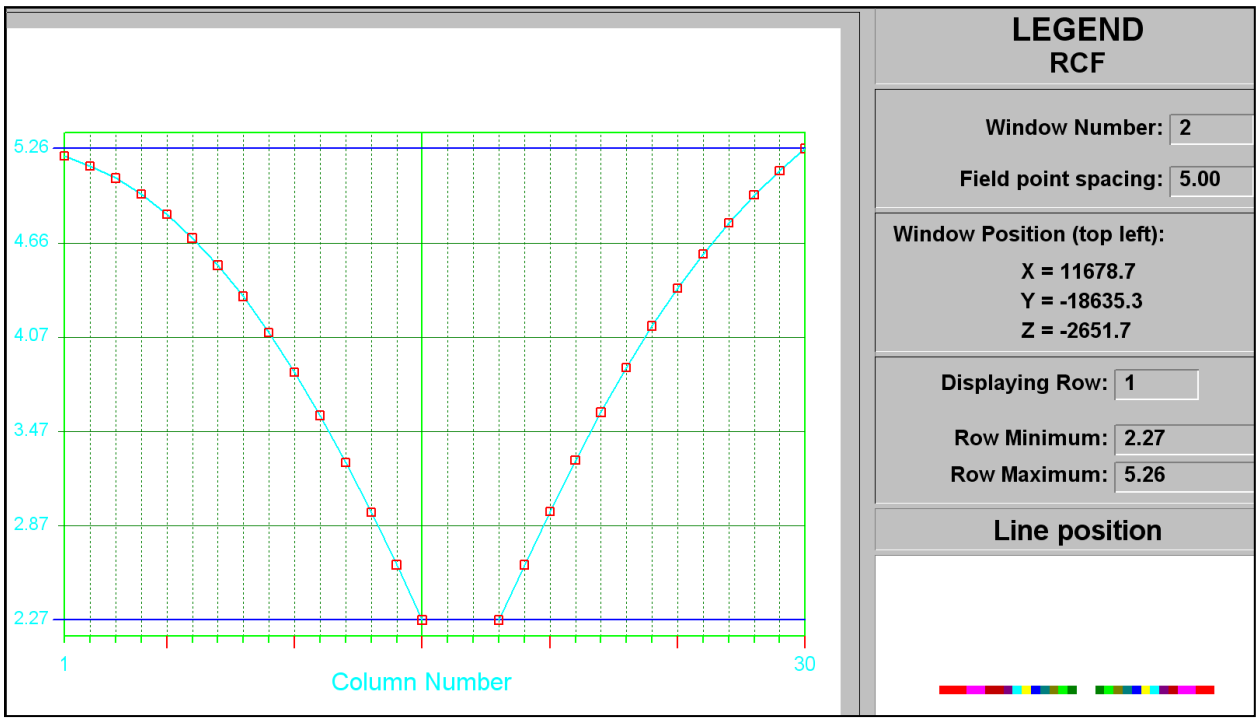

Figure C-12 RCF of shaft barrel at STEP 12

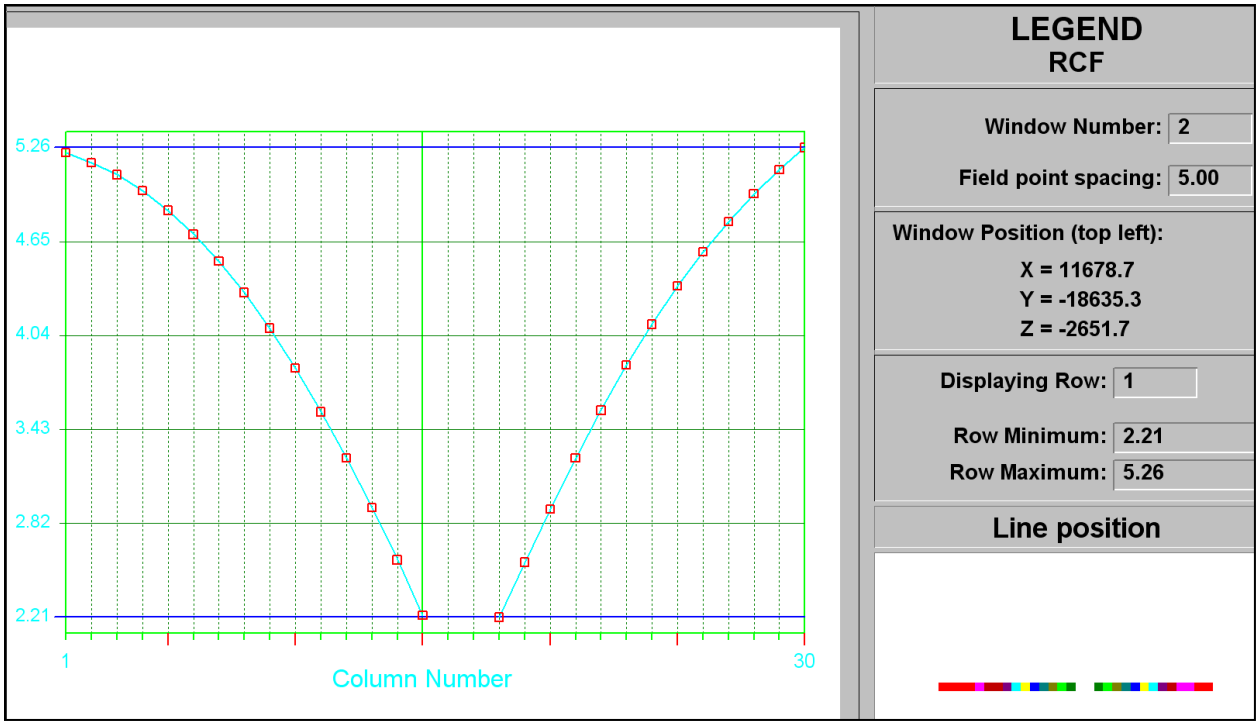

Figure C-13 RCF of shaft barrel at STEP 13

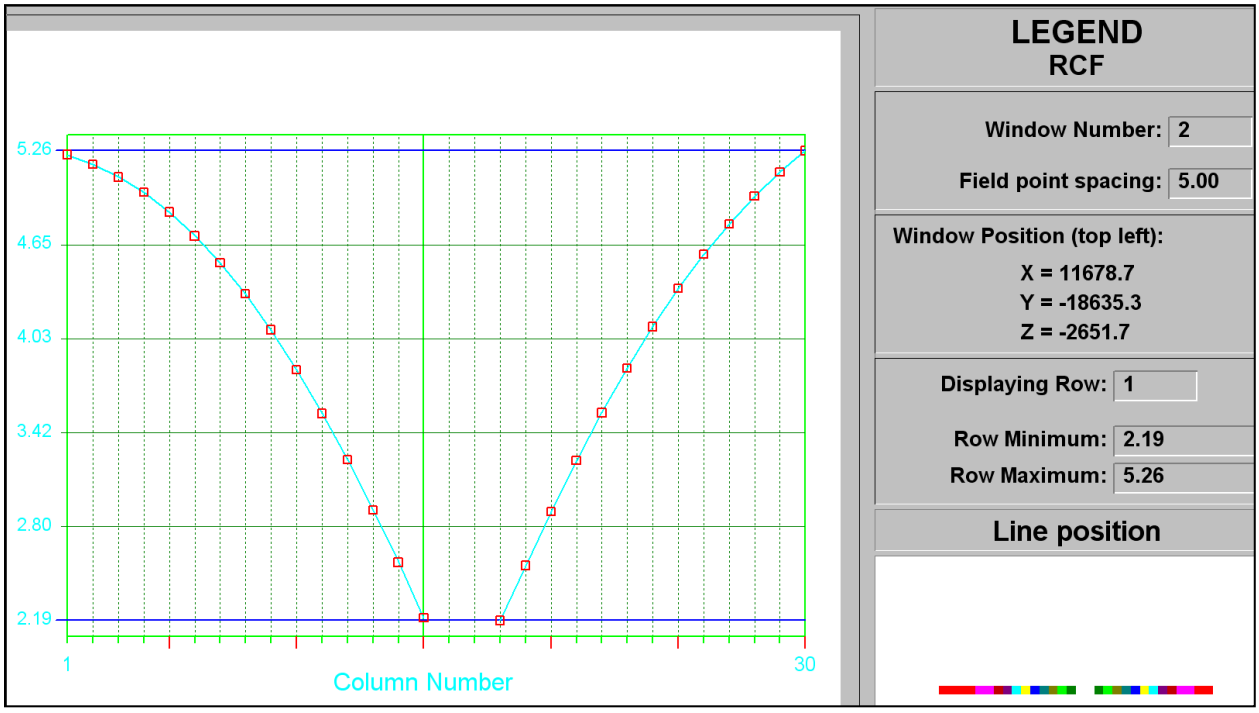

Figure C-14 RCF of shaft barrel at STEP 14

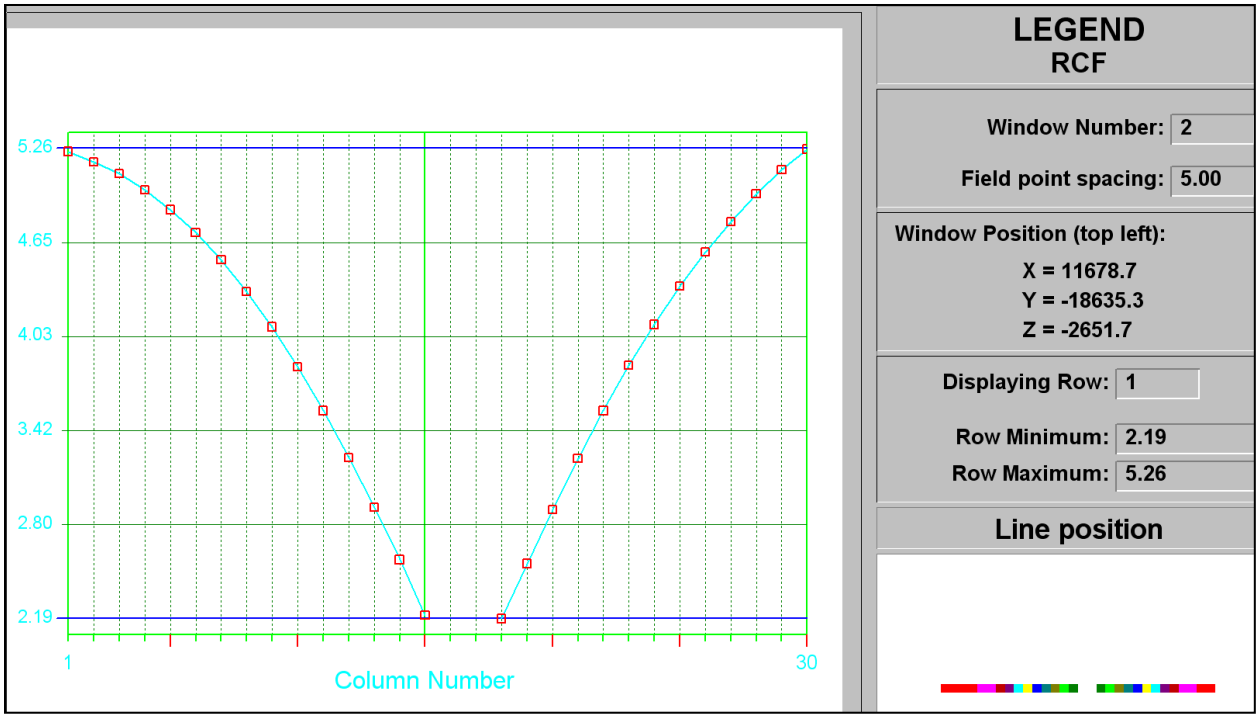

Figure C-15 RCF of shaft barrel at STEP 15

C.2. Shaft barrel closure plots (F=0.7)

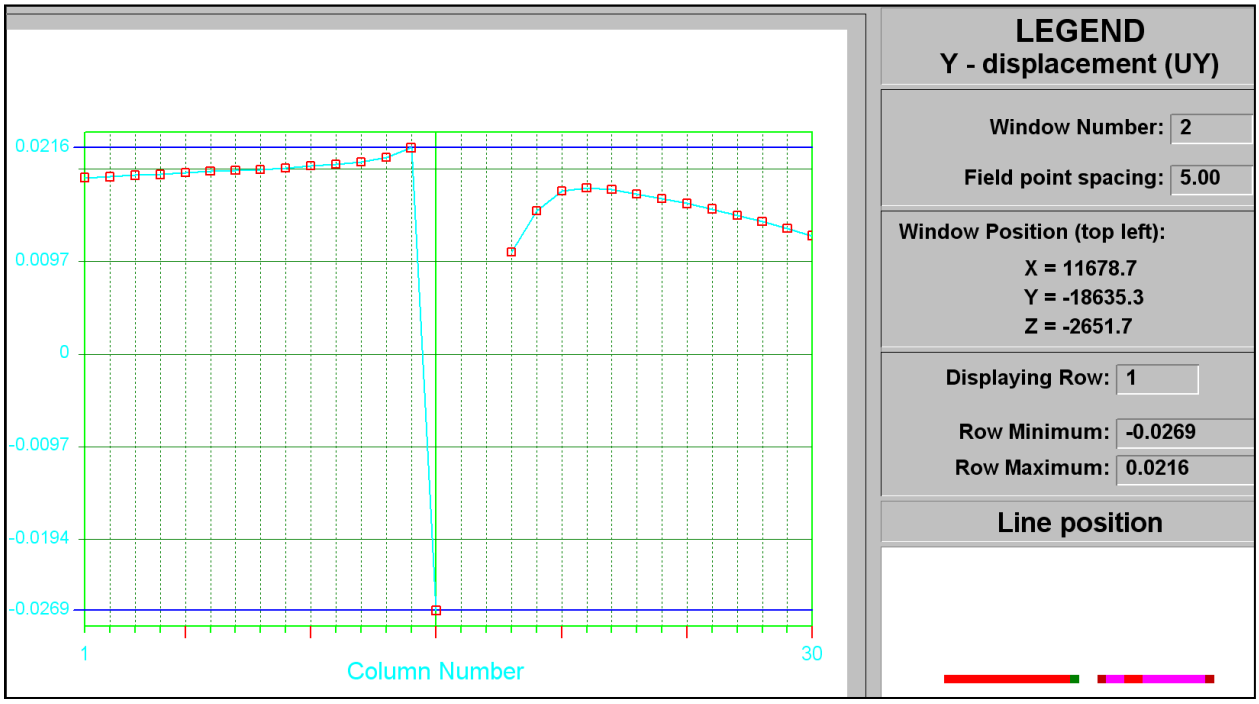

Figure C-16 UY closure at STEP 1

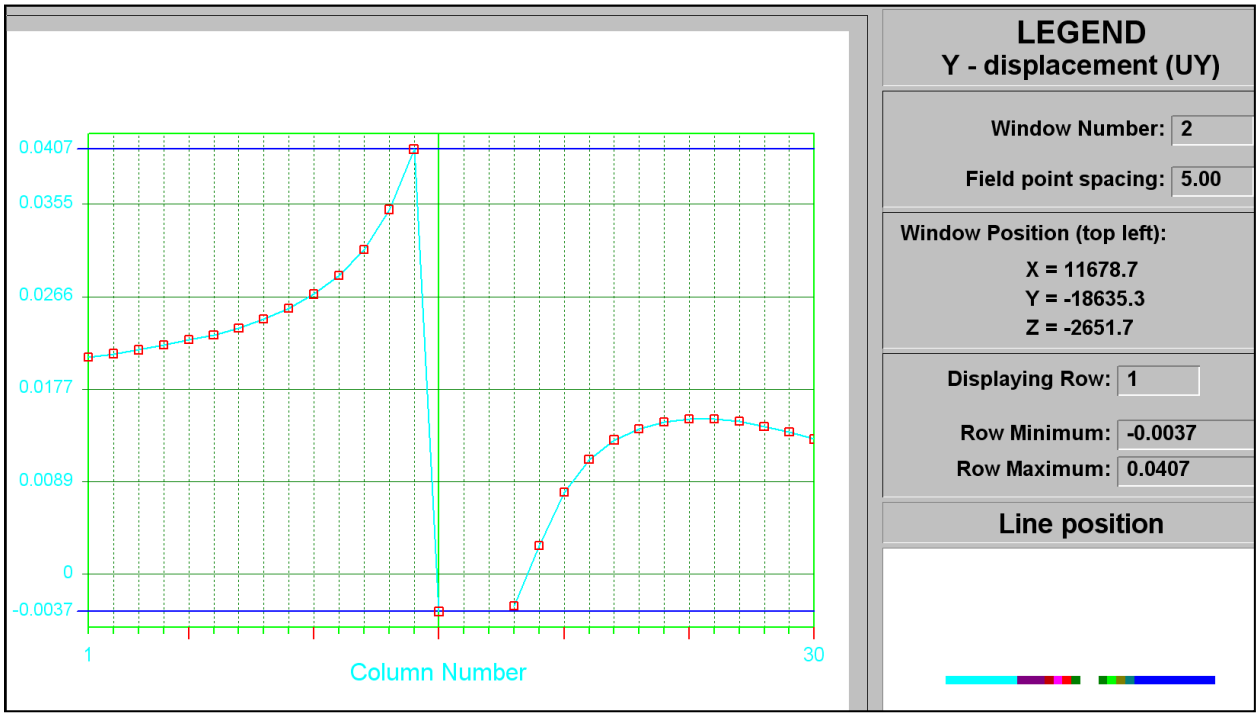

Figure C-17 UY closure at STEP 2

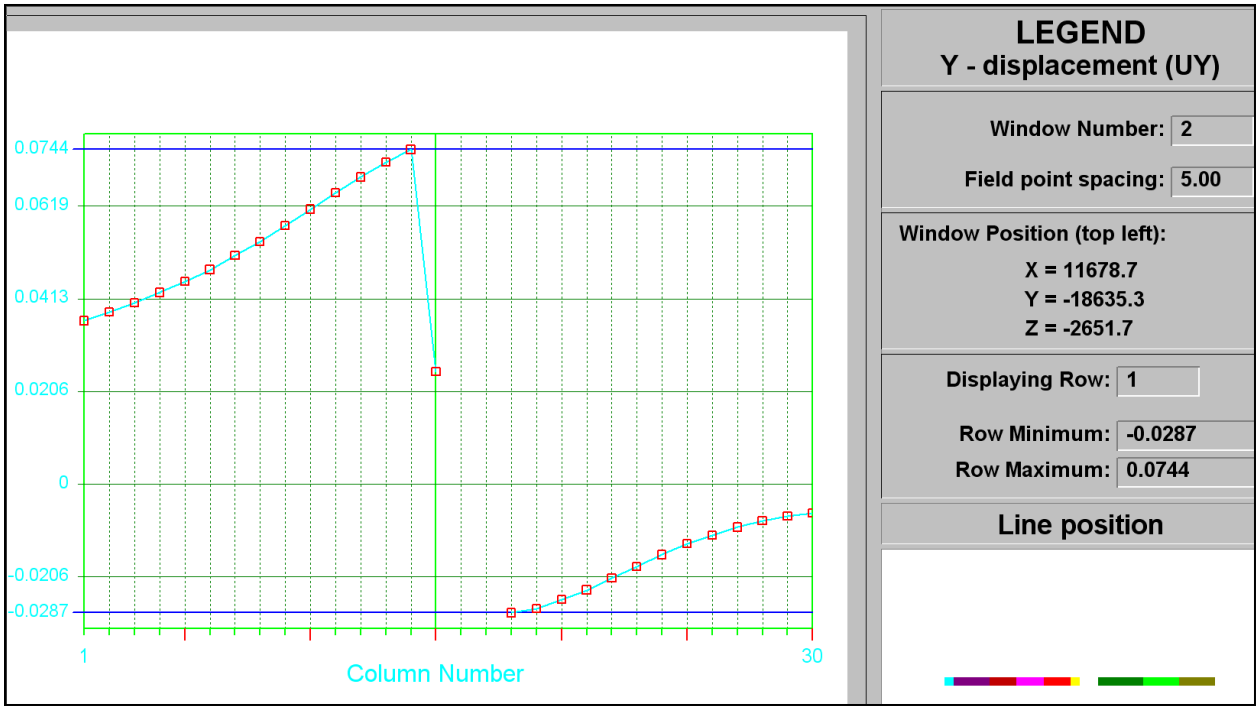

Figure C-18 UY closure at STEP 3

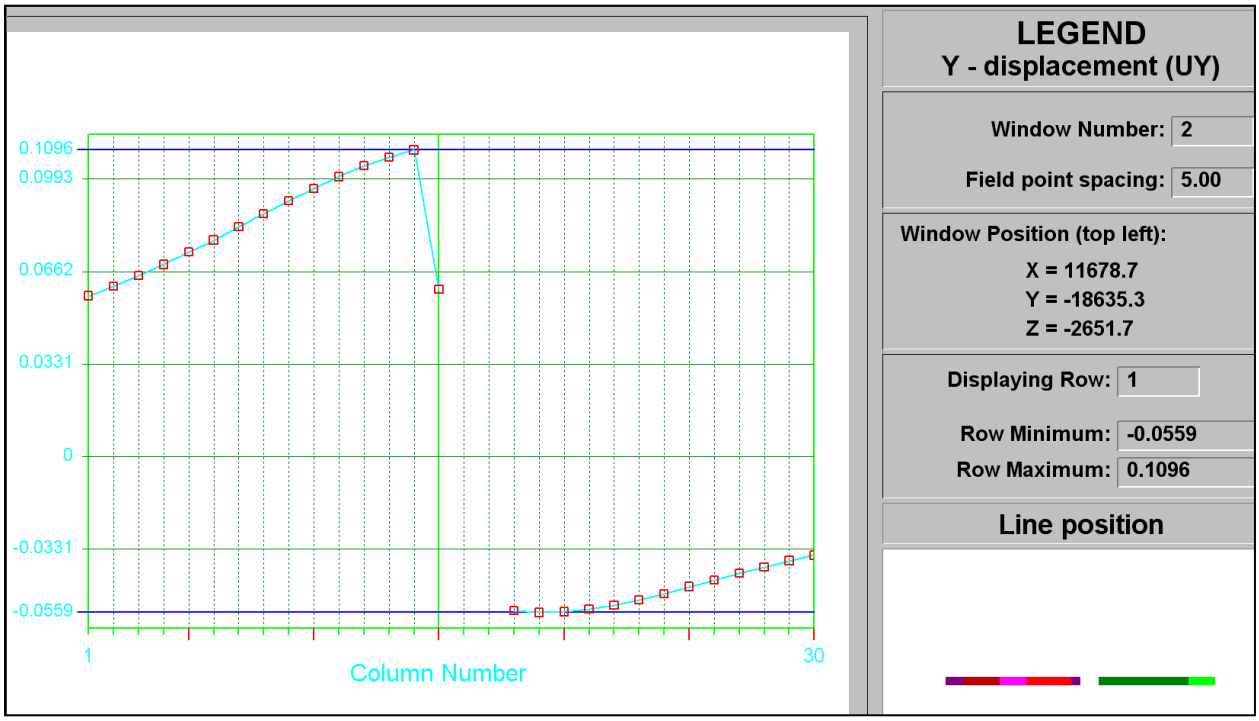

Figure C-19 UY closure at STEP 4

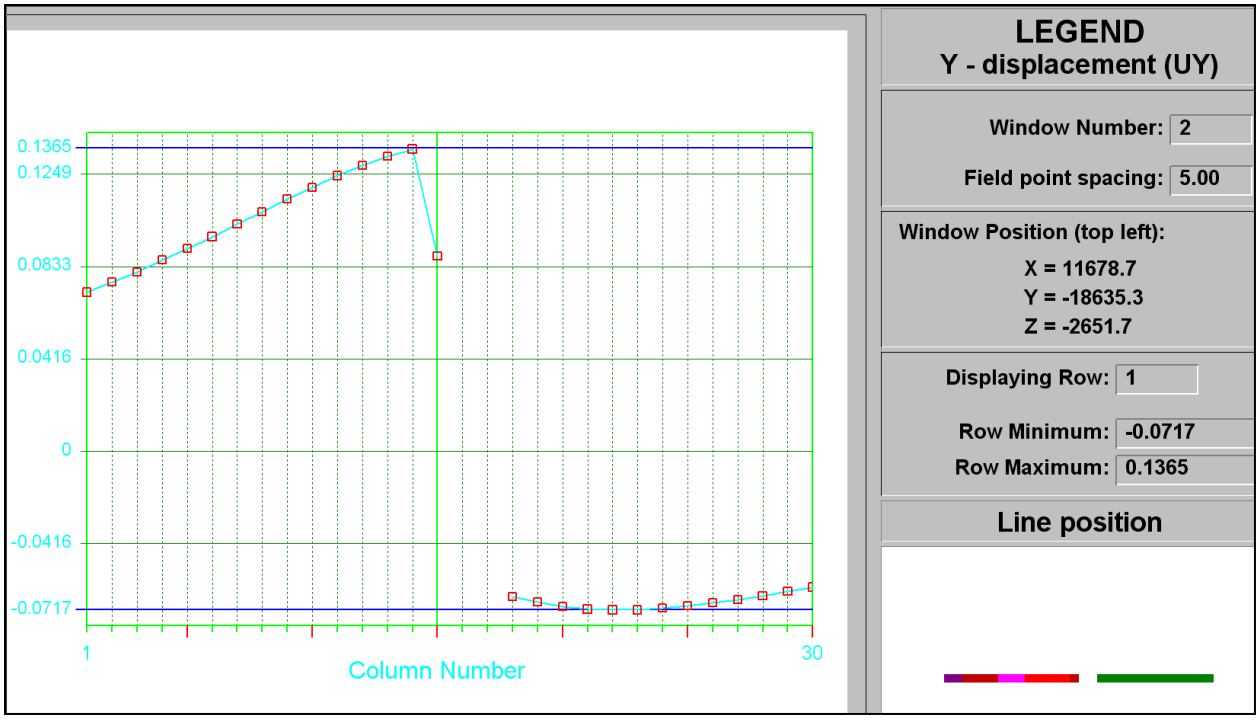

Figure C-20 UY closure at STEP 5

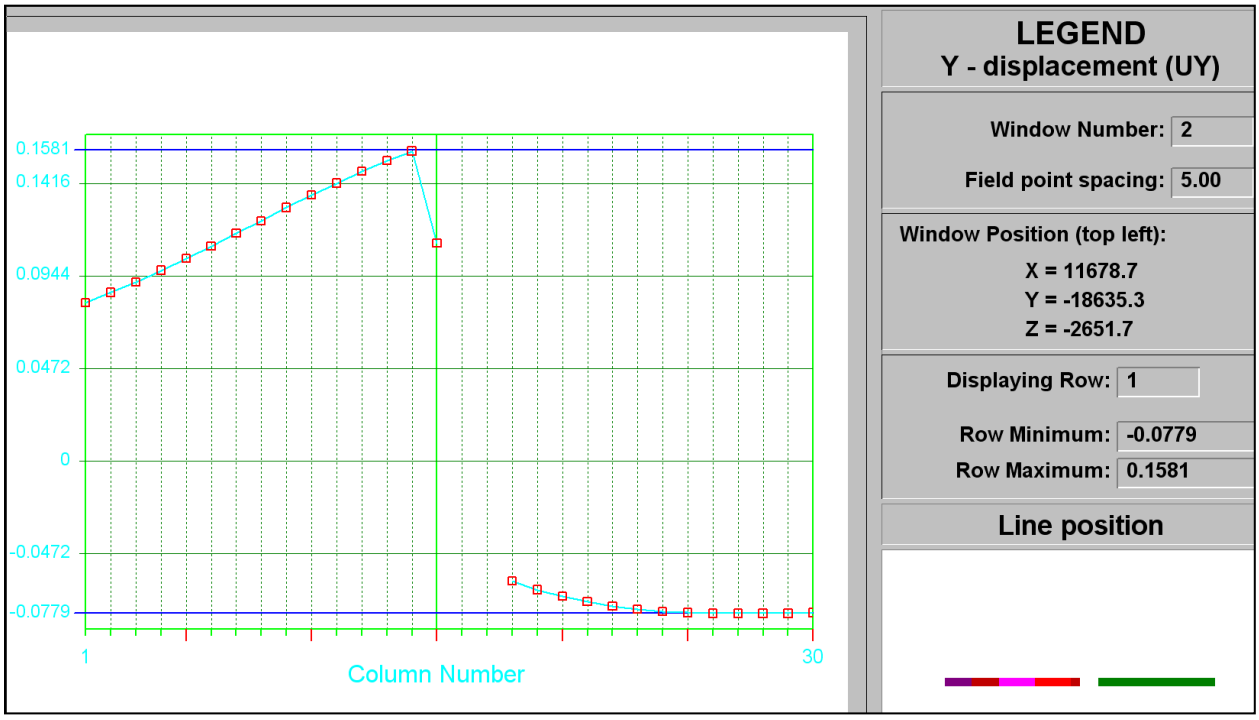

Figure C-21 UY closure at STEP 6

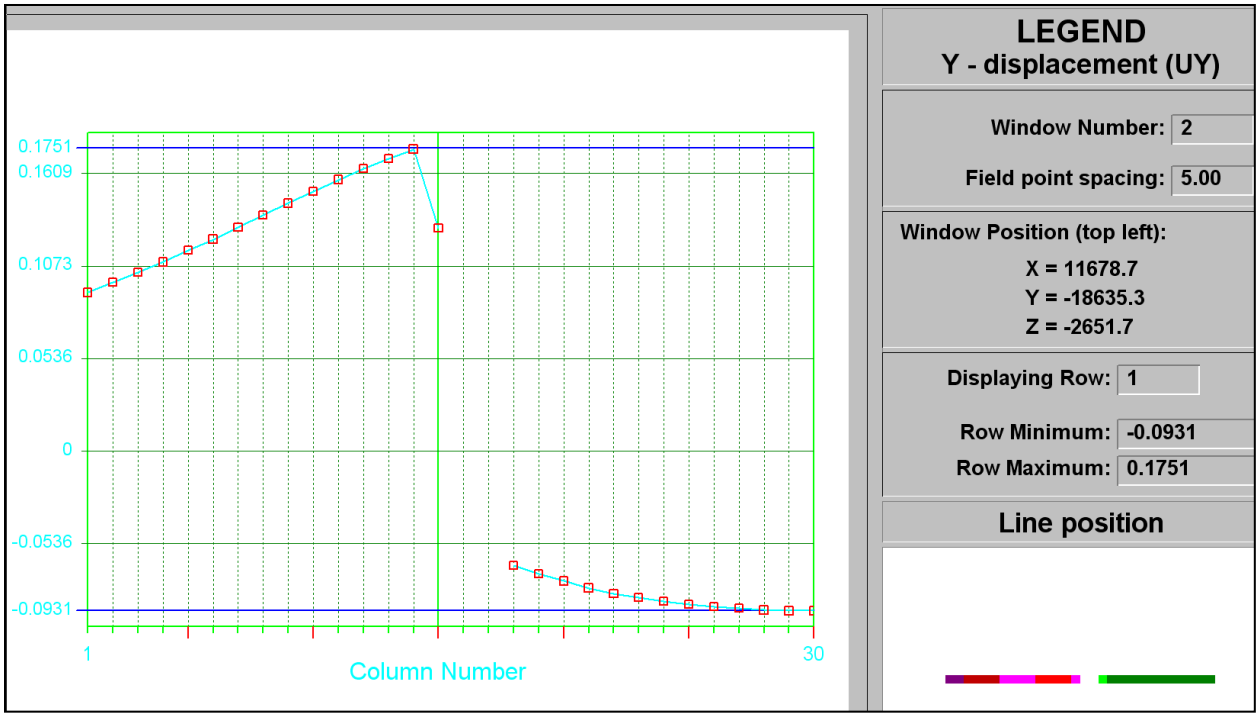

Figure C-22 UY closure at STEP 7

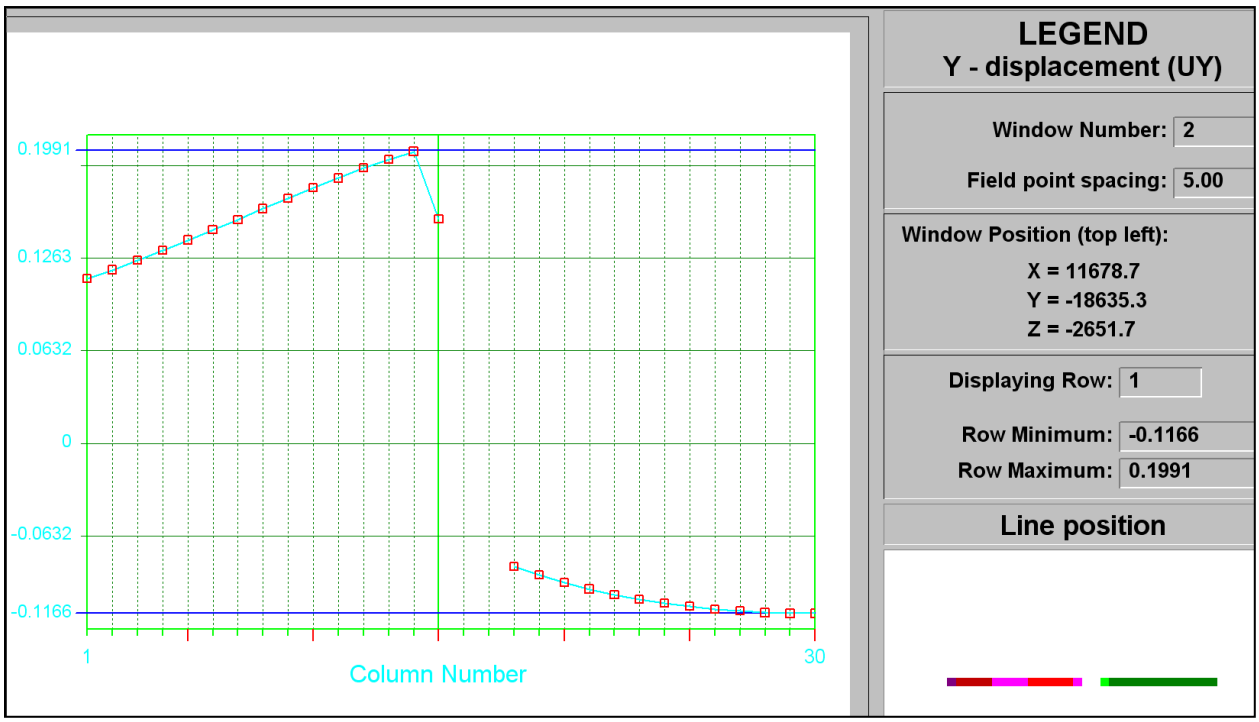

Figure C-23 UY closure at STEP 8

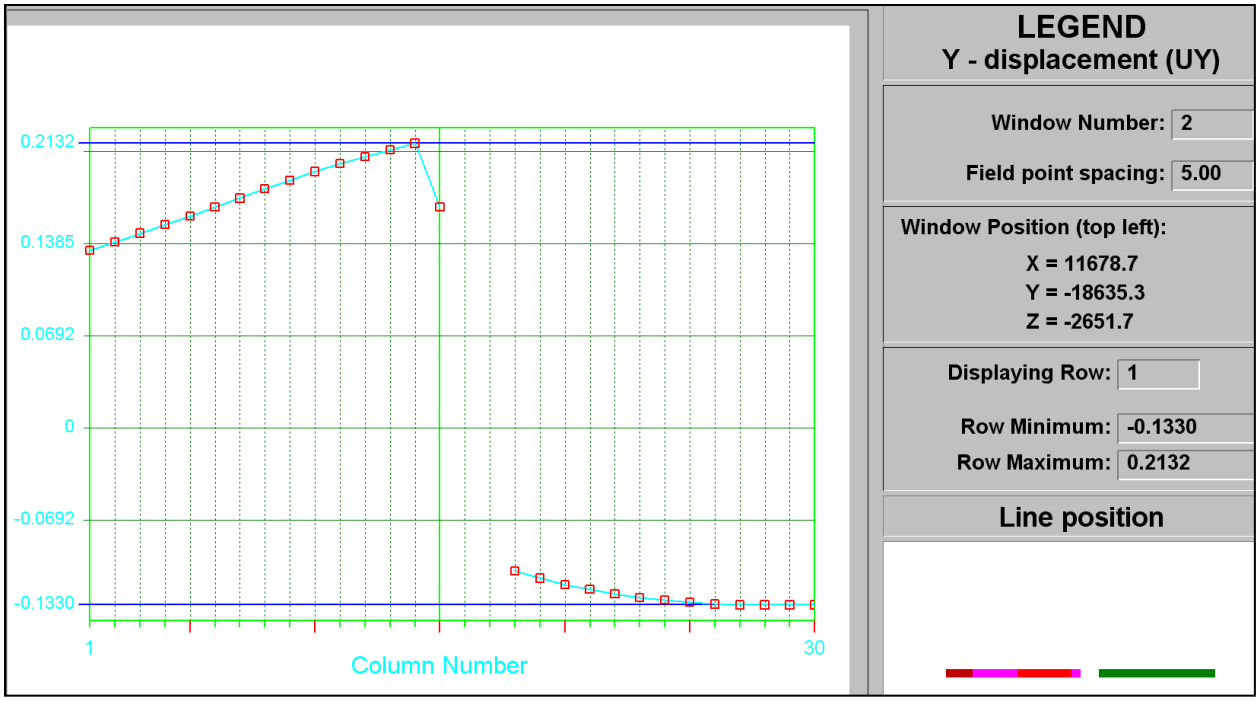

Figure C-24 UY closure at STEP 9

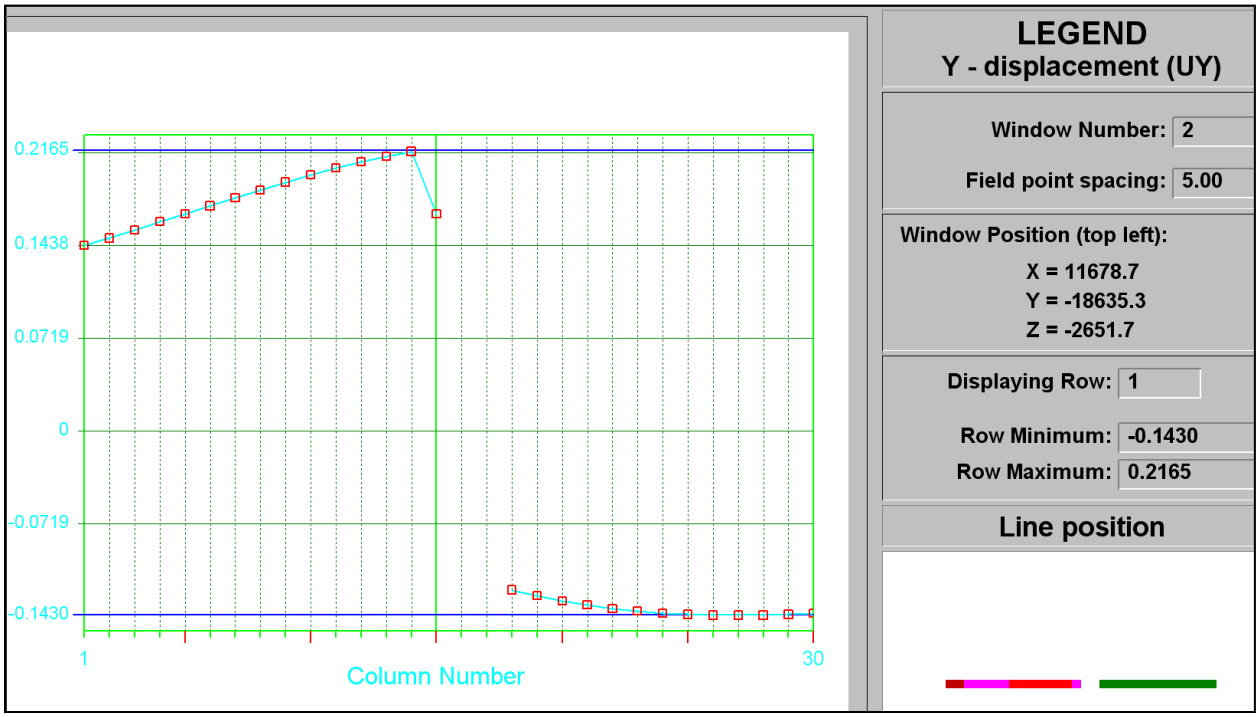

Figure C-25 UY closure at STEP 10

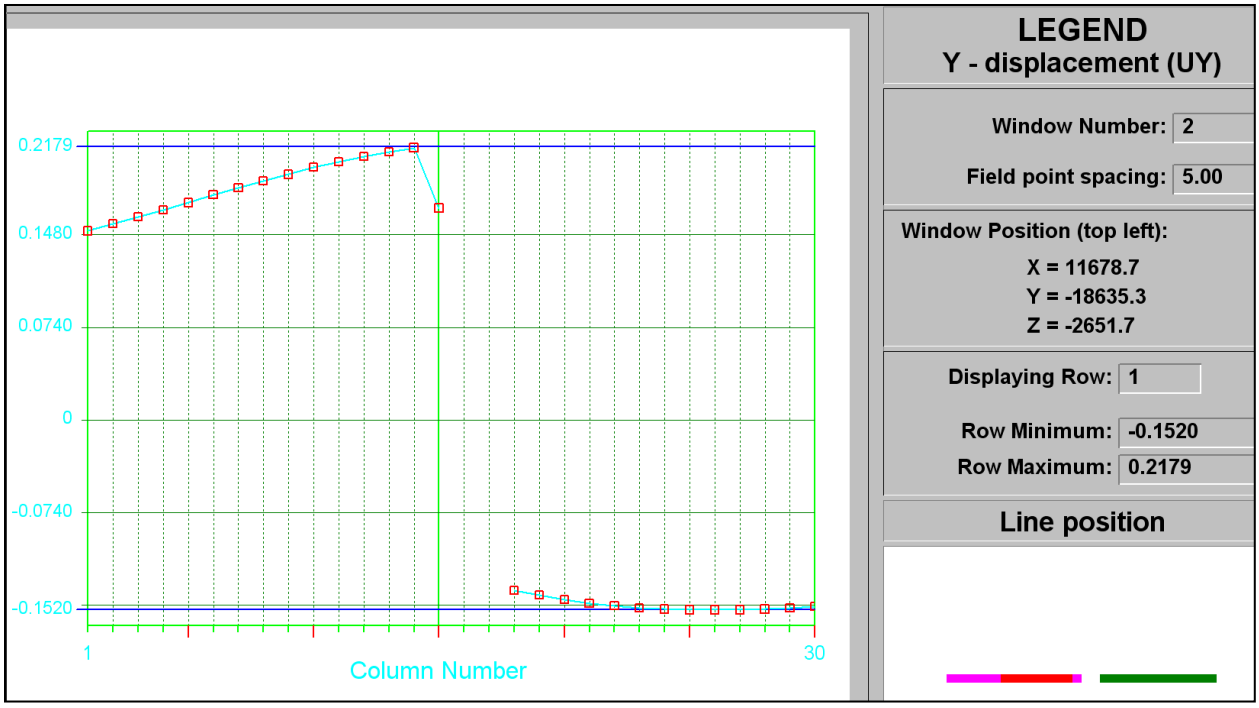

Figure C-26 UY closure at STEP 11

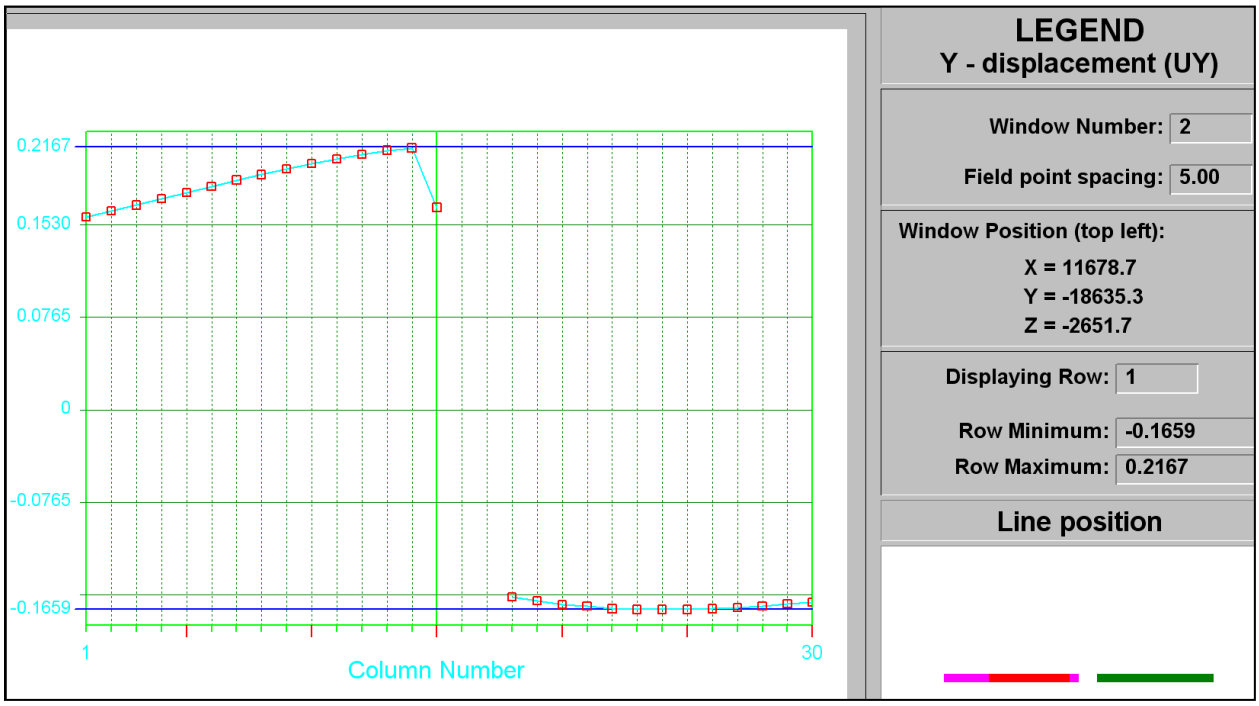

Figure C-27 UY closure at STEP 12

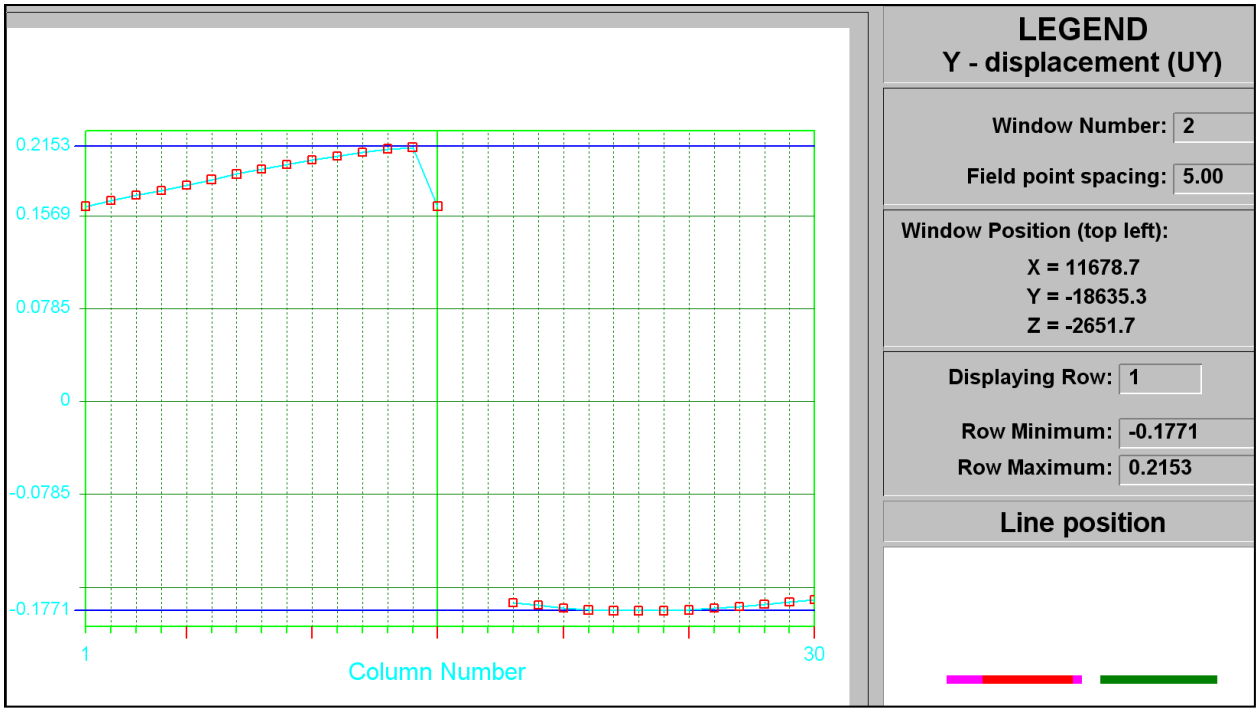

Figure C-28 UY closure at STEP 13

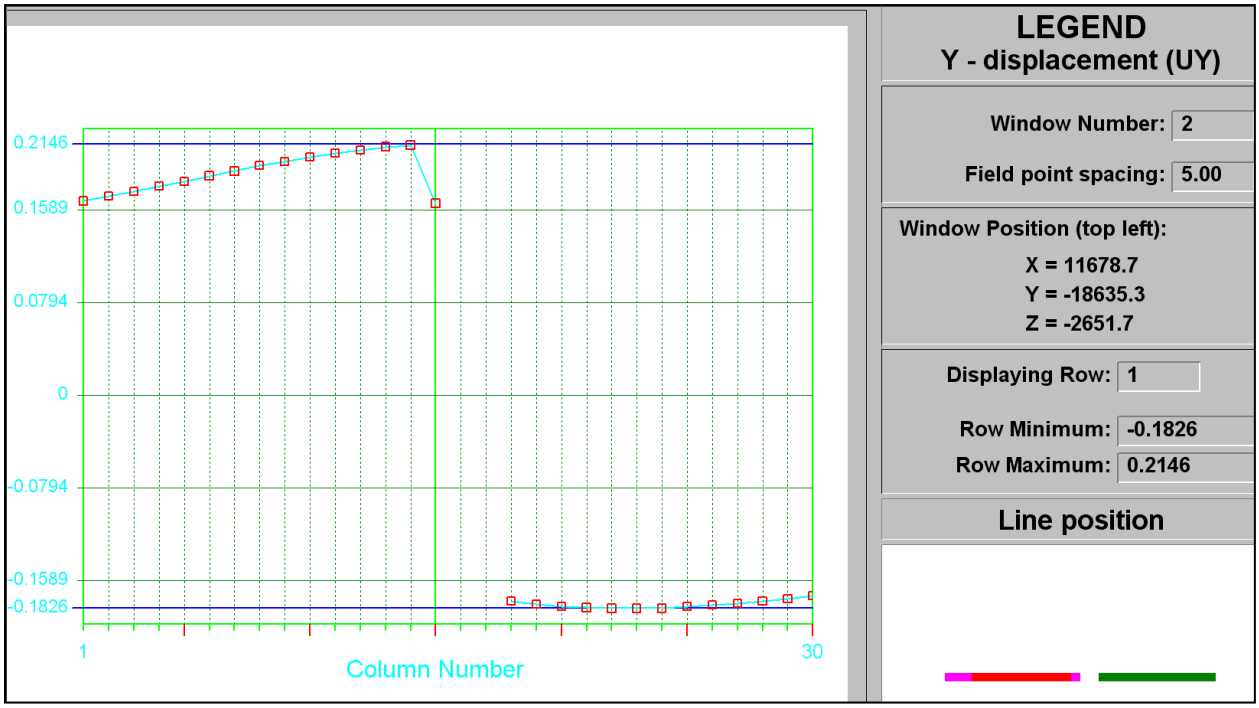

Figure C-29 UY closure at STEP 14

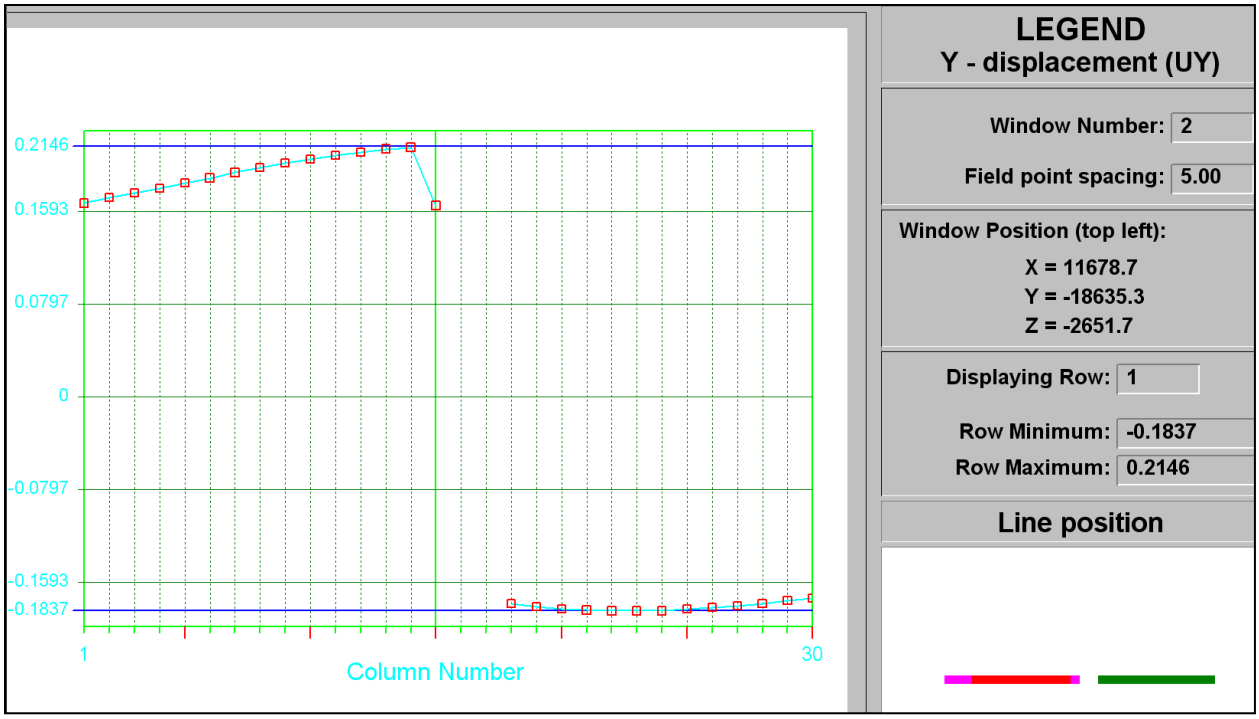

Figure C-30 UY closure at STEP 15

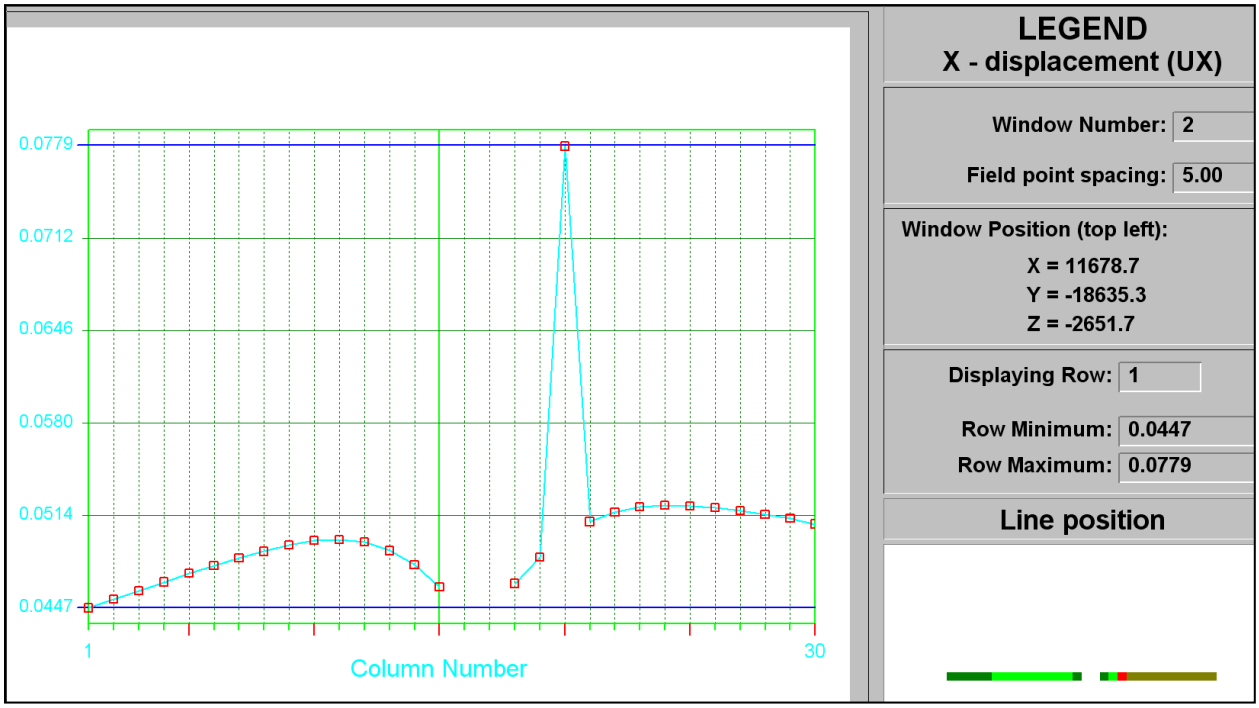

Figure C-31 UX closure at STEP 1

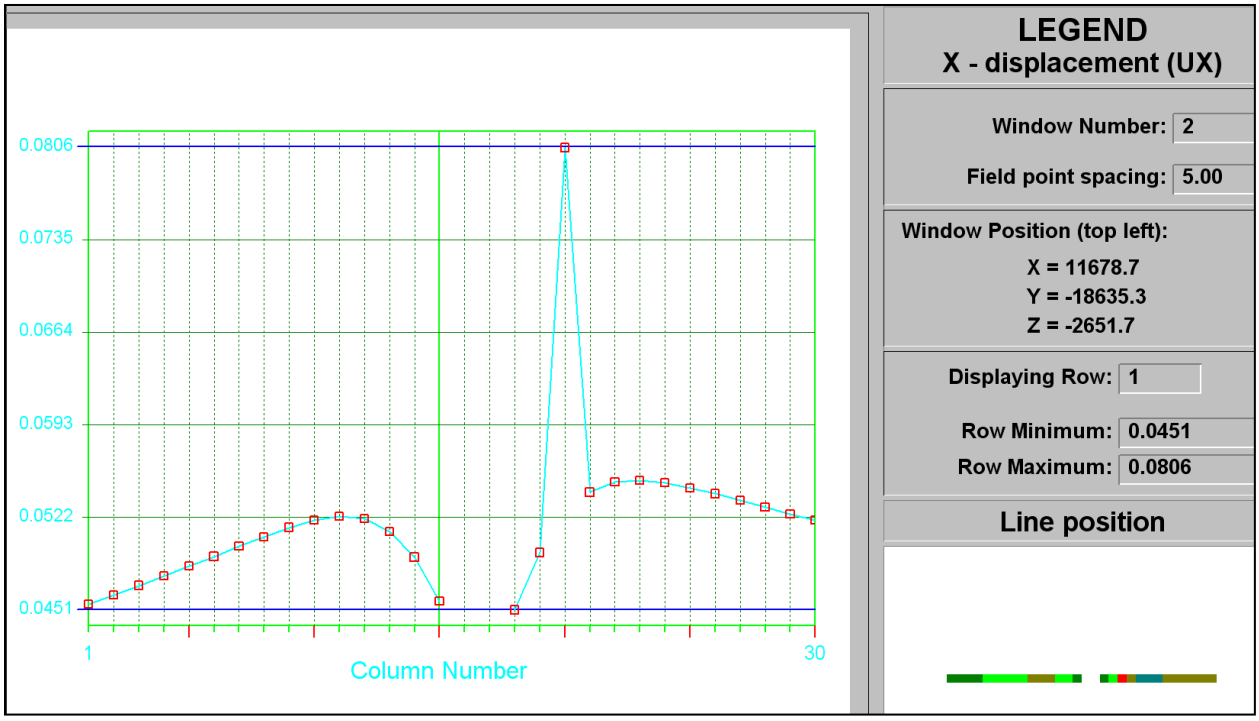

Figure C-32 UX closure at STEP 2

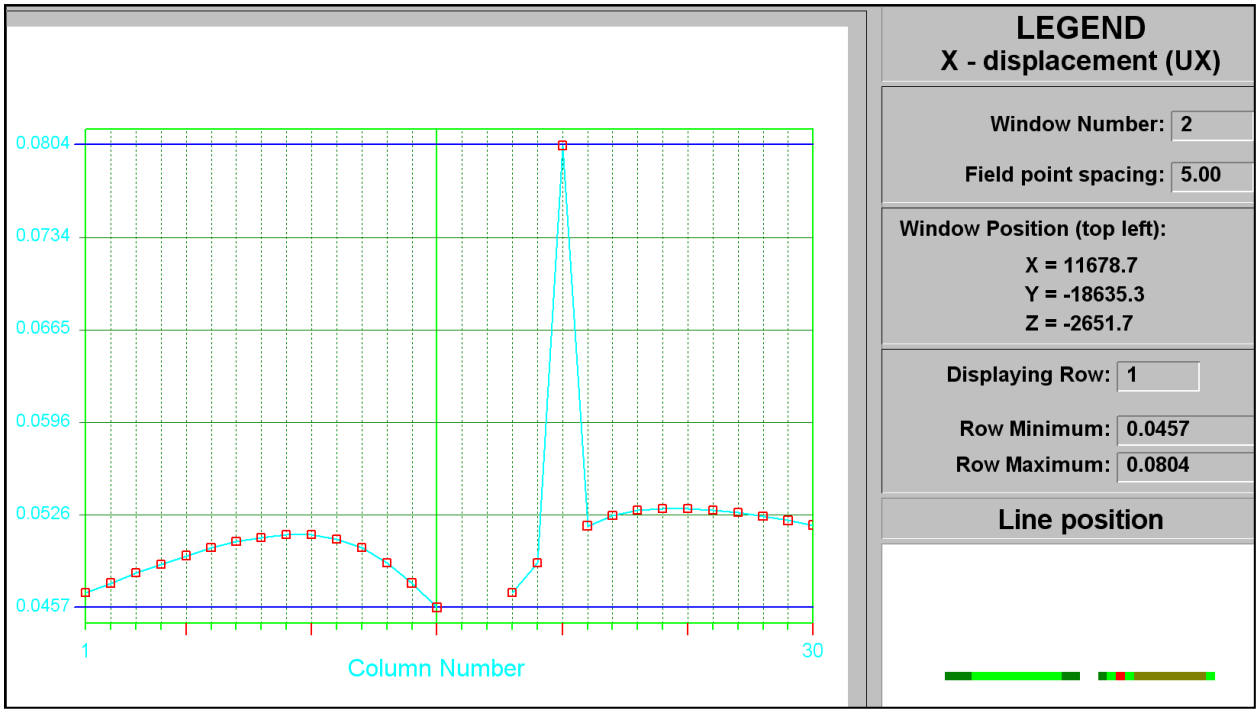

Figure C-33 UX closure at STEP 3

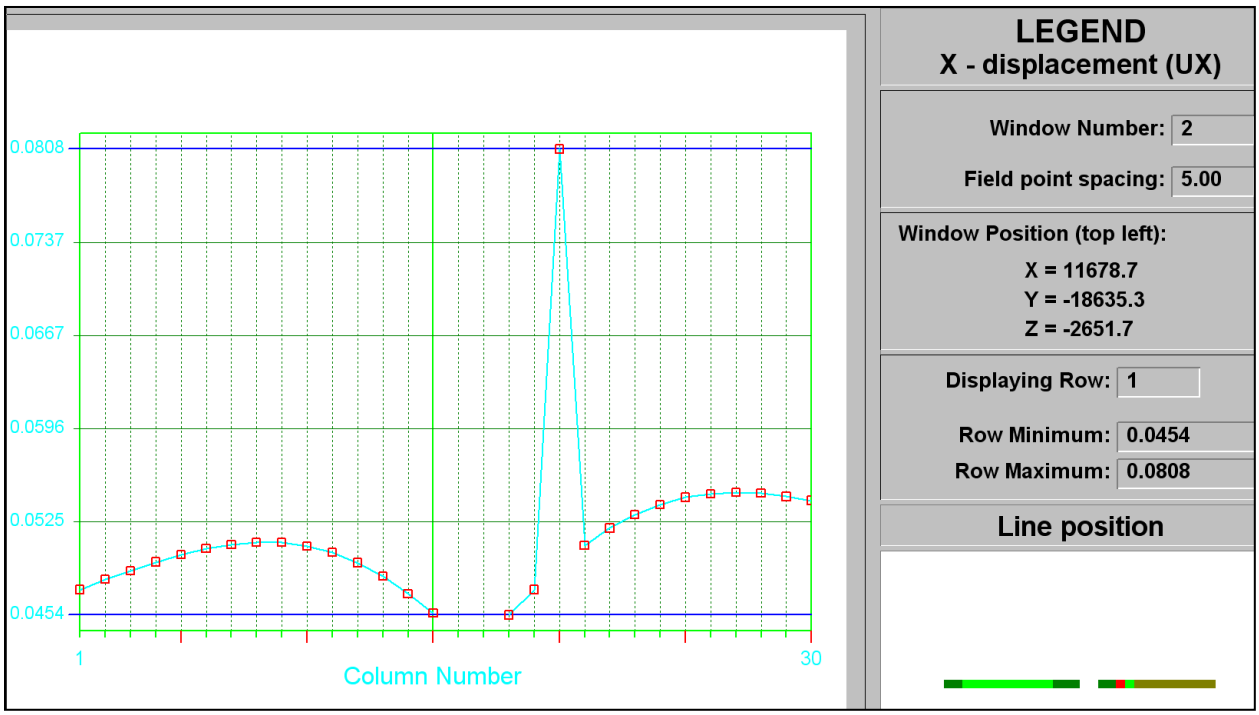

Figure C-34 UX closure at STEP 4

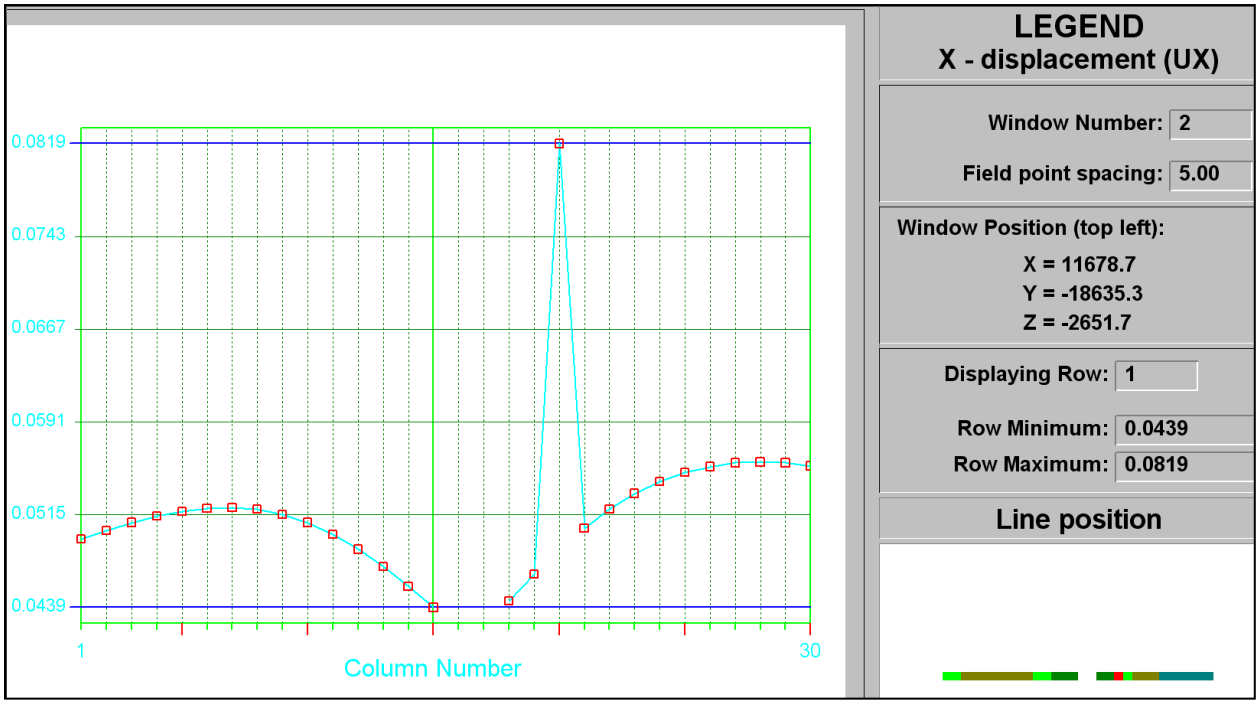

Figure C-35 UX closure at STEP 5

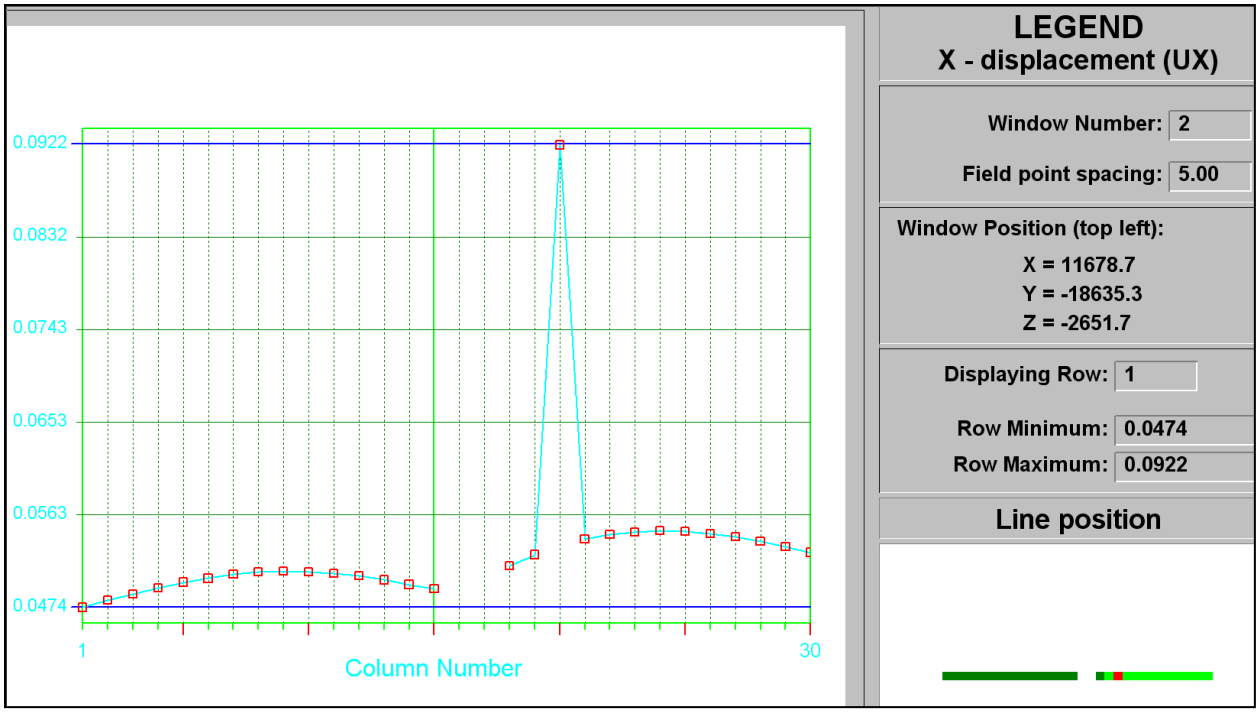

Figure C-36 UX closure at STEP 6

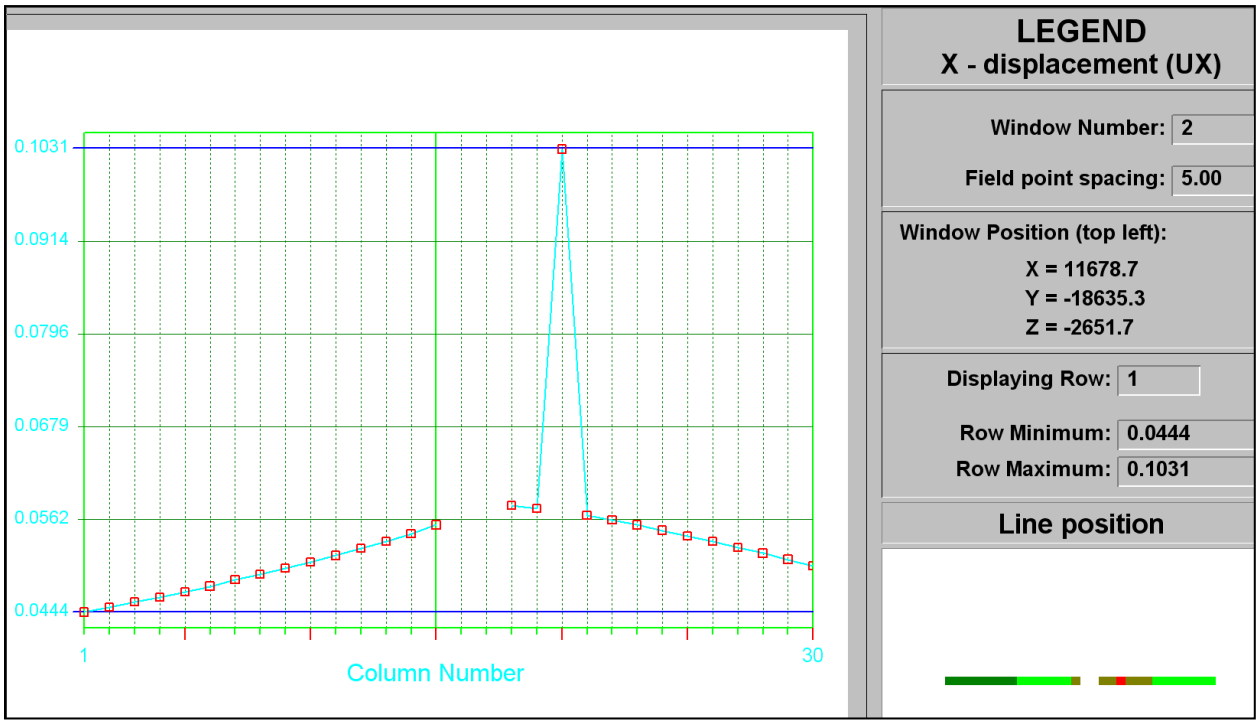

Figure C-37 UX closure at STEP 7

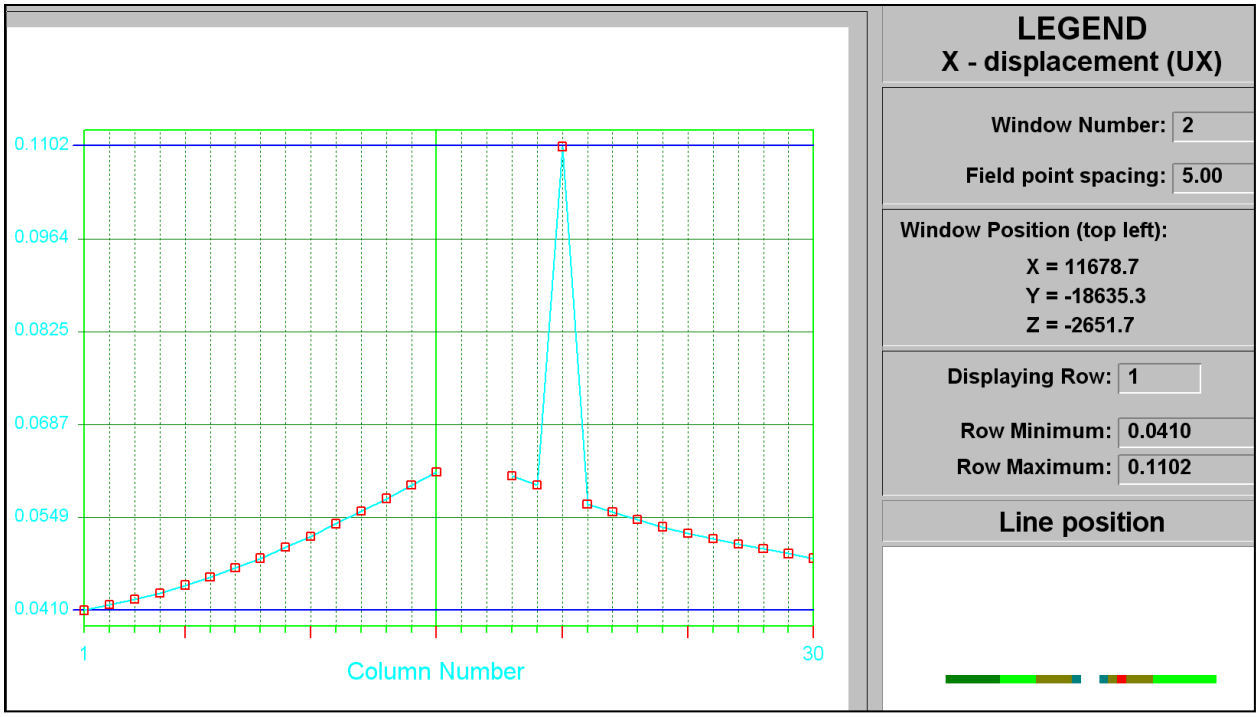

Figure C-38 UX closure at STEP 8

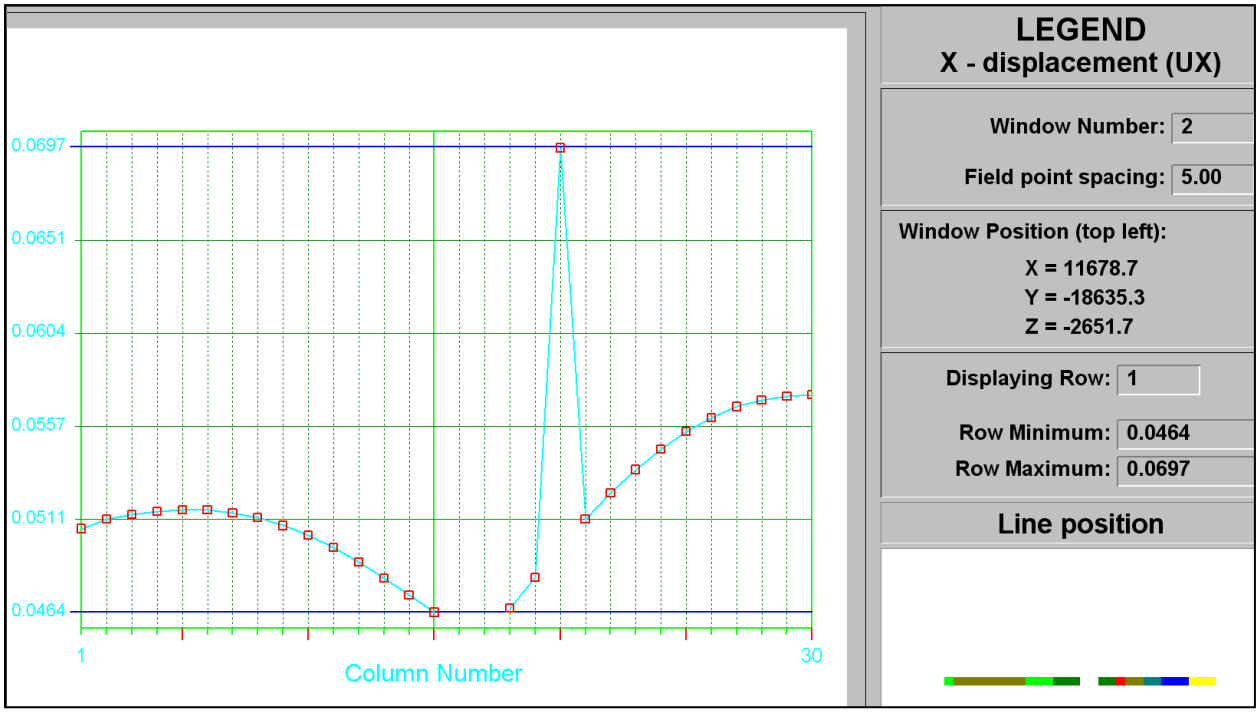

Figure C-39 UX closure at STEP 9

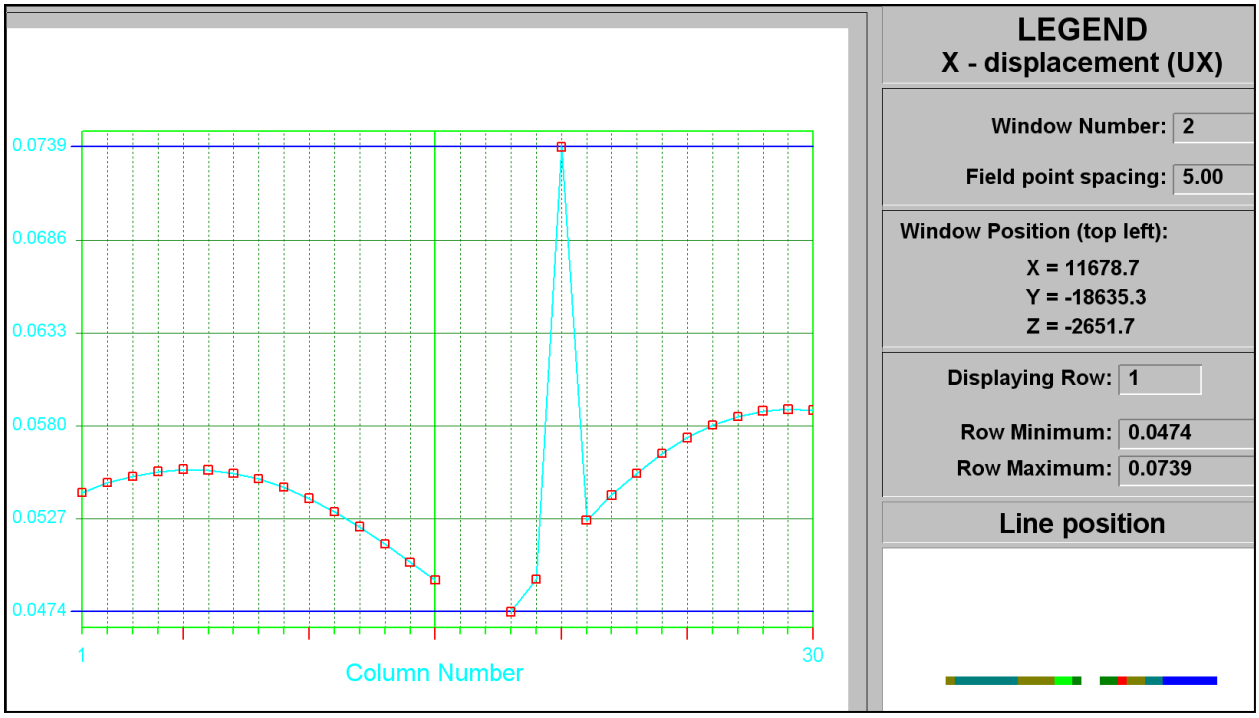

Figure C-40 UX closure at STEP 10

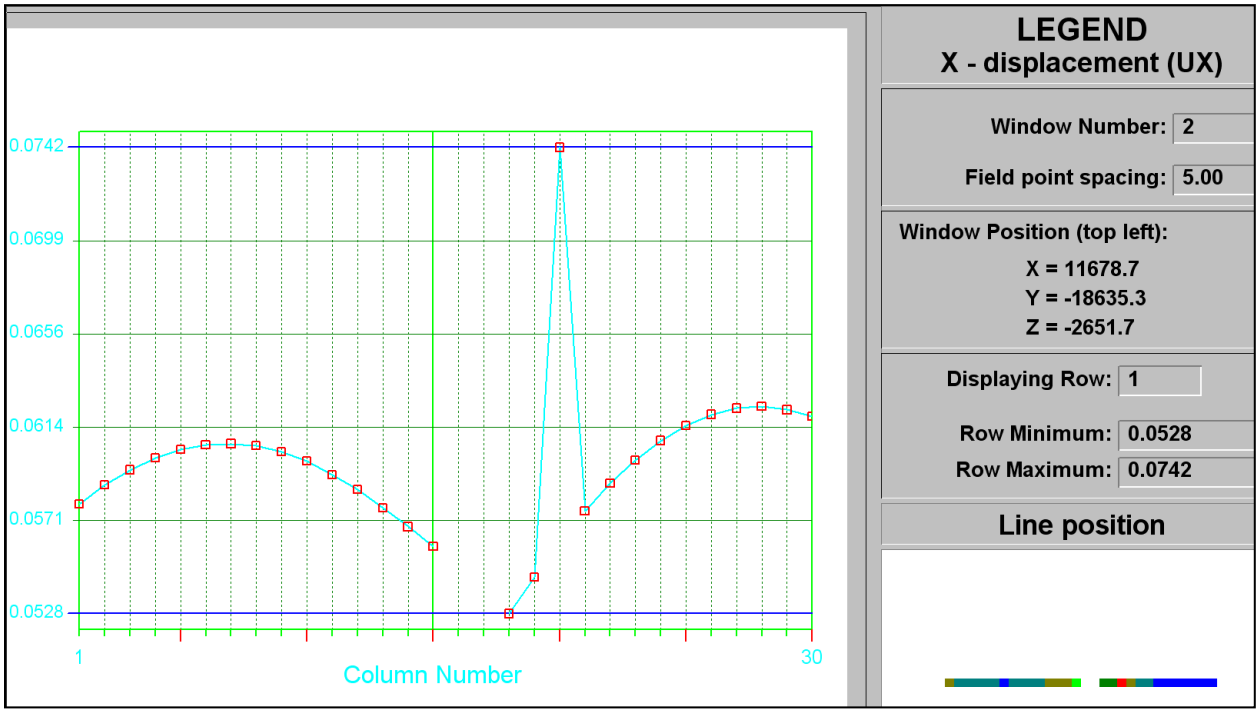

Figure C-41 UX closure at STEP 11

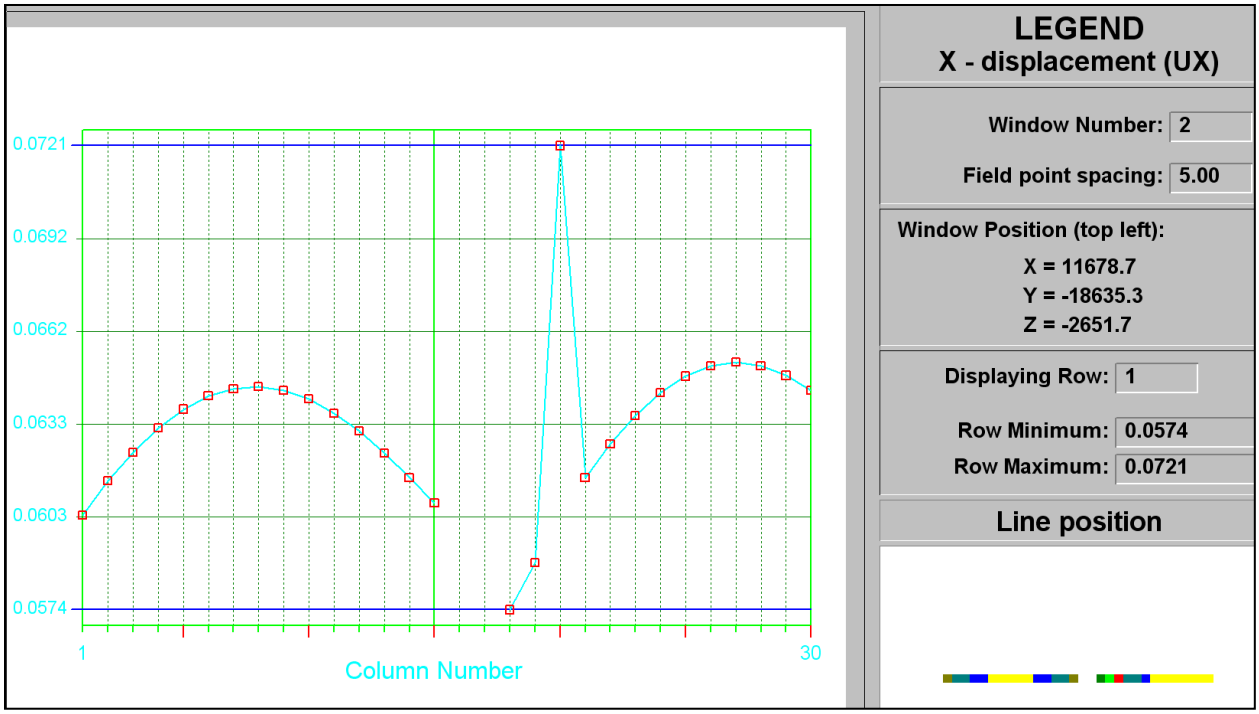

Figure C-42 UX closure at STEP 12

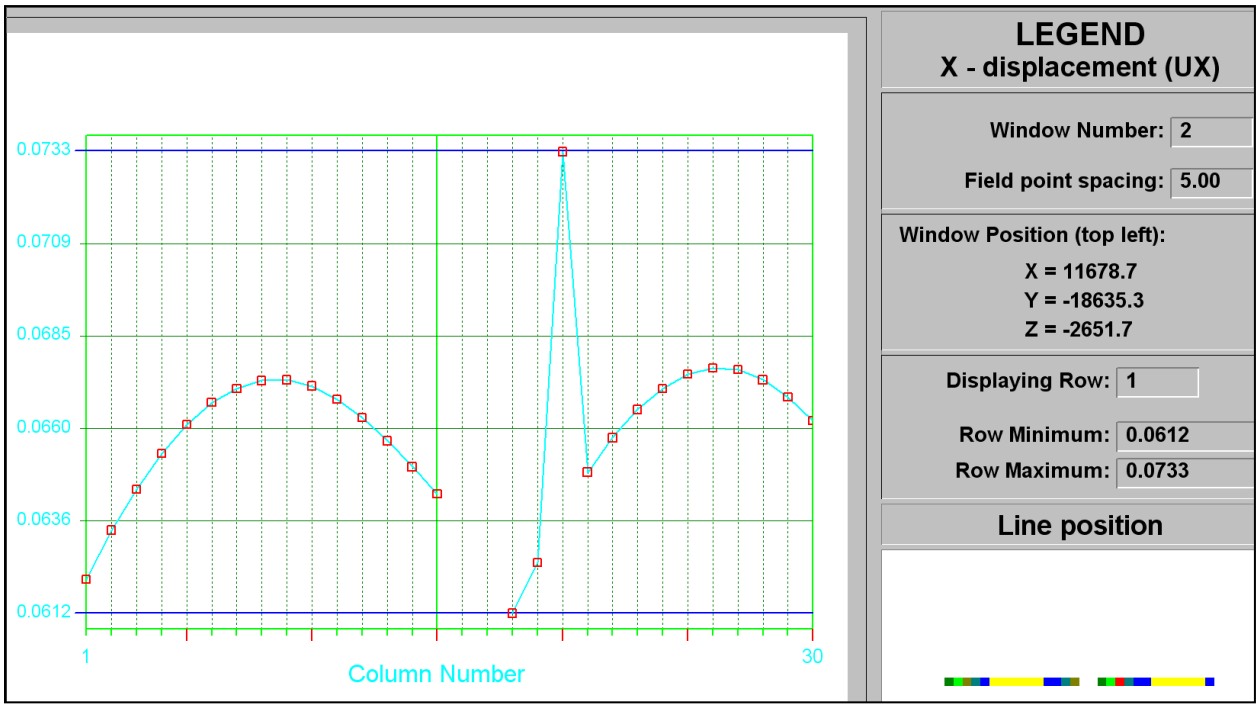

Figure C-43 UX closure at STEP 13

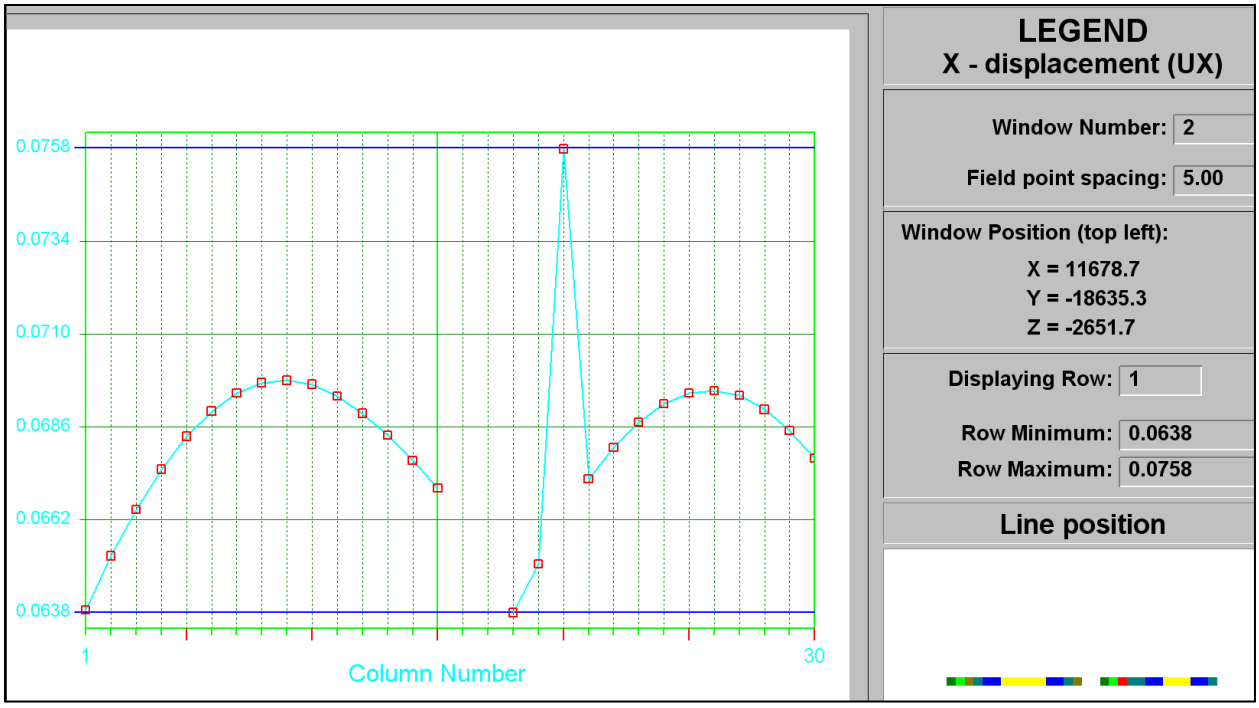

Figure C-44 UX closure at STEP 14

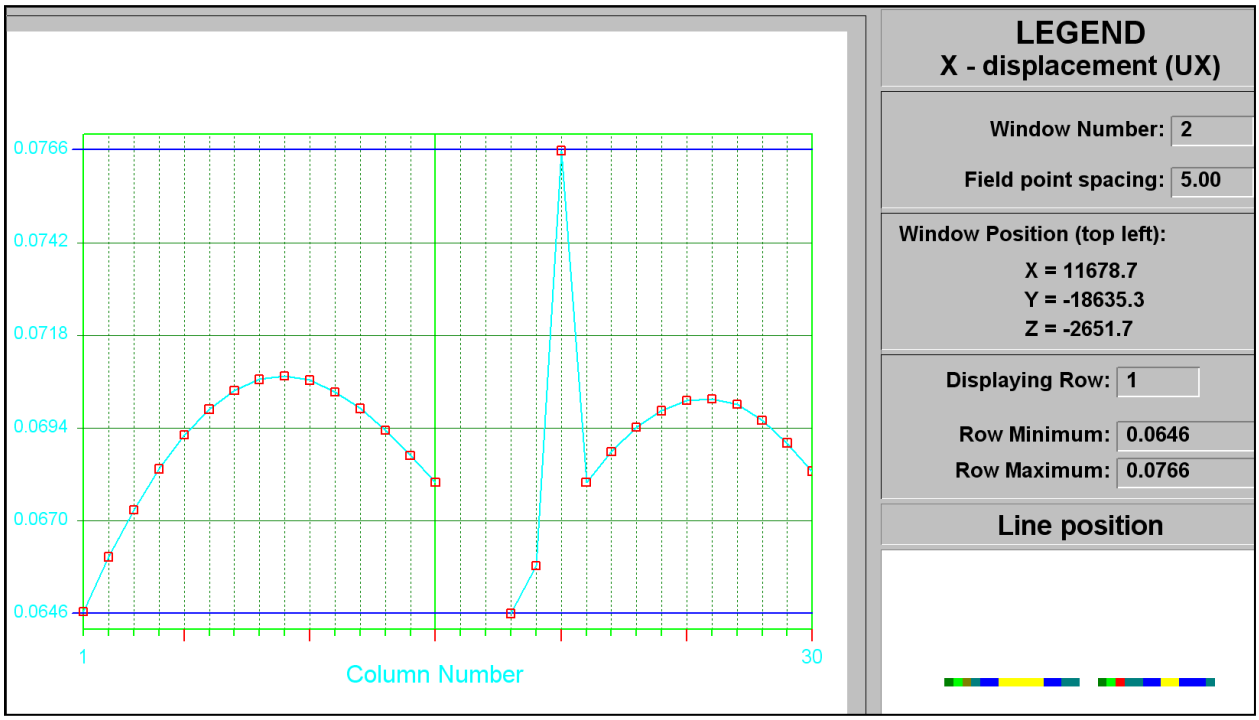

Figure C-45 UX closure at STEP 15

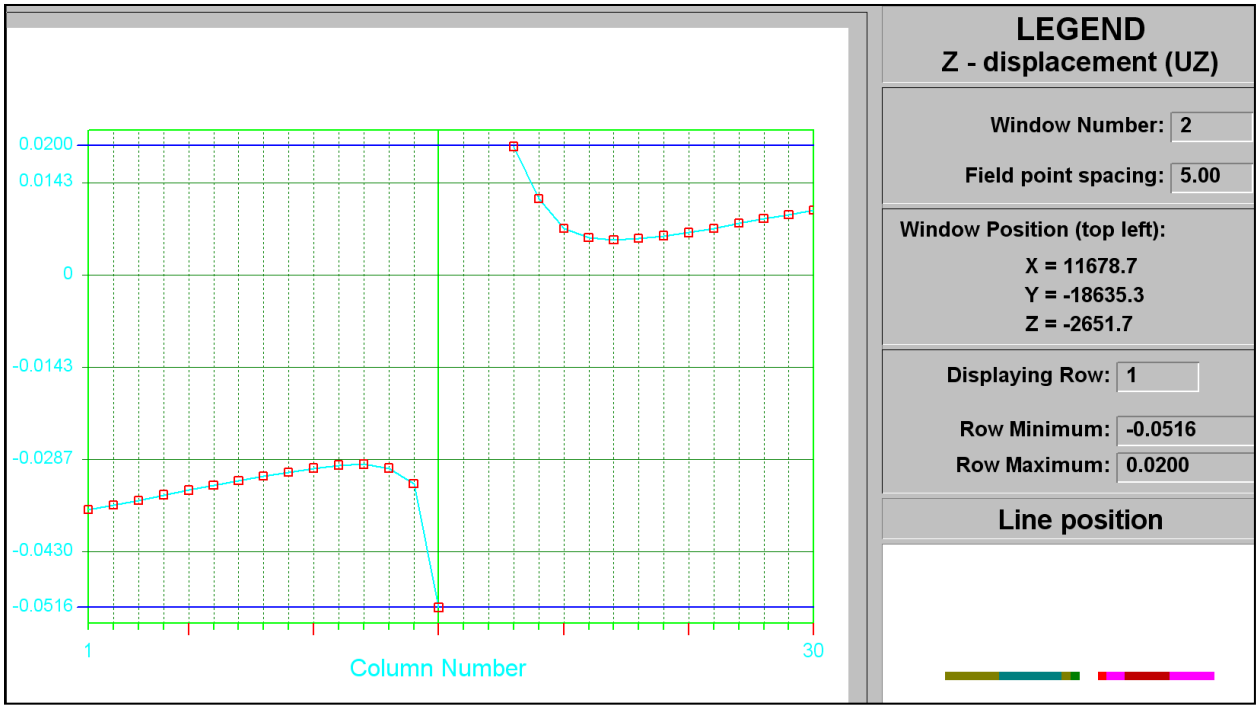

Figure C-46 UZ closure at STEP 1

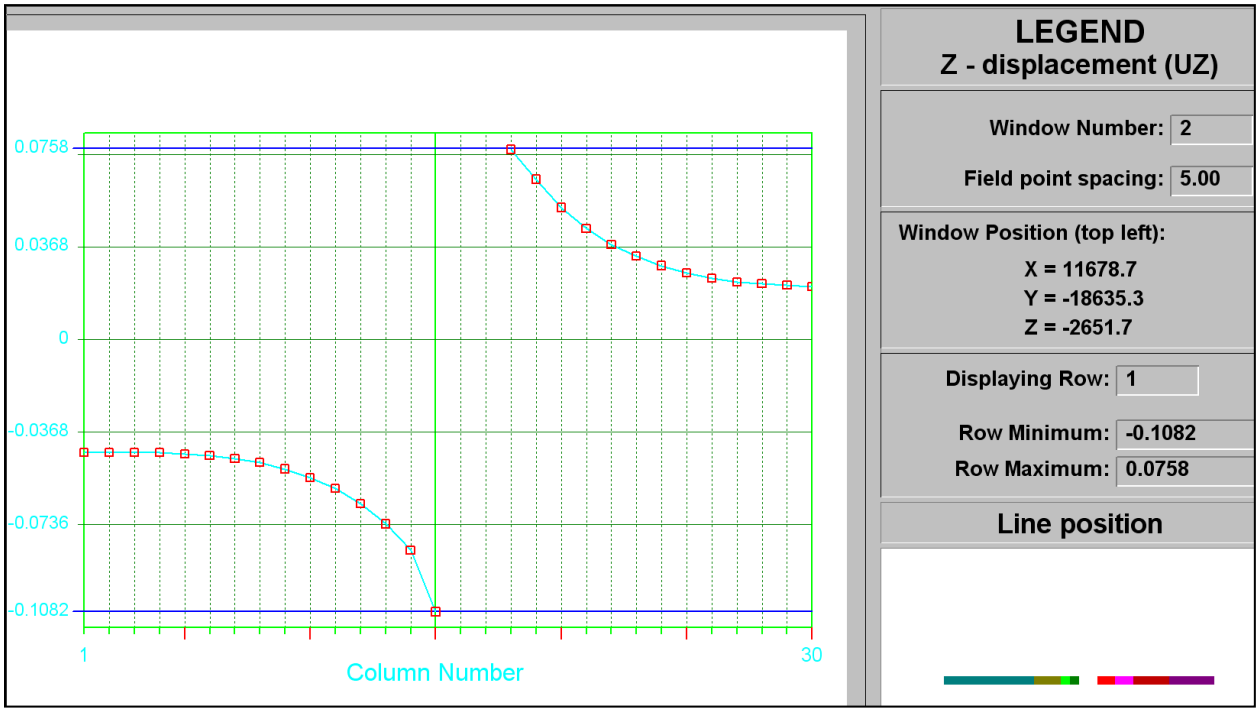

Figure C-47 UZ closure at STEP 2

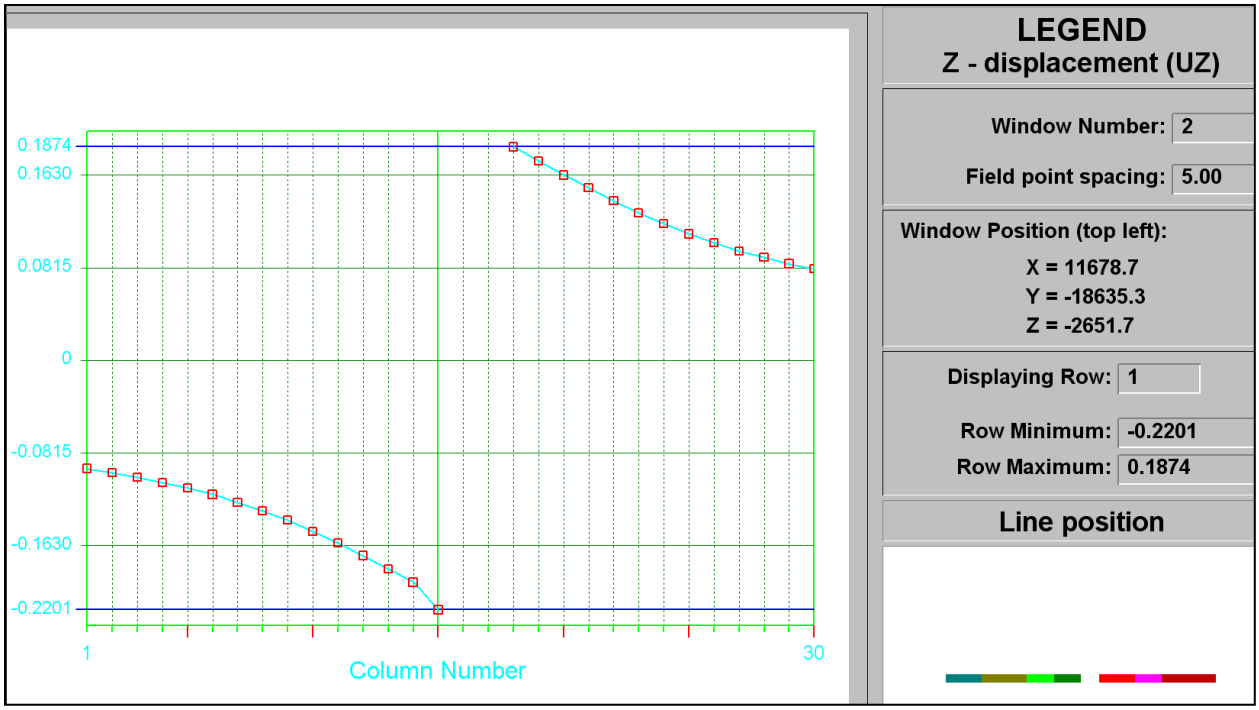

Figure C-48 UZ closure at STEP 3

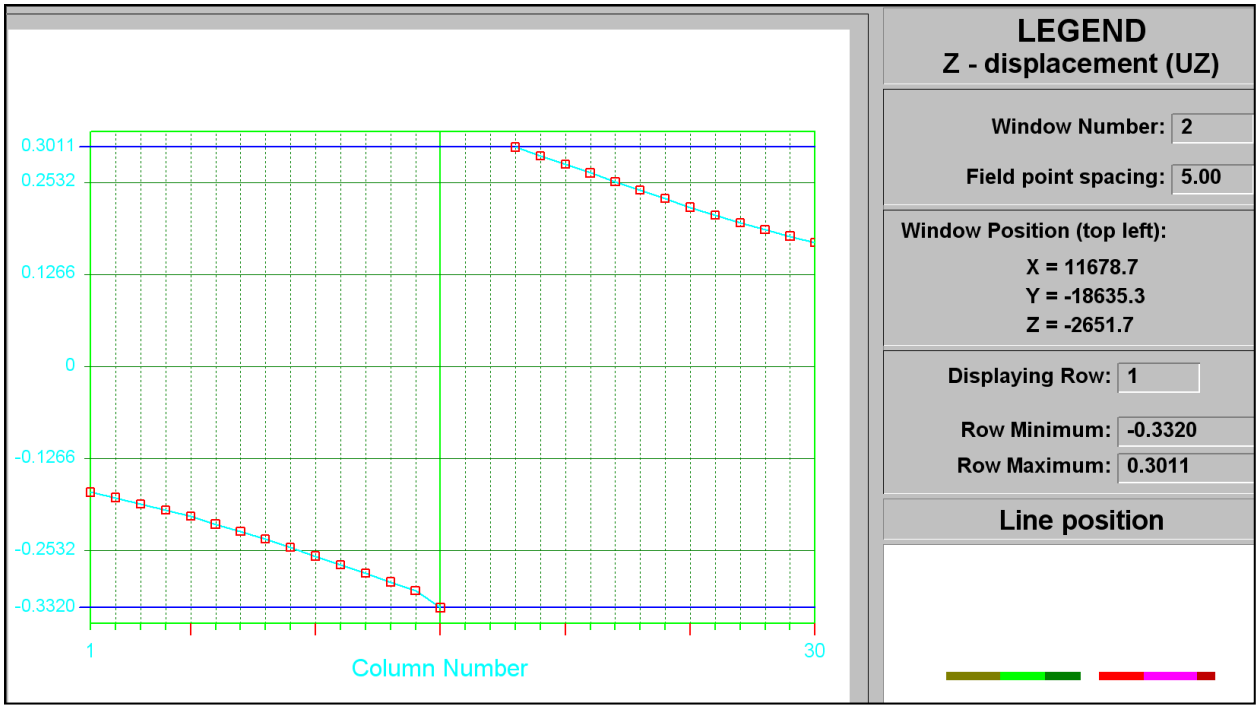

Figure C-49 UZ closure at STEP 4

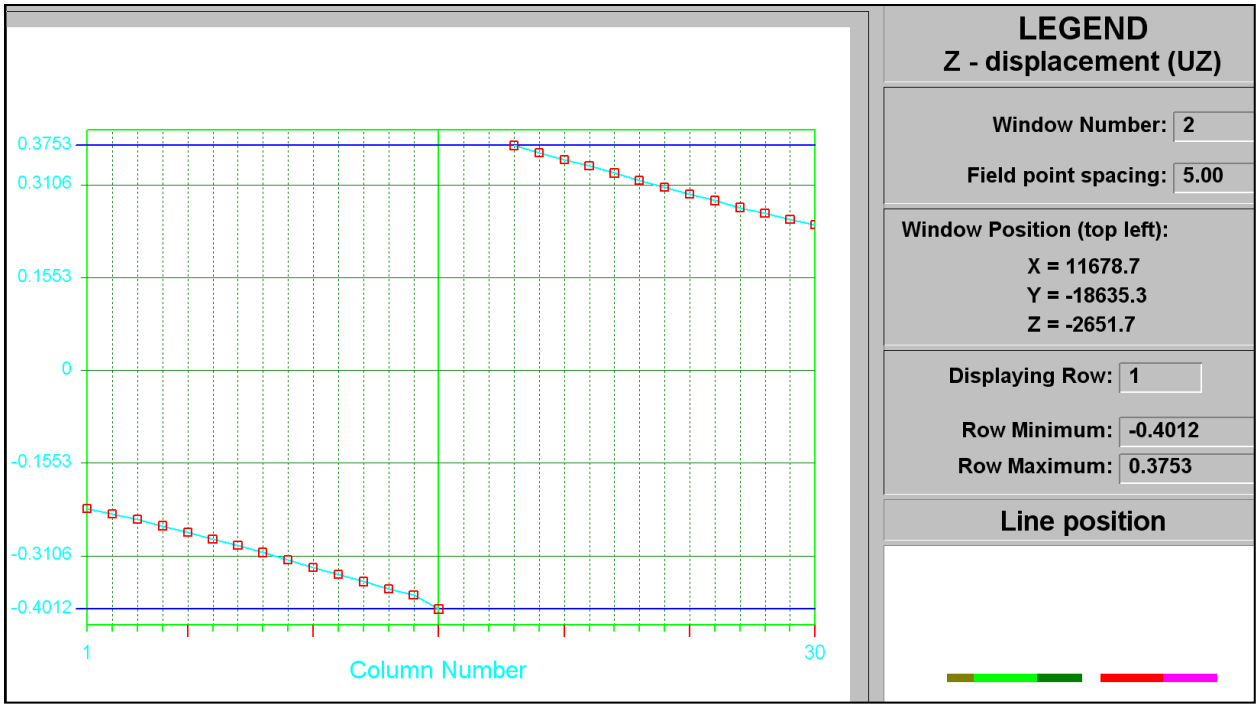

Figure C-50 UZ closure at STEP 5

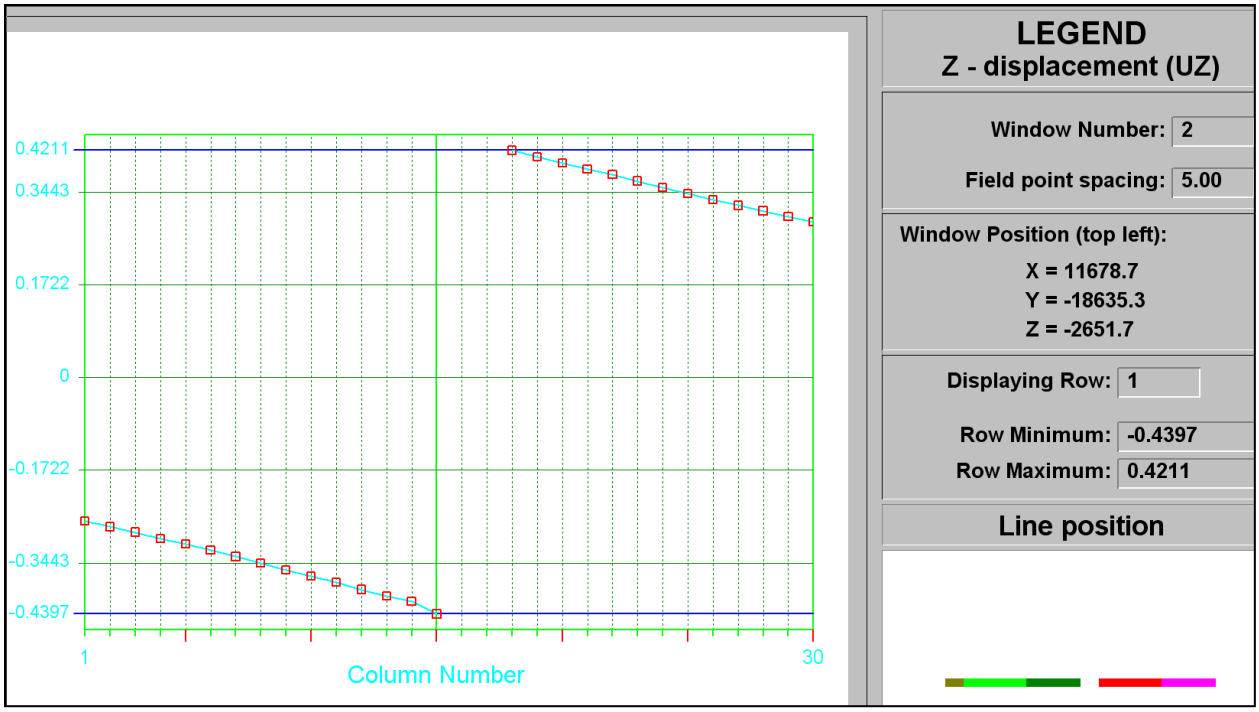

Figure C-51 UZ closure at STEP 6

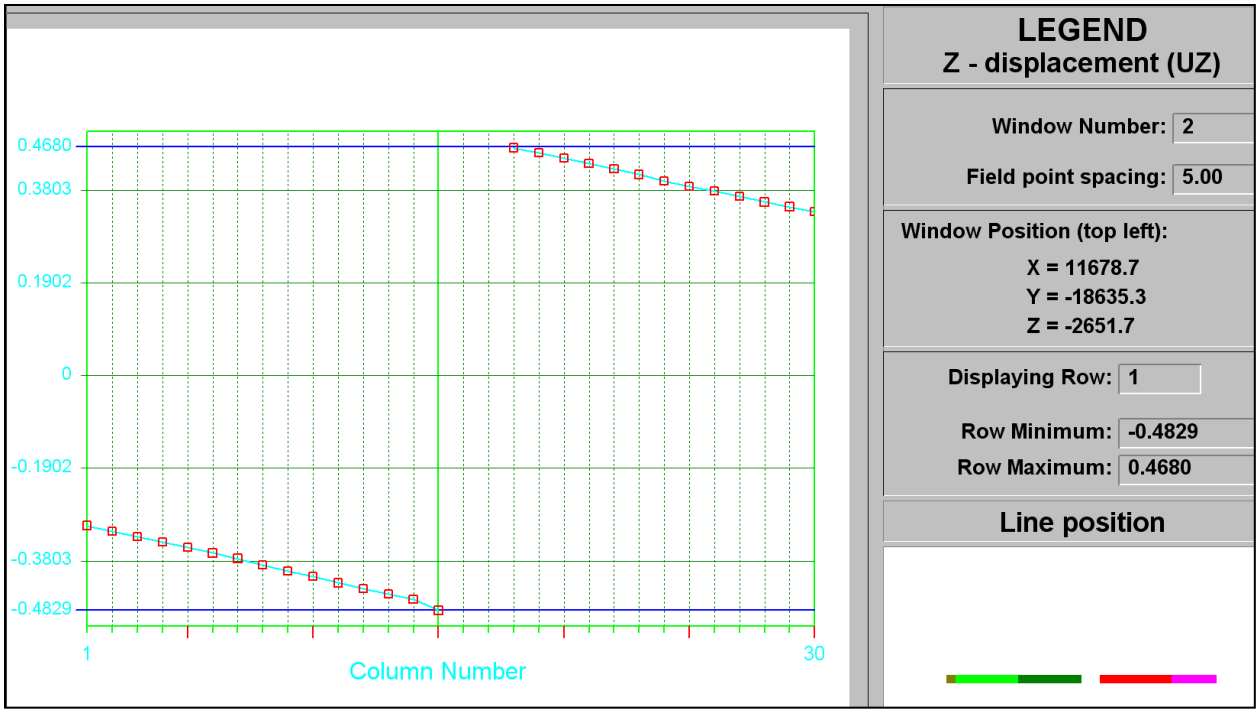

Figure C-52 UZ closure at STEP 7

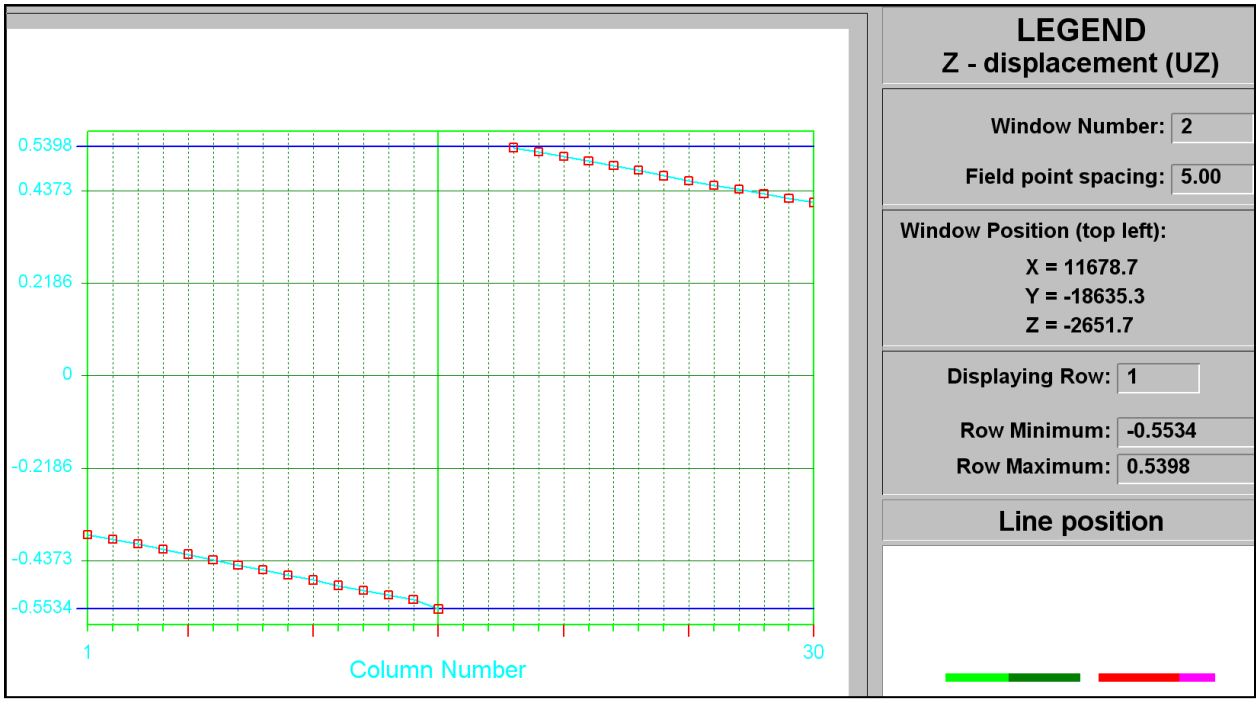

Figure C-53 UZ closure at STEP 8

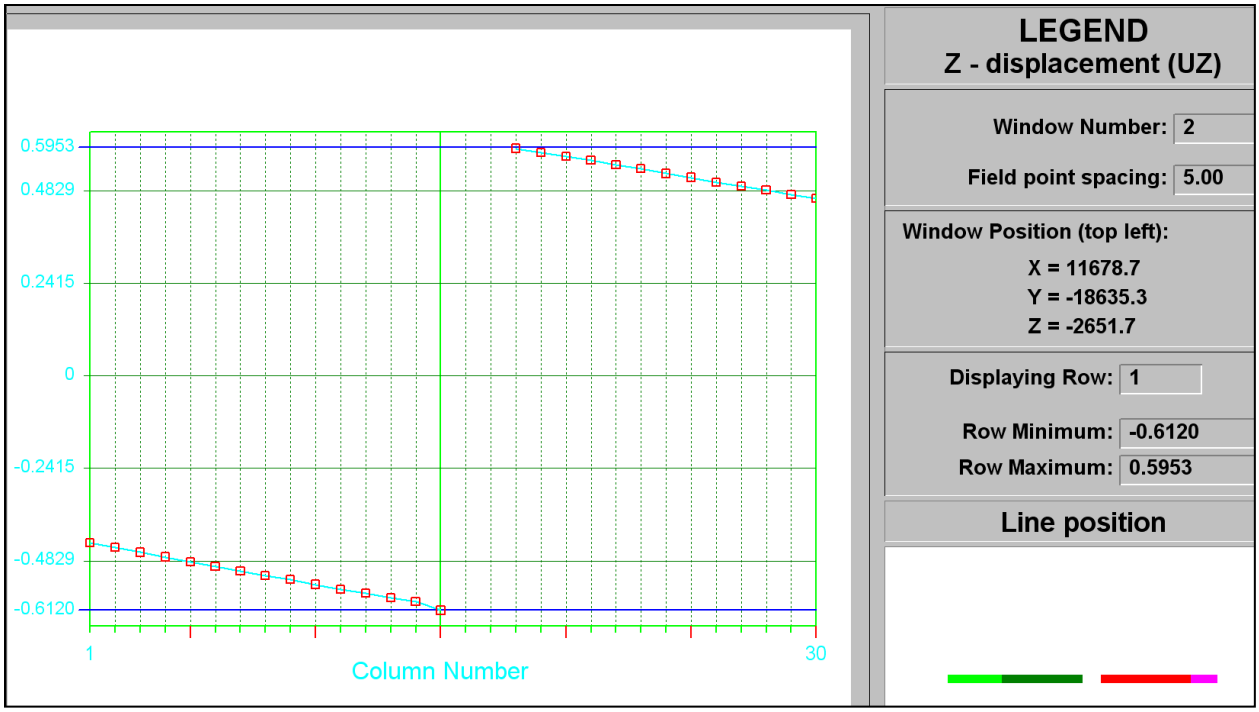

Figure C-54 UZ closure at STEP 9

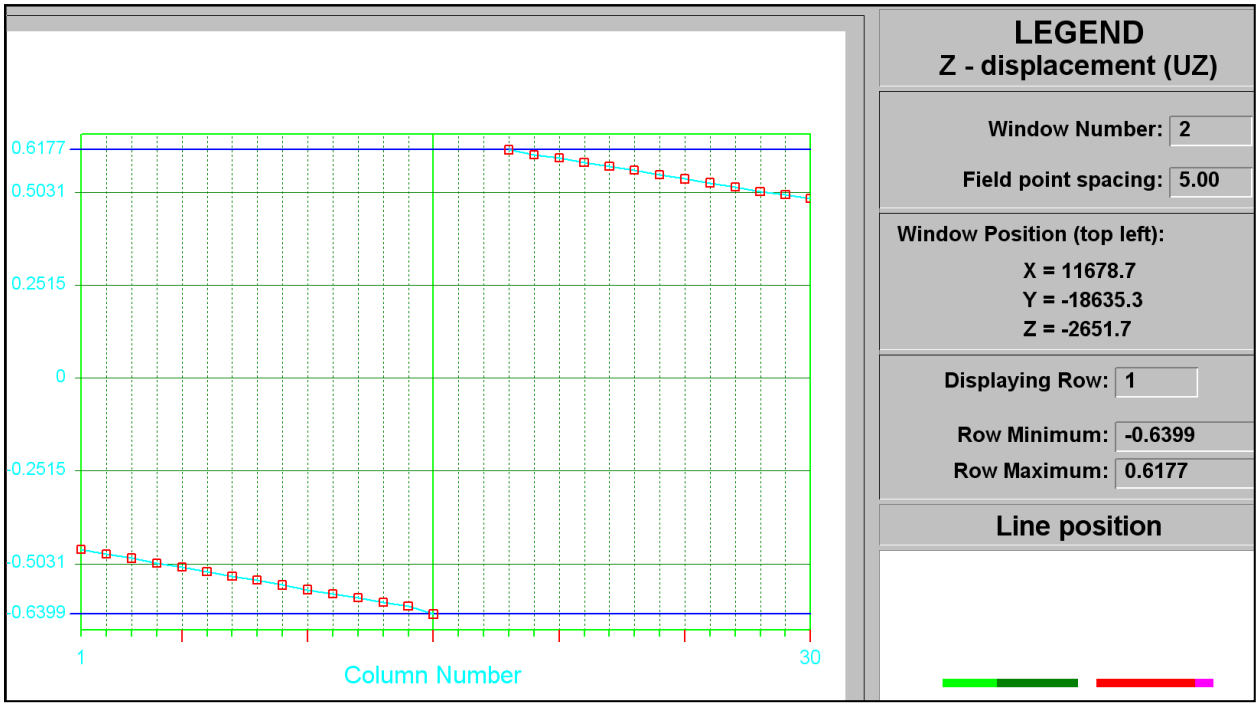

Figure C-55 UZ closure at STEP 10

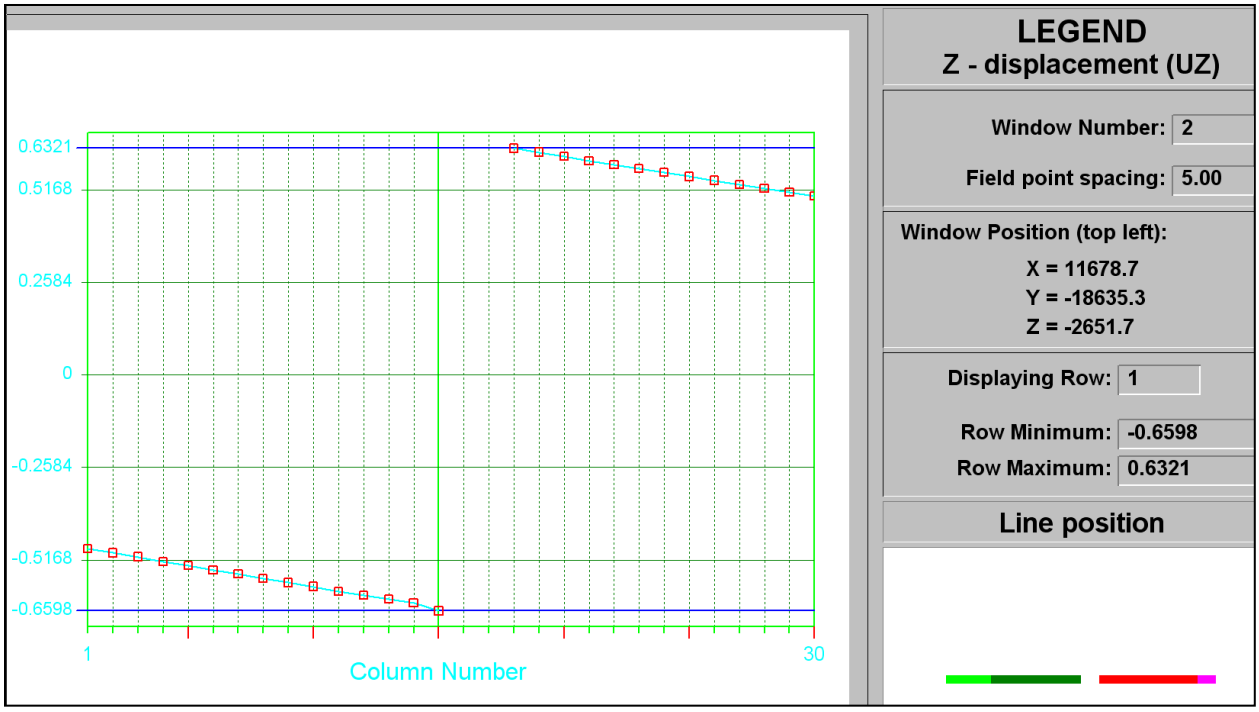

Figure C-56 UZ closure at STEP 11

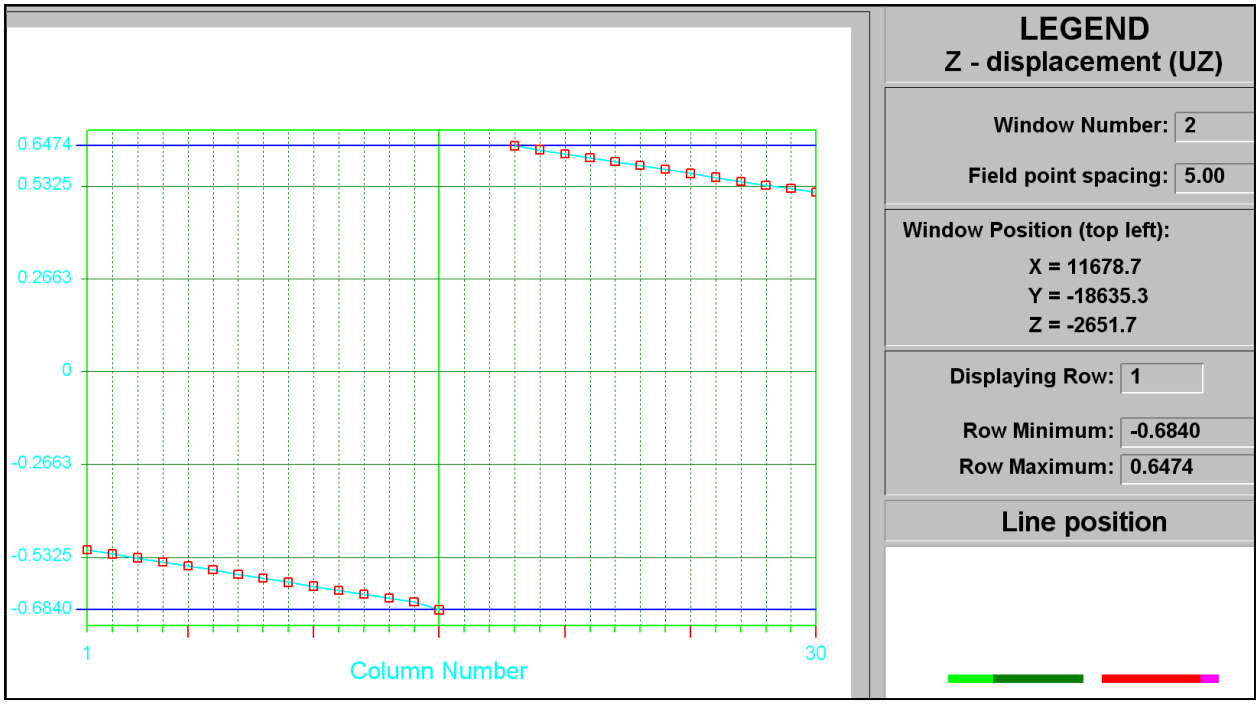

Figure C-57 UZ closure at STEP 12

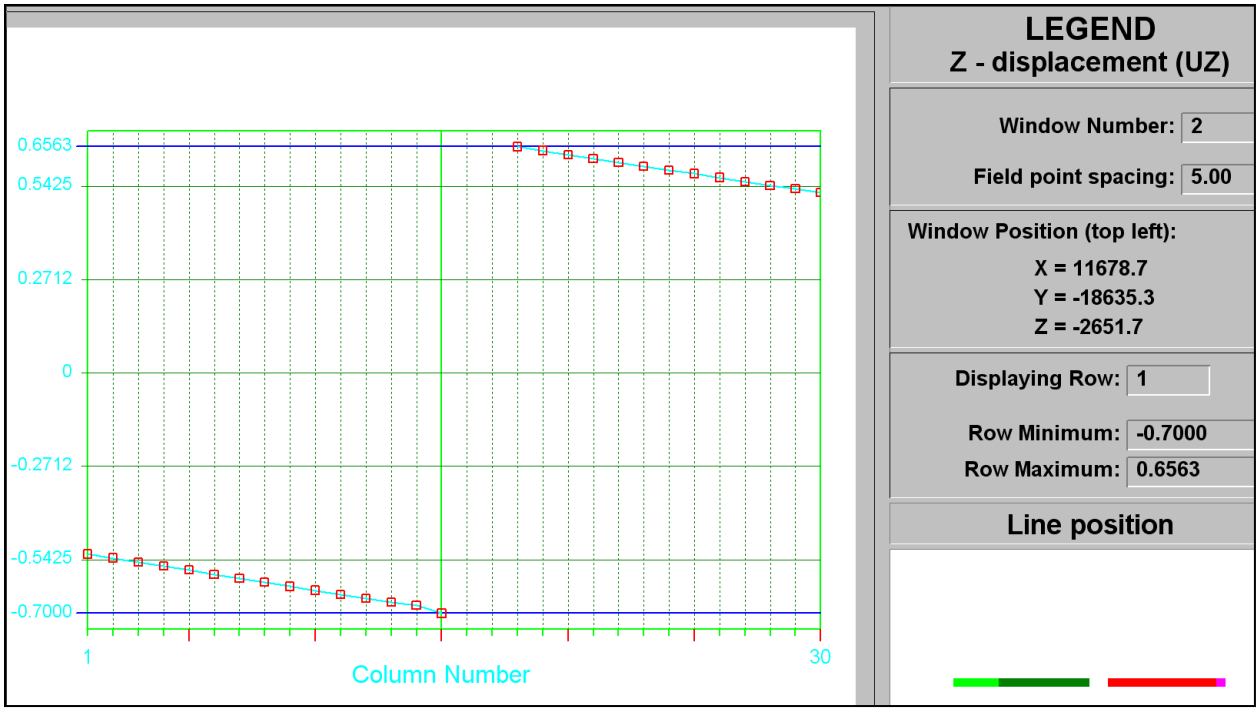

Figure C-58 UZ closure at STEP 13

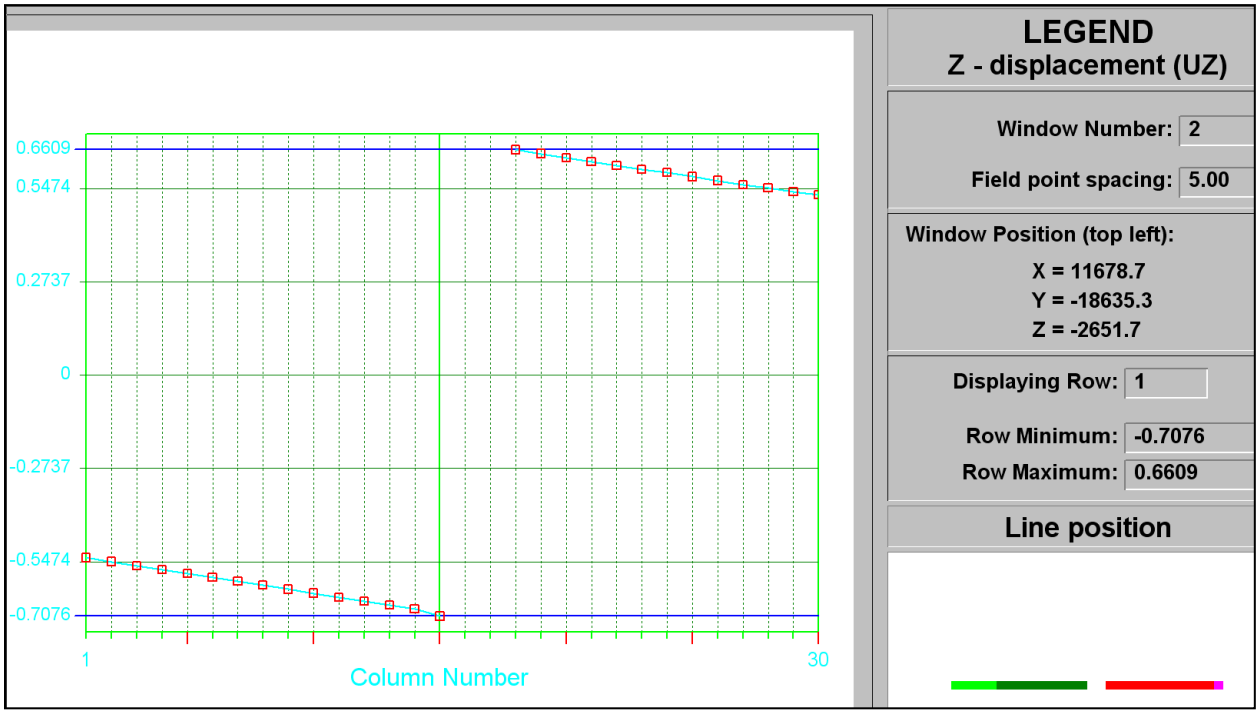

Figure C-59 UZ closure at STEP 14

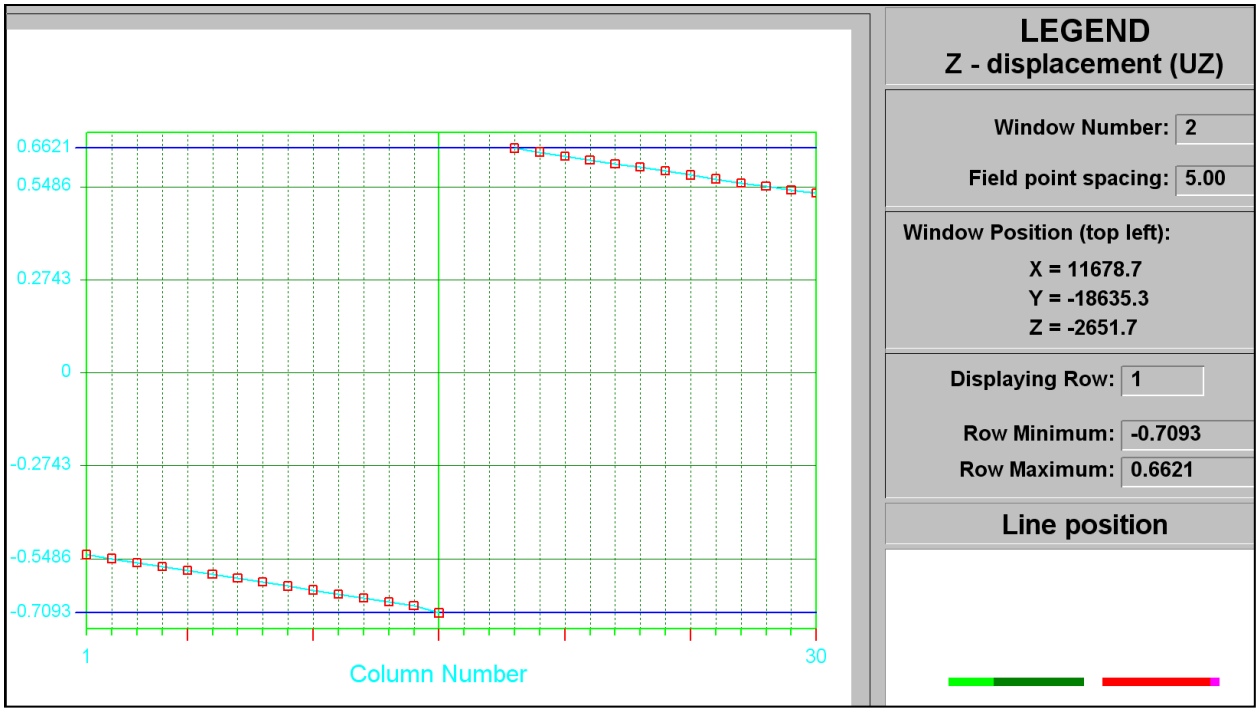

Figure C-60 UZ closure at STEP 15

C.3. Faults' assessment

C.3.1. Kate's Fault ESS

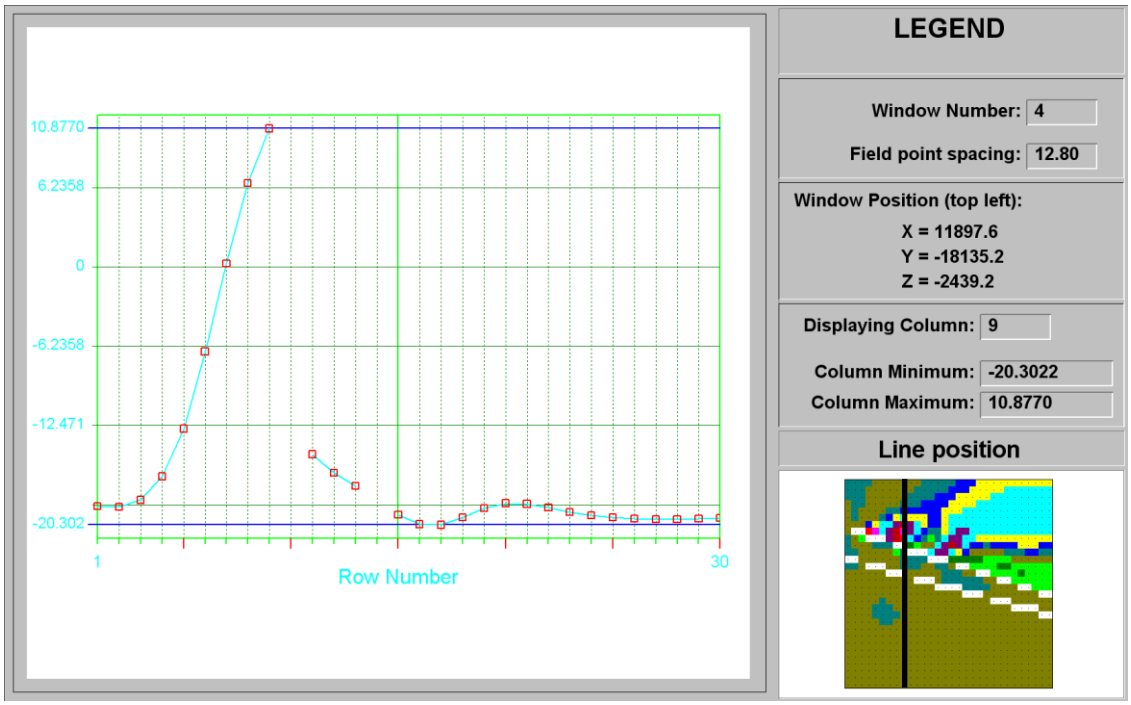

Figure C-61 ESS line plot at column 9 of Kate's Fault at STEP 1

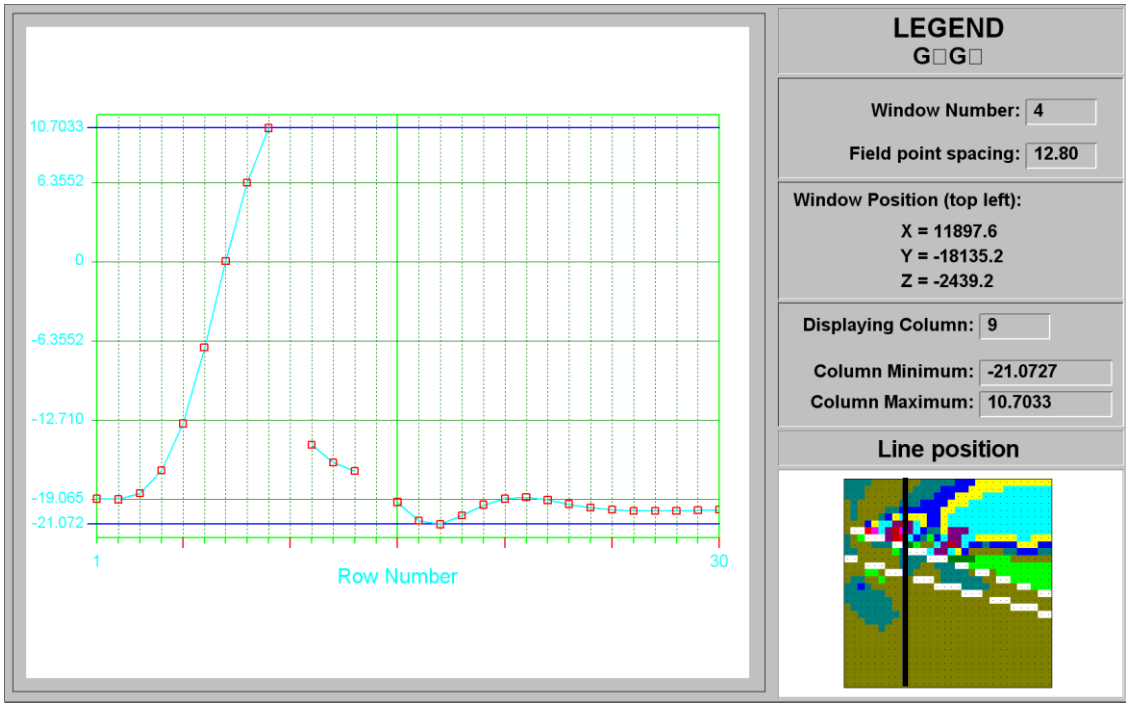

Figure C-62 ESS line plot at column 9 of Kate's Fault at STEP 2

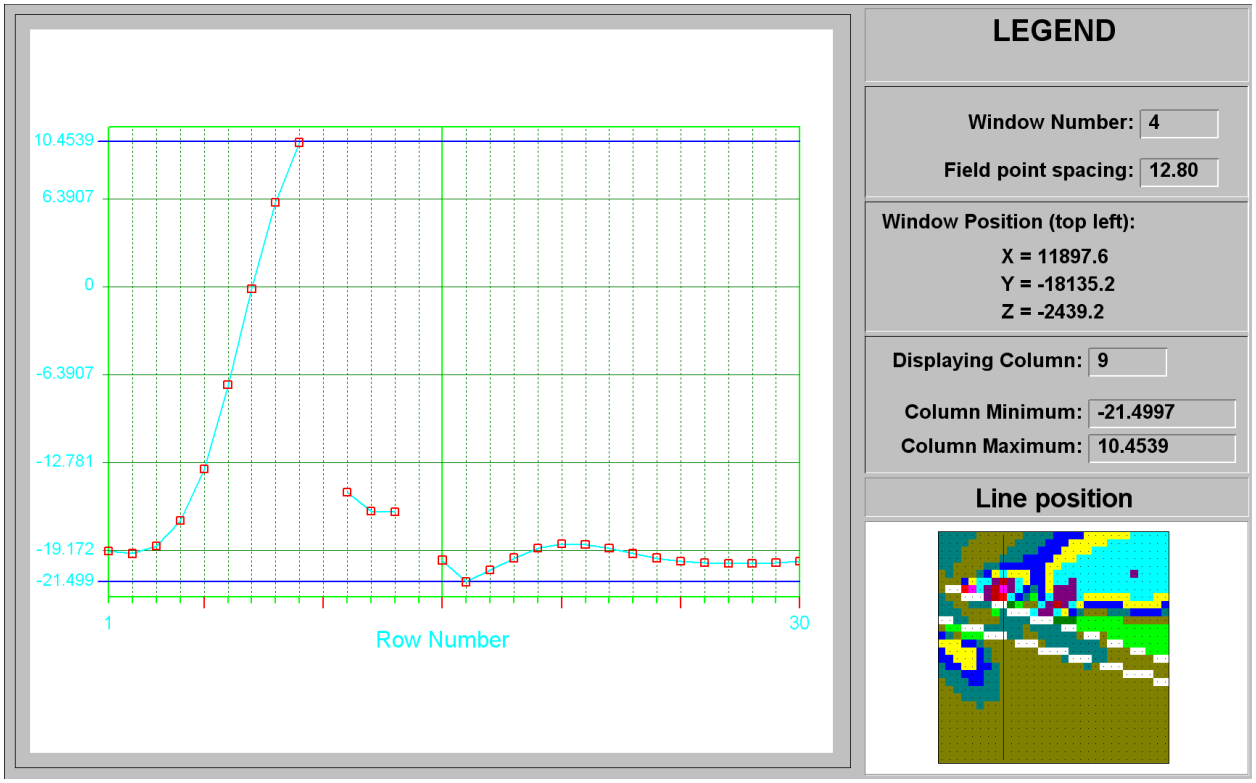

Figure C-63 ESS line plot at column 9 of Kate's Fault at STEP 3

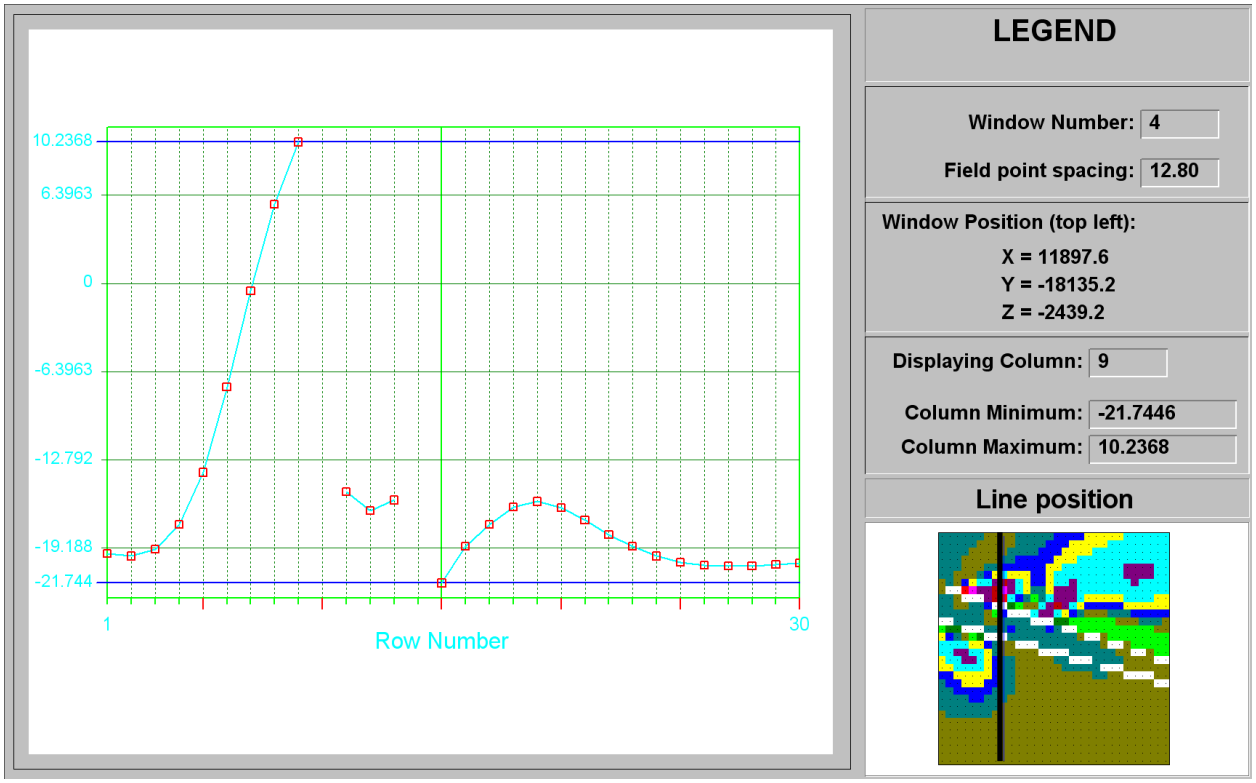

Figure C-64 ESS line plot at column 9 of Kate's Fault at STEP 4

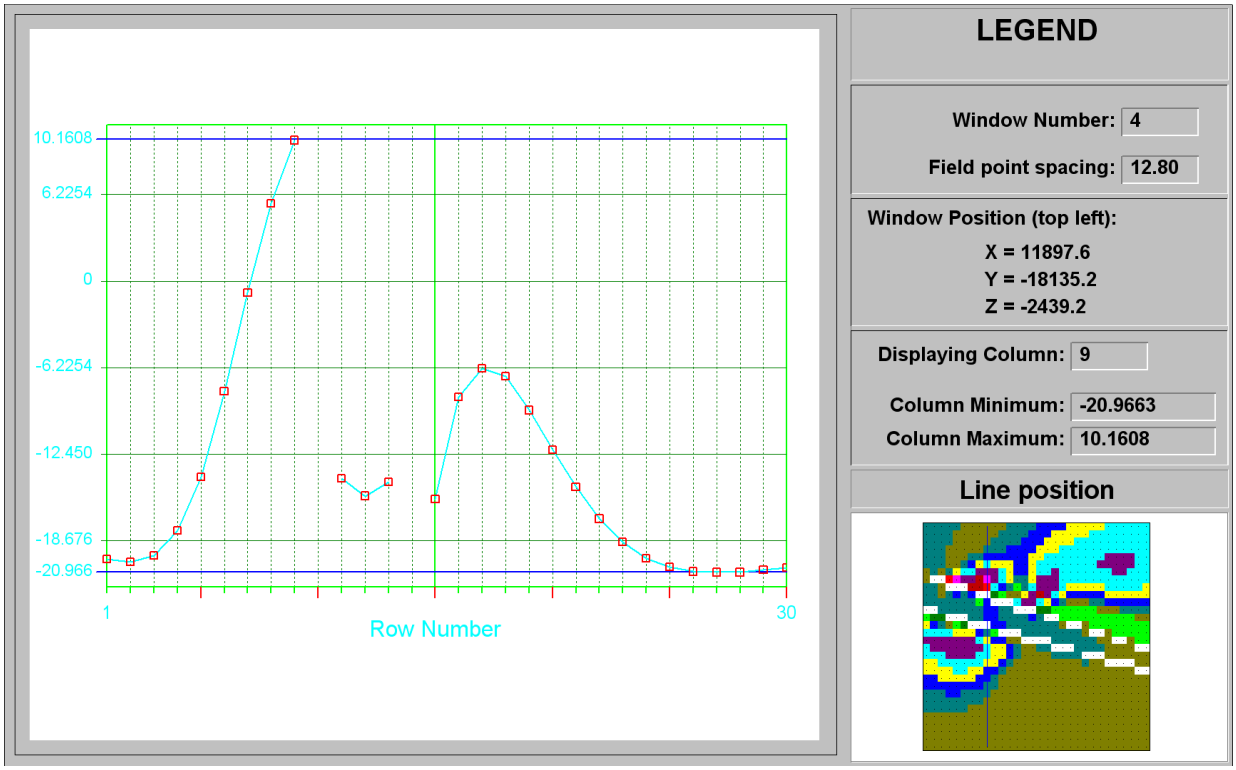

Figure C-65 ESS line plot at column 9 of Kate's Fault at STEP 5

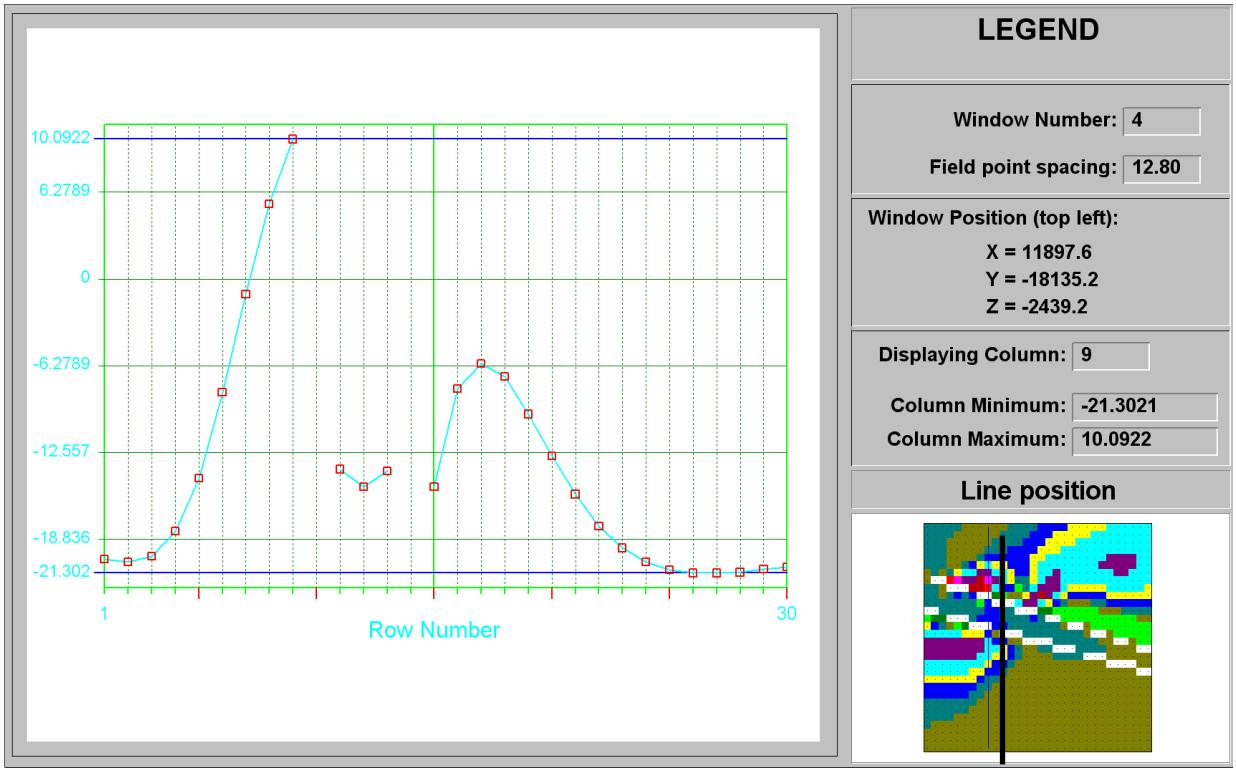

Figure C-66 ESS line plot at column 9 of Kate's Fault at STEP 6

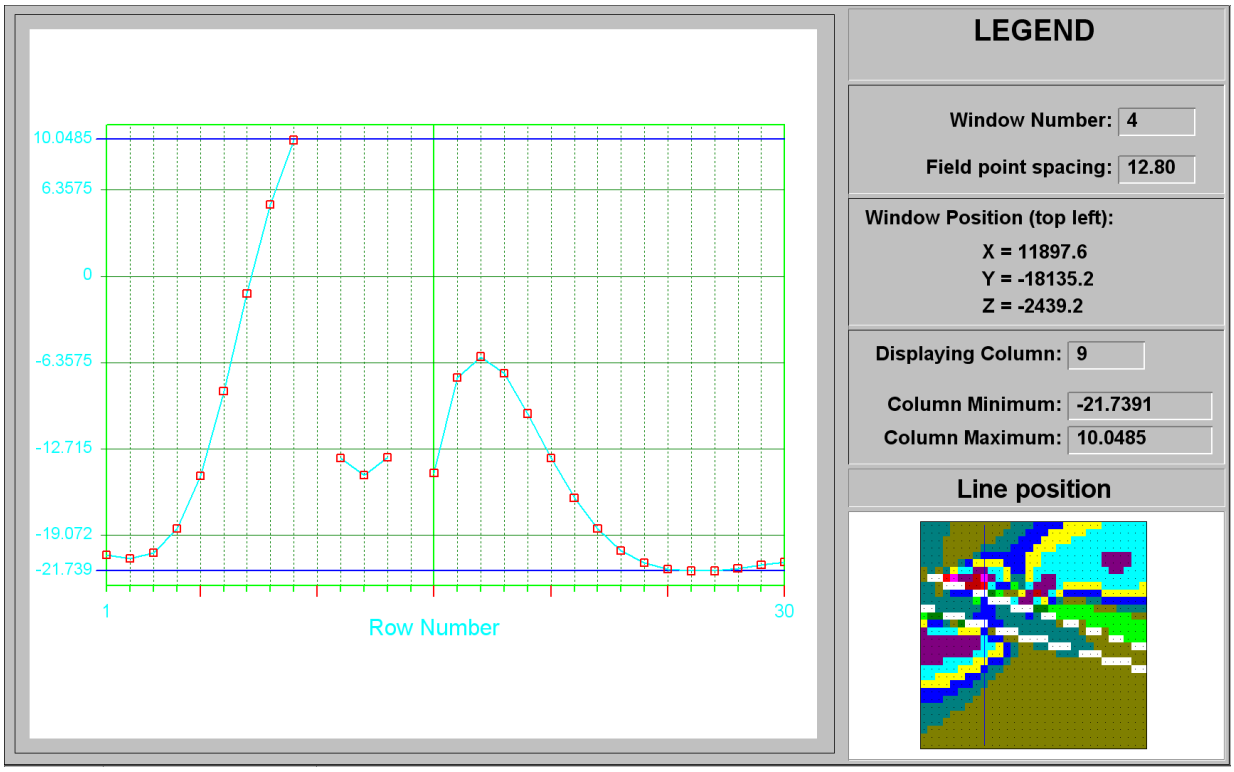

Figure C-67 ESS line plot at column 9 of Kate's Fault at STEP 7

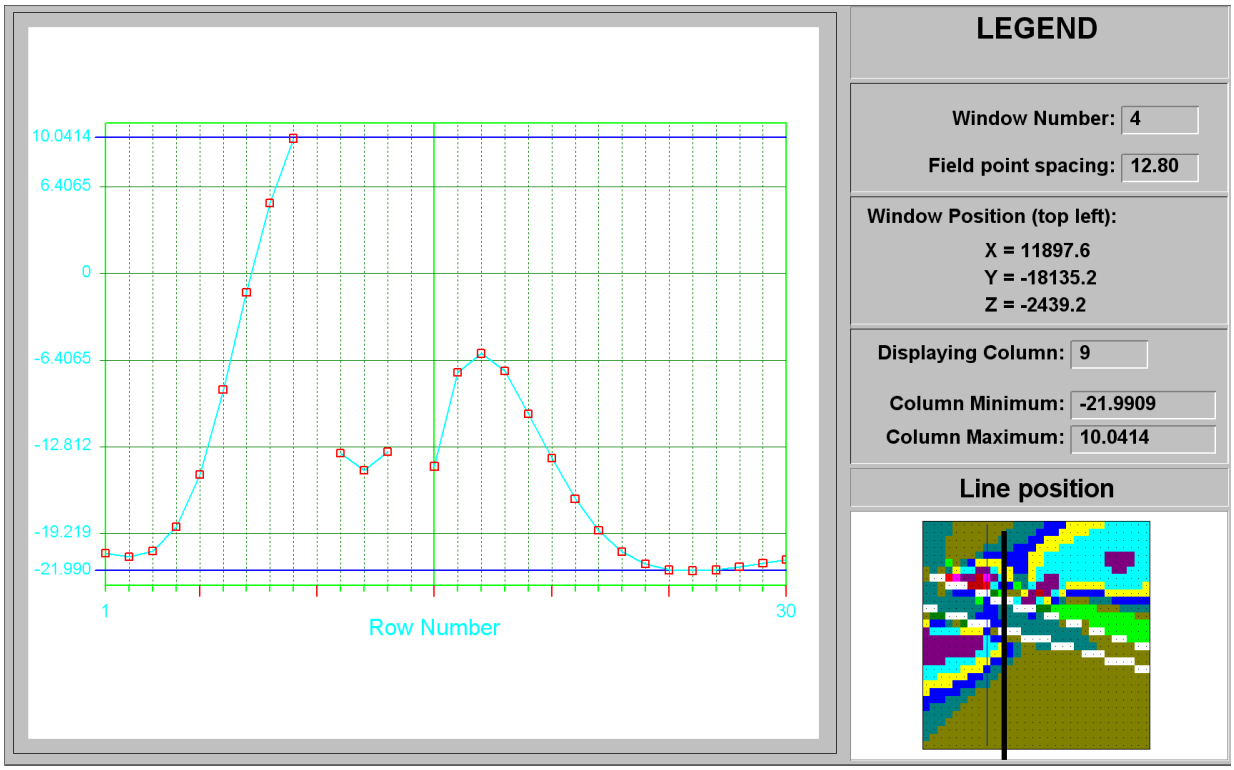

Figure C-68 ESS line plot at column 9 of Kate's Fault at STEP 8

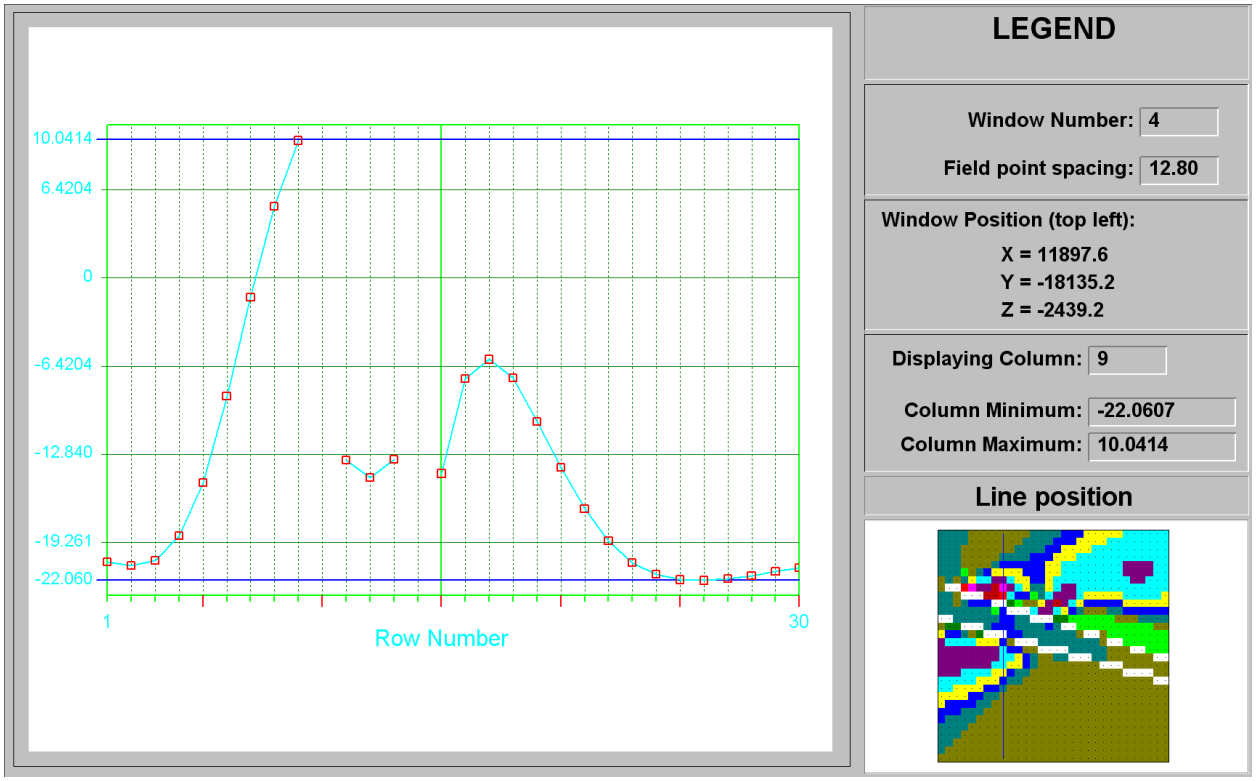

Figure C-69 ESS line plot at column 9 of Kate's Fault at STEP 9

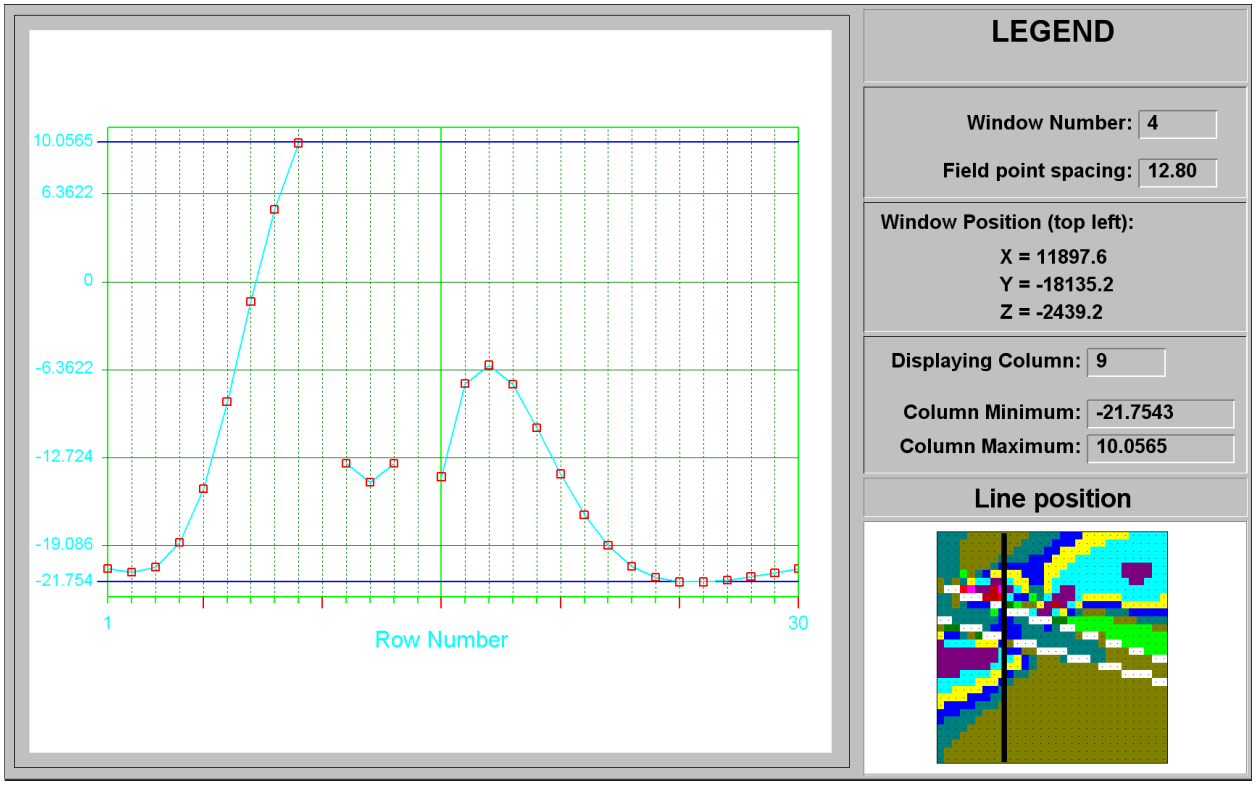

Figure C-70 ESS line plot at column 9 of Kate's Fault at STEP 10

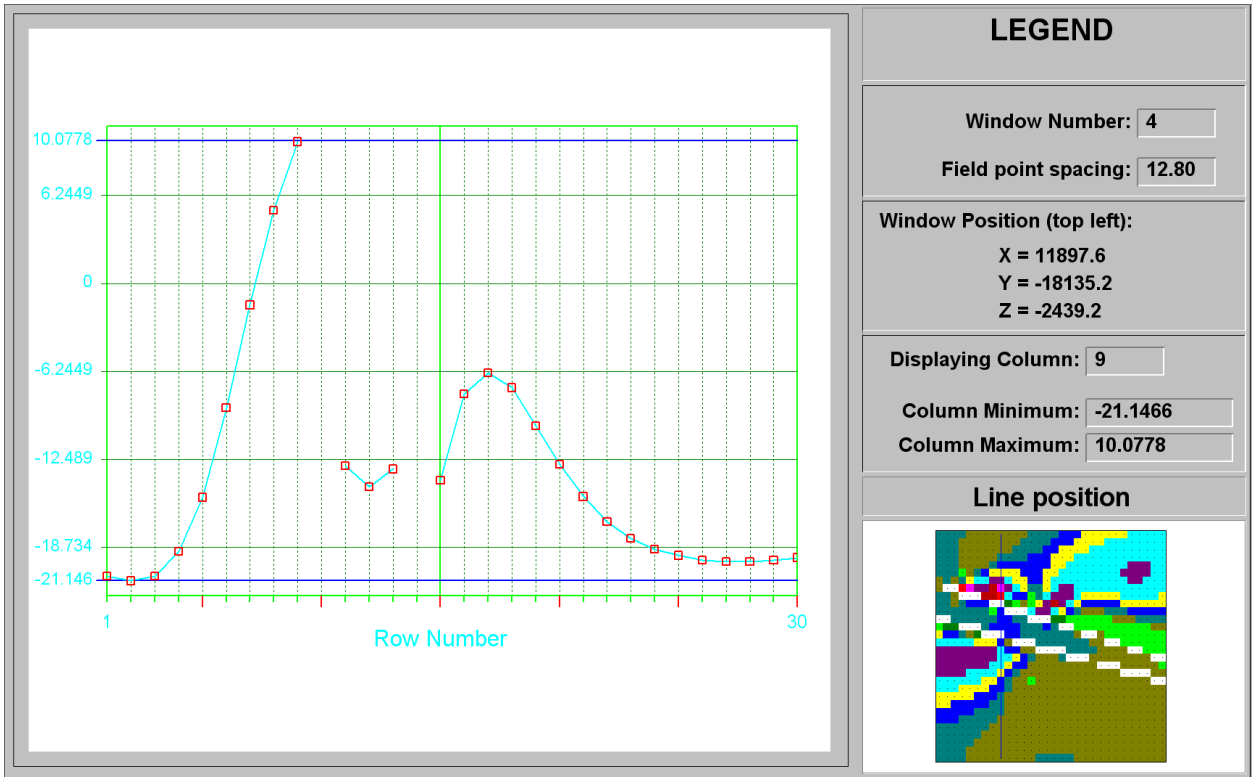

Figure C-71 ESS line plot at column 9 of Kate's Fault at STEP 11

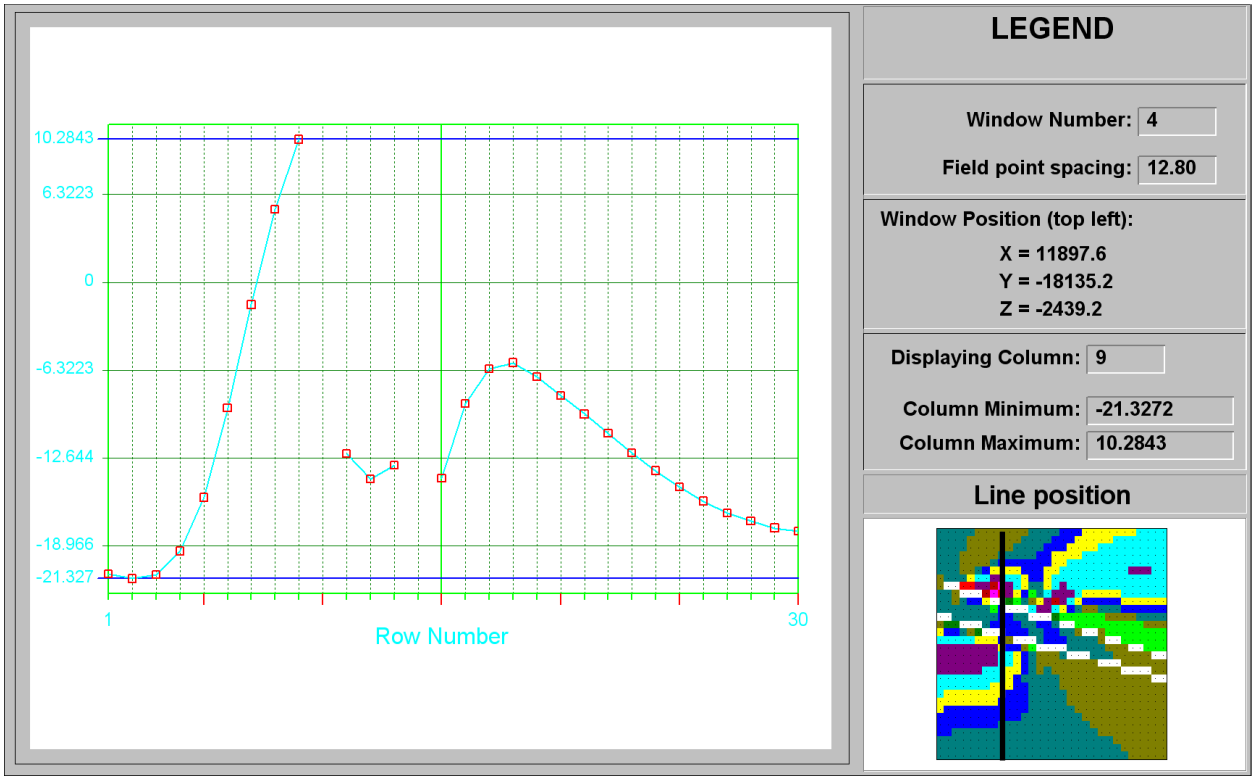

Figure C-72 ESS line plot at column 9 of Kate's Fault at STEP 12

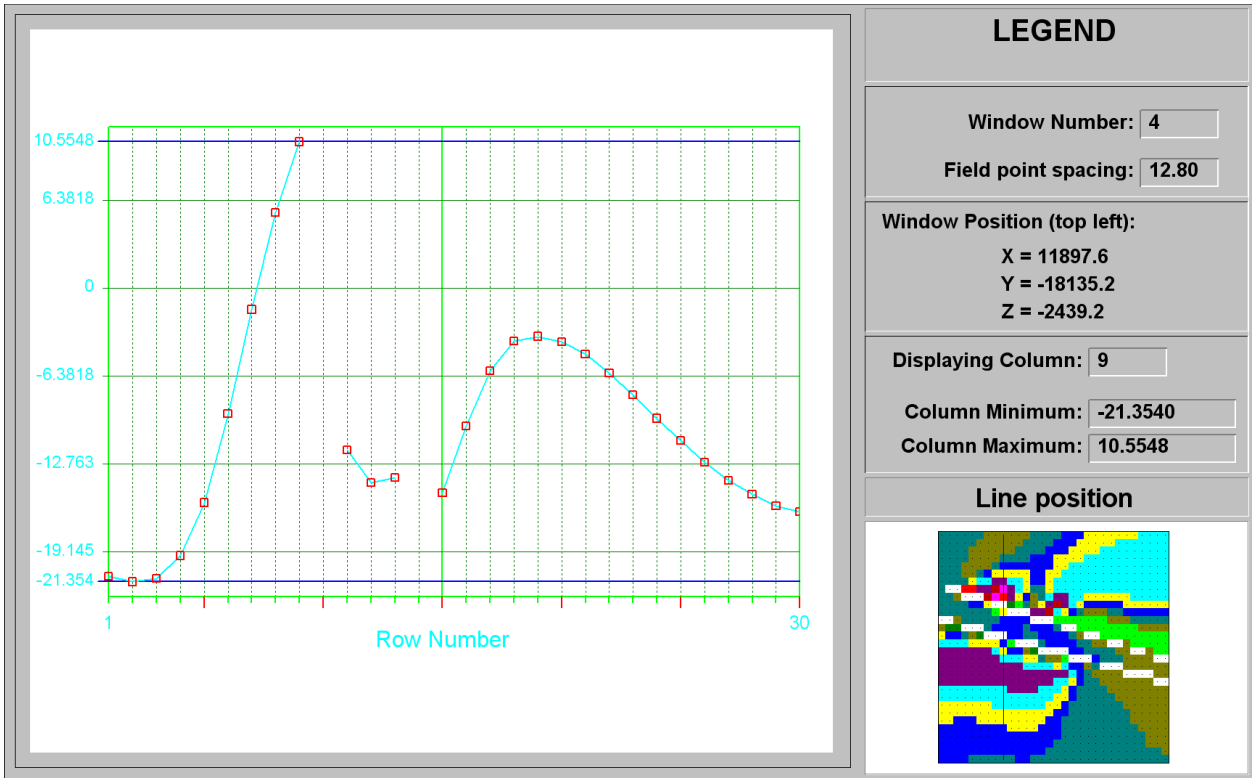

Figure C-73 ESS line plot at column 9 of Kate's Fault at STEP 13

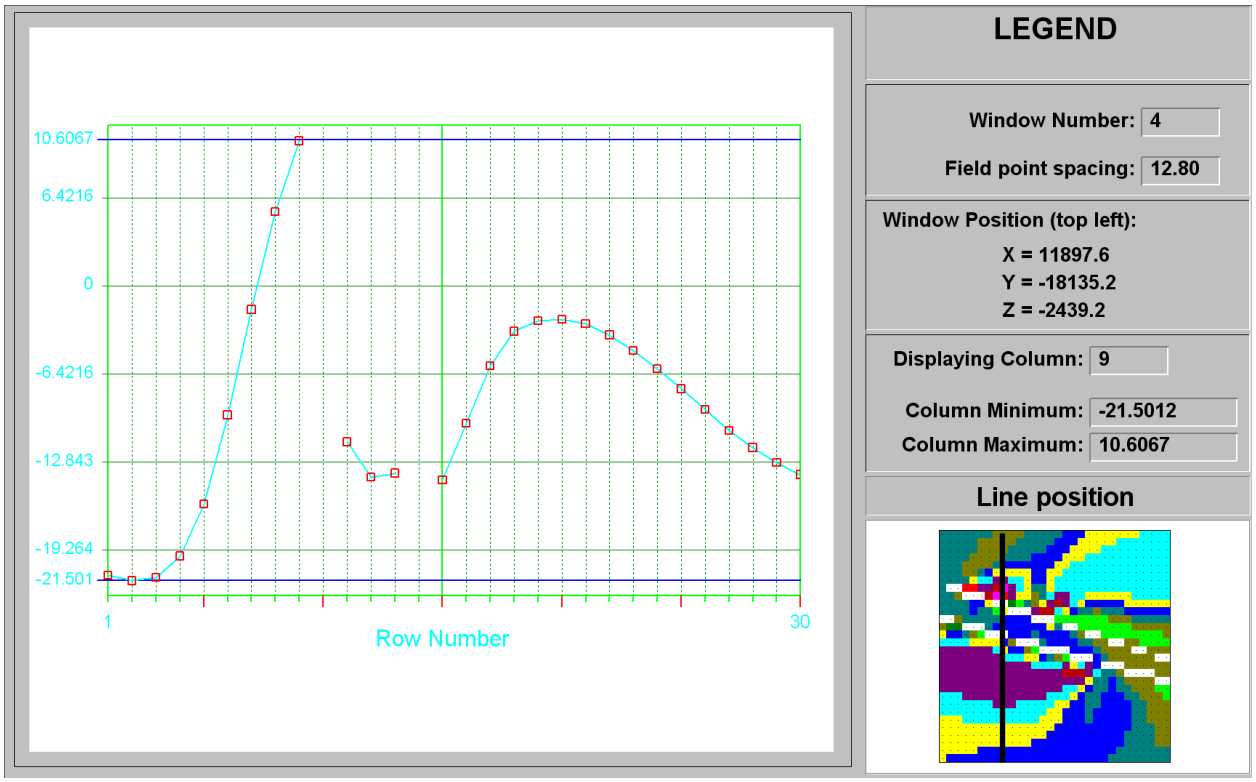

Figure C-74 ESS line plot at column 9 of Kate's Fault at STEP 14

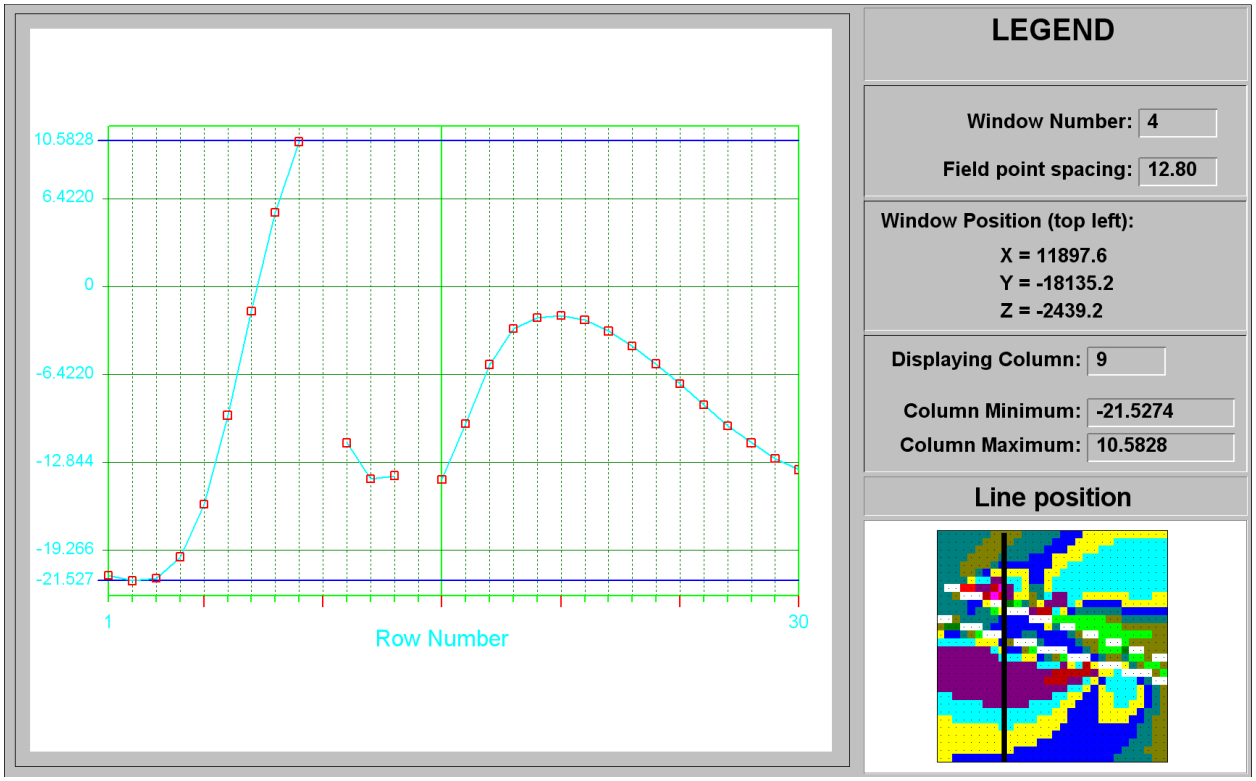

Figure C-75 ESS line plot at column 9 of Kate's Fault at STEP 15

Step Number	First reef				Reverse fault area				Second reef			
	Lowest Value (MPa)	% change from last step	Highest Value (MPa)	% change from last step	Lowest Value (MPa)	% change from last step	Highest Value (MPa)	% change from last step	Lowest Value (MPa)	% change from last step	Highest Value (MPa)	% change from last step
1	-19.3		10.9		-17.3		-14.9		-20.4		-19.3	
2	-19.7	-2	10.7	-1.8	-17.3	0	-14.9	0	-20.8	-2	-19.7	-2
3	-19.2	+2	10.4	-2.9	-16	+7	-14.9	0	-21.5	-3	-18	+9
4	-19.8	-3	10.2	-2	-16.6	-4	-14.9	0	-21.7	-1	-15.9	+12
5	-20.4	-3	10.1	-1	-15.6	+6	-14	+6	-21	+3	-6.2	+61
6	-20.7	-1	10	-1	-15.1	+3	-13.8	+2	-21.3	-1	-6.3	-2
7	-20.7	0	10	0	-14.8	+2	-13.3	+4	-21.7	-2	-6.3	0
8	-20.9	-1	10	0	-14.7	+1	-12.8	+4	-22	-1	-6.3	0
9	-21.4	-2	10	0	-14.4	+2	-12.8	0	-22.1	+1	-6.4	-2
10	-21.1	+1	10	0	-14.8	-3	-12.8	0	-21.8	-1	-6.4	0
11	-21.2	-1	10	0	-14.7	+1	-12.5	+2	-19.9	+9	-6.2	+3
12	-21.4	-1	10.2	+2	-14.2	+3	-12.6	-1	-18	+9	-6.3	-2
13	-21.4	0	10.2	0	-13.9	+2	-12.6	0	-18.3	+2	-5.7	+10
14	-21.4	0	10.5	+3	-14.4	-4	-12.1	-4	-16.3	+11	-3.5	+39
15	-21.5	-1	10.6	+1	-14.1	-2	-11.9	-2	-14.1	-12	-2.9	+17

Table C-1 Comparison of ESS values across mining steps for Kate's Fault

C.3.2. Murray Fault ESS

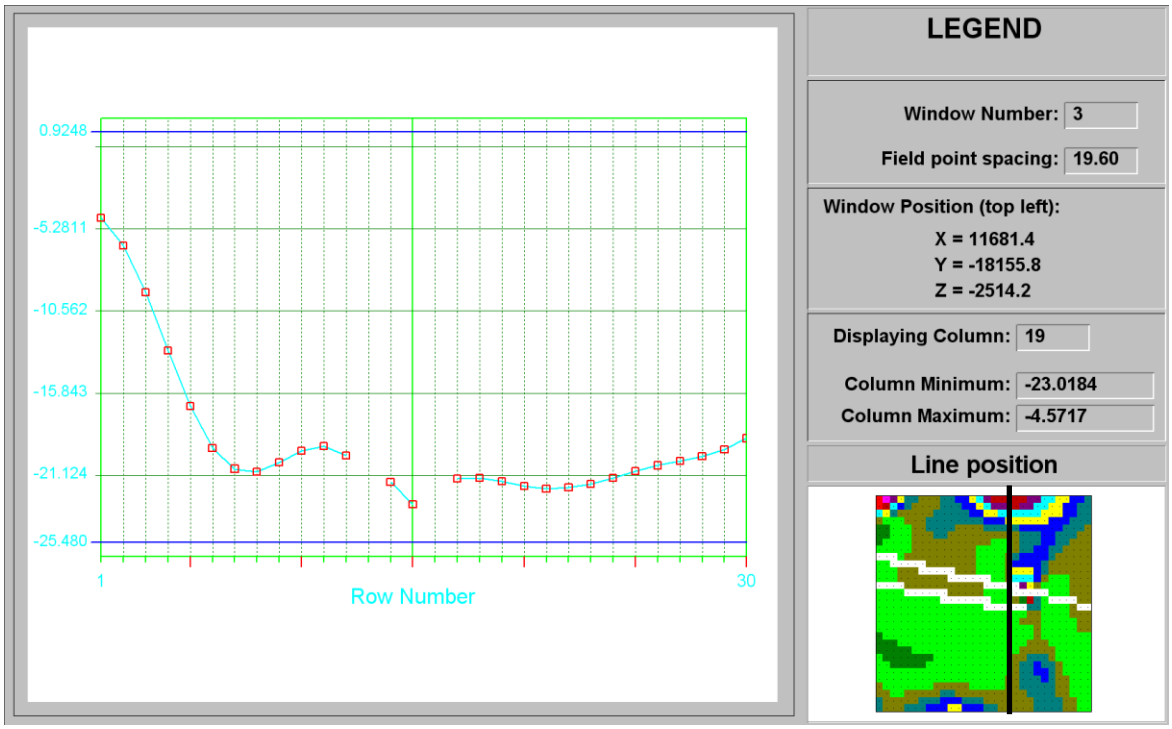

Figure C-76 ESS line plot at column 19 of Murray Fault at STEP 1

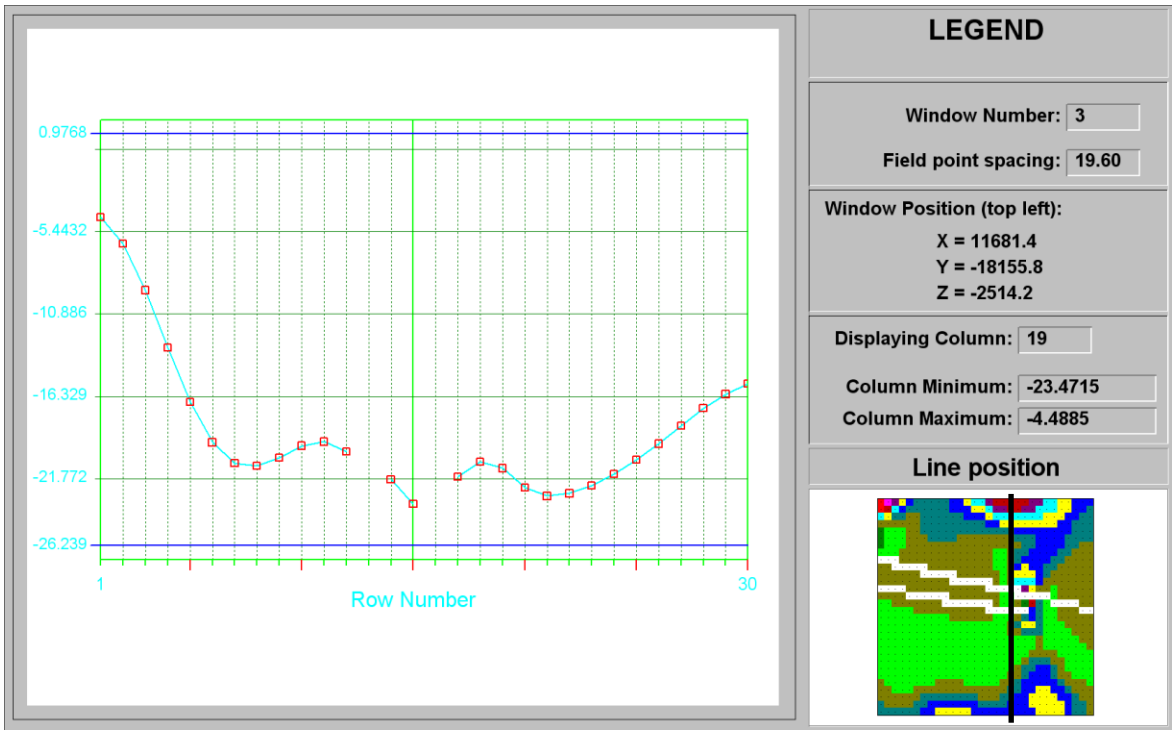

Figure C-77 ESS line plot at column 19 of Murray Fault at STEP 2

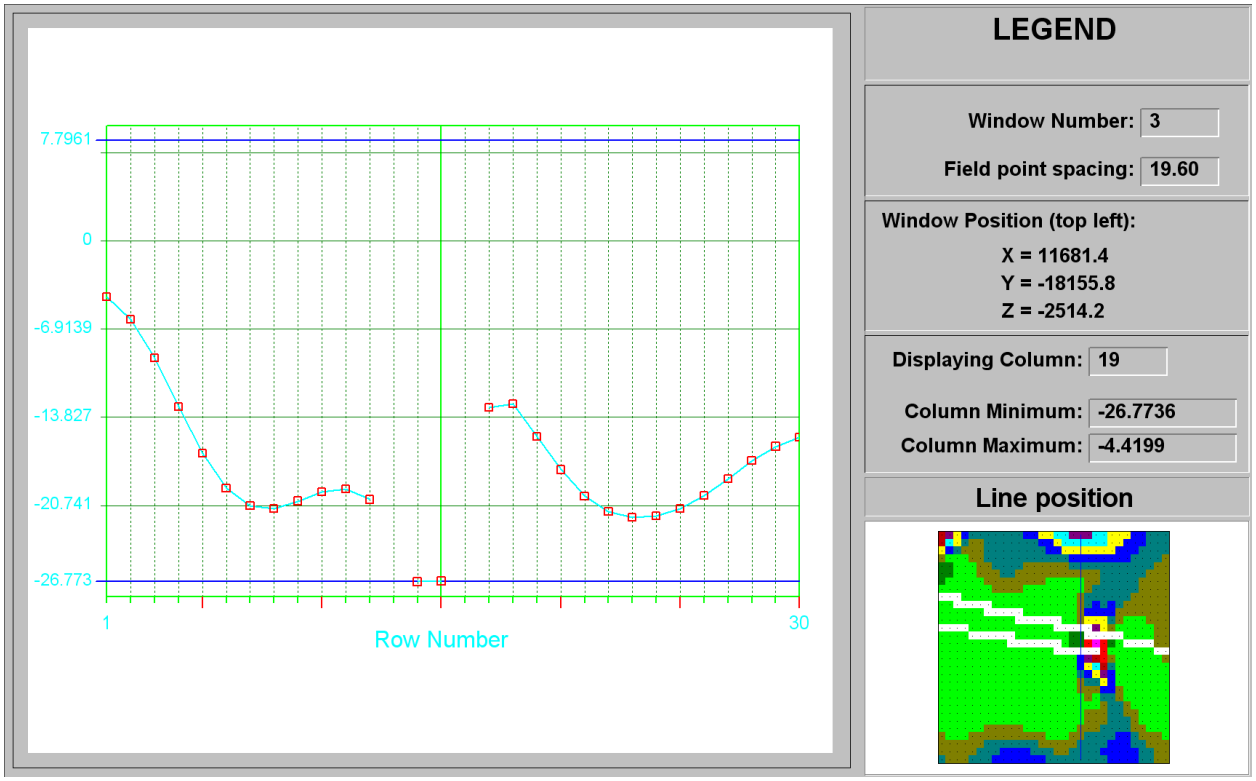

Figure C-78 ESS line plot at column 19 of Murray Fault at STEP 3

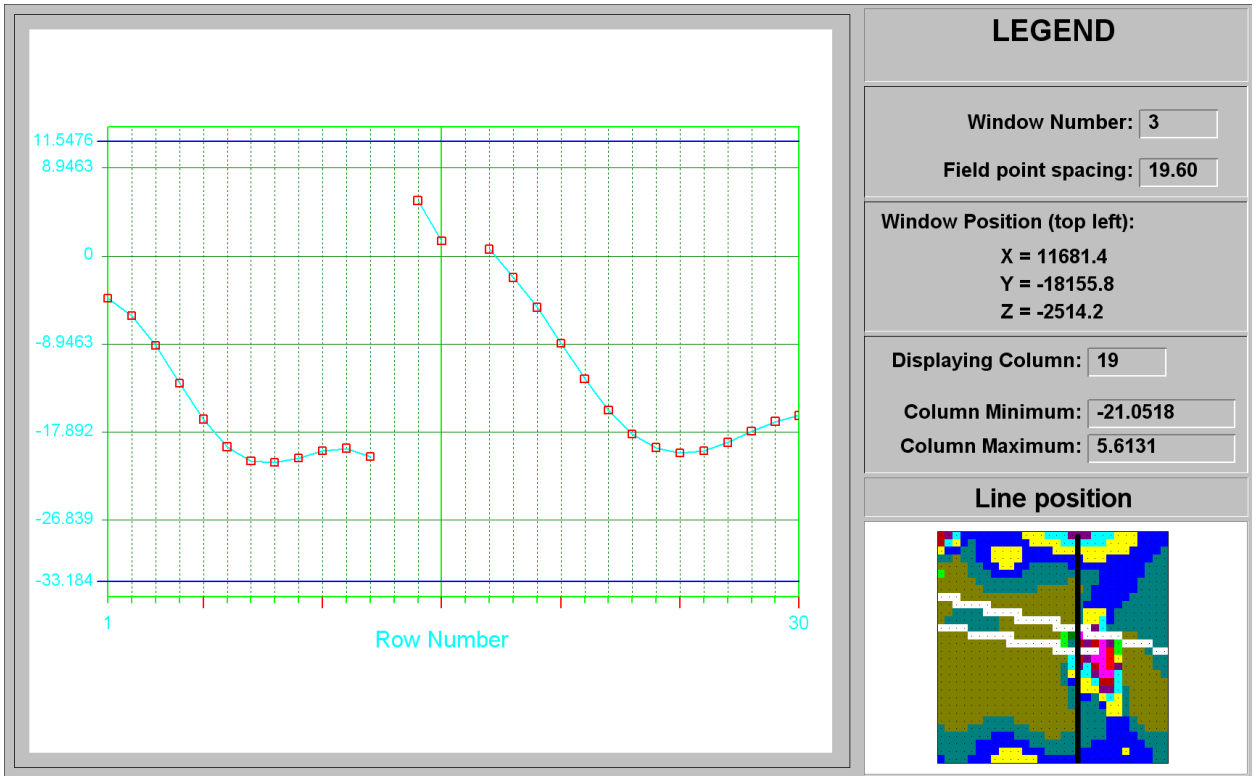

Figure C-79 ESS line plot at column 19 of Murray Fault at STEP 4

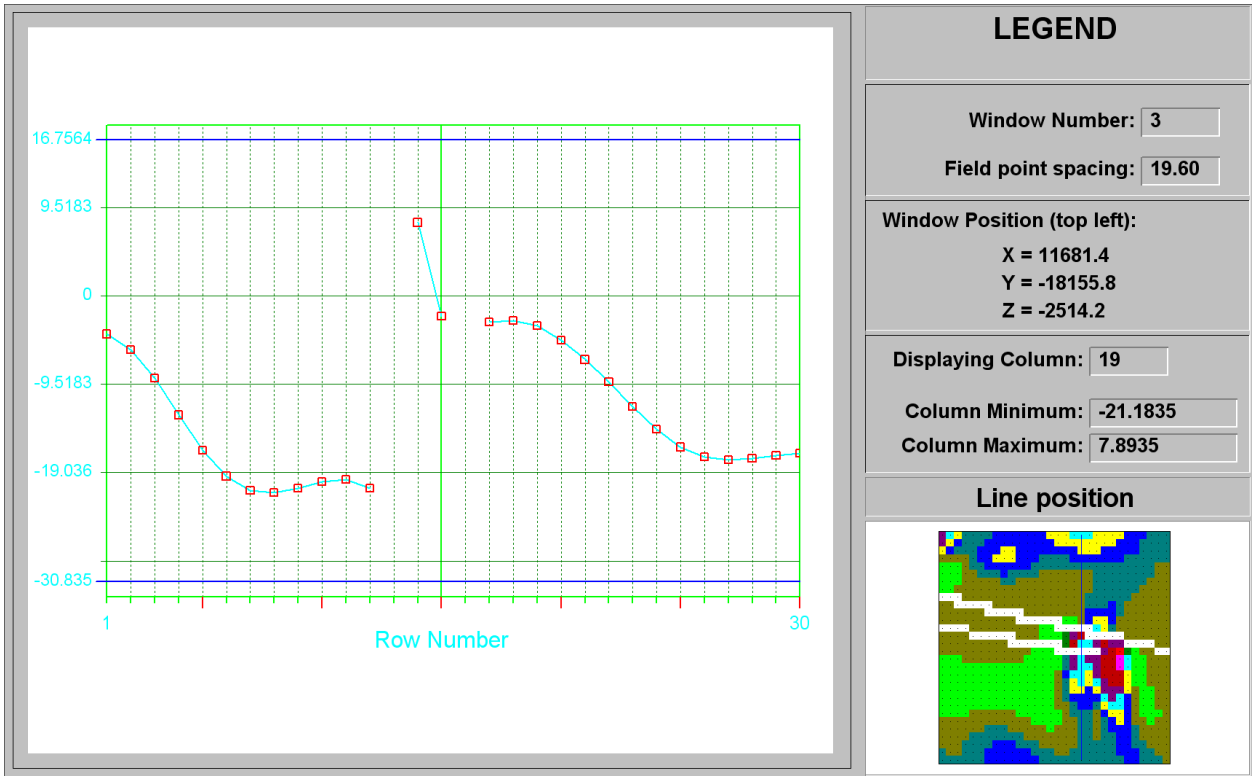

Figure C-80 ESS line plot at column 19 of Murray Fault at STEP 5

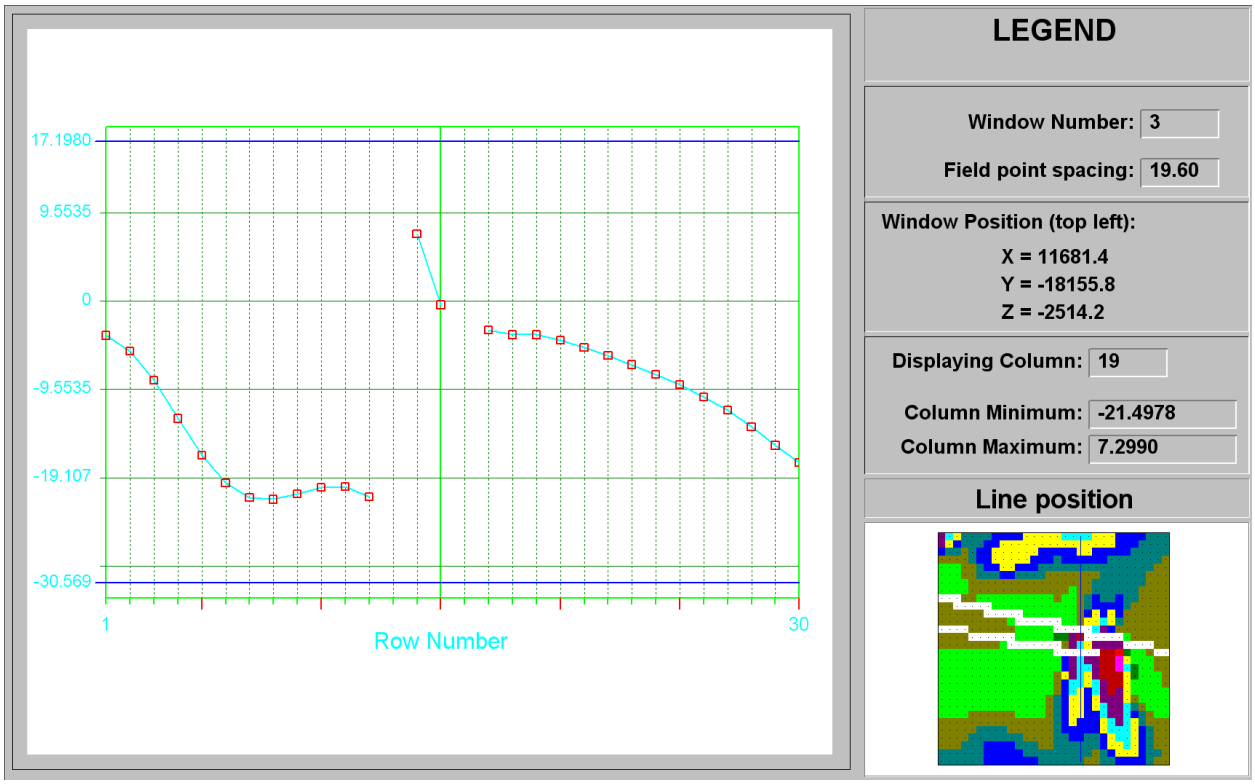

Figure C-81 ESS line plot at column 19 of Murray Fault at STEP 6

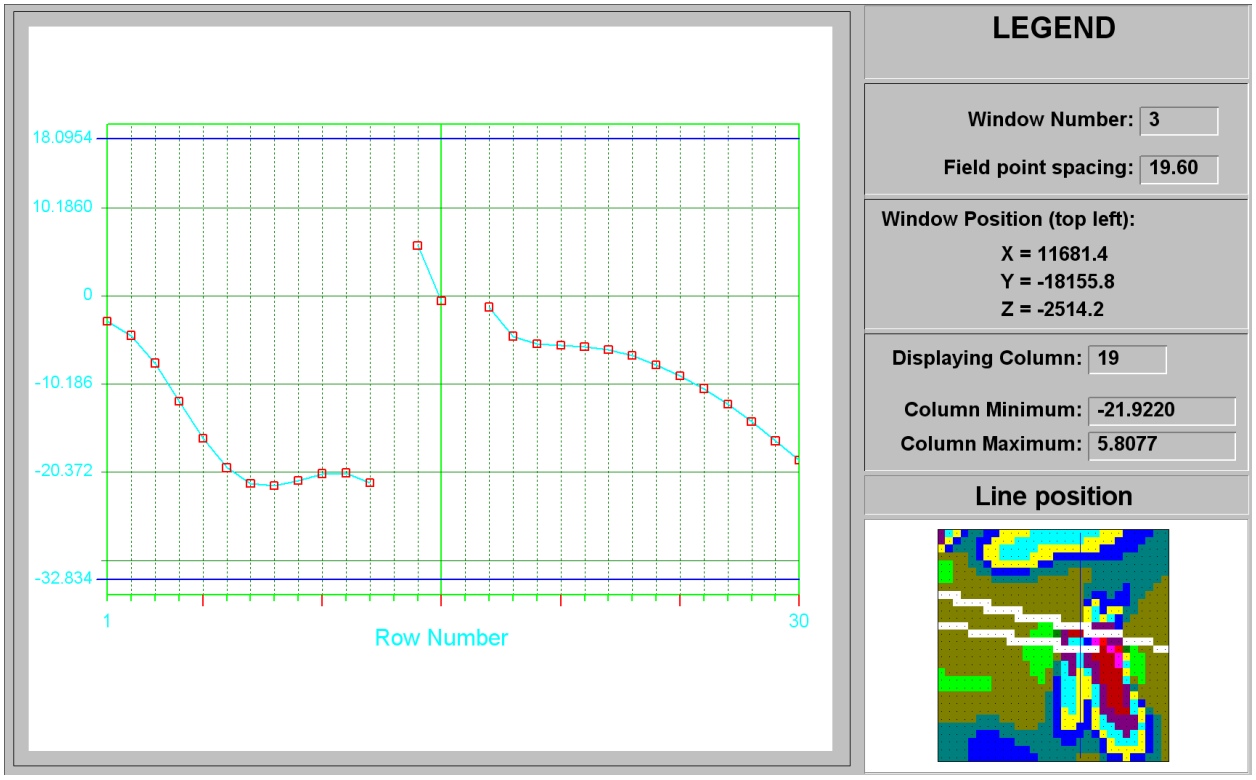

Figure C-82 ESS line plot at column 19 of Murray Fault at STEP 7

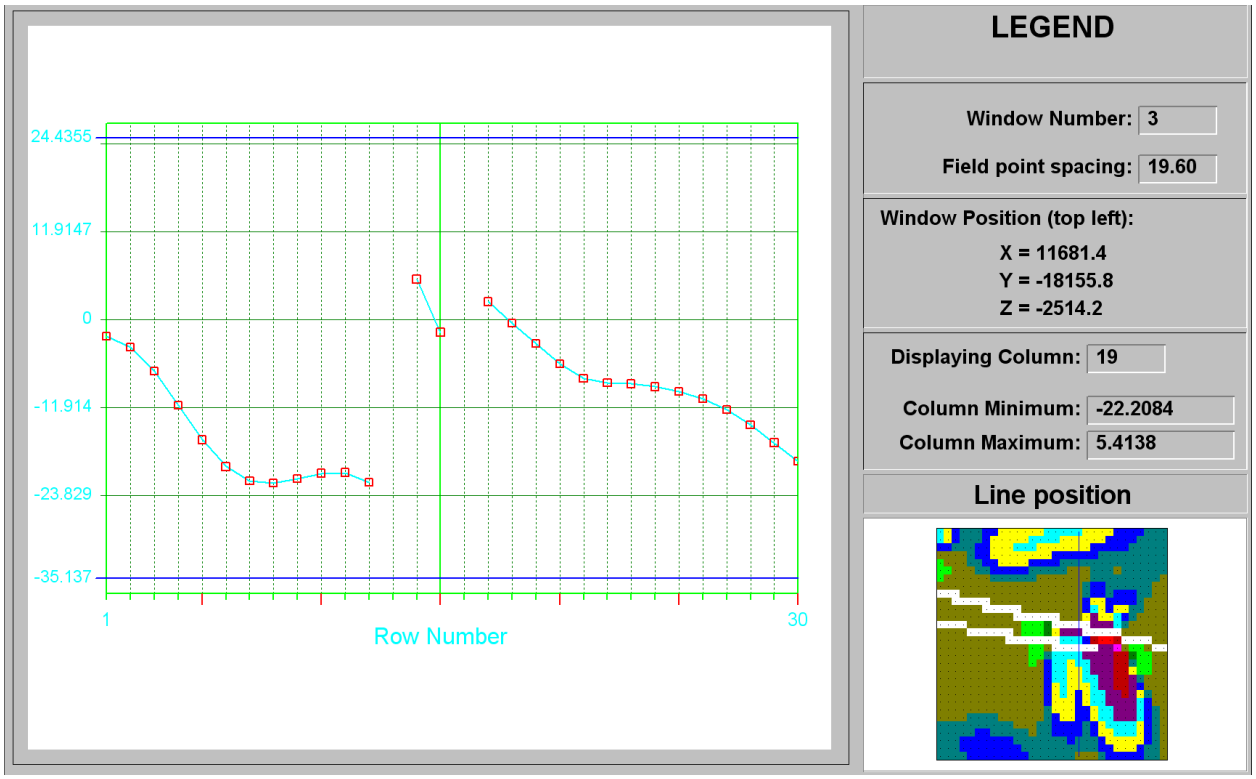

Figure C-83 ESS line plot at column 19 of Murray Fault at STEP 8

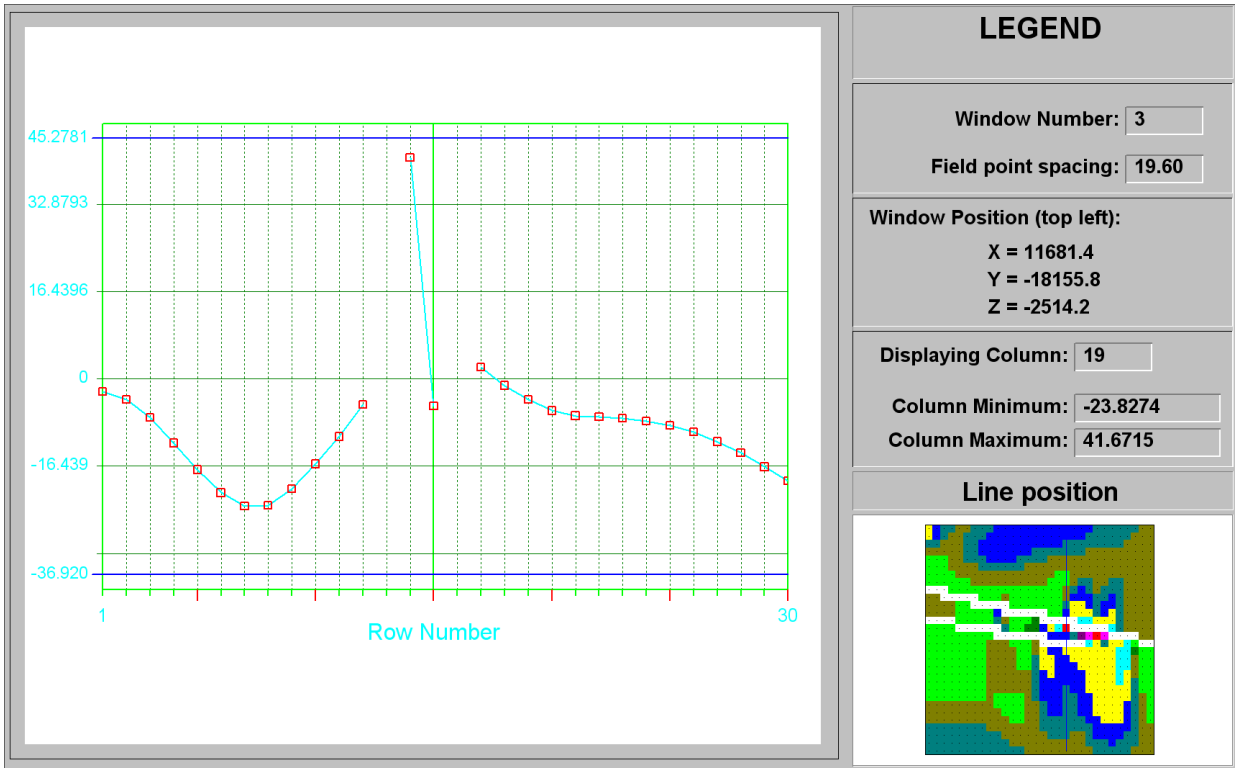

Figure C-84 ESS line plot at column 19 of Murray Fault at STEP 9

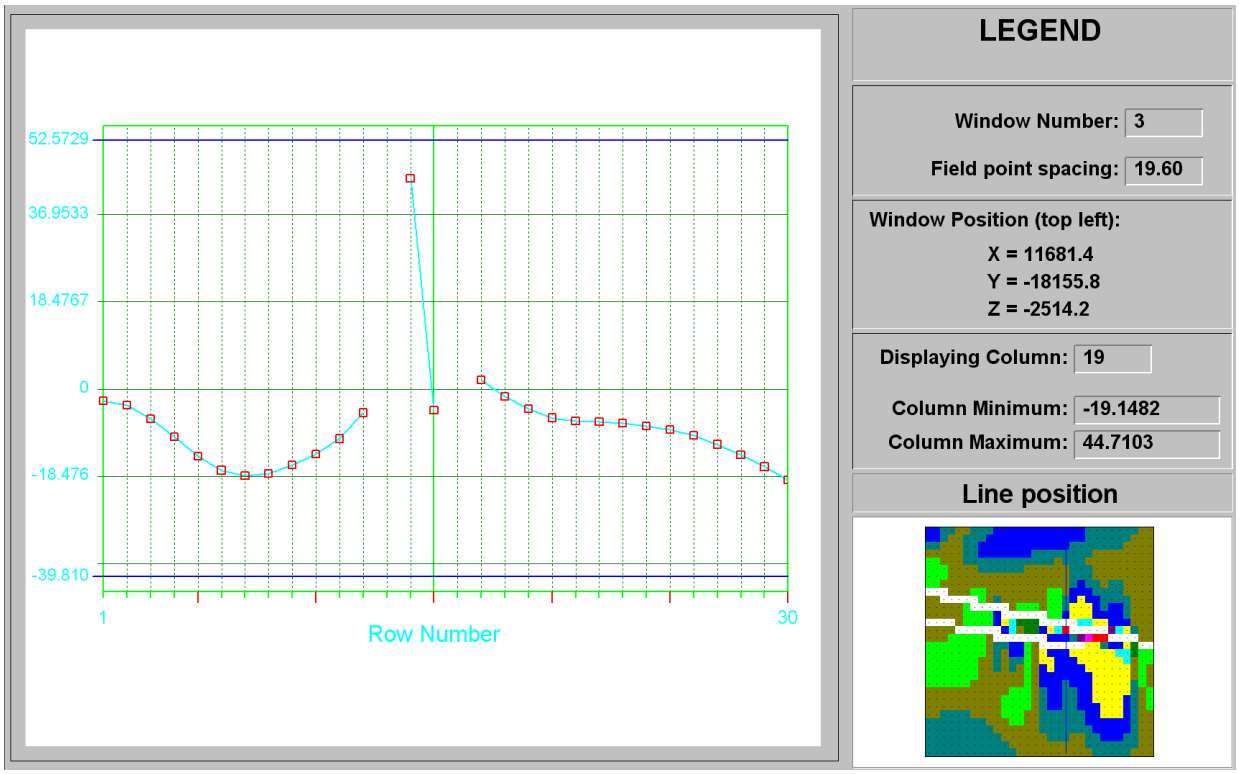

Figure C-85 ESS line plot at column 19 of Murray Fault at STEP 10

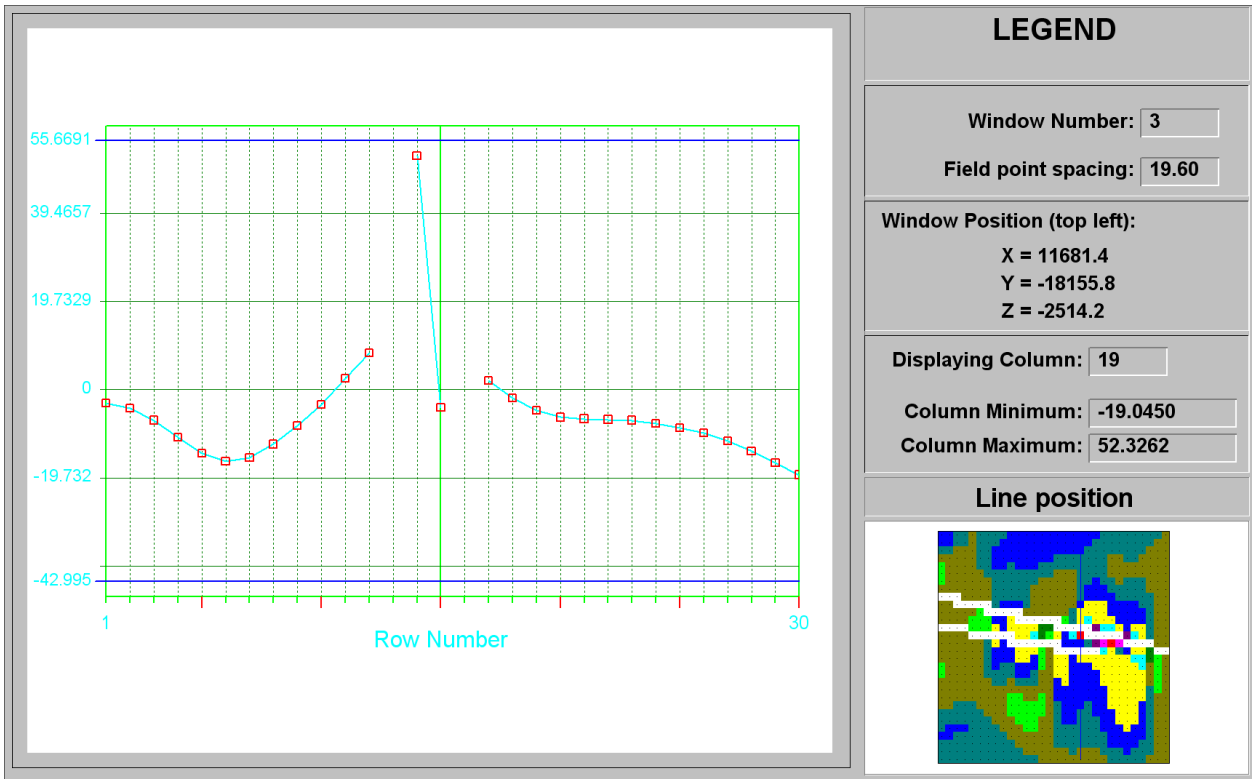

Figure C-86 ESS line plot at column 19 of Murray Fault at STEP 11

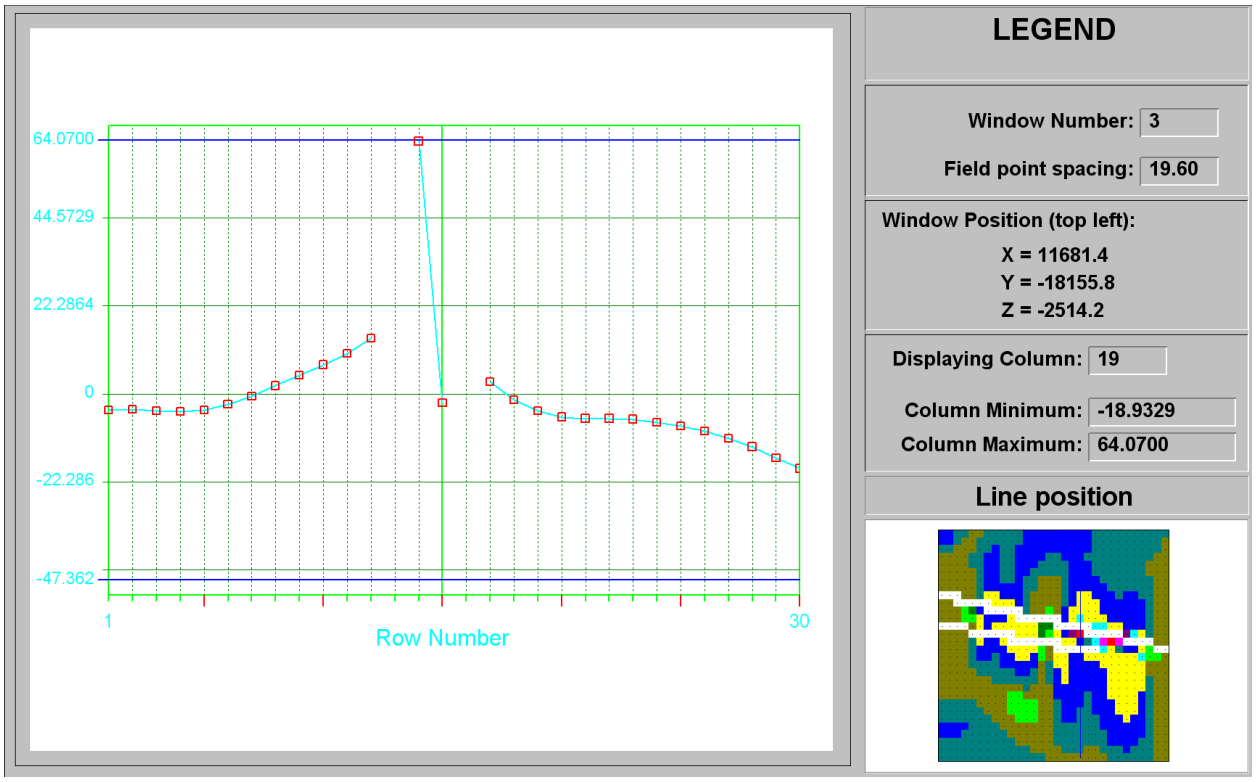

Figure C-87 ESS line plot at column 19 of Murray Fault at STEP 12

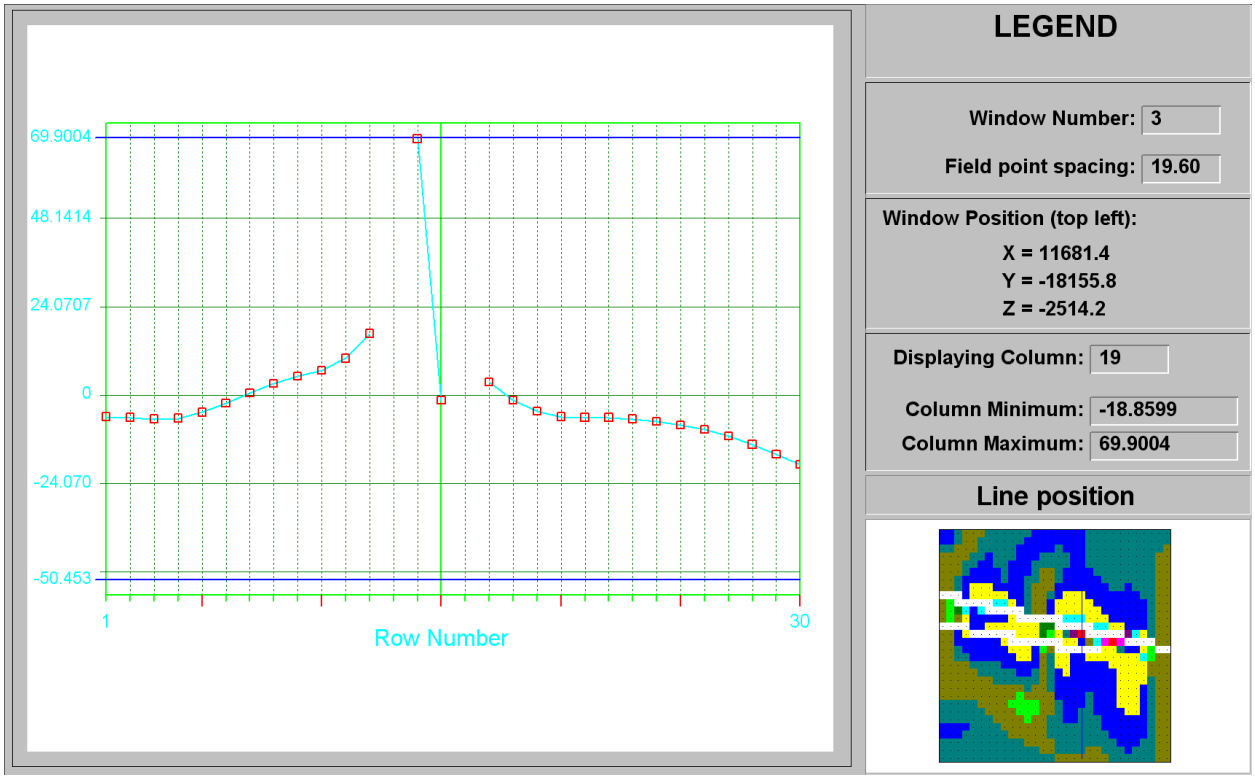

Figure C-88 ESS line plot at column 19 of Murray Fault at STEP 13

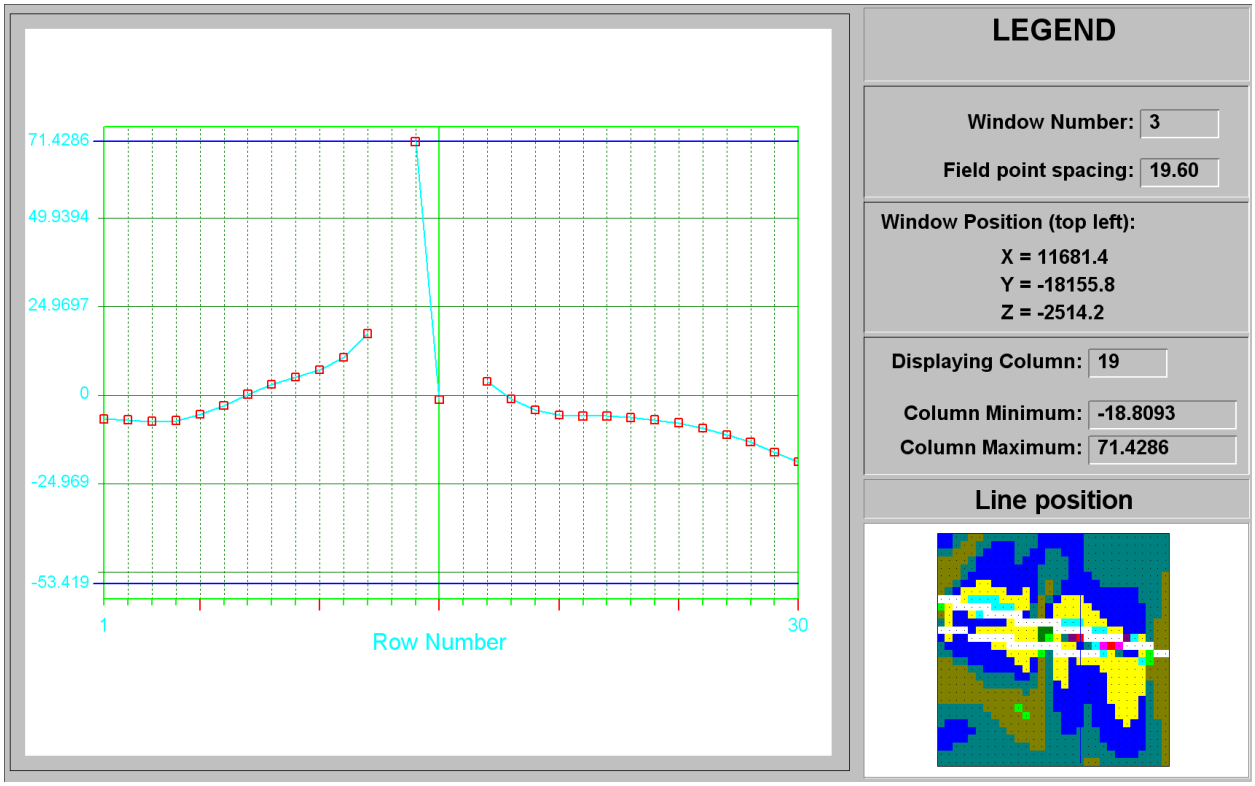

Figure C-89 ESS line plot at column 19 of Murray Fault at STEP 14

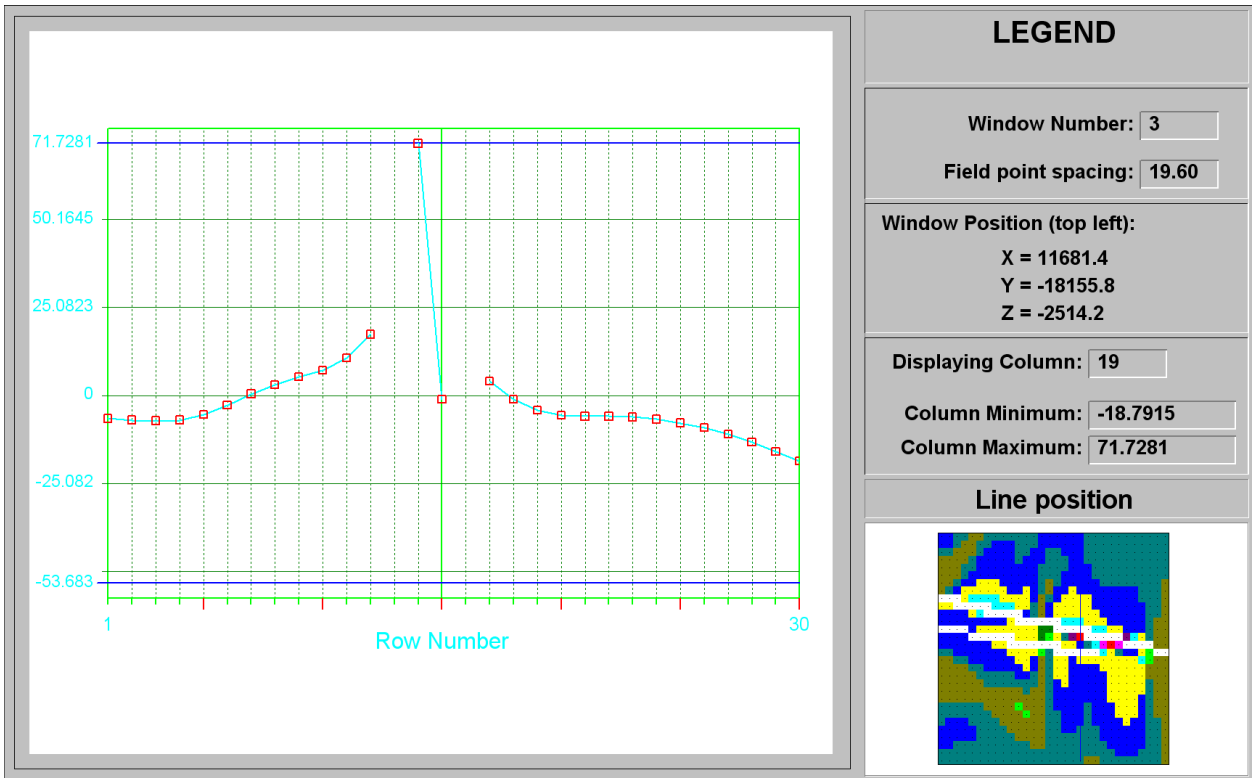

Figure C-90 ESS line plot at column 19 of Murray Fault at STEP 15

C.3.3. Smith Fault ESS

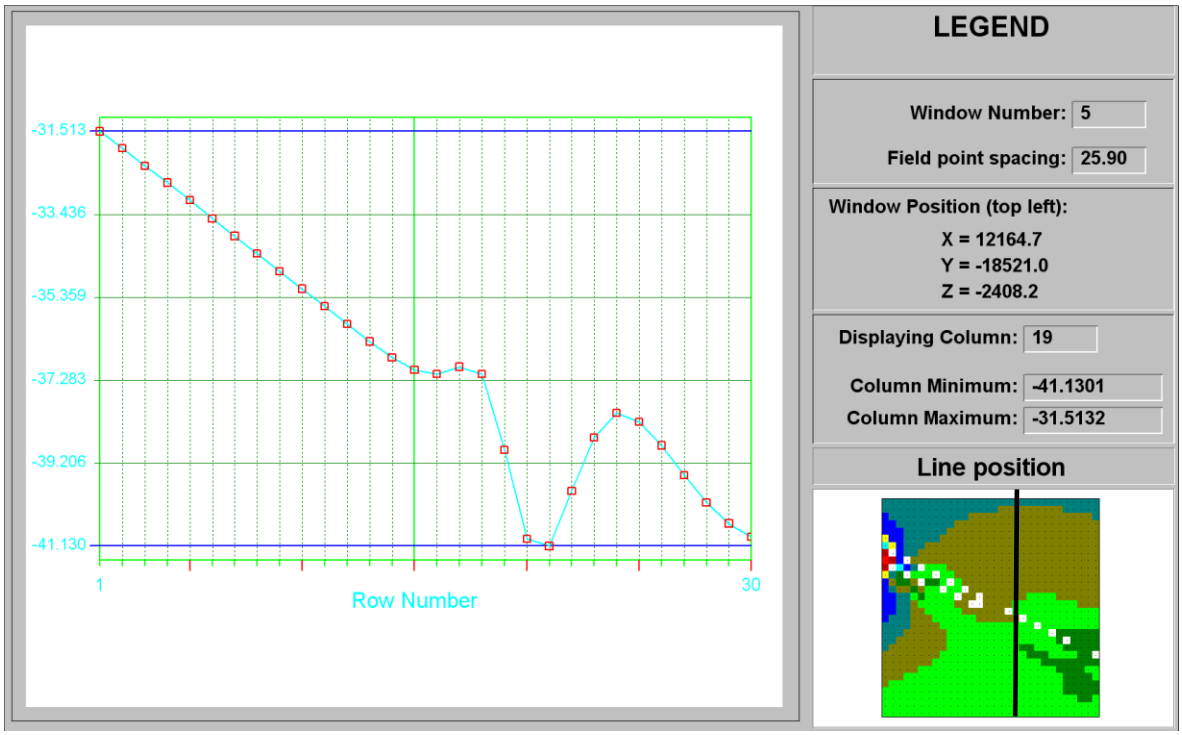

Figure C-91 ESS line plot at column 19 of Smith Fault at STEP 1

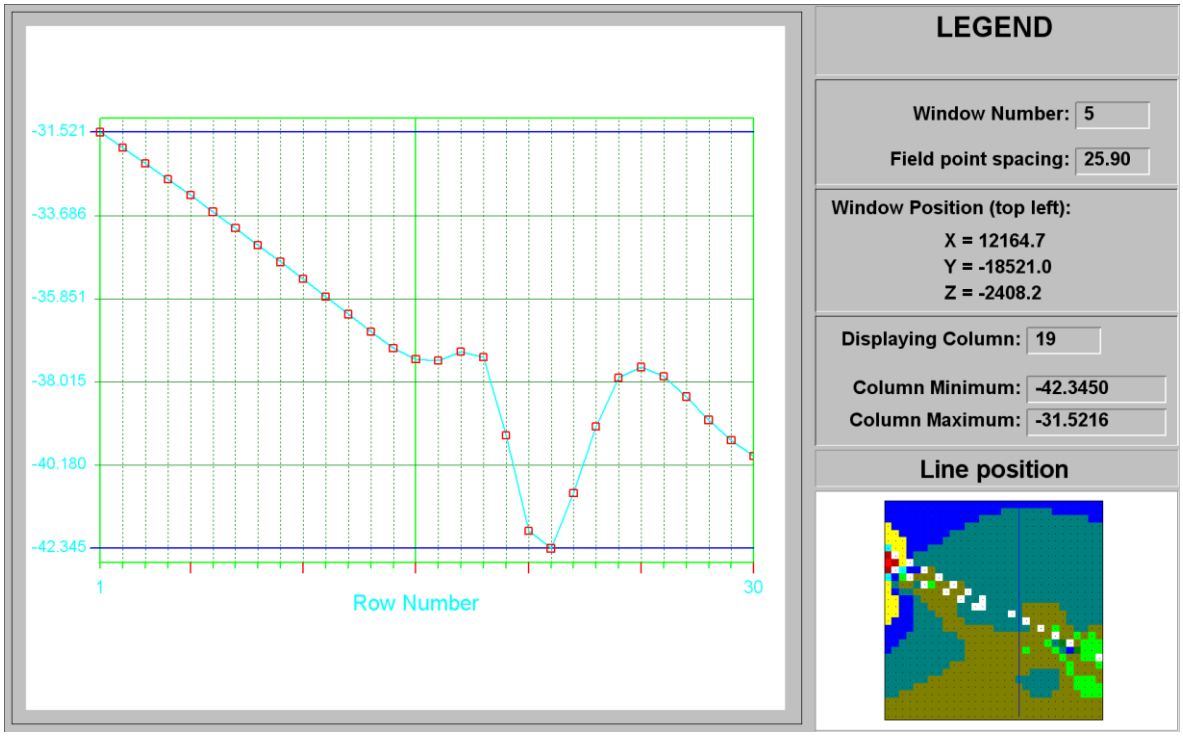

Figure C-92 ESS line plot at column 19 of Smith Fault at STEP 2

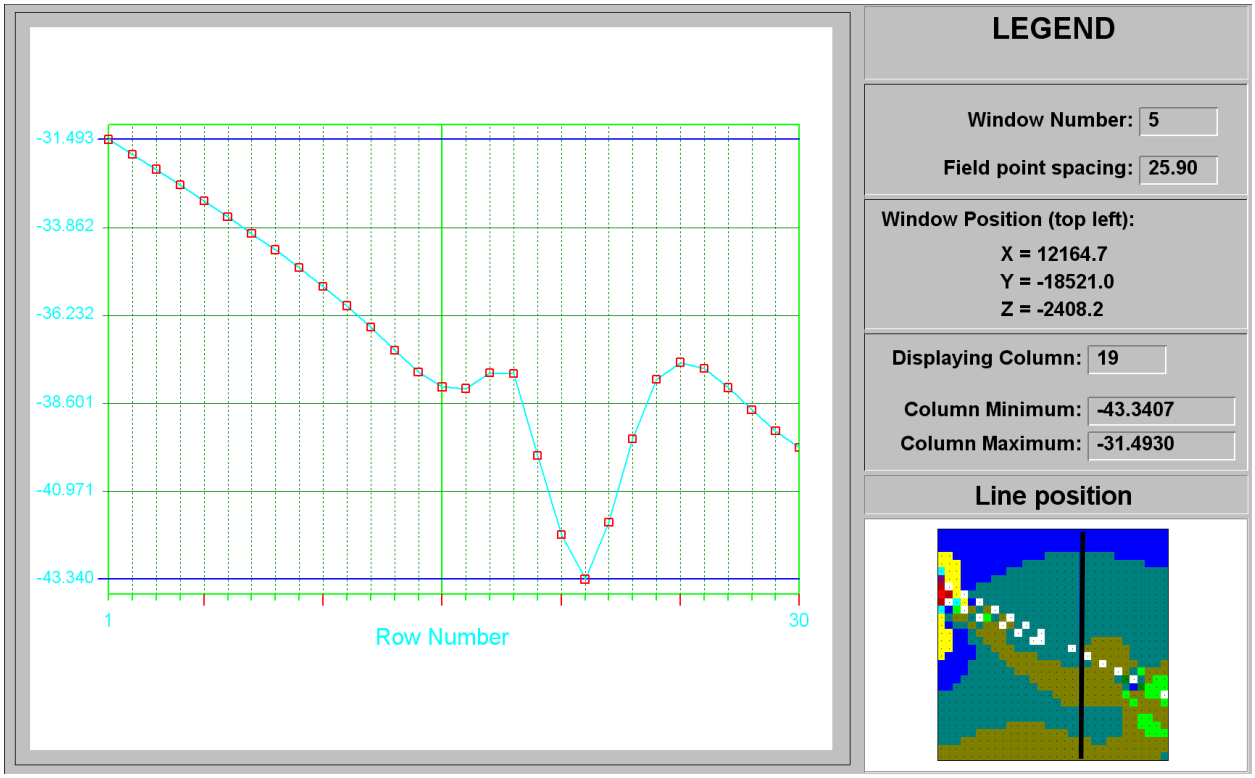

Figure C-93 ESS line plot at column 19 of Smith Fault at STEP 3

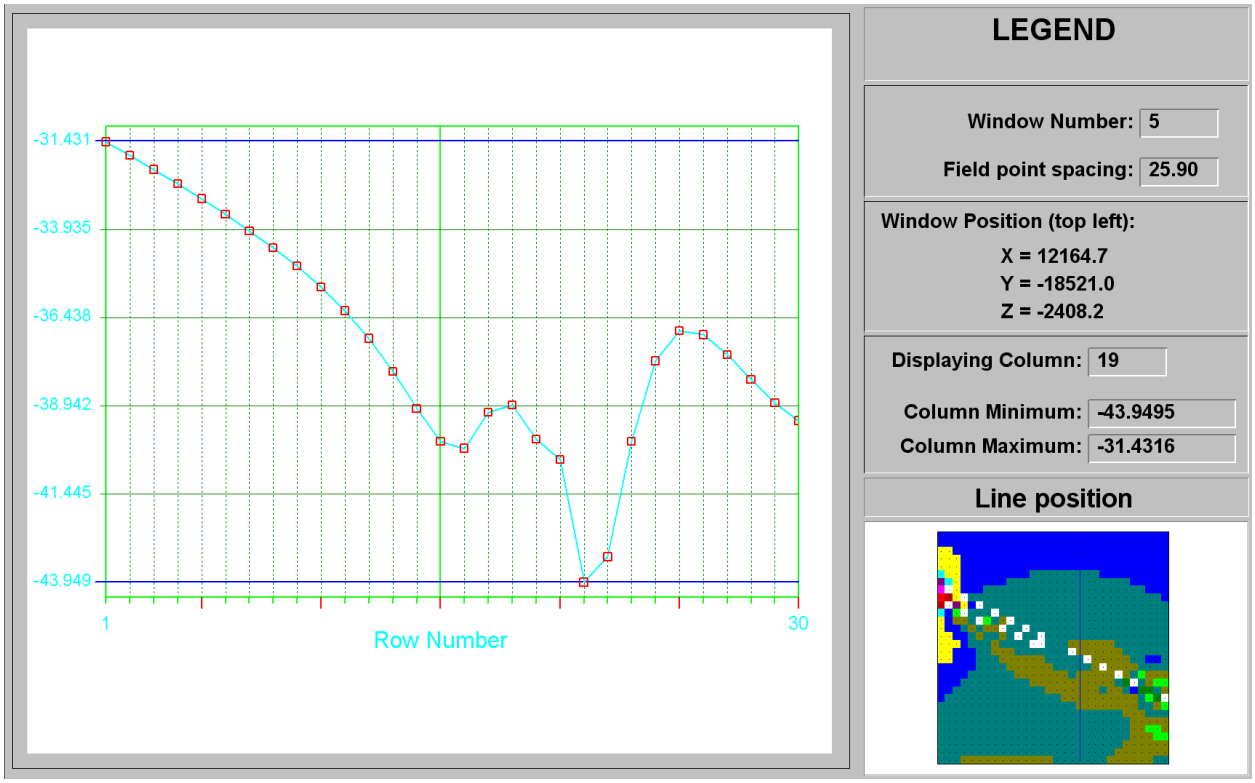

Figure C-94 ESS line plot at column 19 of Smith Fault at STEP 4

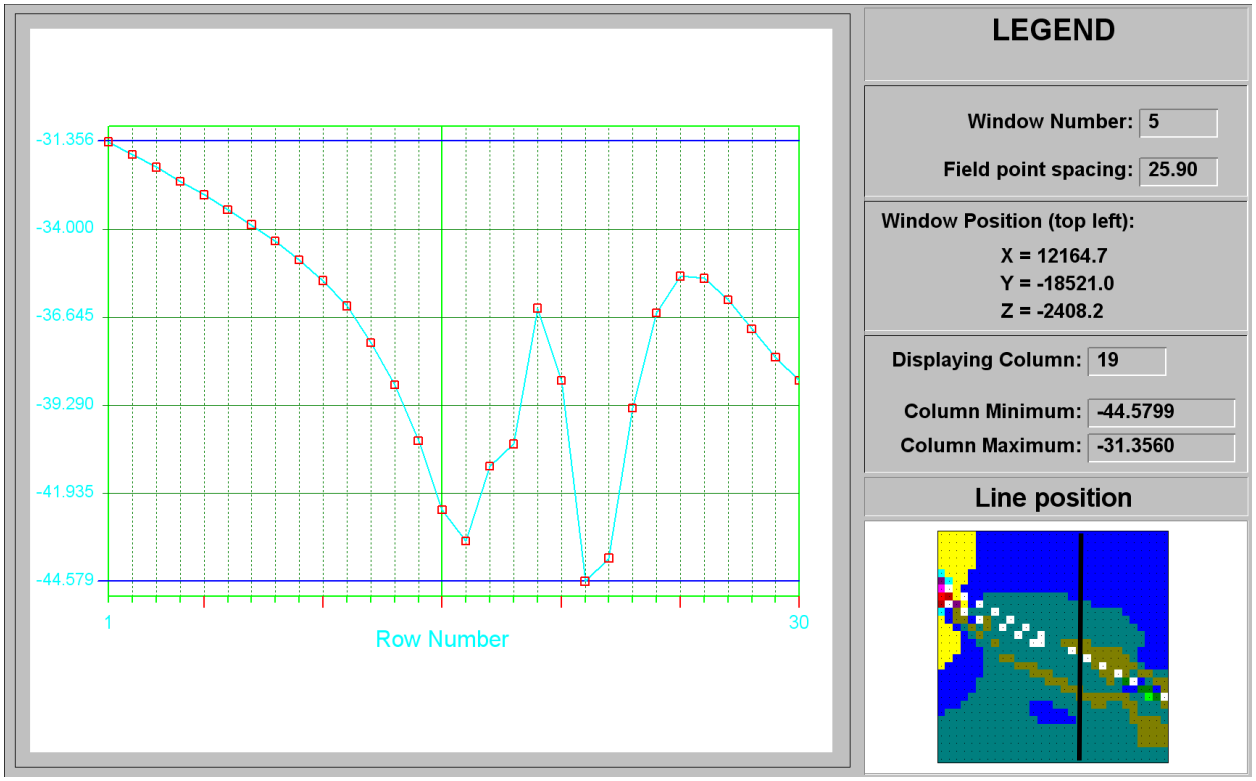

Figure C-95 ESS line plot at column 19 of Smith Fault at STEP 5

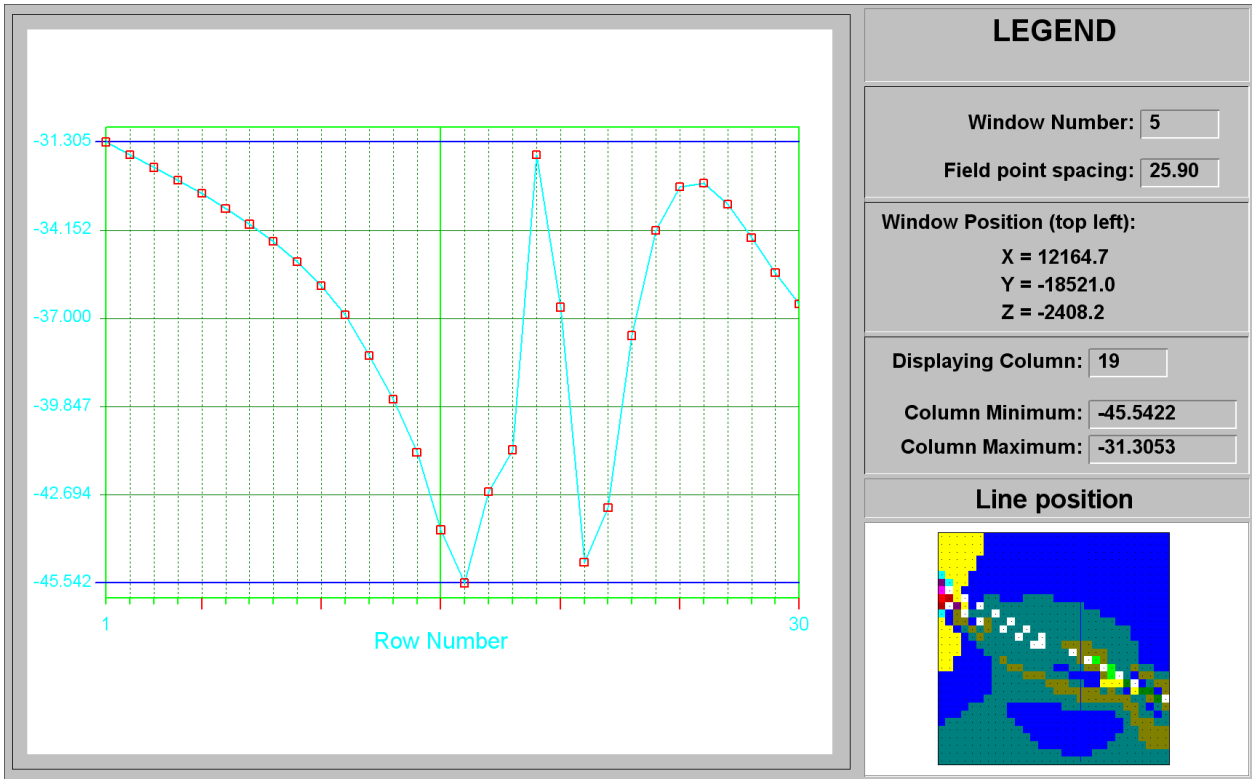

Figure C-96 ESS line plot at column 19 of Smith Fault at STEP 6

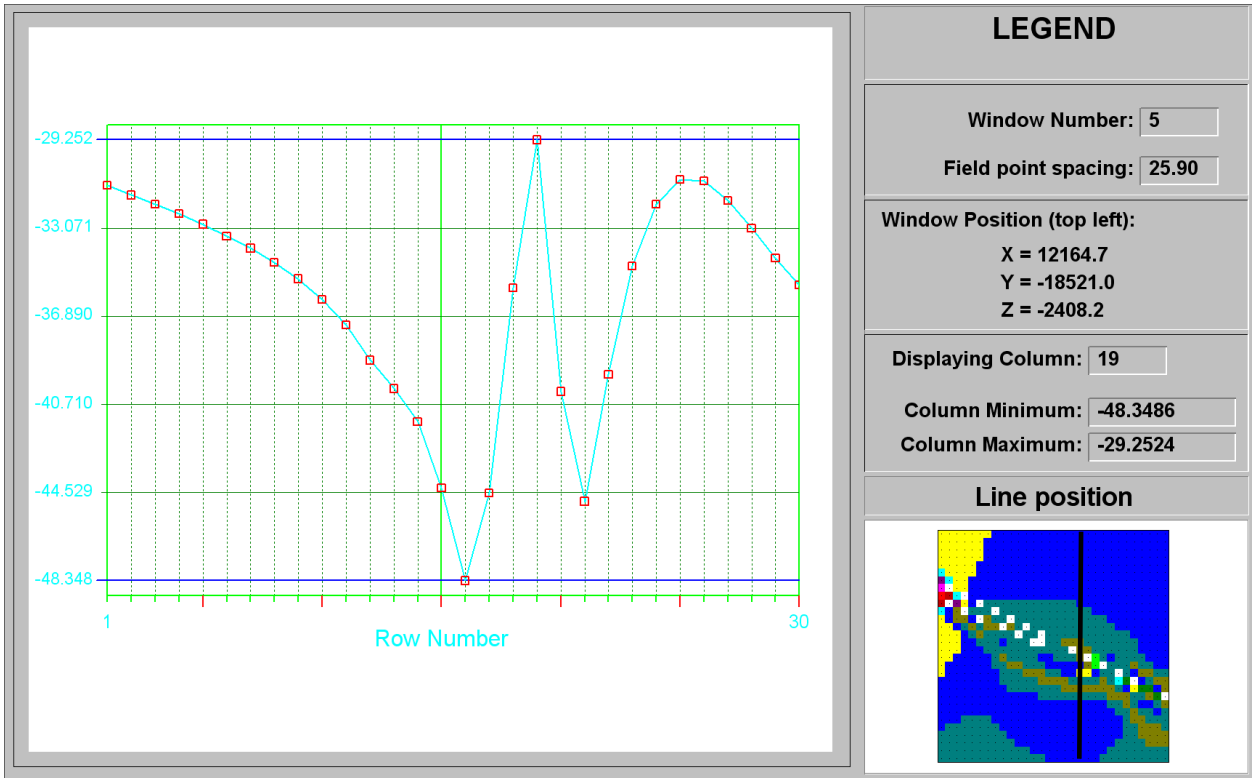

Figure C-97 ESS line plot at column 19 of Smith Fault at STEP 7

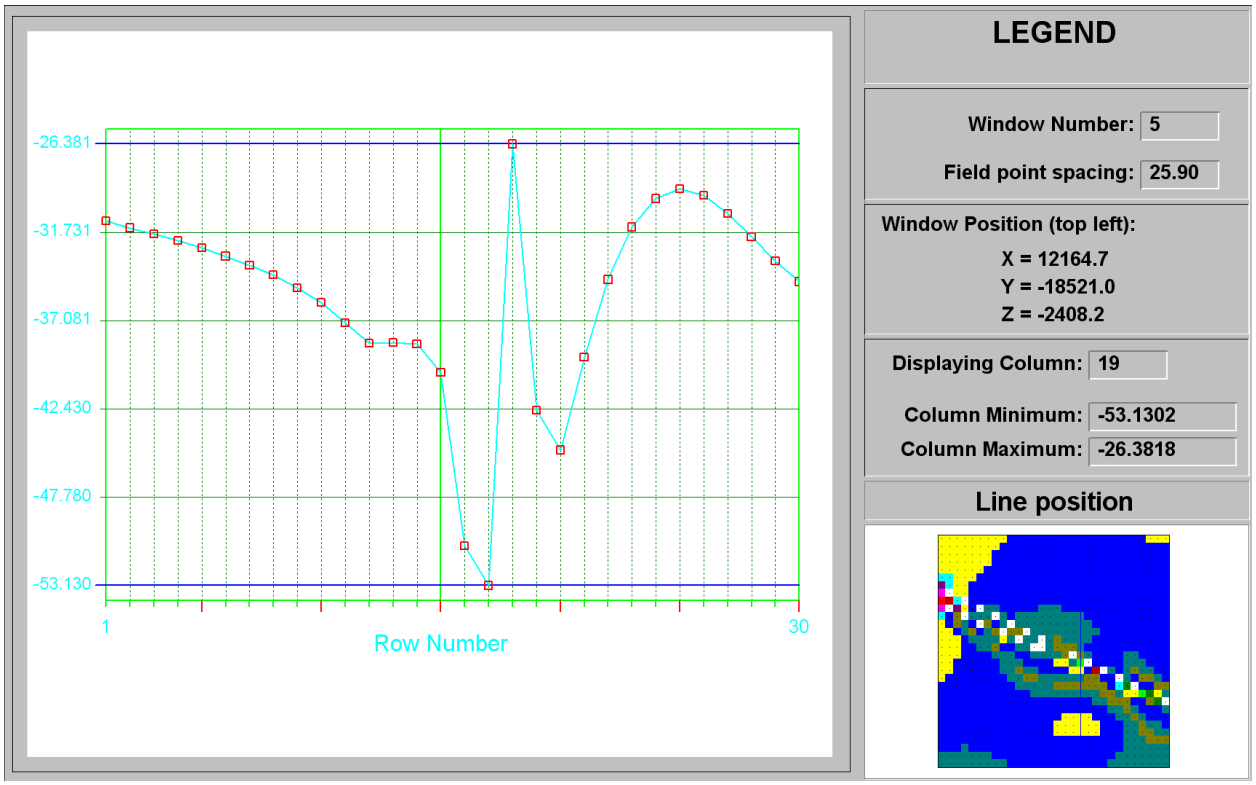

Figure C-98 ESS line plot at column 19 of Smith Fault at STEP 8

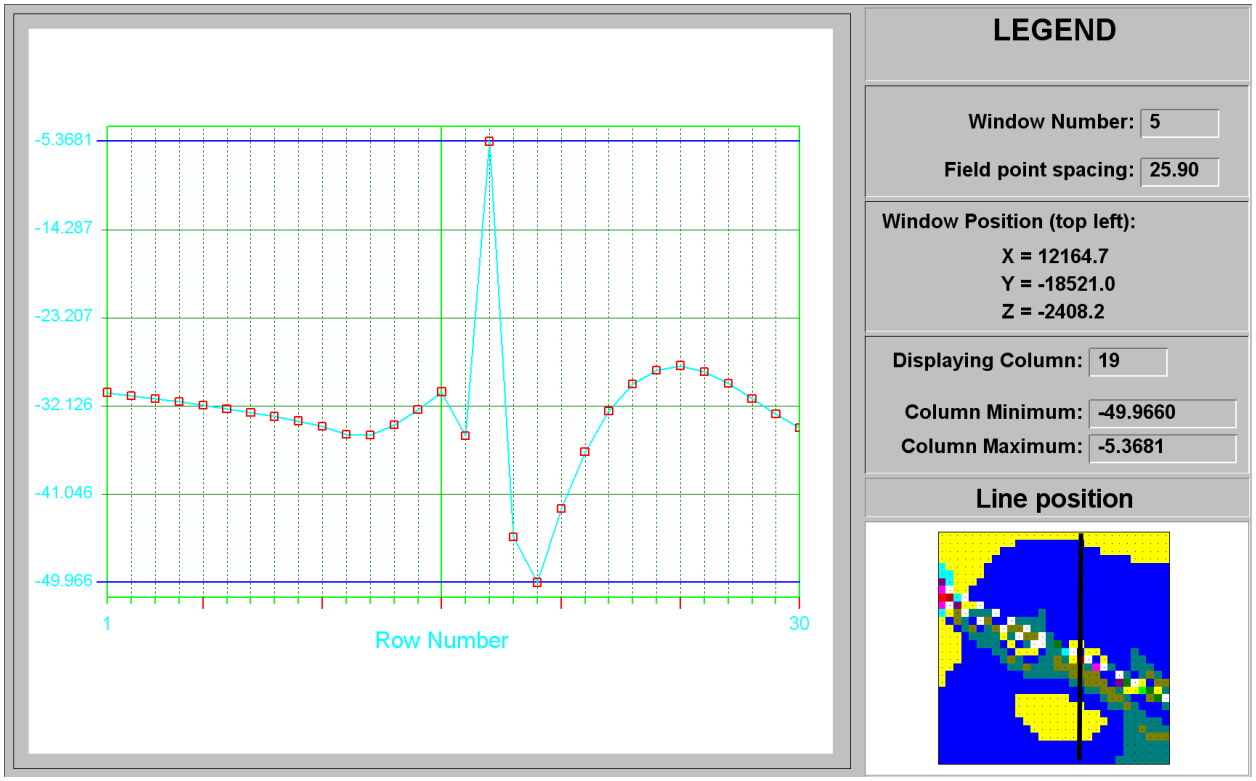

Figure C-99 ESS line plot at column 19 of Smith Fault at STEP 9

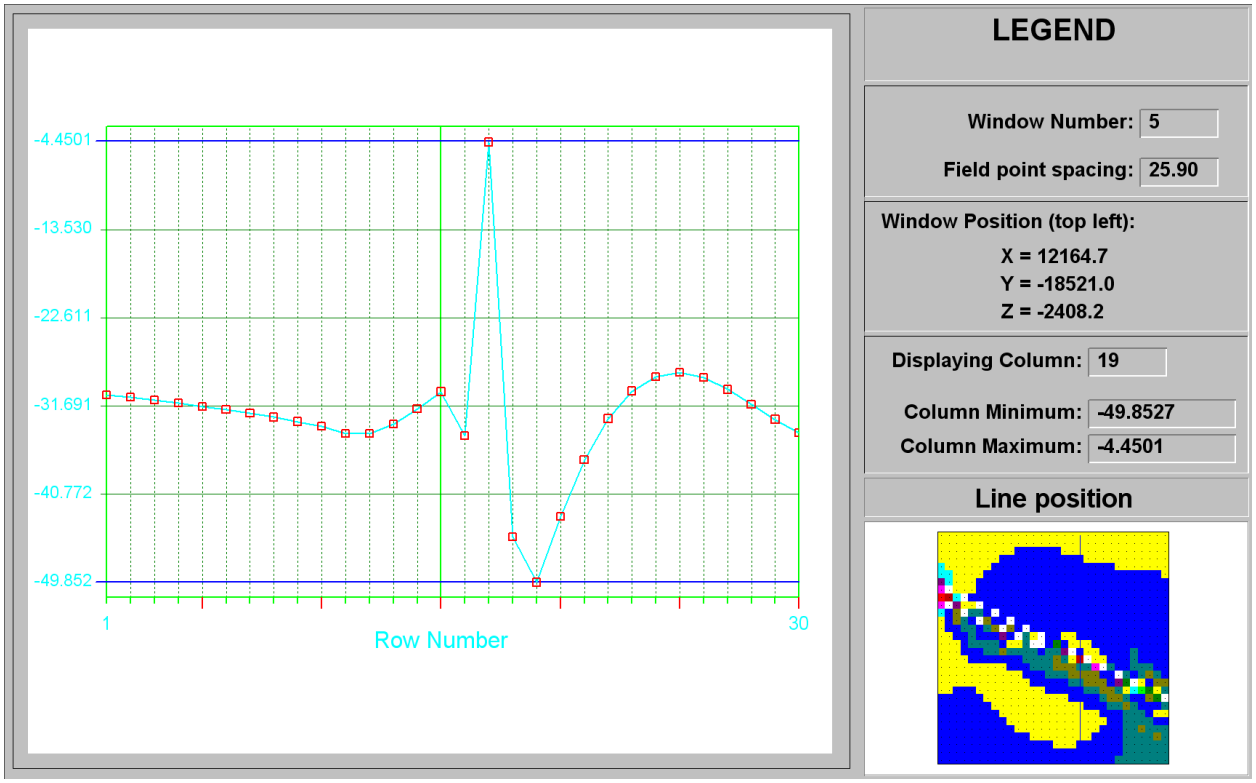

Figure C-100 ESS line plot at column 19 of Smith Fault at STEP 10

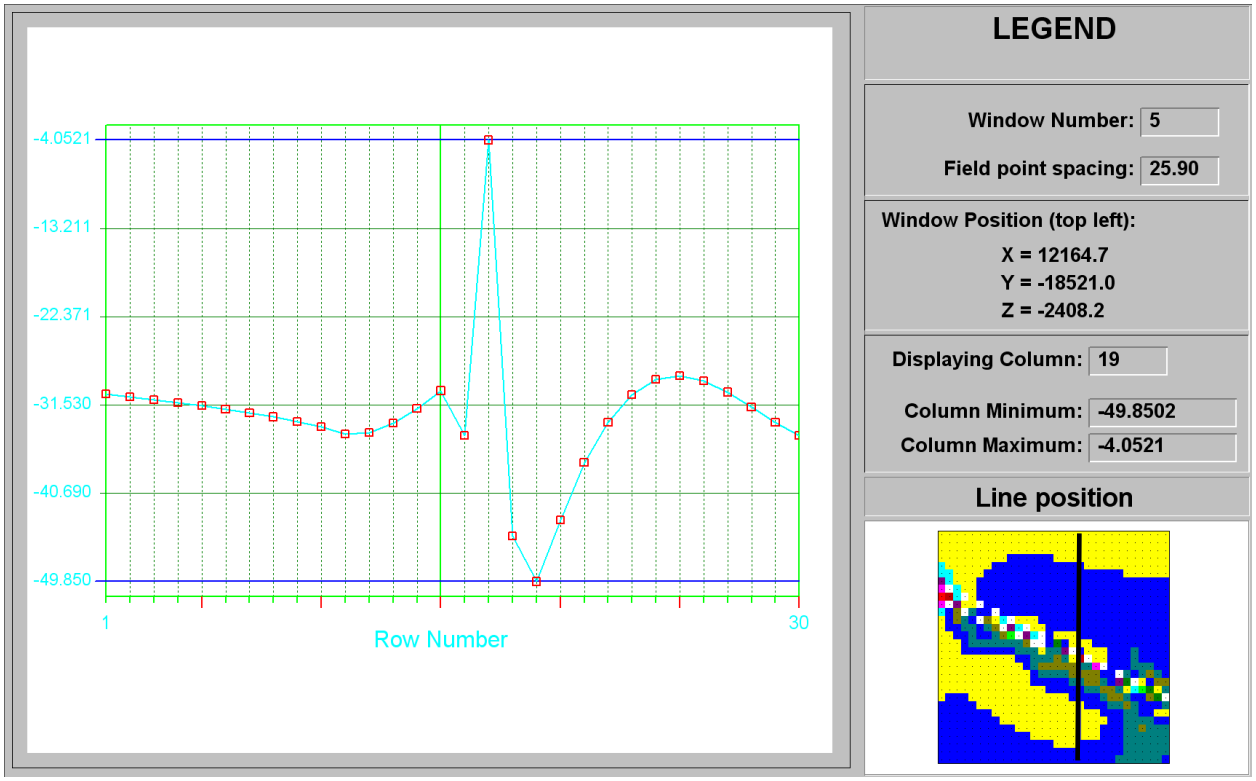

Figure C-101 ESS line plot at column 19 of Smith Fault at STEP 11

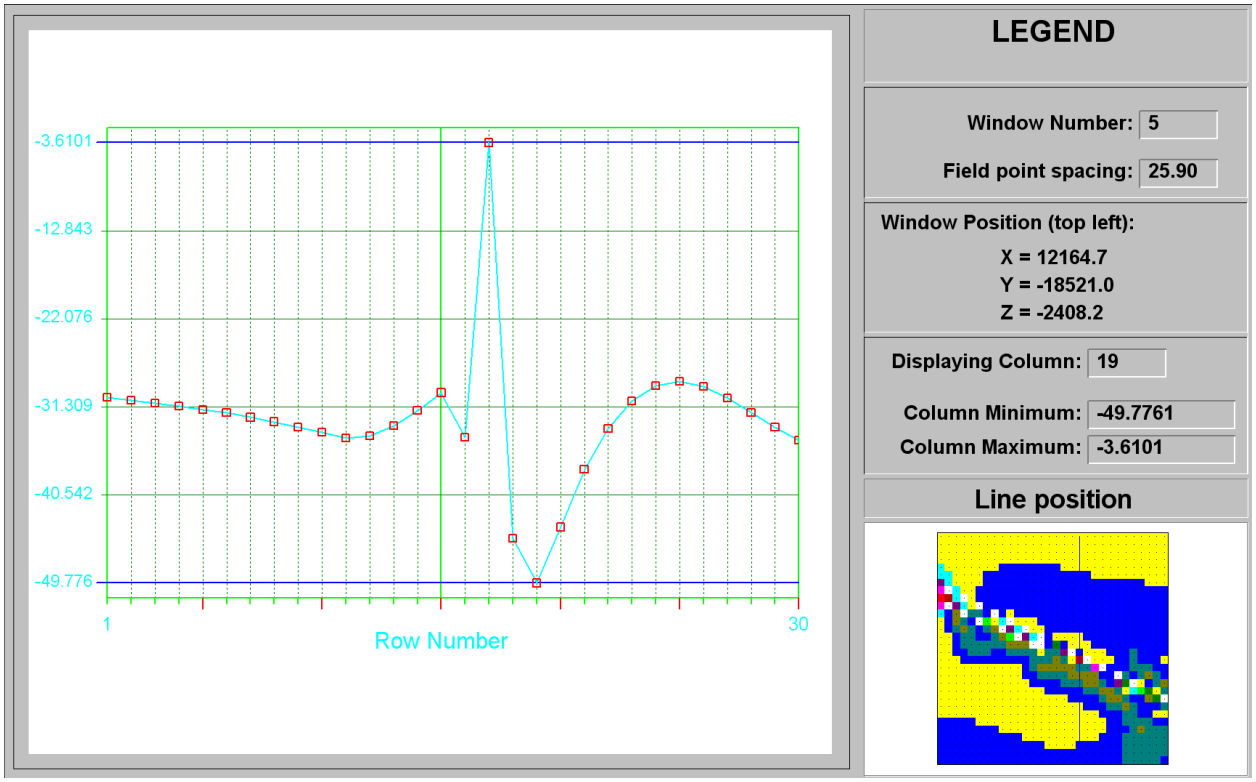

Figure C-102 ESS line plot at column 19 of Smith Fault at STEP 12

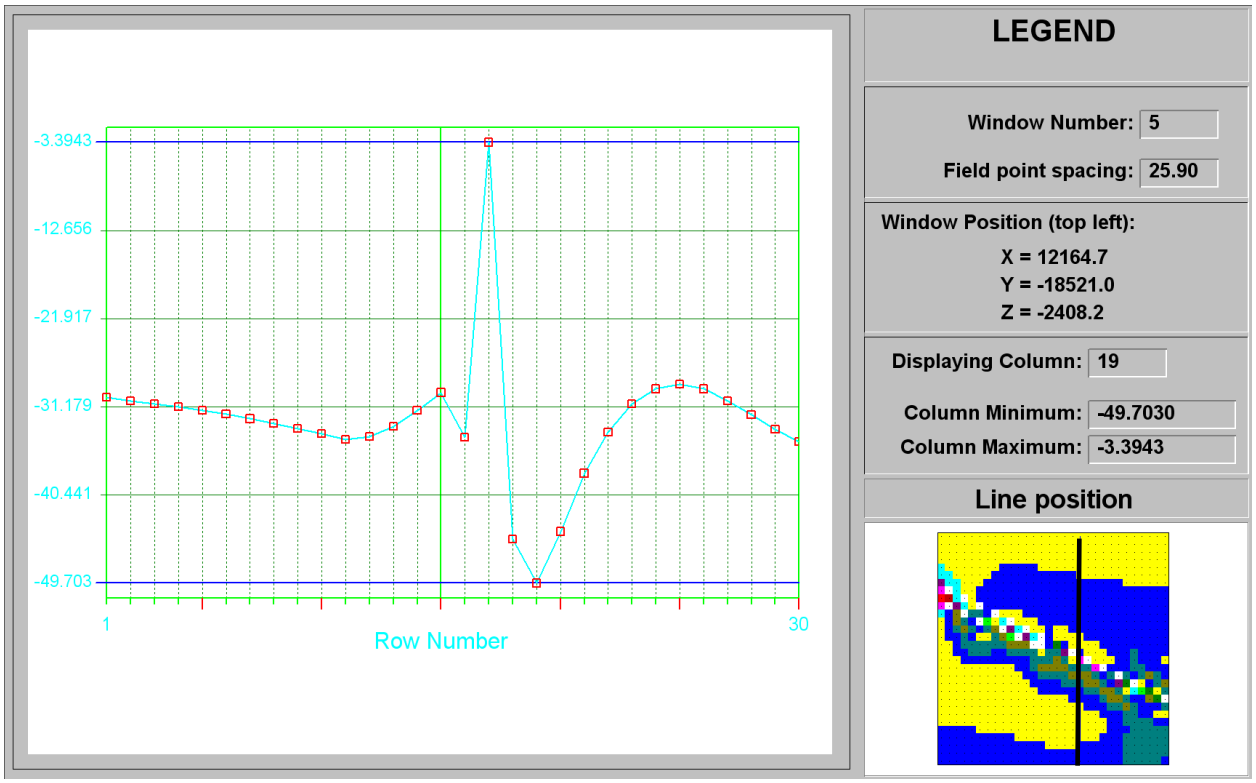

Figure C-103 ESS line plot at column 19 of Smith Fault at STEP 13

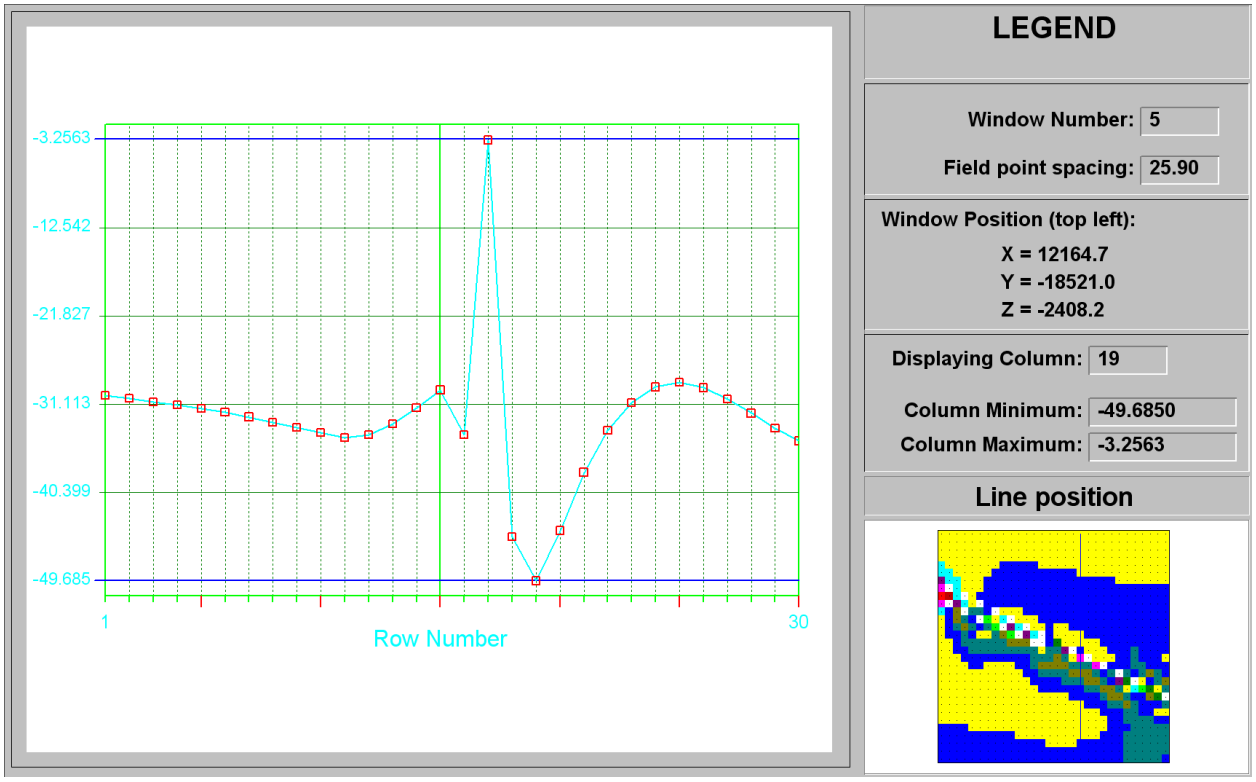

Figure C-104 ESS line plot at column 19 of Smith Fault at STEP 14

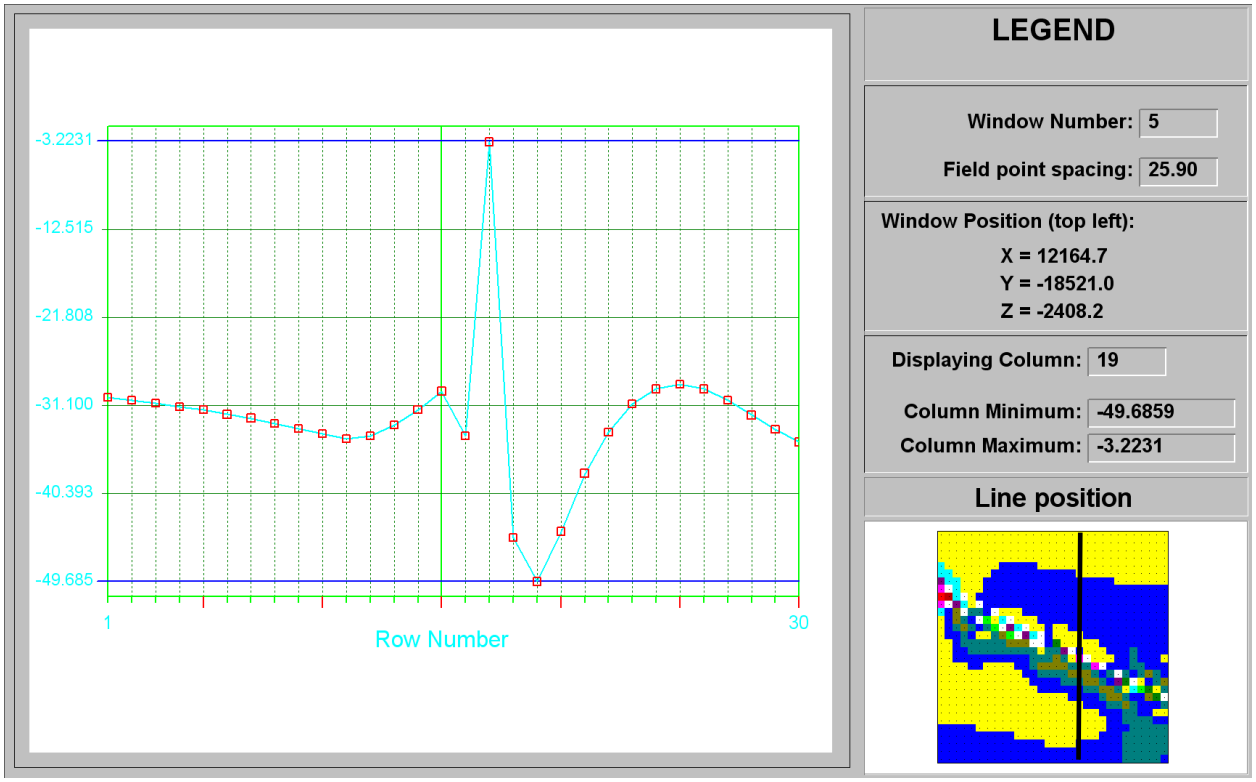

Figure C-105 ESS line plot at column 19 of Smith Fault at STEP 15

C. 3.4. Shane's Fault ESS

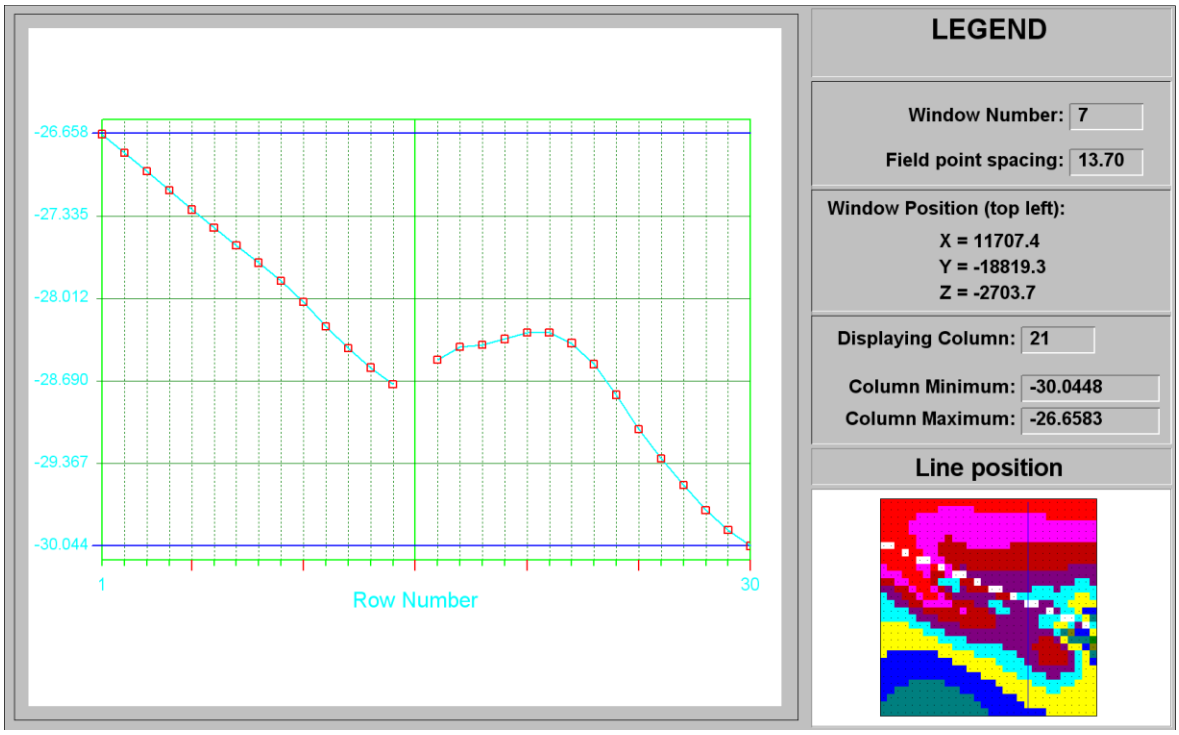

Figure C-106 ESS line plot at column 21 of Shane's Fault at STEP 1

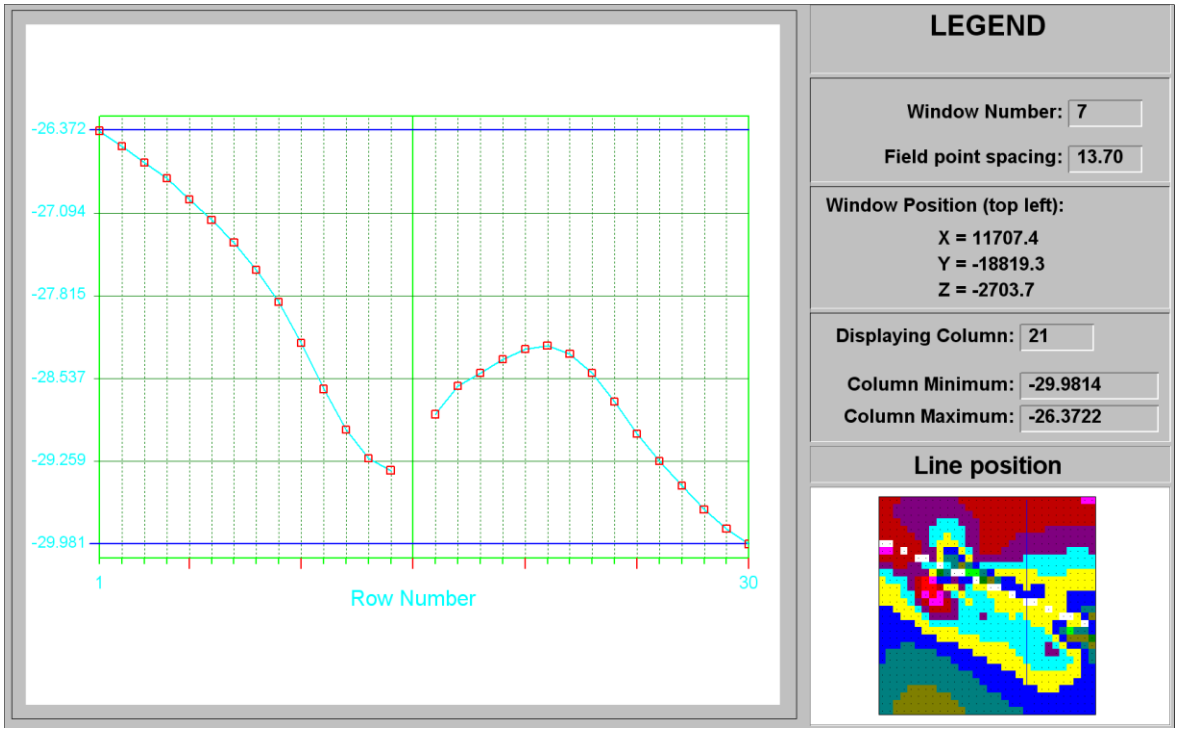

Figure C-107 ESS line plot at column 21 of Shane's Fault at STEP 2

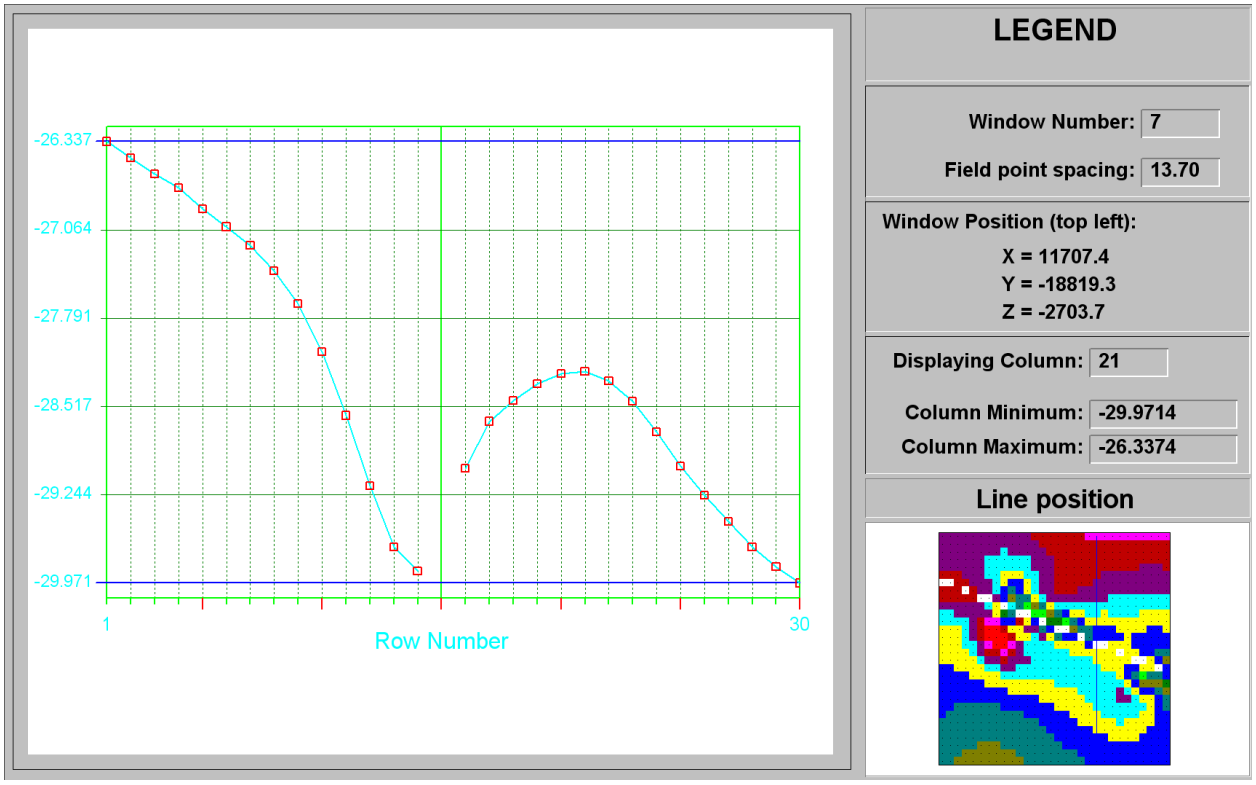

Figure C-108 ESS line plot at column 21 of Shane's Fault at STEP 3

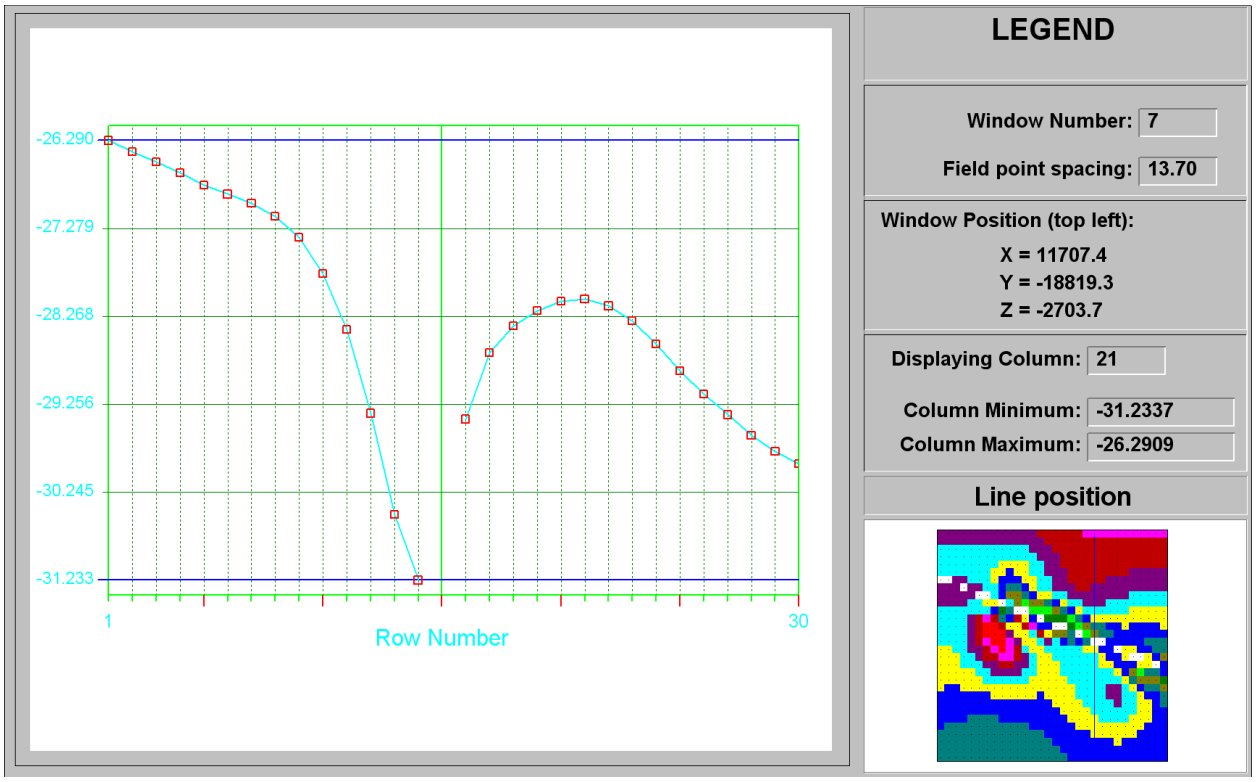

Figure C-109 ESS line plot at column 21 of Shane's Fault at STEP 4

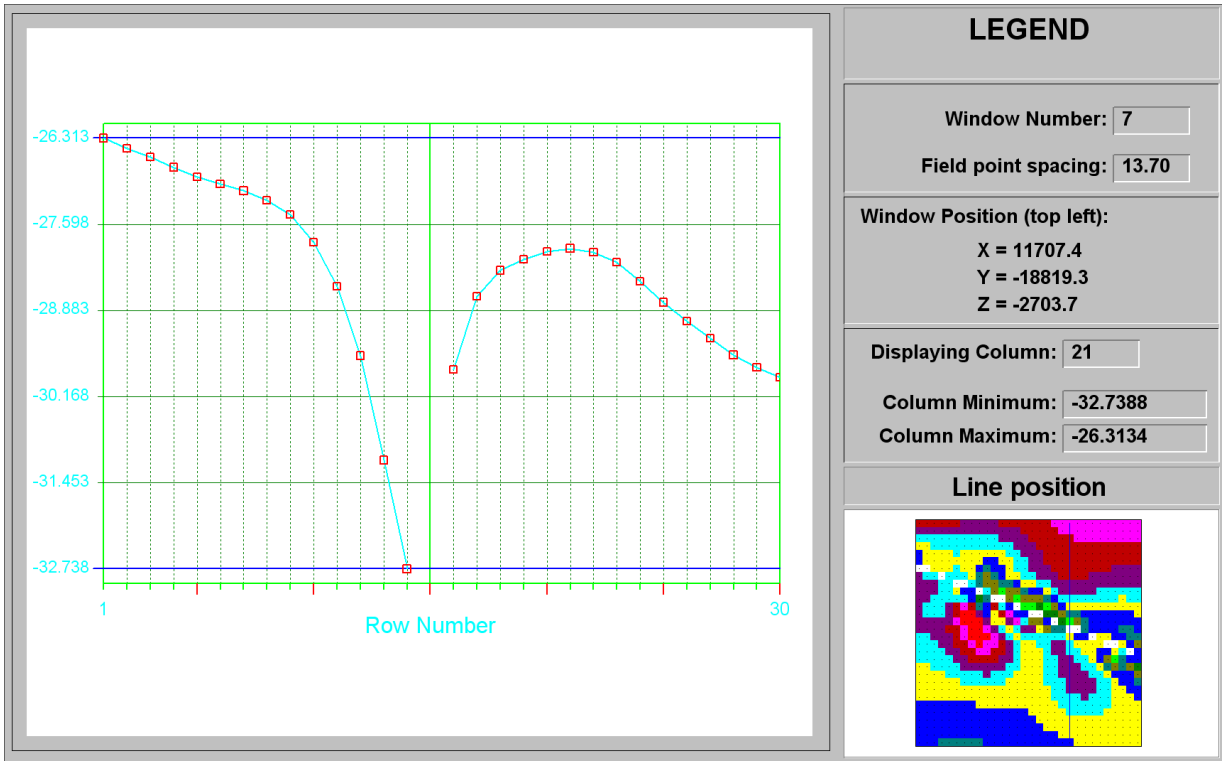

Figure C-110 ESS line plot at column 21 of Shane's Fault at STEP 5

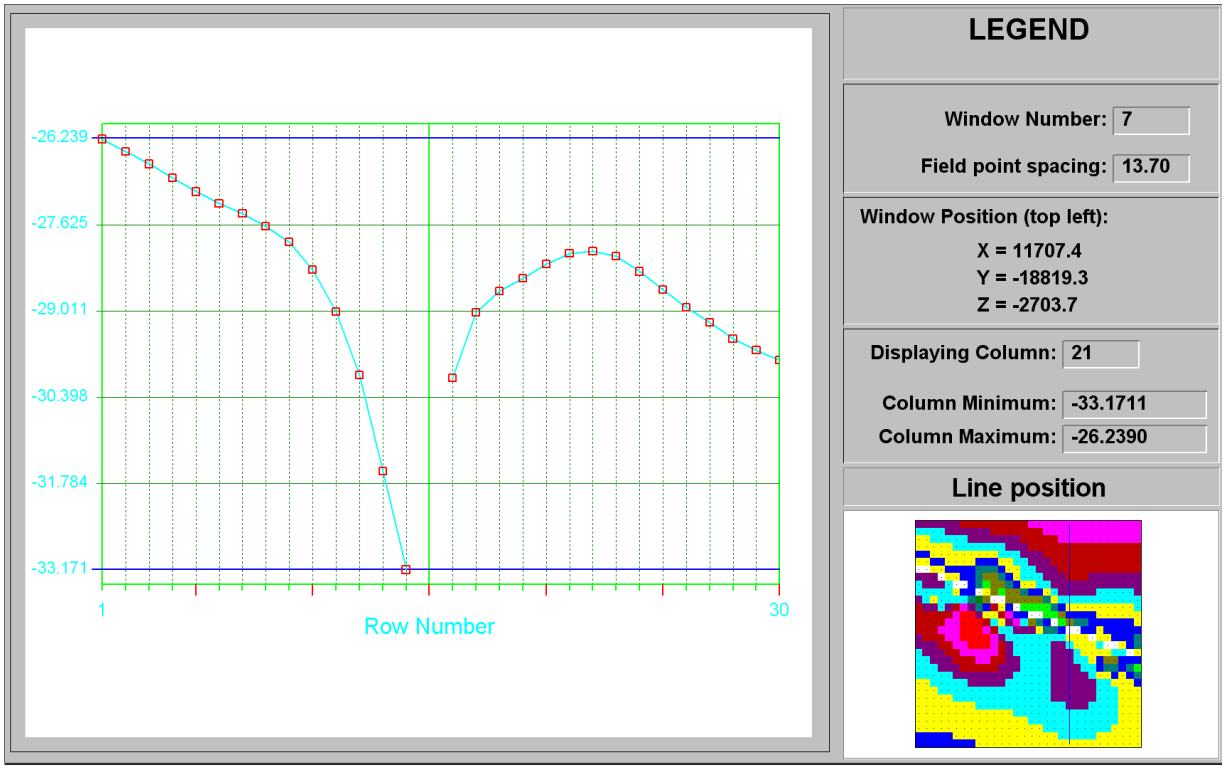

Figure C-111 ESS line plot at column 21 of Shane's Fault at STEP 6

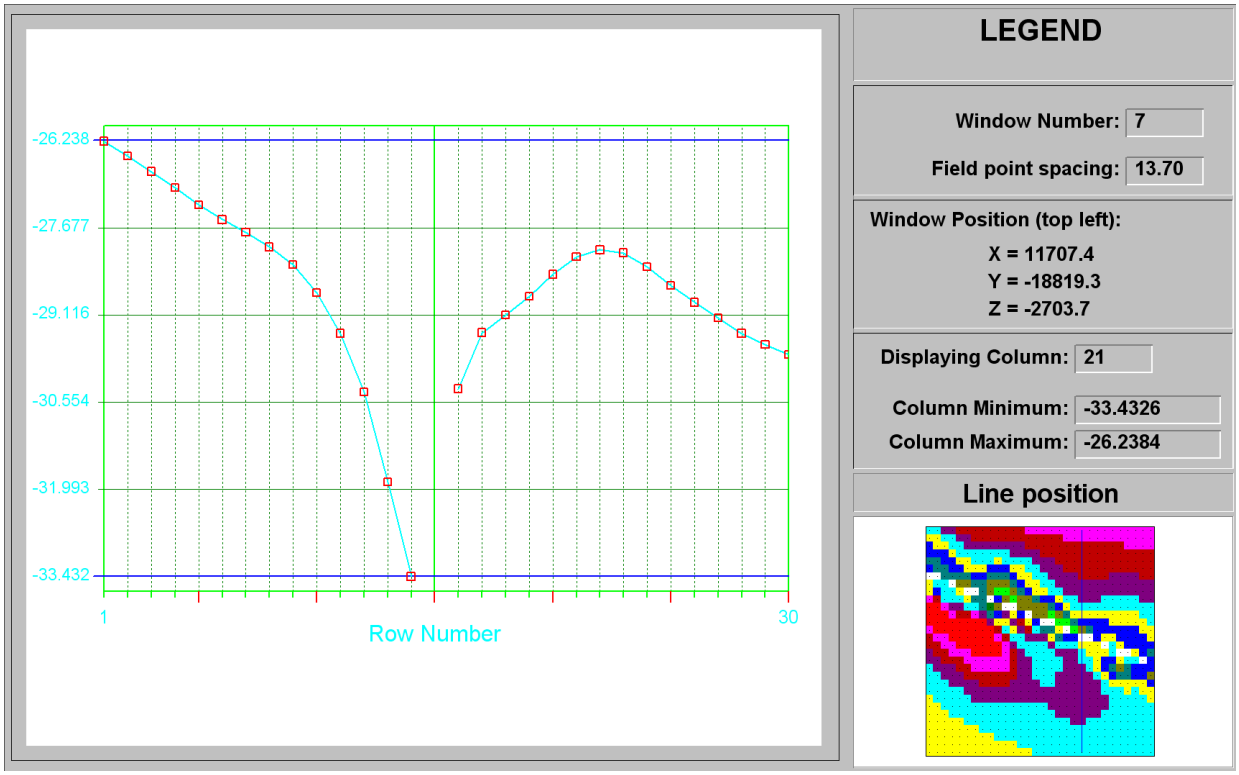

Figure C-112 ESS line plot at column 21 of Shane's Fault at STEP 7

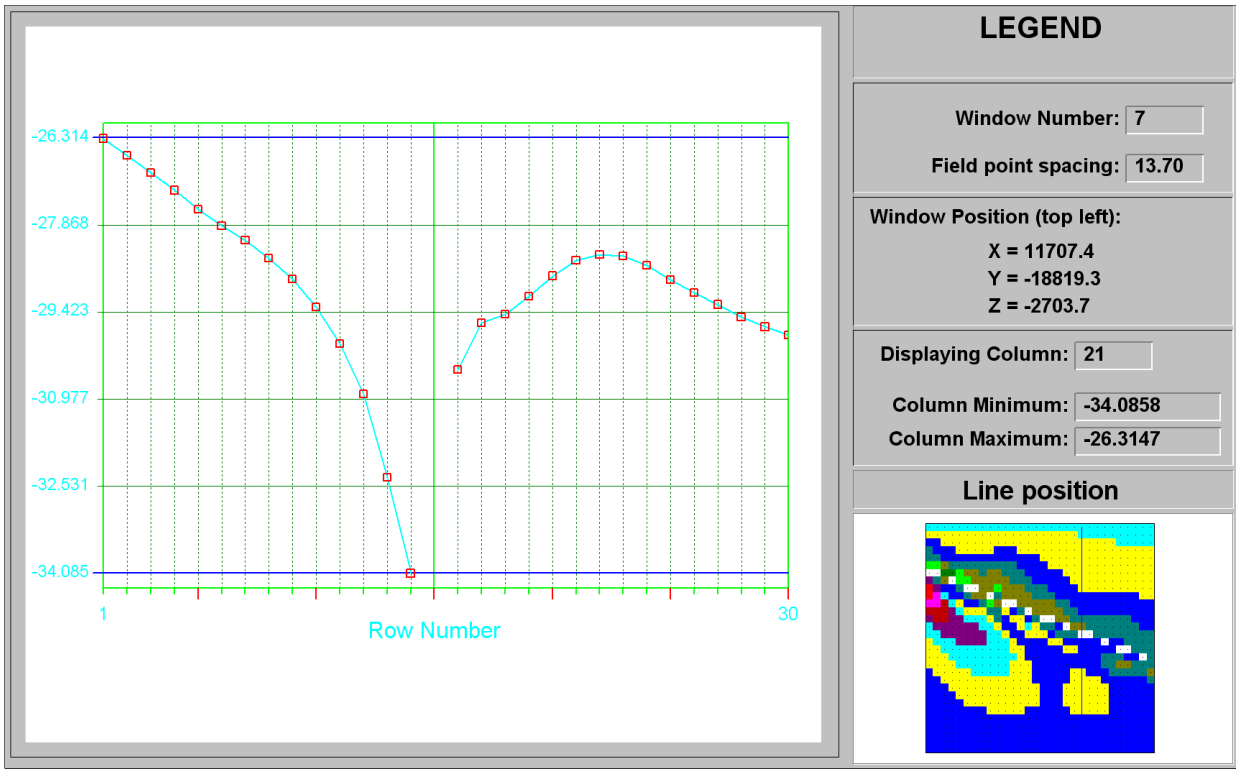

Figure C-113 ESS line plot at column 21 of Shane's Fault at STEP 8

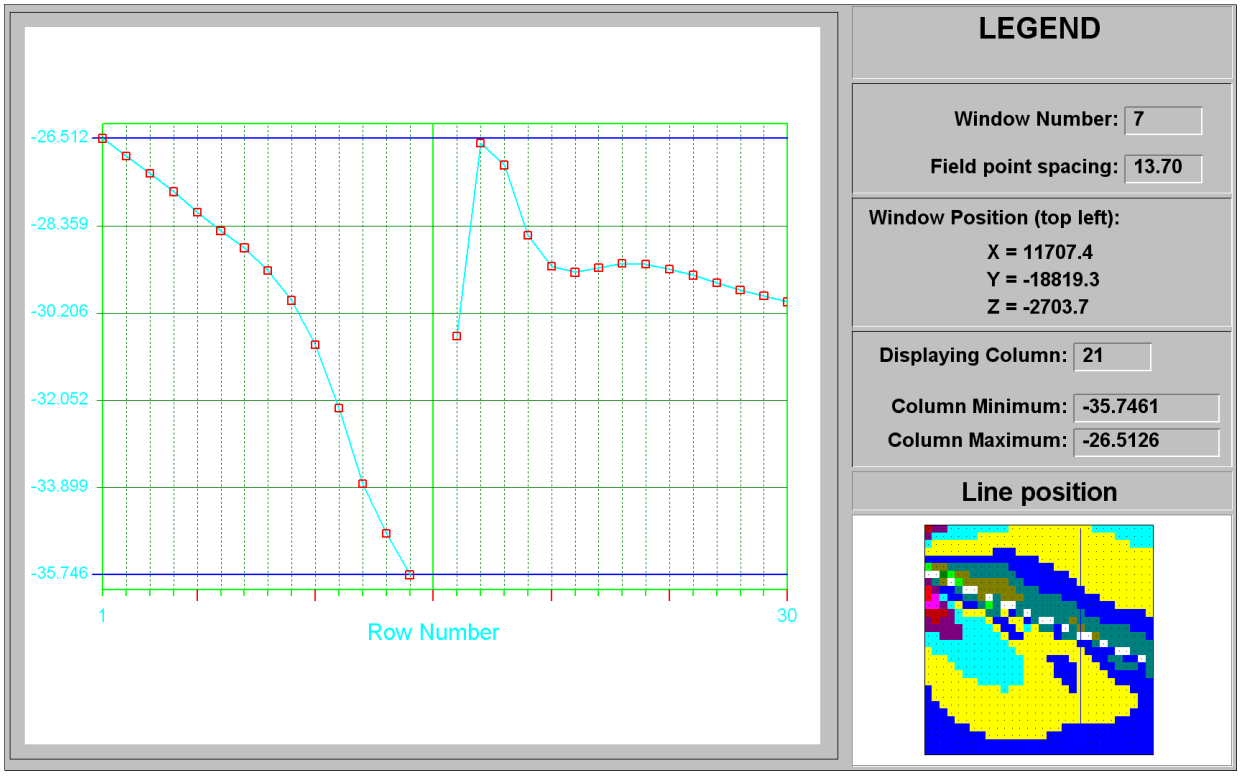

Figure C-114 ESS line plot at column 21 of Shane's Fault at STEP 9

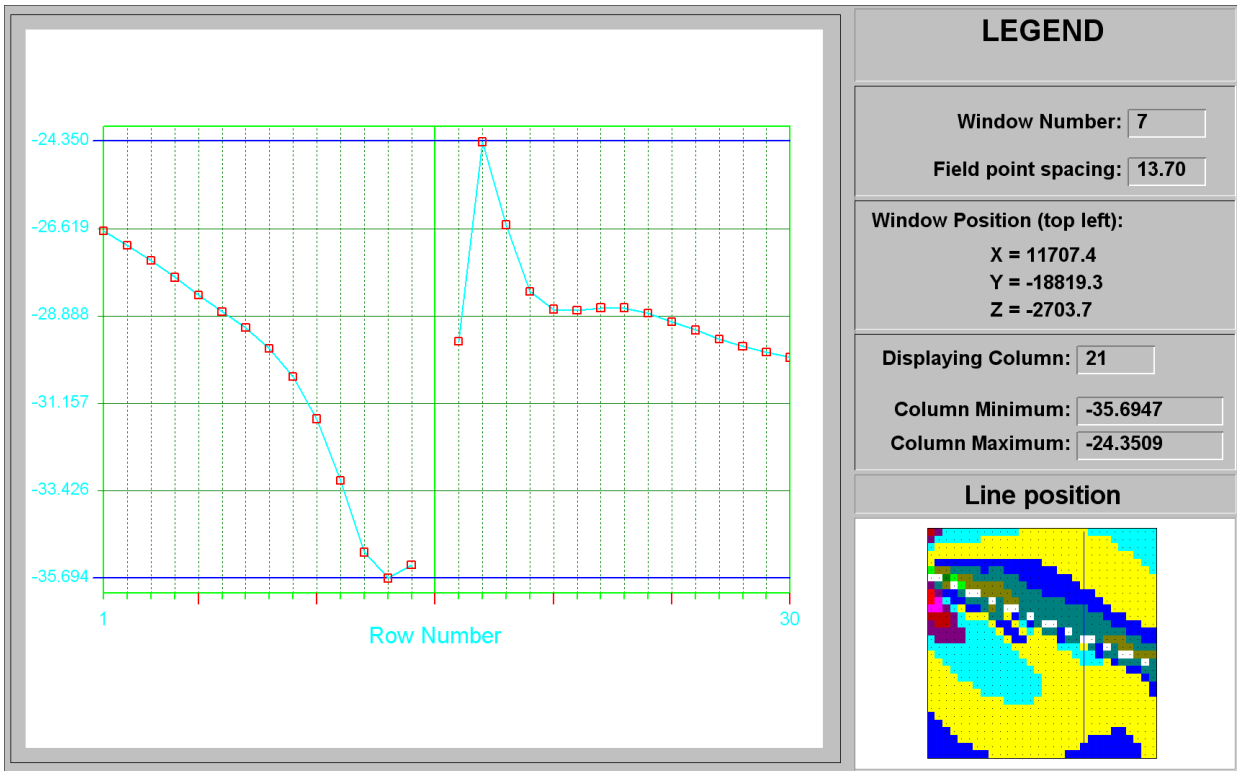

Figure C-115 ESS line plot at column 21 of Shane's Fault at STEP 10

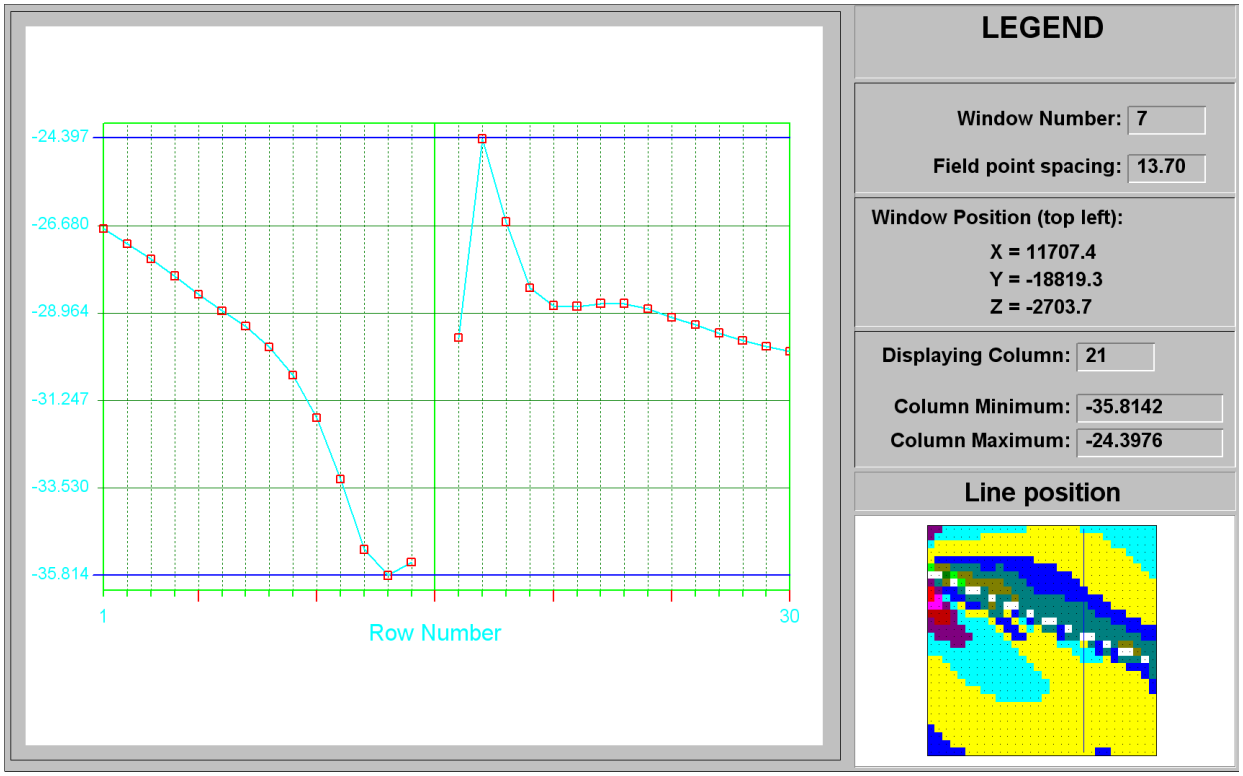

Figure C-116 ESS line plot at column 21 of Shane's Fault at STEP 11

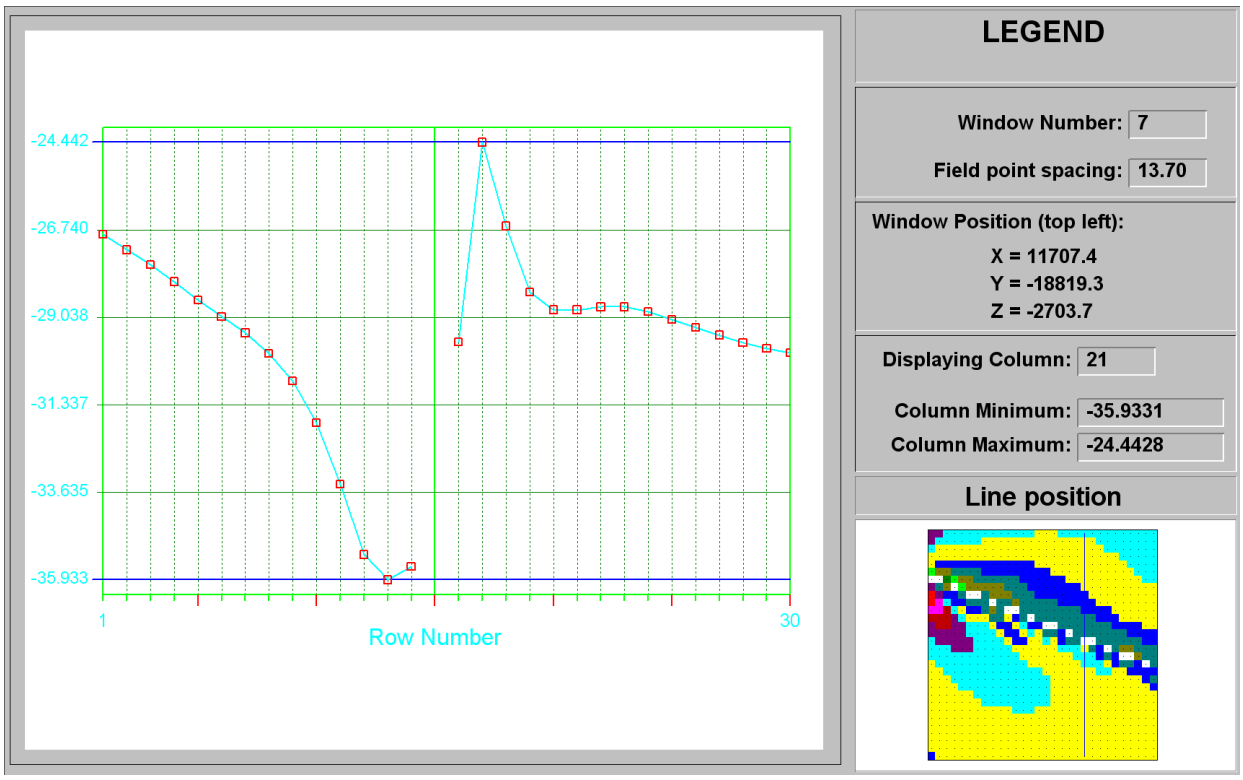

Figure C-117 ESS line plot at column 21 of Shane's Fault at STEP 12

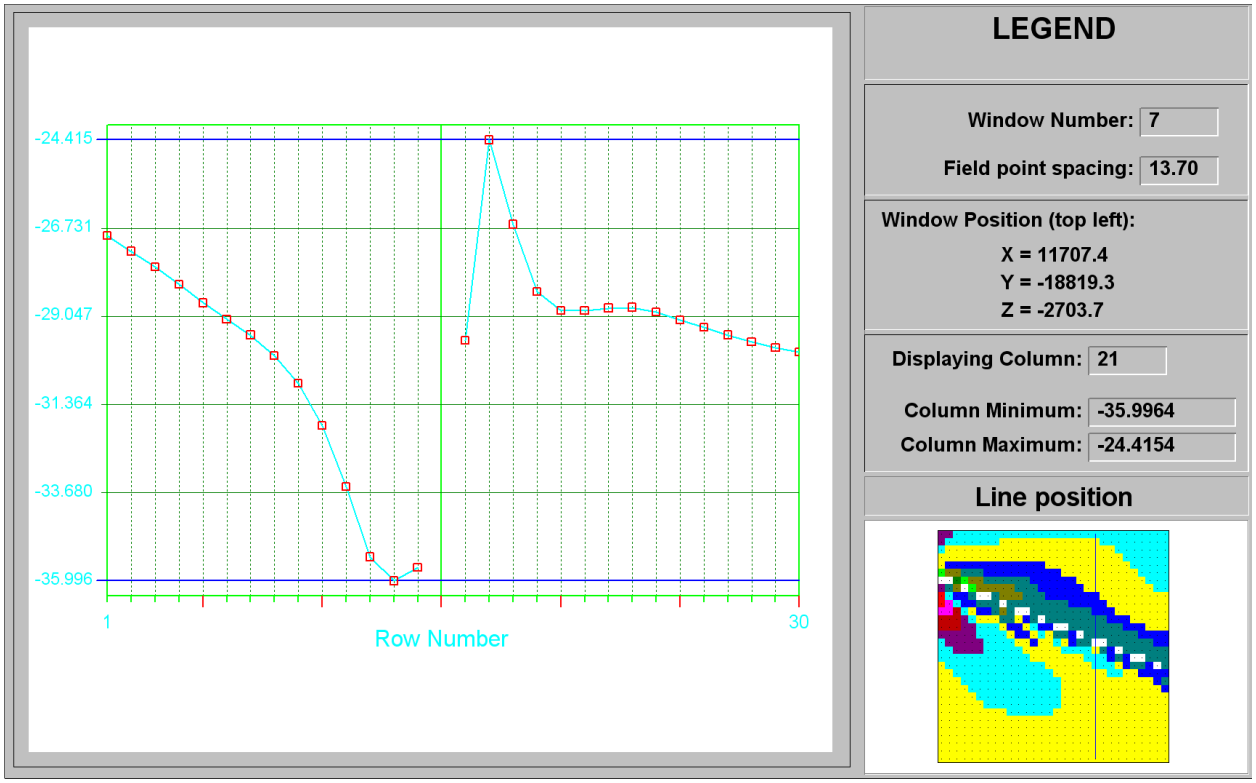

Figure C-118 ESS line plot at column 21 of Shane's Fault at STEP 13

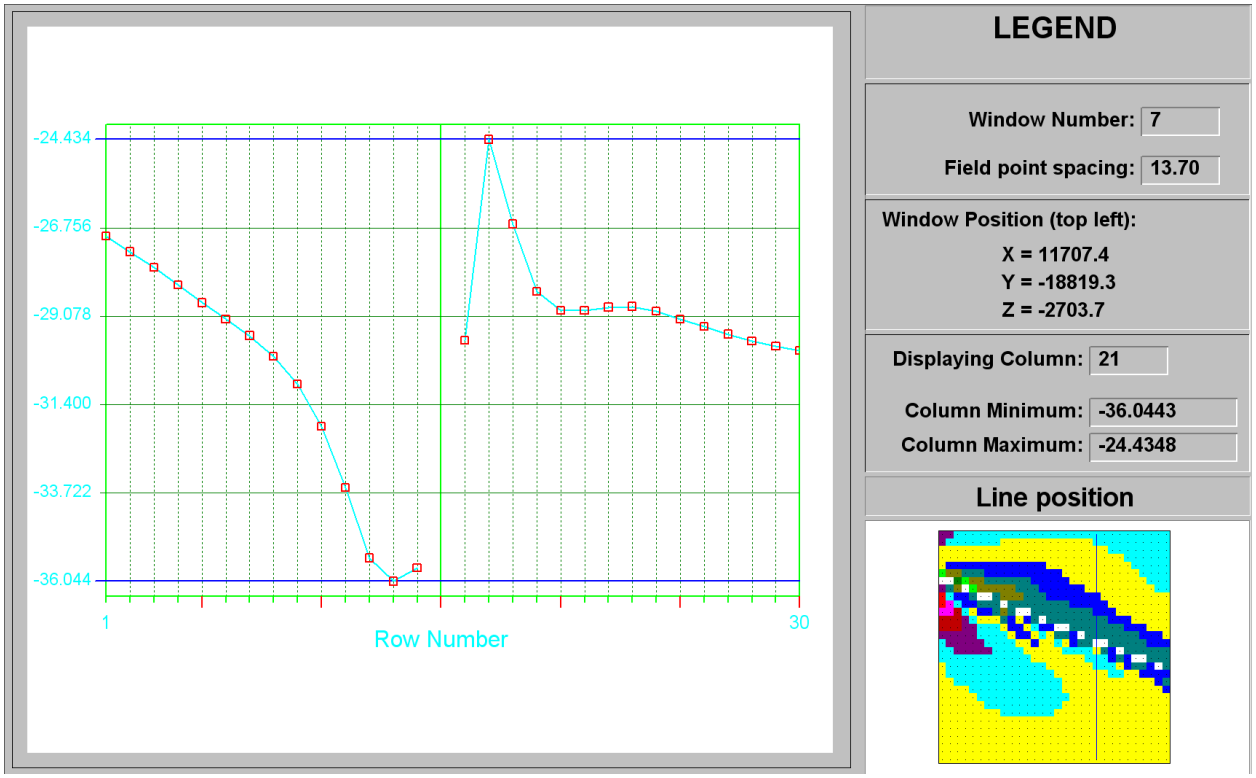

Figure C-119 ESS line plot at column 21 of Shane's Fault at STEP 14

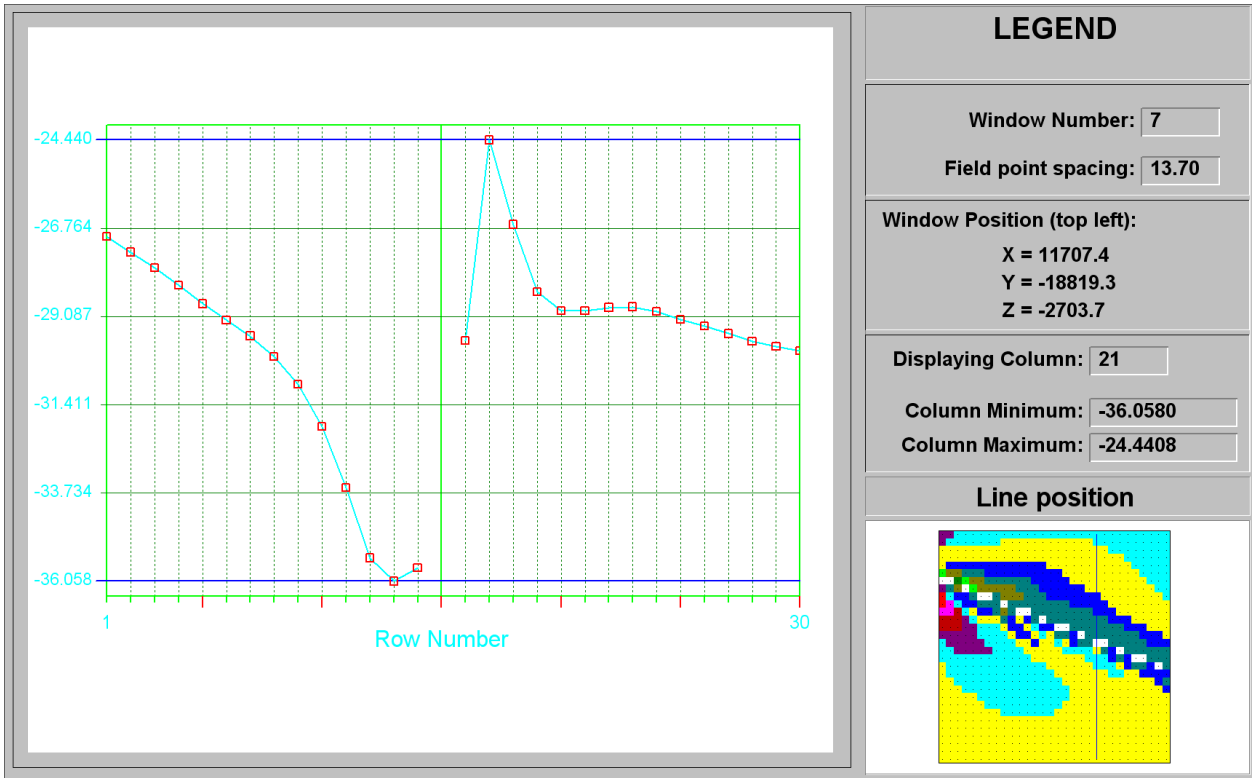

Figure C-120 ESS line plot at column 21 of Shane's Fault at STEP 15

C.4. Regional Stability Pillars

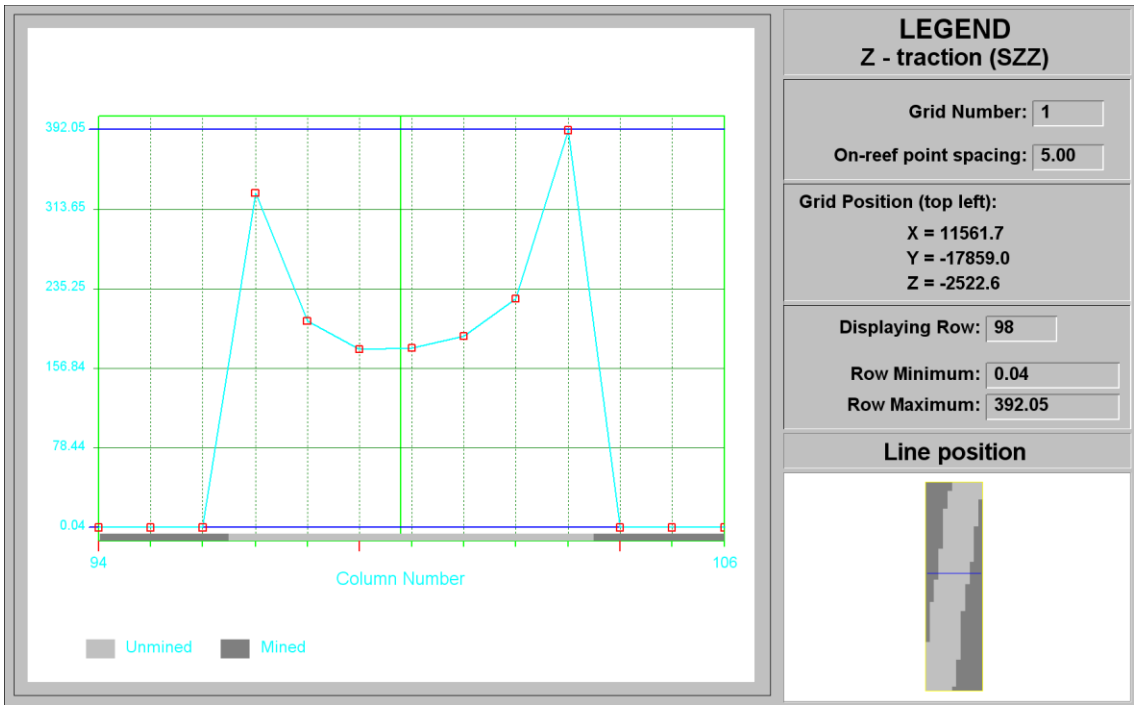

Figure C-121 Line plot at row 98 of Regional Stability Pillar XX at STEP 10

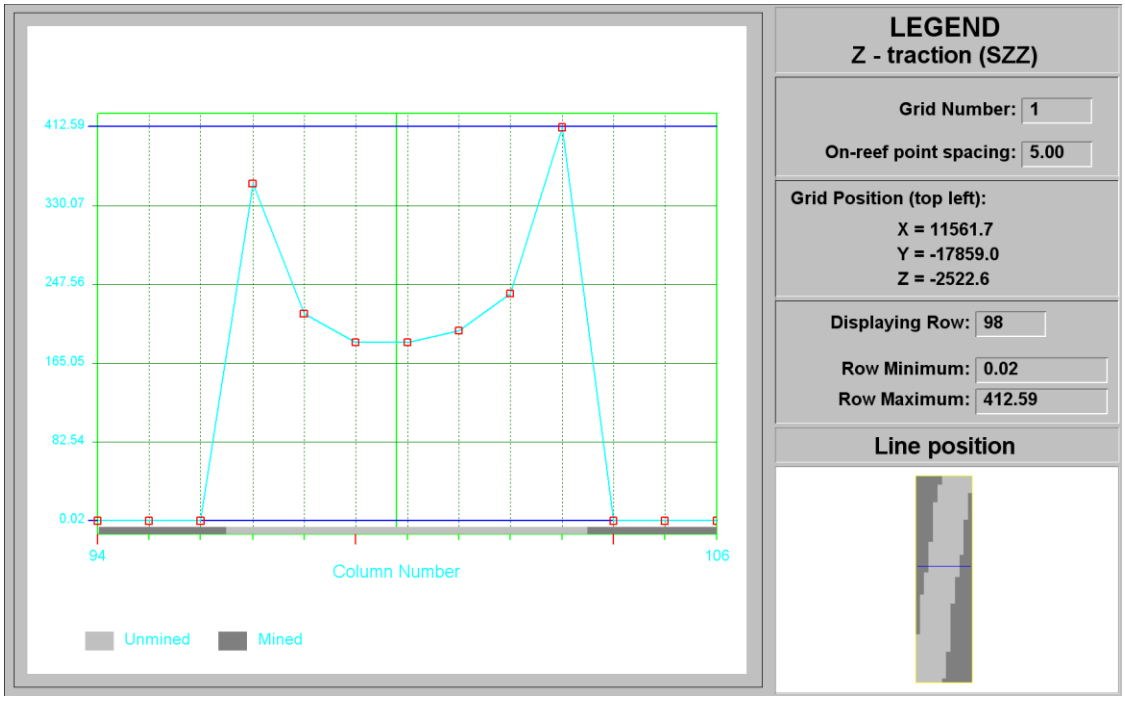

Figure C-122 Line plot at row 98 of Regional Stability Pillar XX at STEP 11

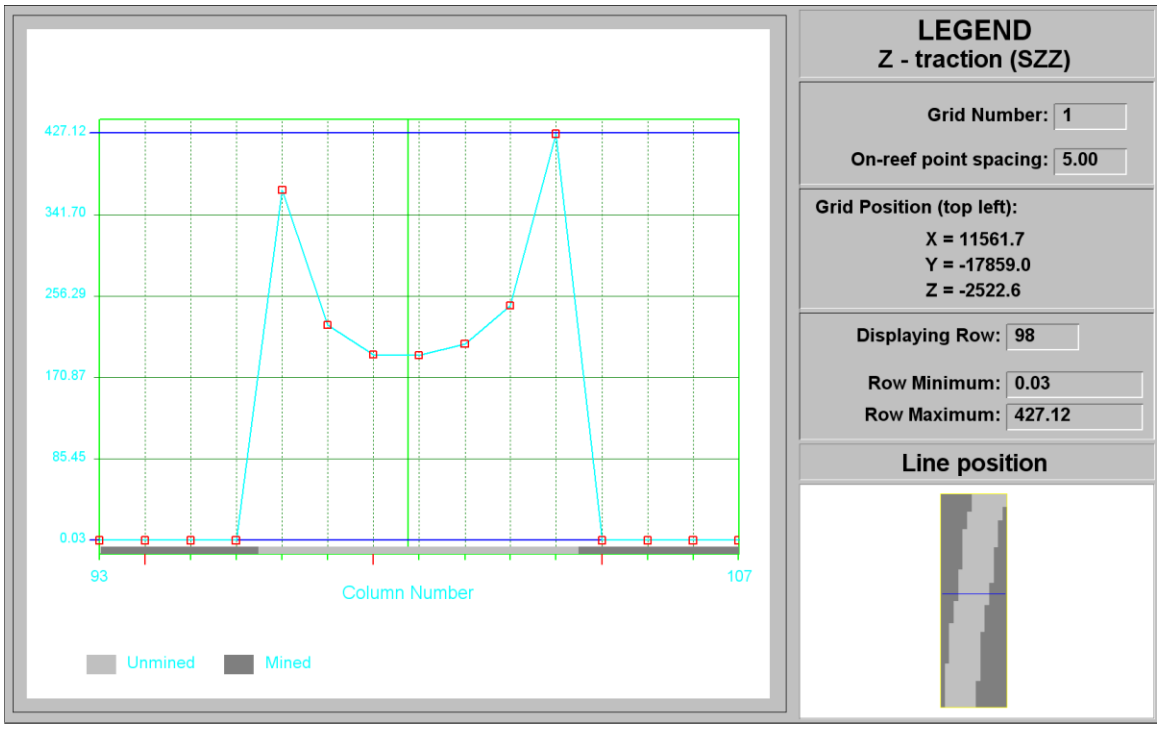

Figure C-123 Line plot at row 98 of Regional Stability Pillar XX at STEP 12

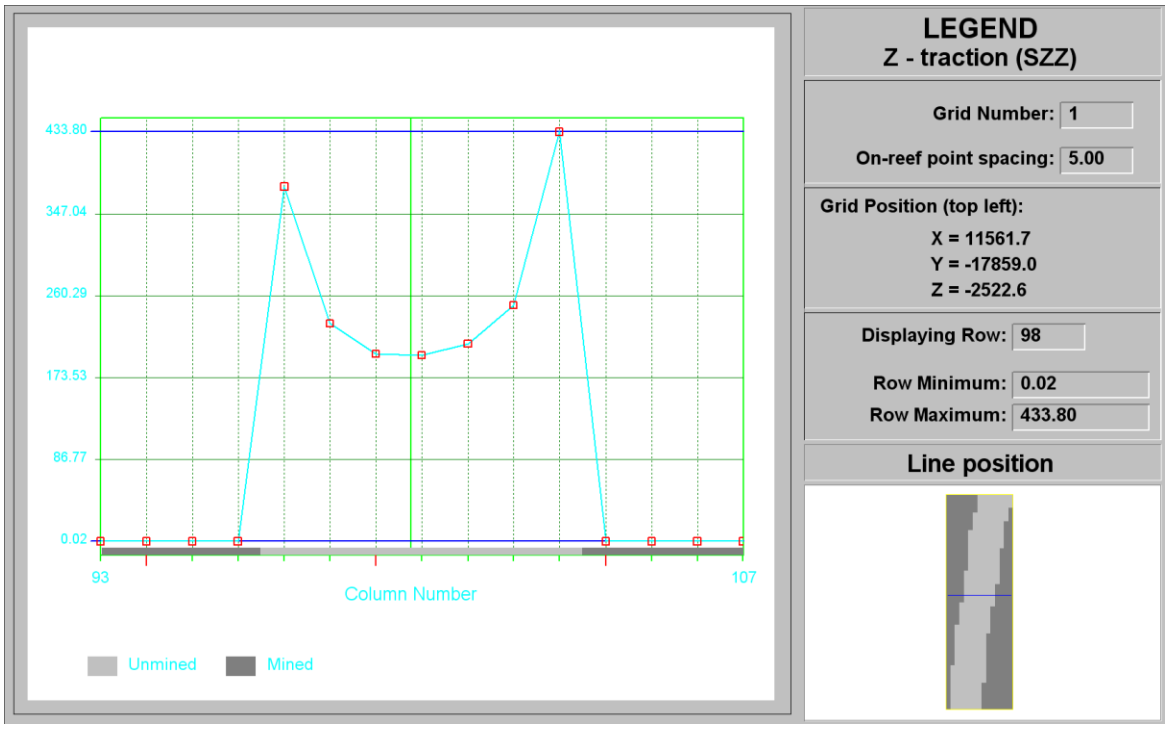

Figure C-124 Line plot at row 98 of Regional Stability Pillar XX at STEP 13

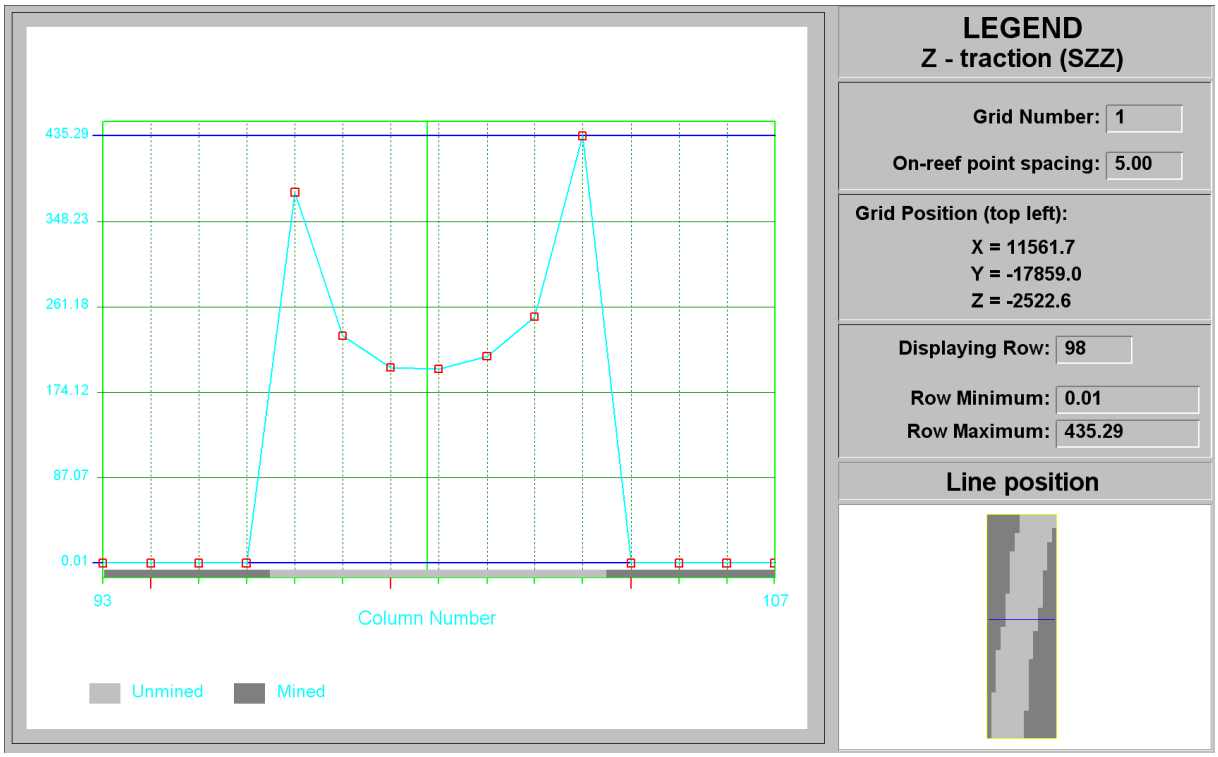

Figure C-125 Line plot at row 98 of Regional Stability Pillar XX at STEP 15

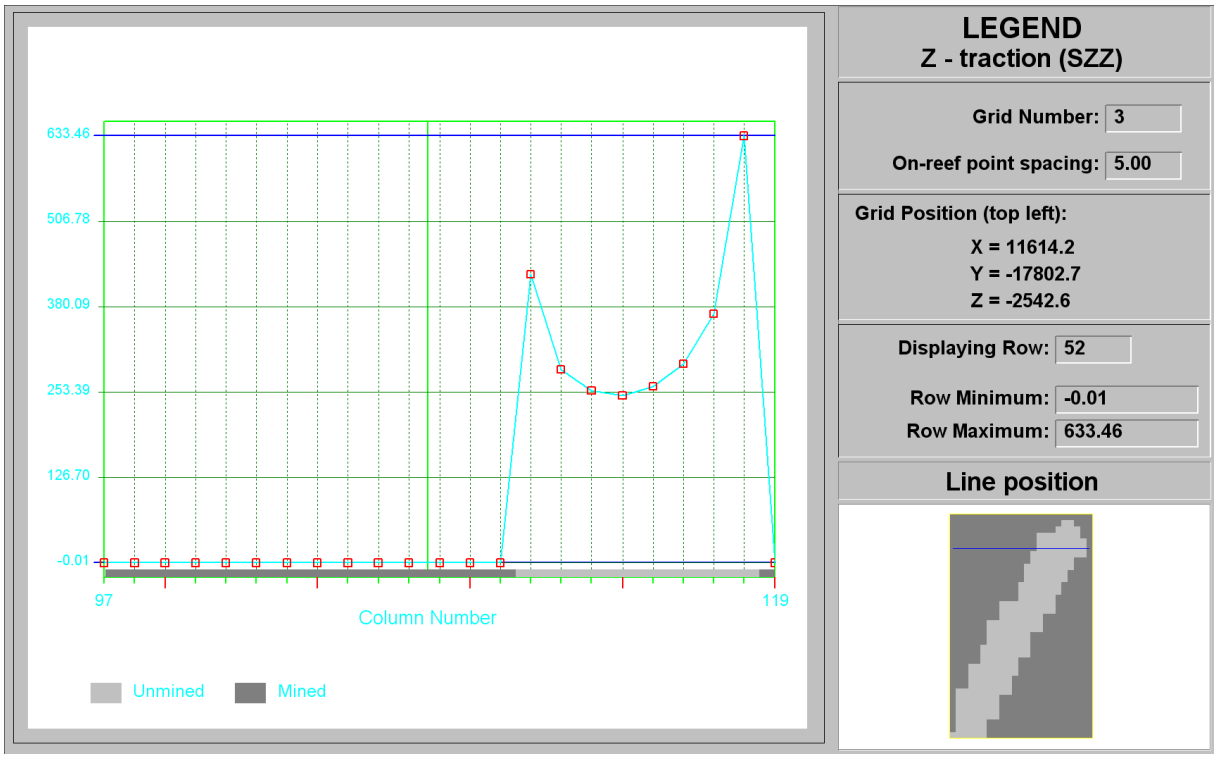

Figure C-126 Line plot at row 52 (SECTION P-Q) of Regional Stability Pillar ZZ at STEP 14

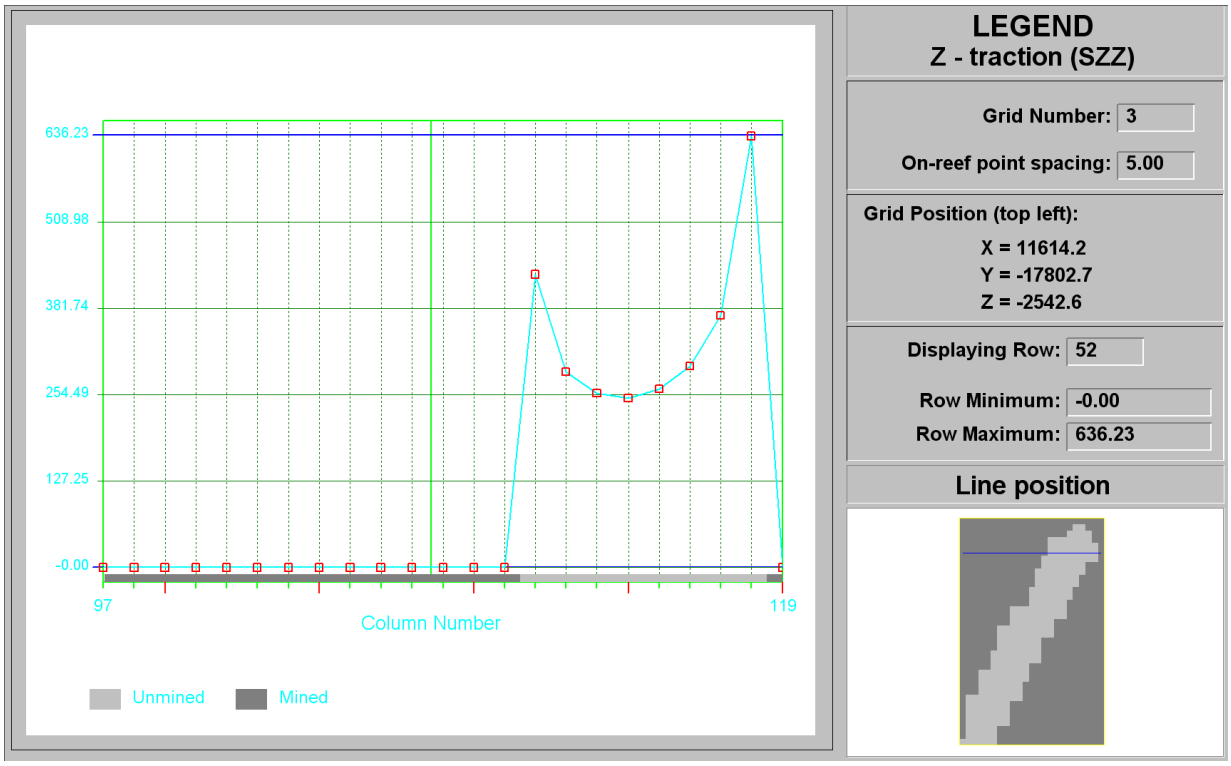

Figure C-127 Line plot at row 52 (SECTION P-Q) of Regional Stability Pillar ZZ at STEP 15

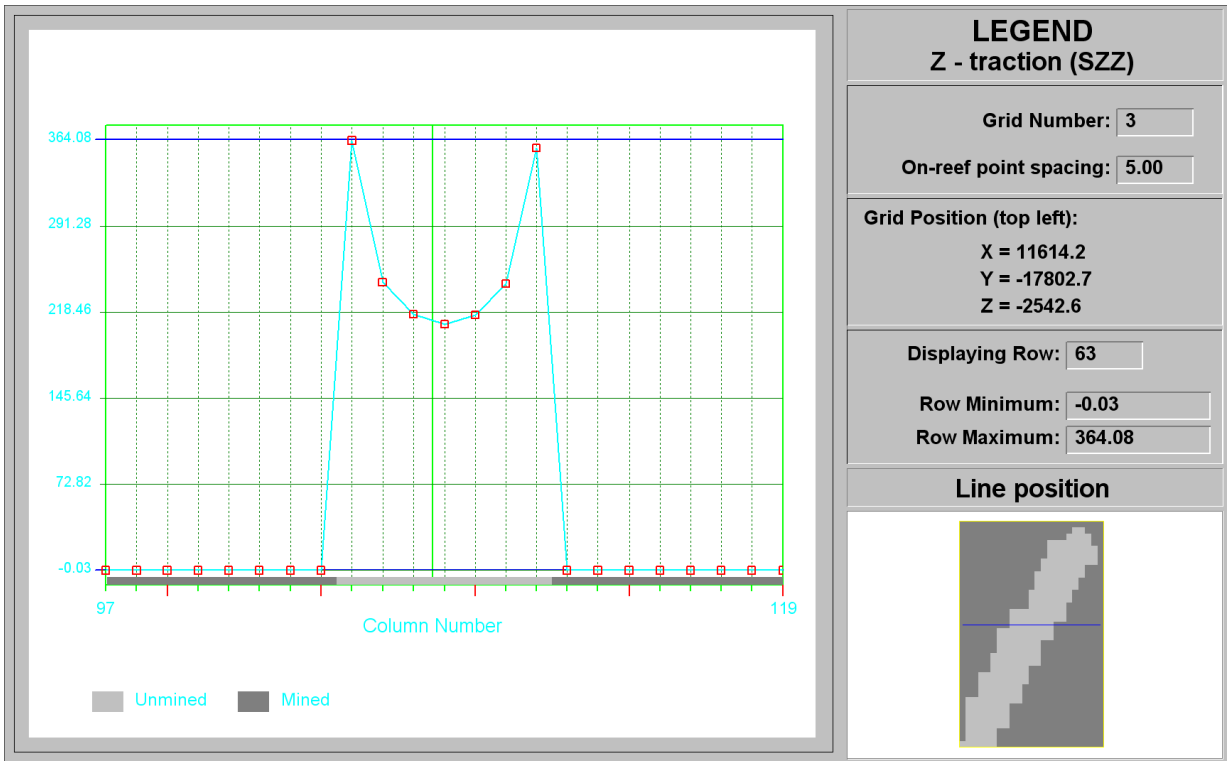

Figure C-128 Line plot at row 52 (SECTION R-S) of Regional Stability Pillar ZZ at STEP 14

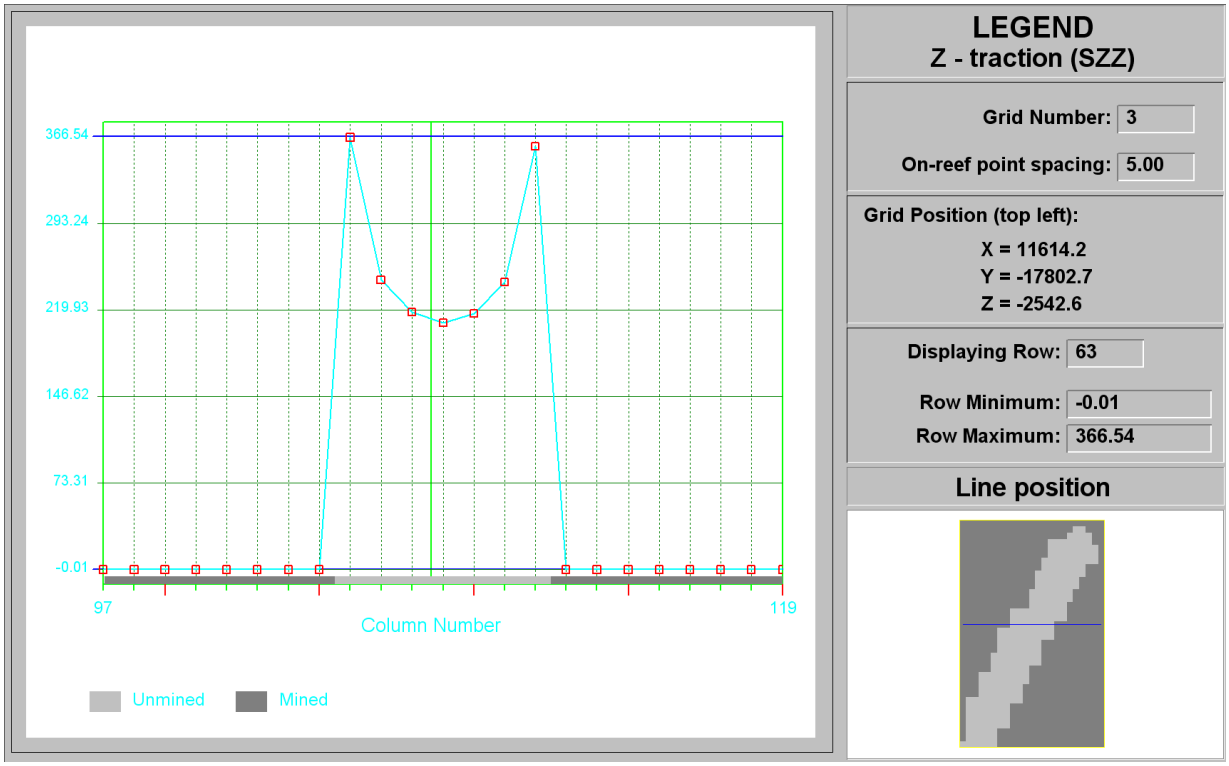

Figure C-129 Line plot at row 52 (SECTION R-S) of Regional Stability Pillar ZZ at STEP 15

C.5. Mining geometry assessment

C.5.1. Block A - Closure (DZ)

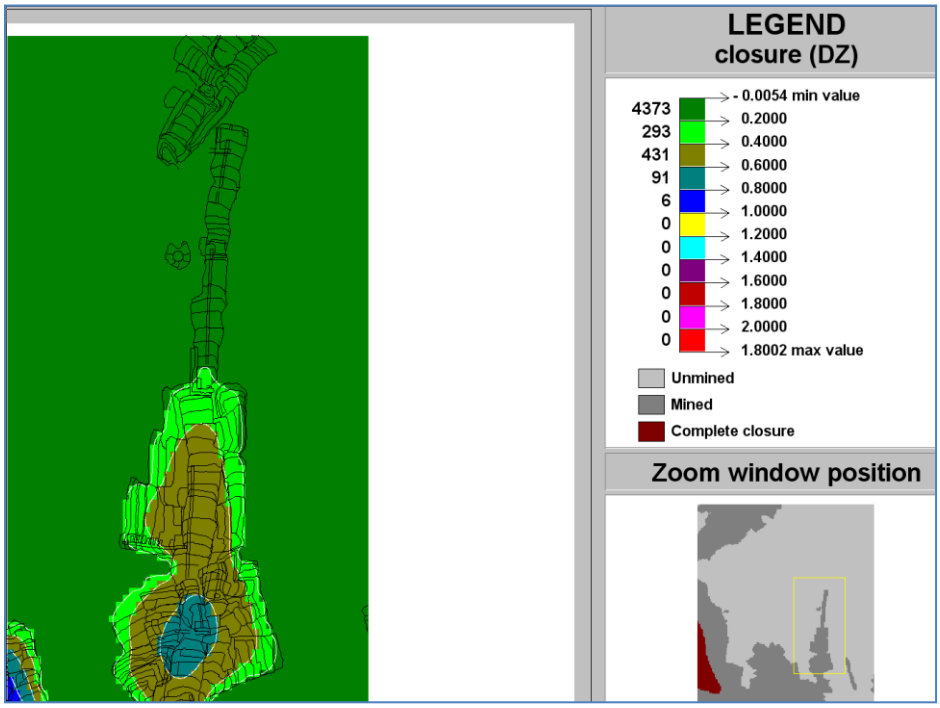

Figure C-130 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block A at STEP 1

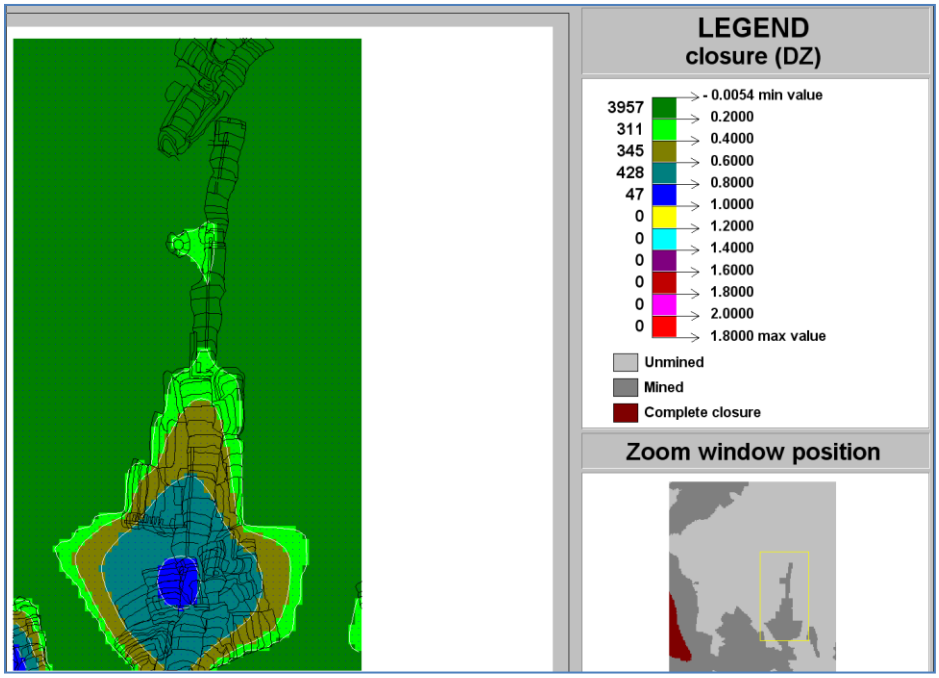

Figure C-131 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block A at STEP 2

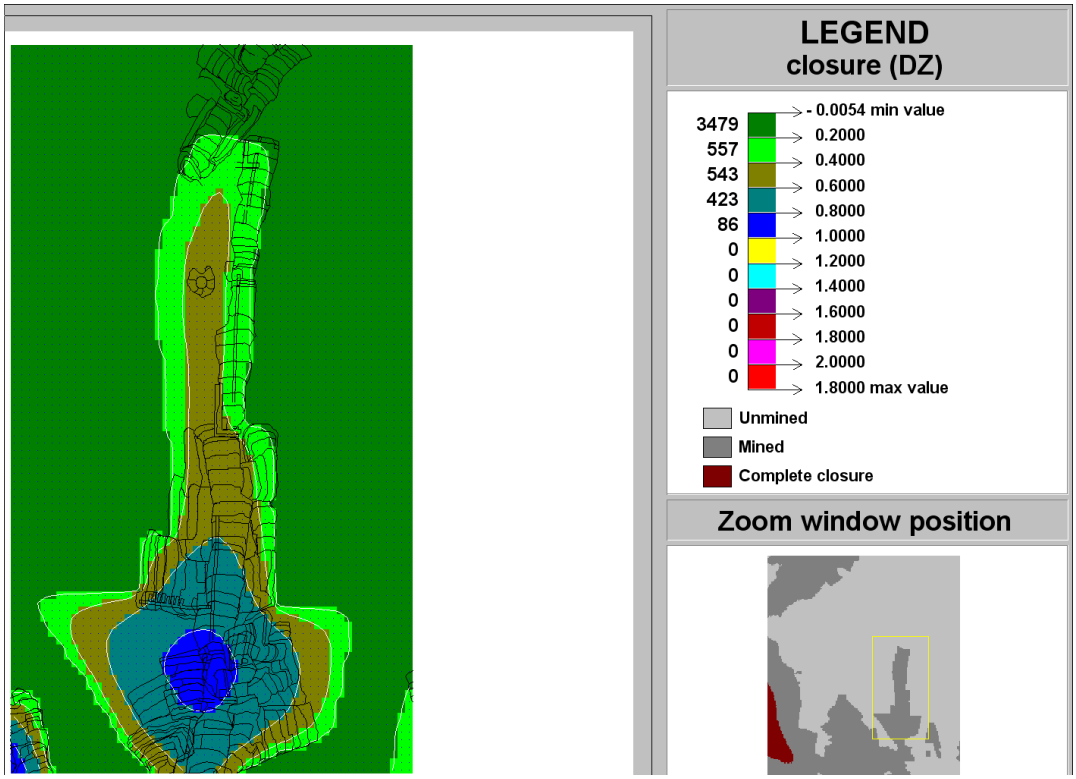

Figure C-132 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block A at STEP 3

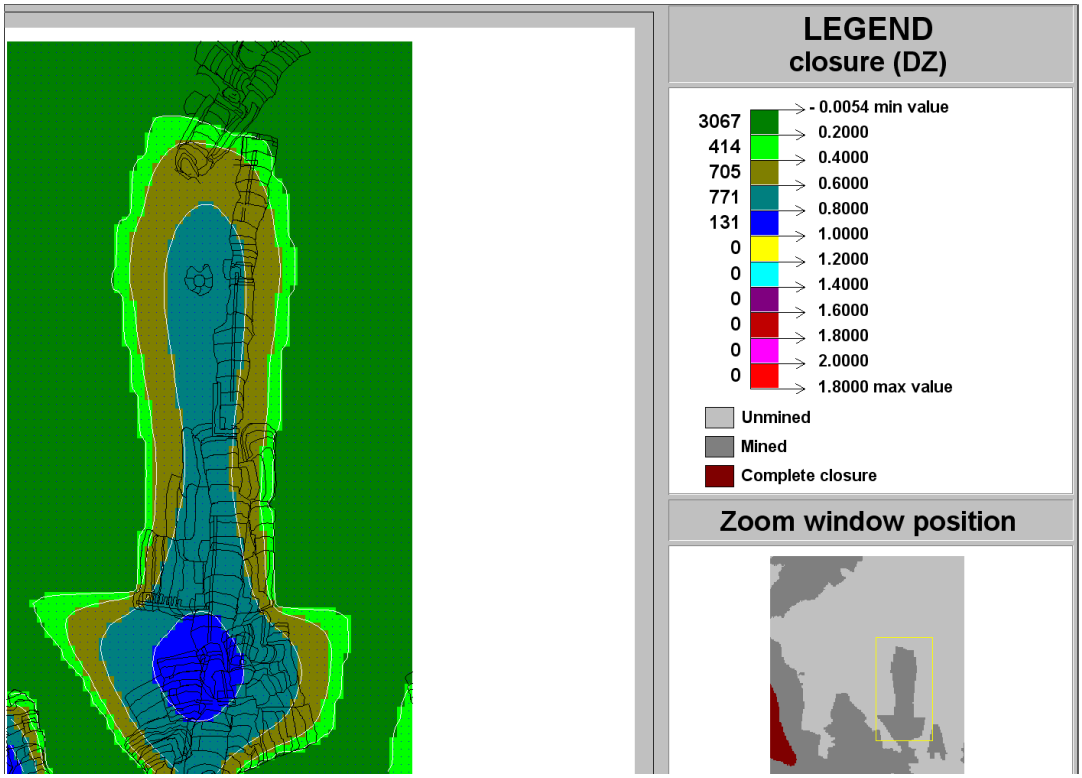

Figure C-133 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block A at STEP 4

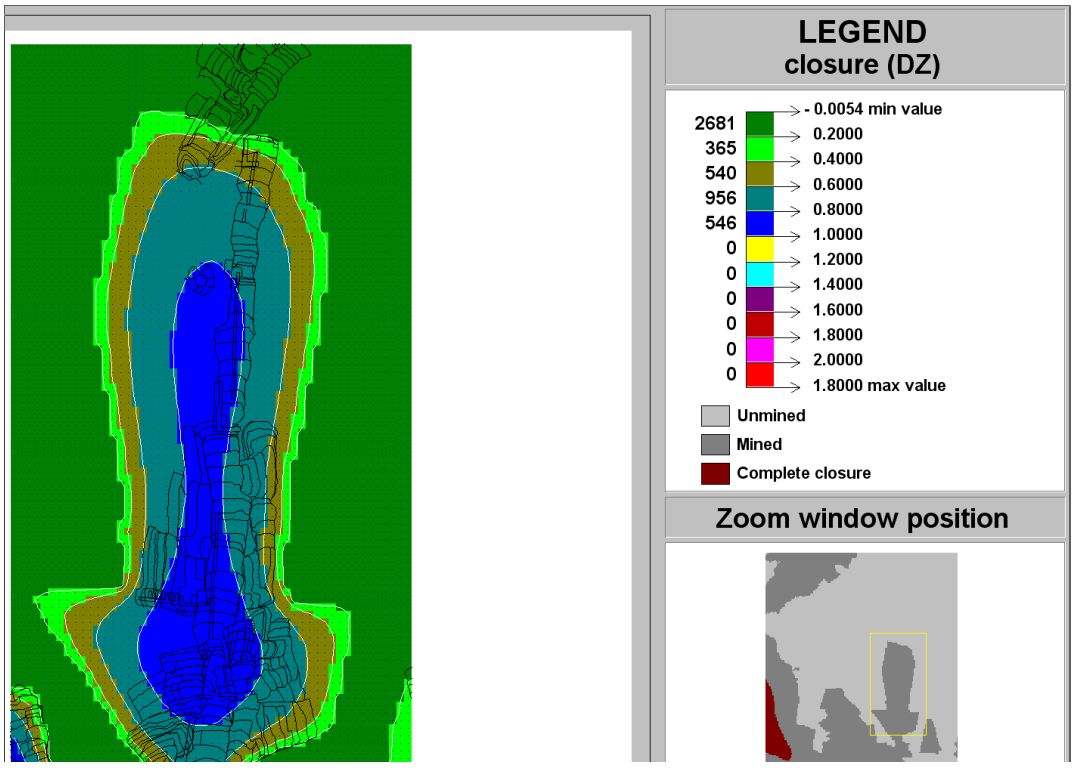

Figure C-134 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block A at STEP 5

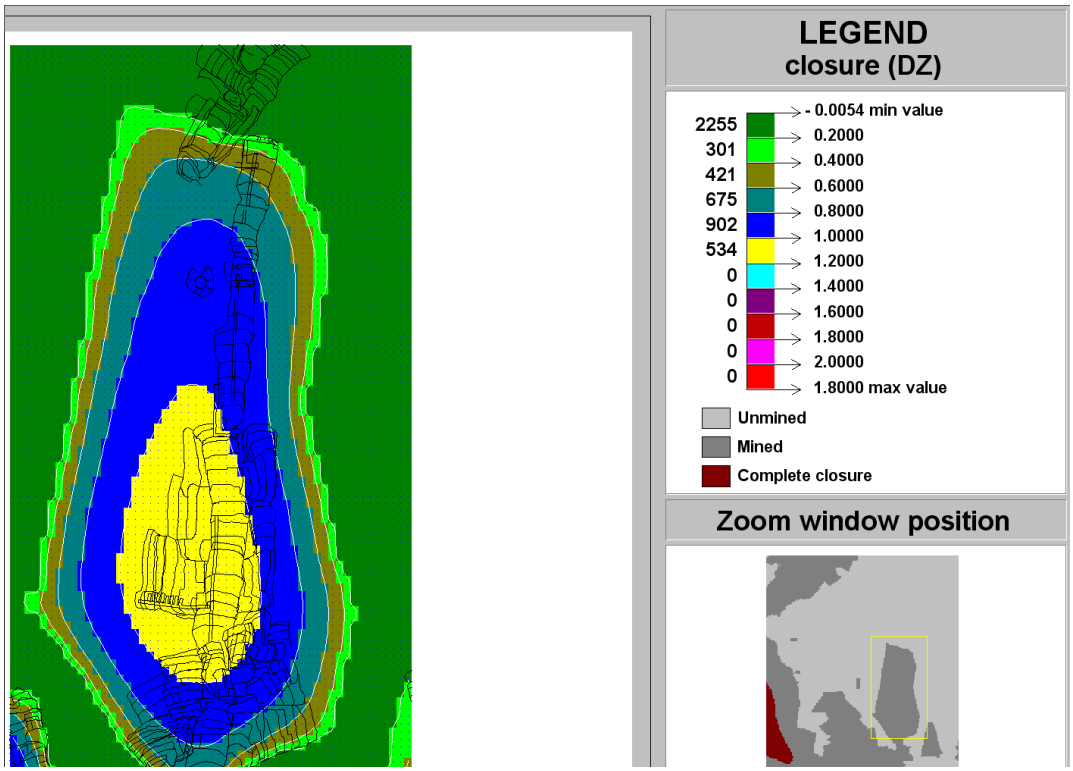

Figure C-135 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block A at STEP 6

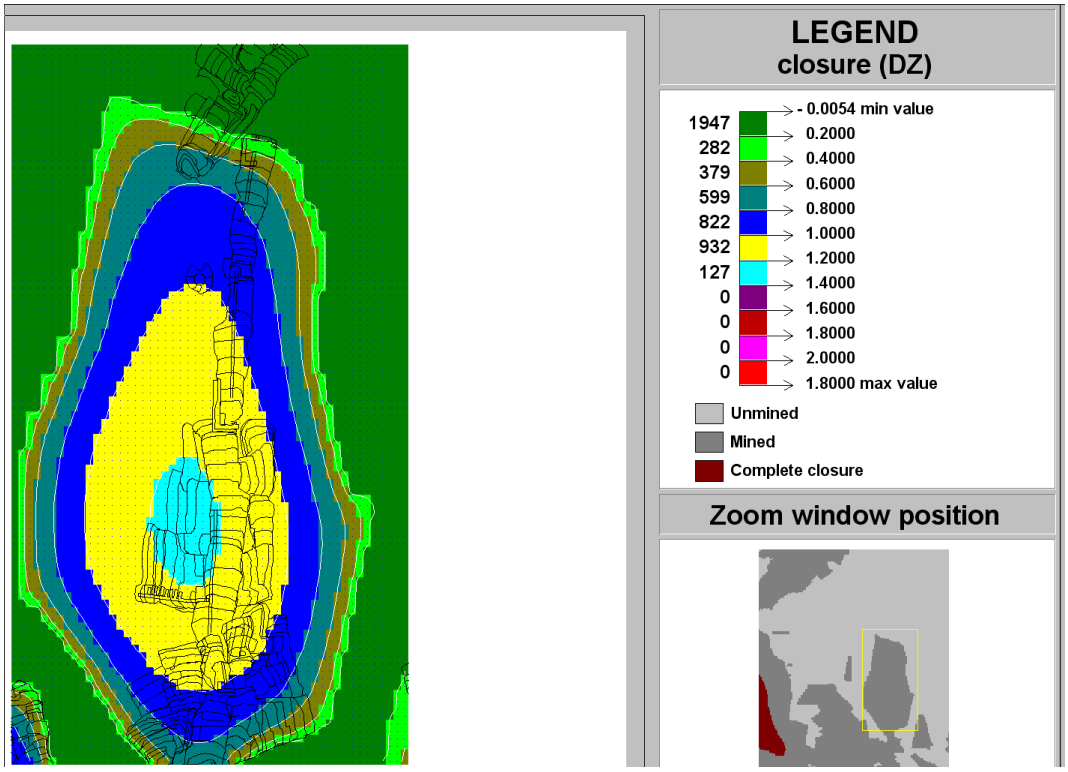

Figure C-136 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block A at STEP 7

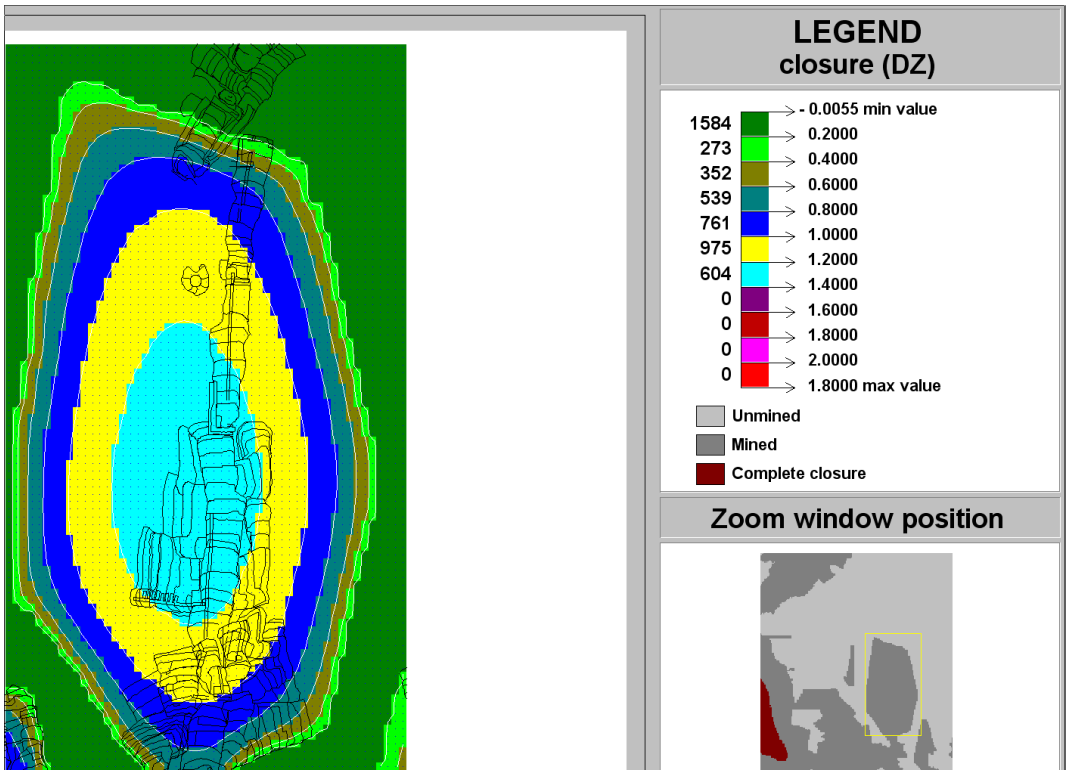

Figure C-137 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block A at STEP 8

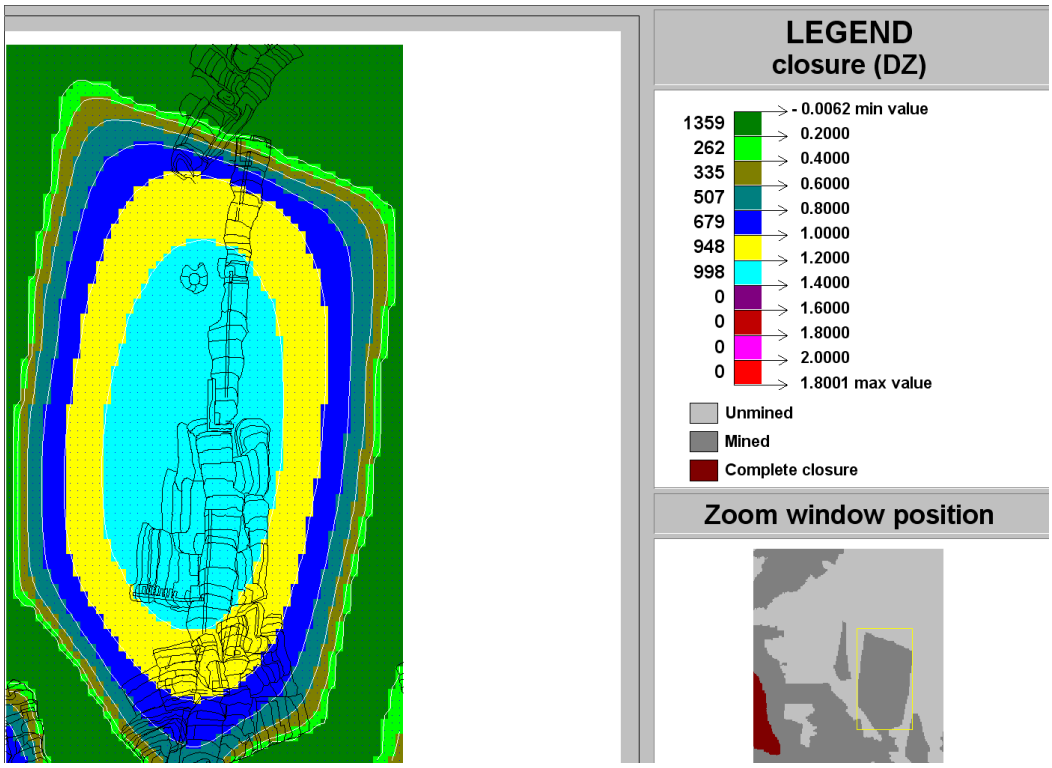

Figure C-138 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block A at STEP 9

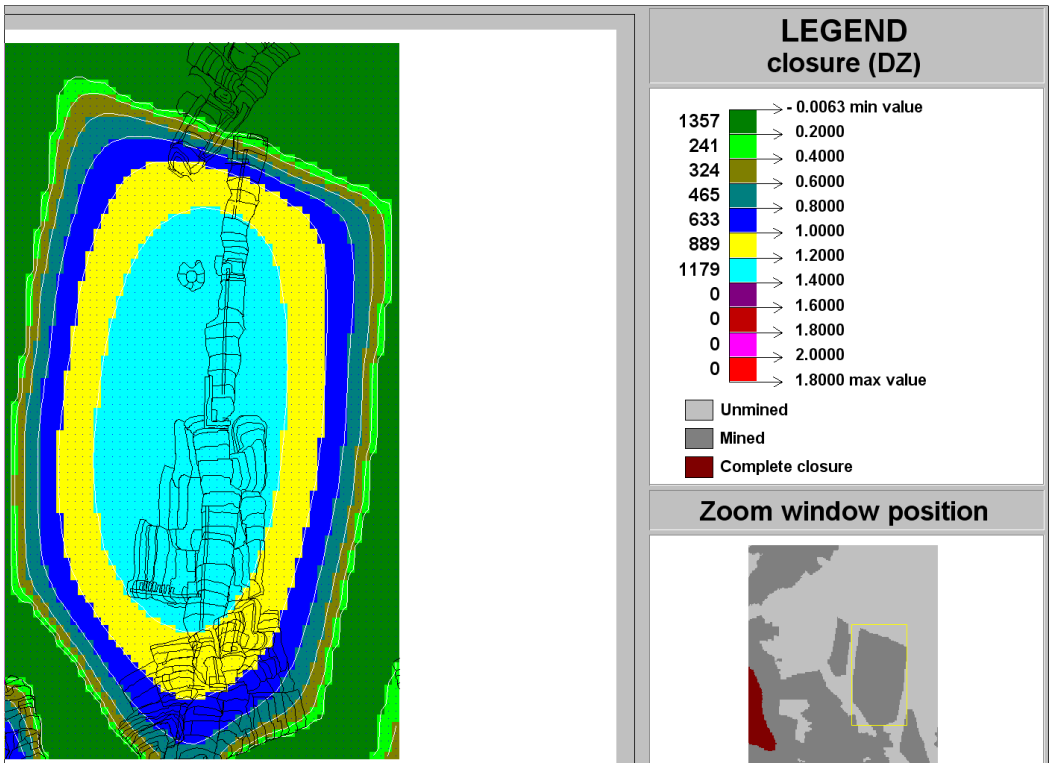

Figure C-139 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block A at STEP 10

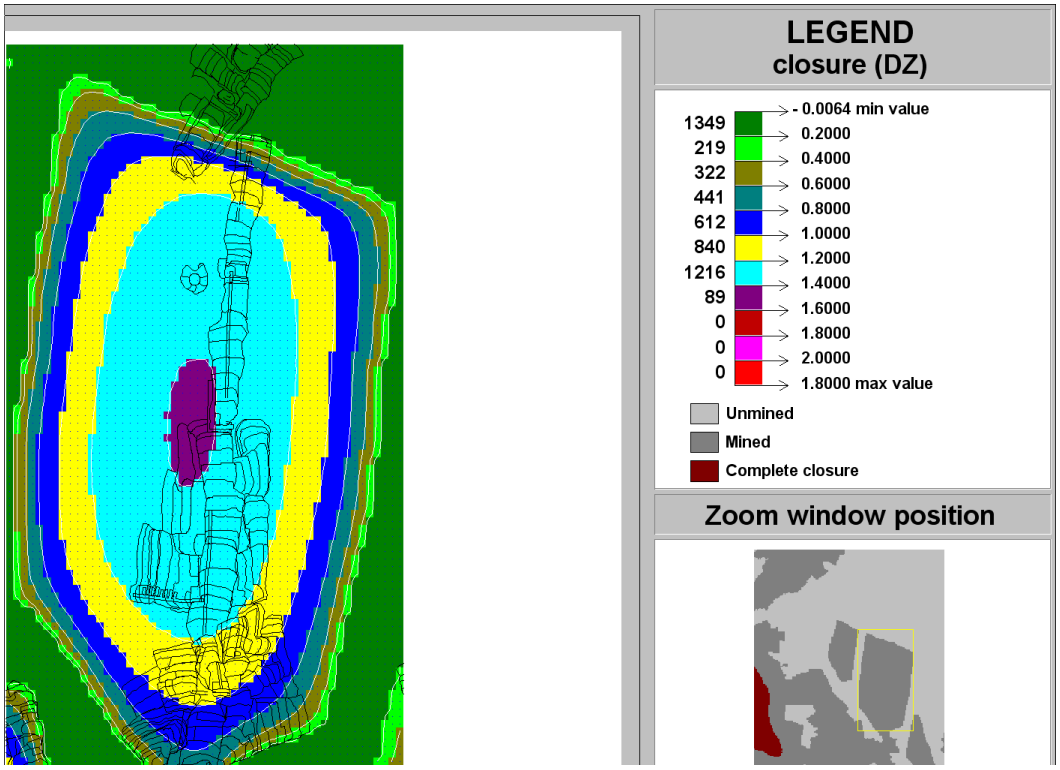

Figure C-140 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block A at STEP 11

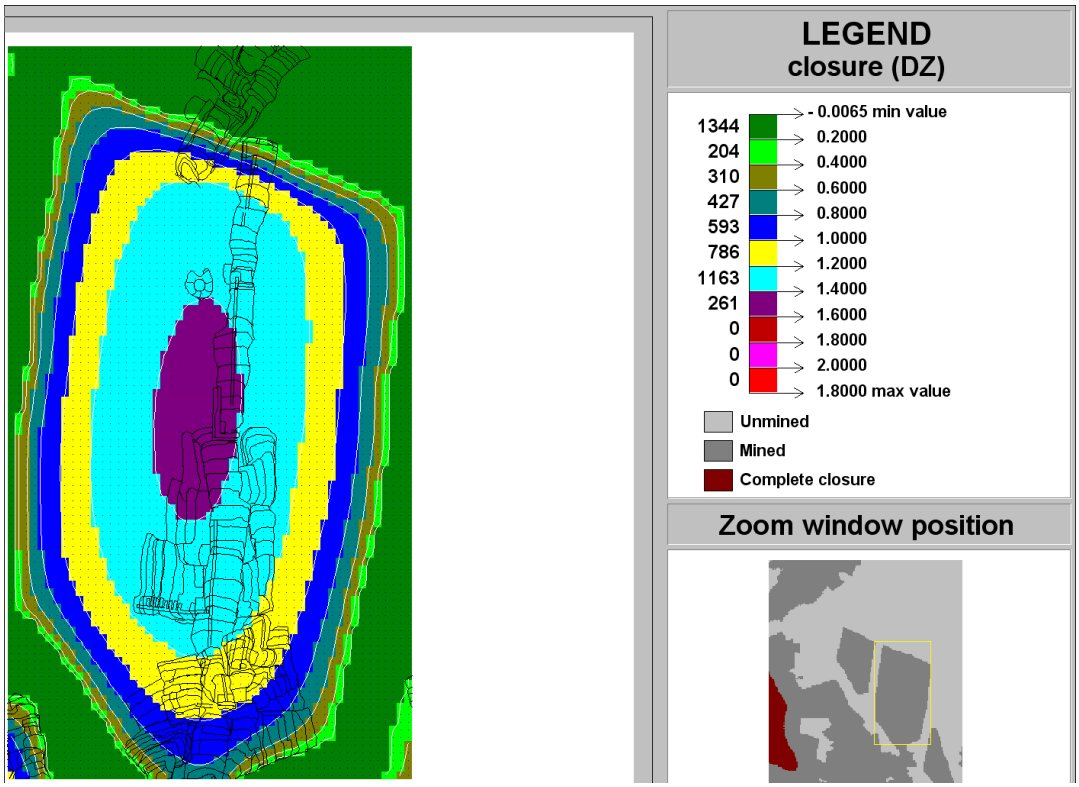

Figure C-141 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block A at STEP 12

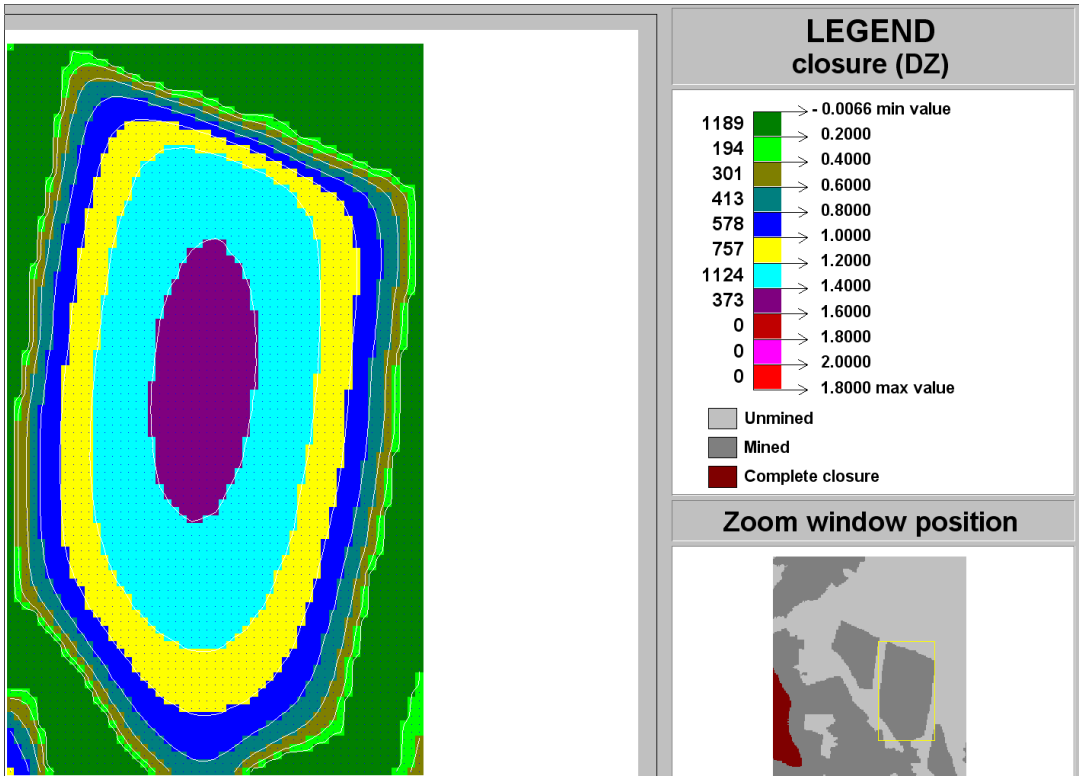

Figure C-142 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block A at STEP 13

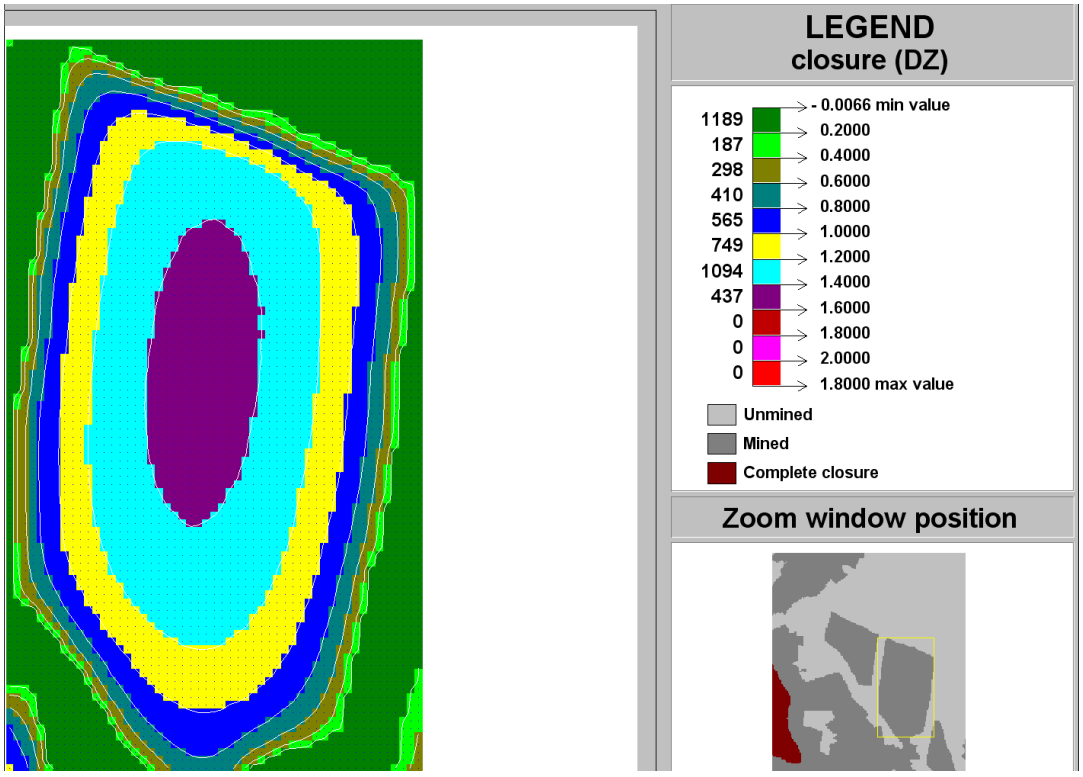

Figure C-143 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block A at STEP 14

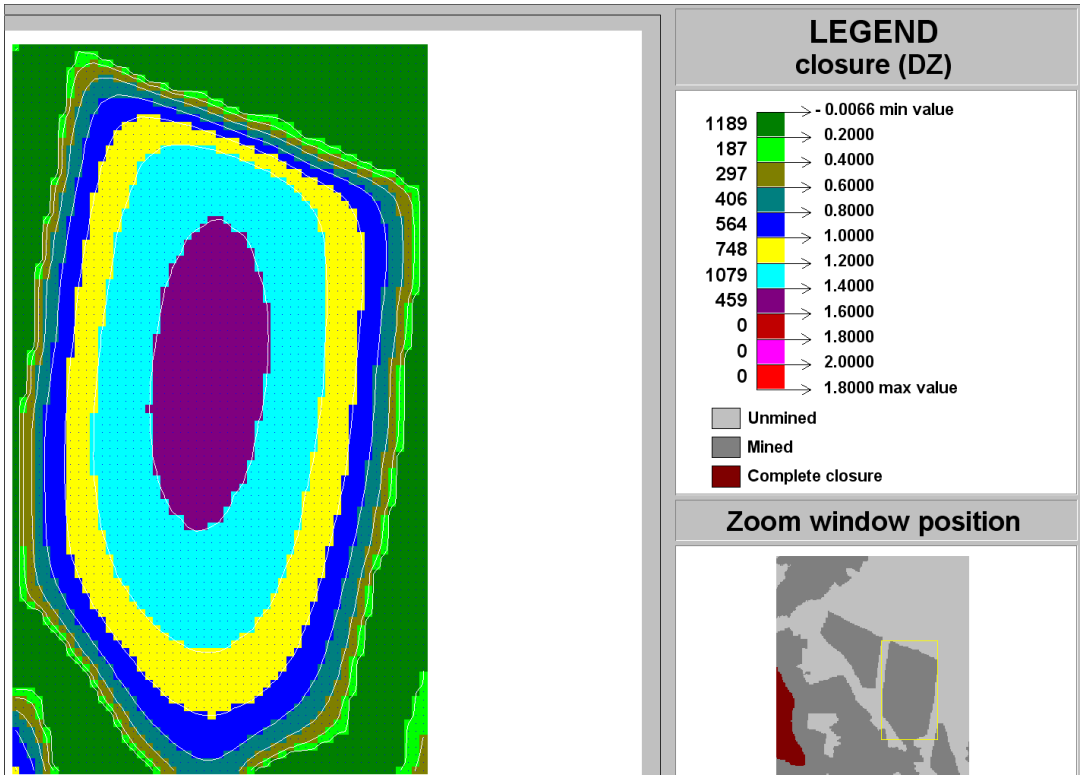

Figure C-144 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block A at STEP 15

C.5.2. Block B - Closure (DZ)

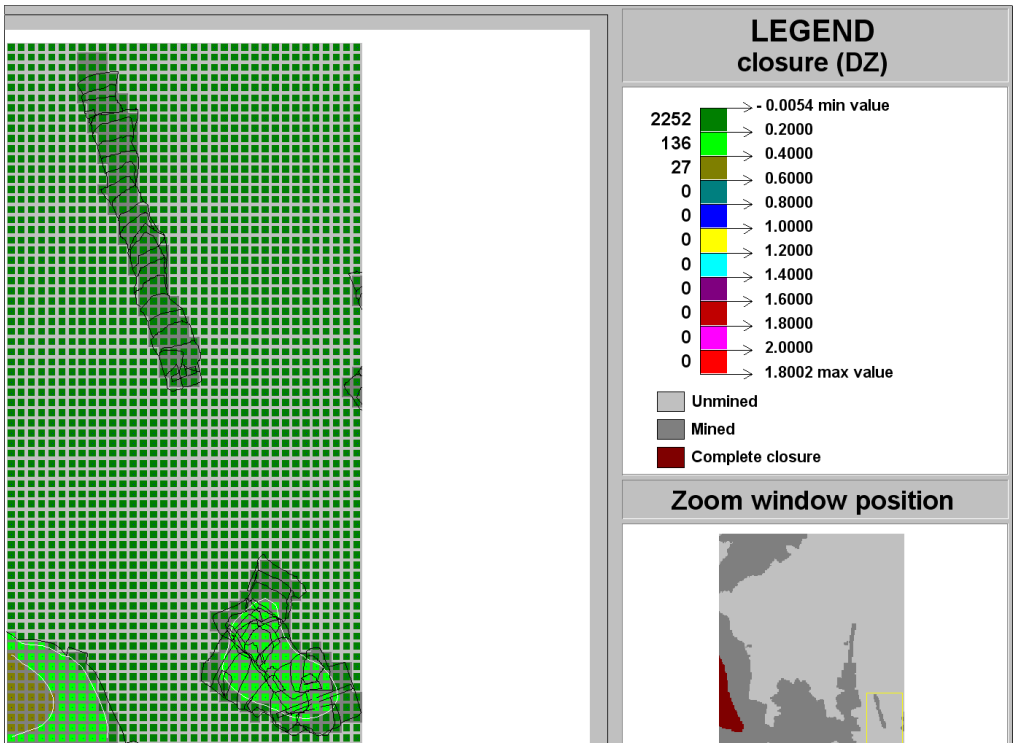

Figure C-145 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block B at STEP 1

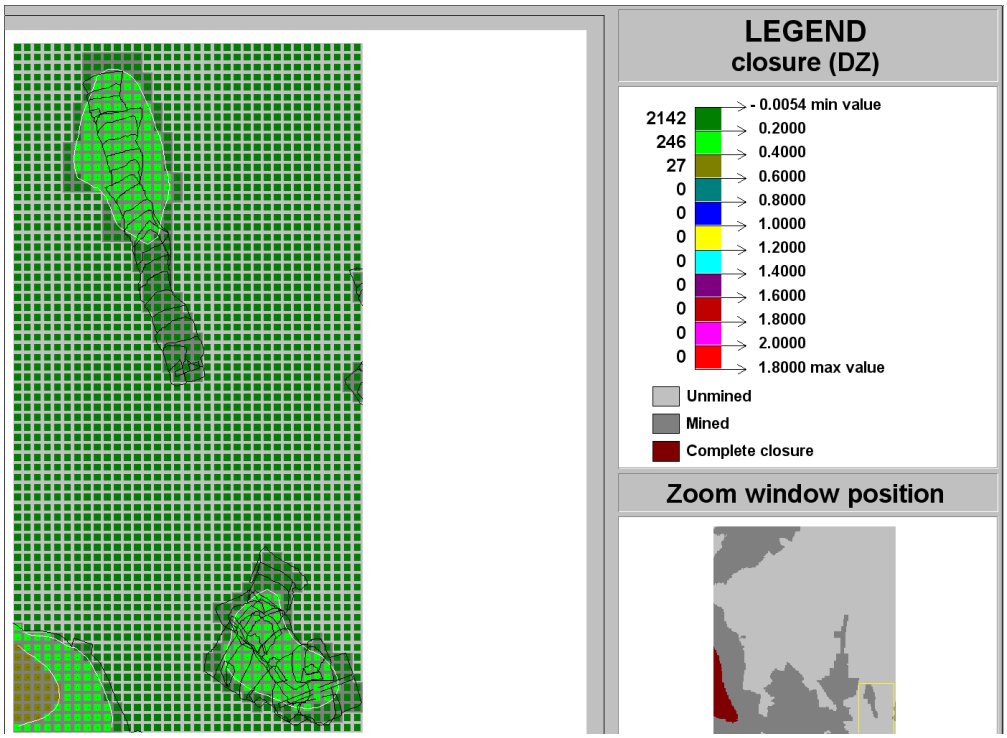

Figure C-146 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block B at STEP 2

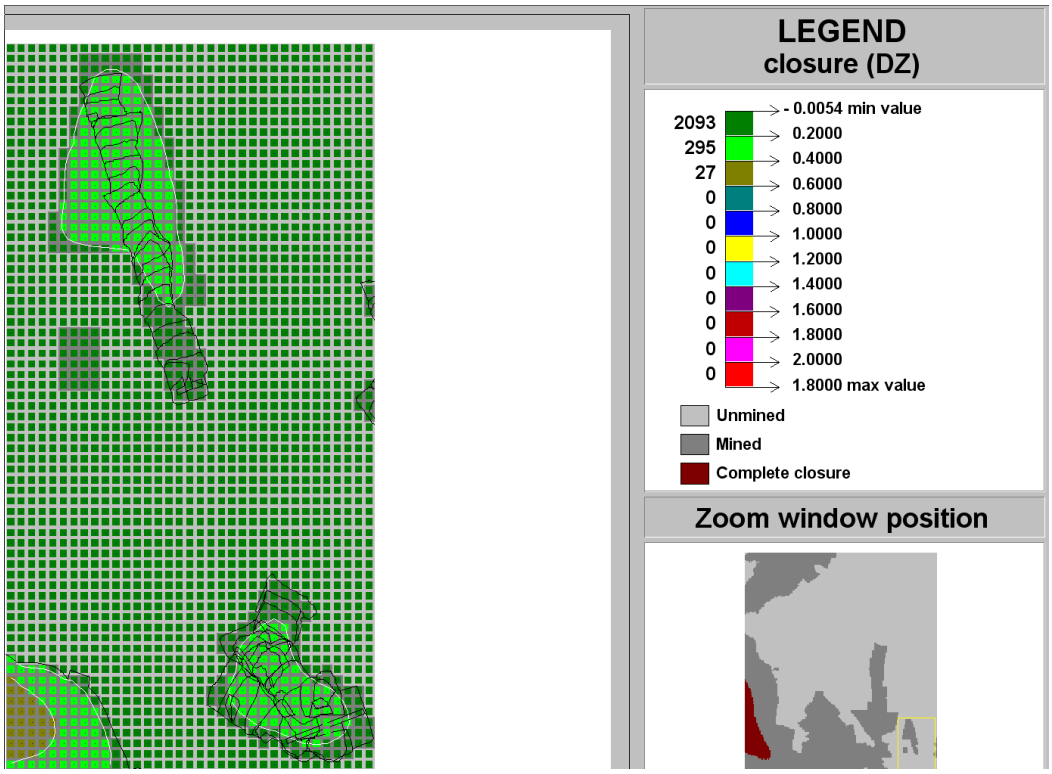

Figure C-147 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block B at STEP 3

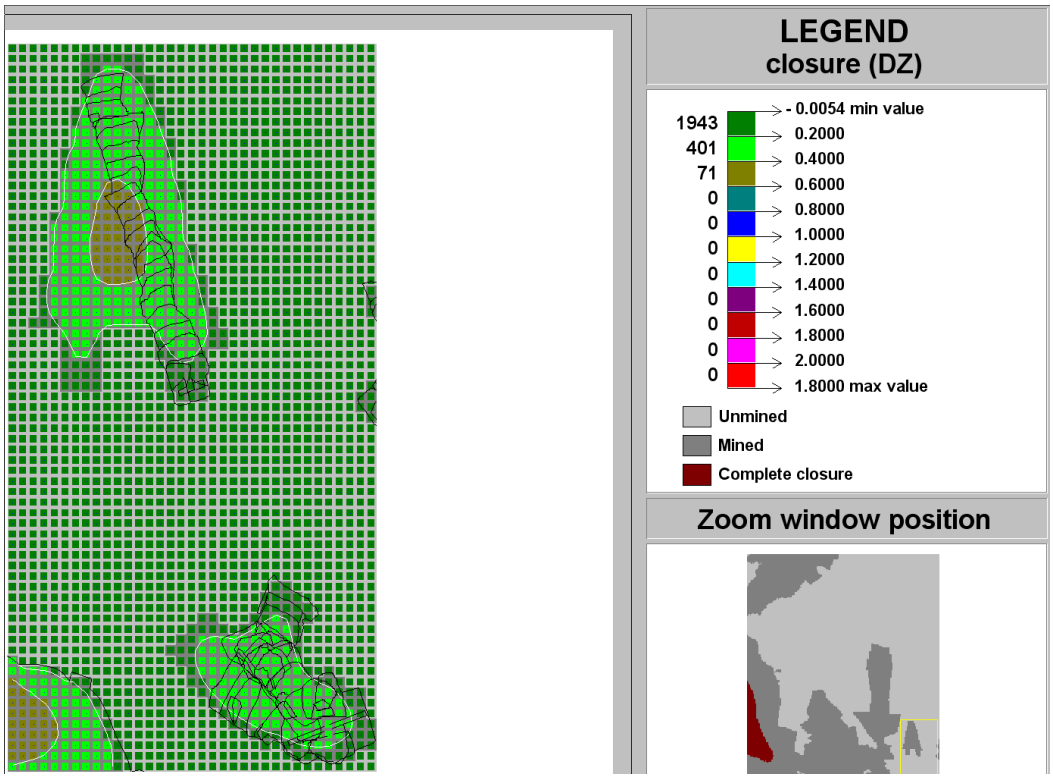

Figure C-148 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block B at STEP 4

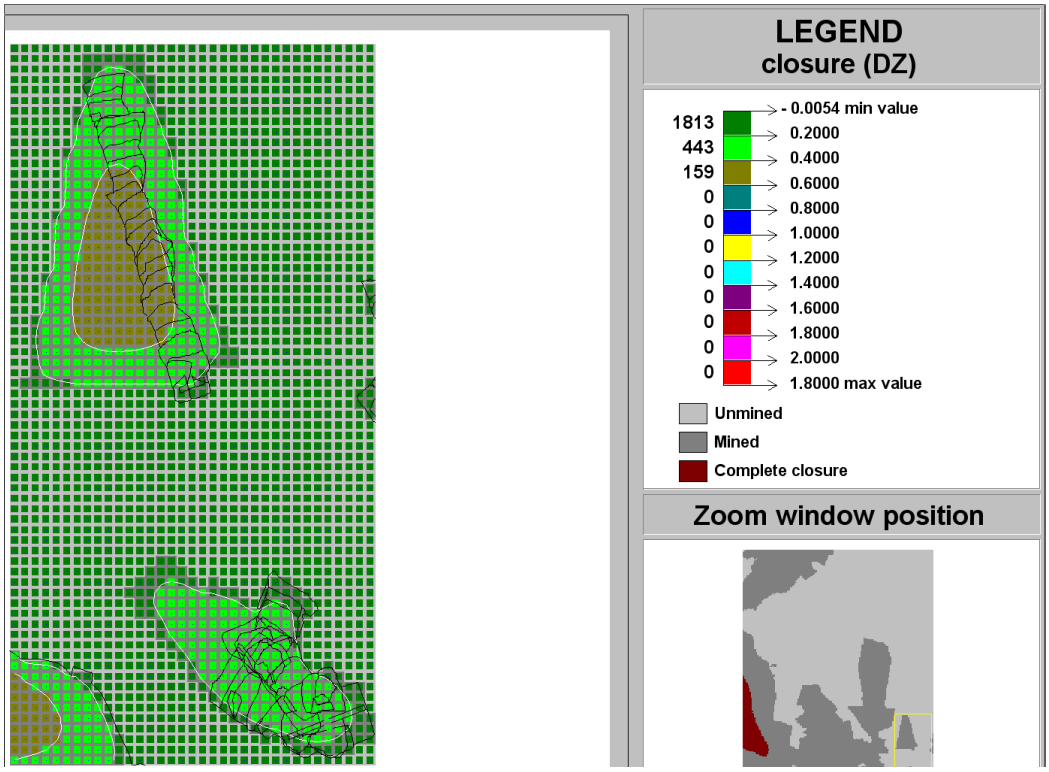

Figure C-149 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block B at STEP 5

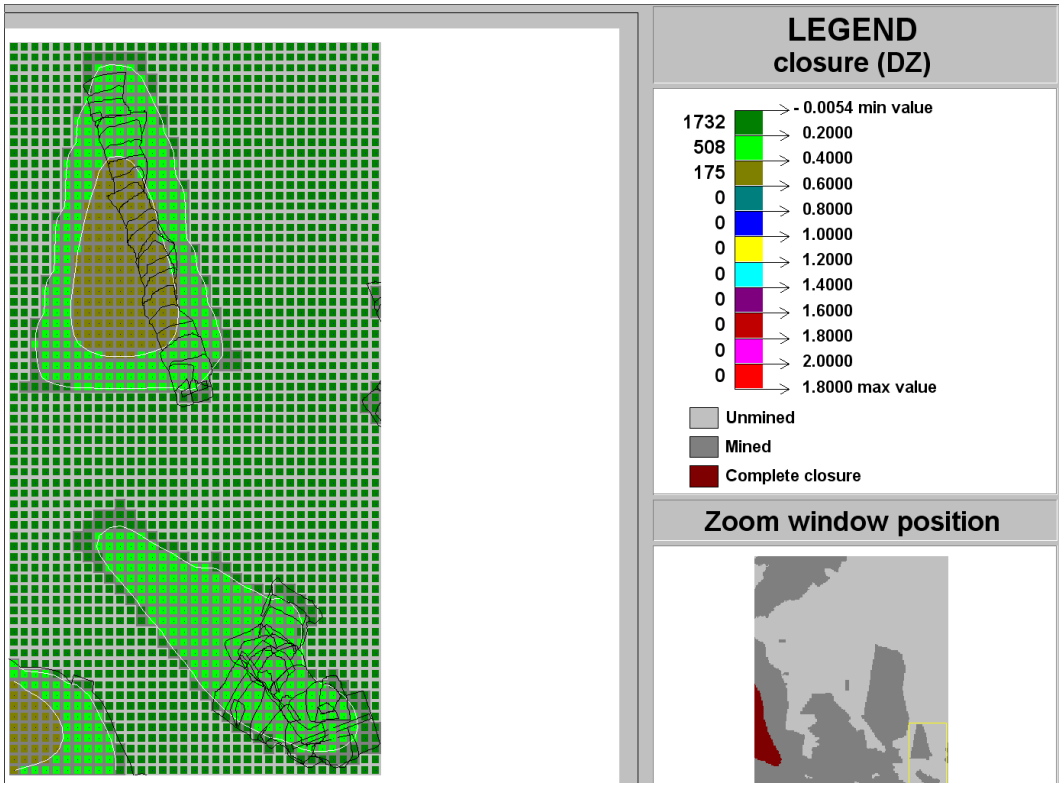

Figure C-150 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block B at STEP 6

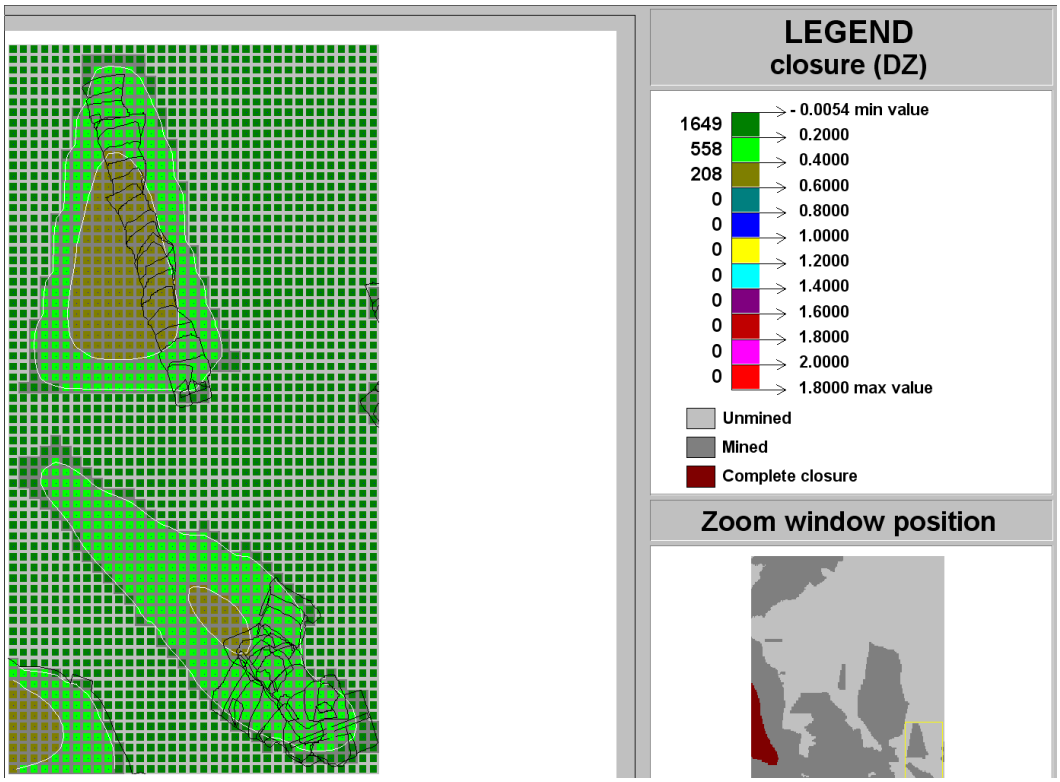

Figure C-151 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block B at STEP 7

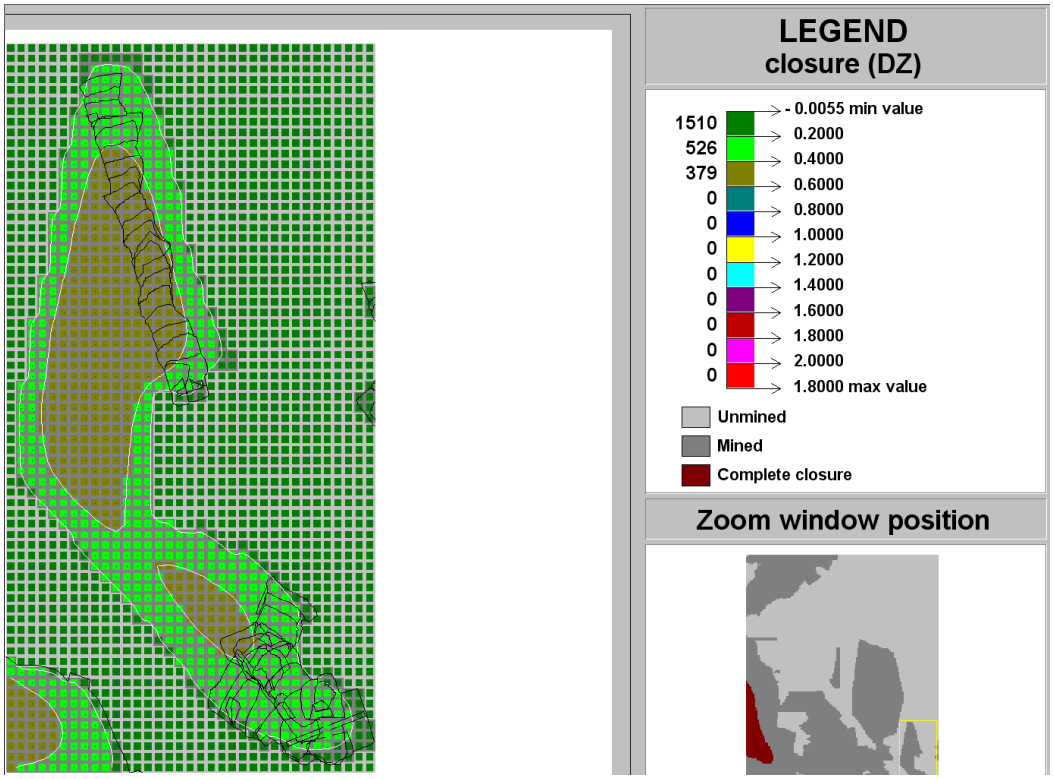

Figure C-152 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block B at STEP 8

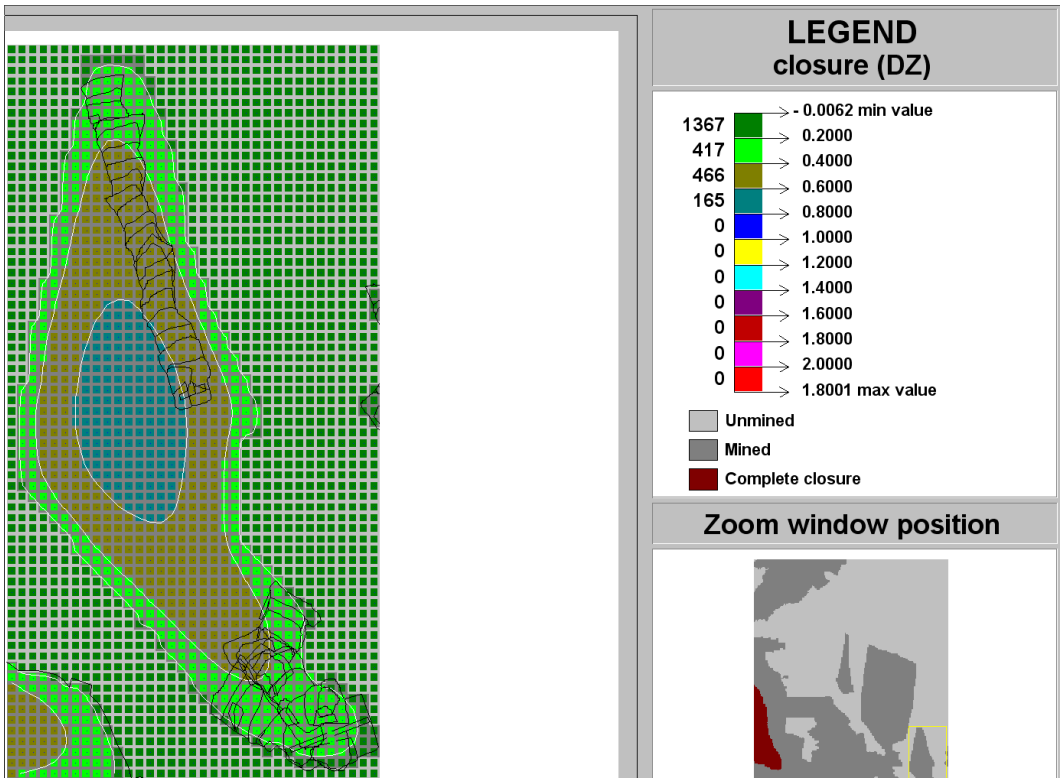

Figure C-153 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block B at STEP 9

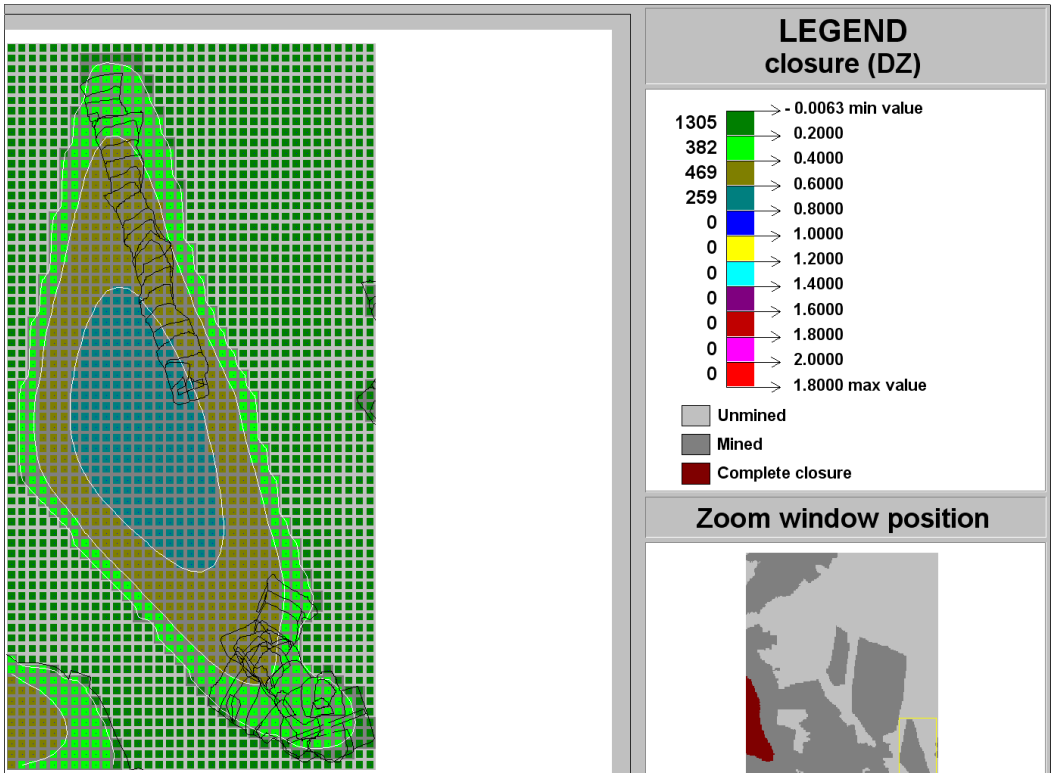

Figure C-154 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block B at STEP 10

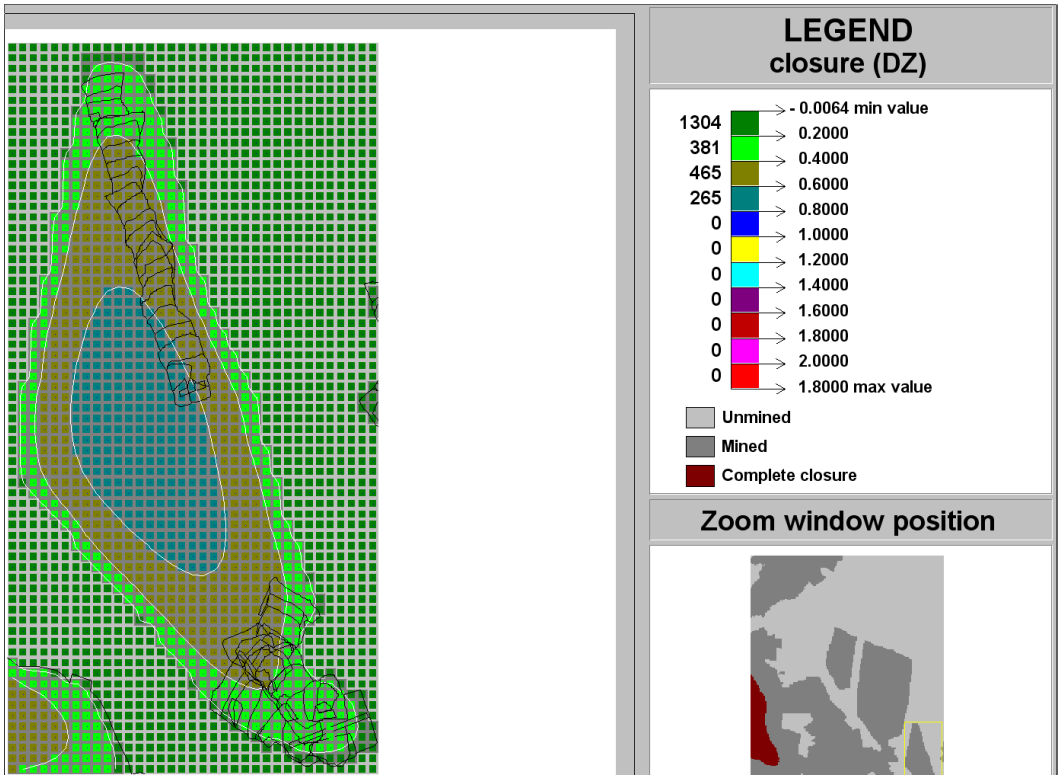

Figure C-155 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block B at STEP 11

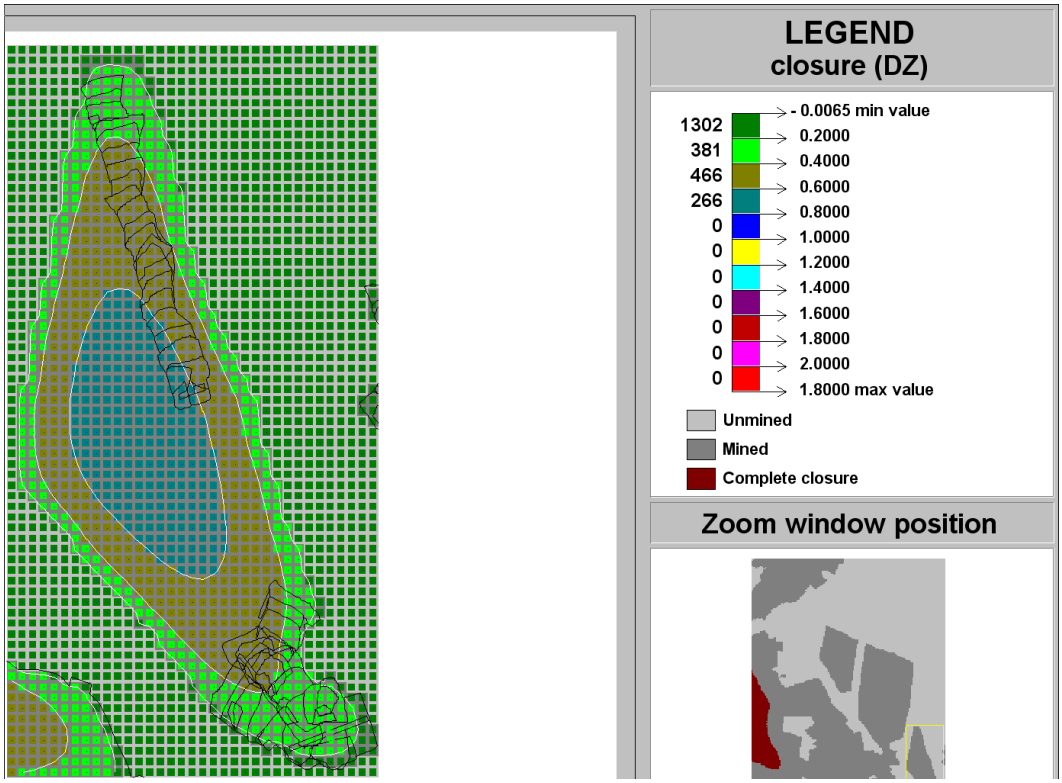

Figure C-156 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block B at STEP 12

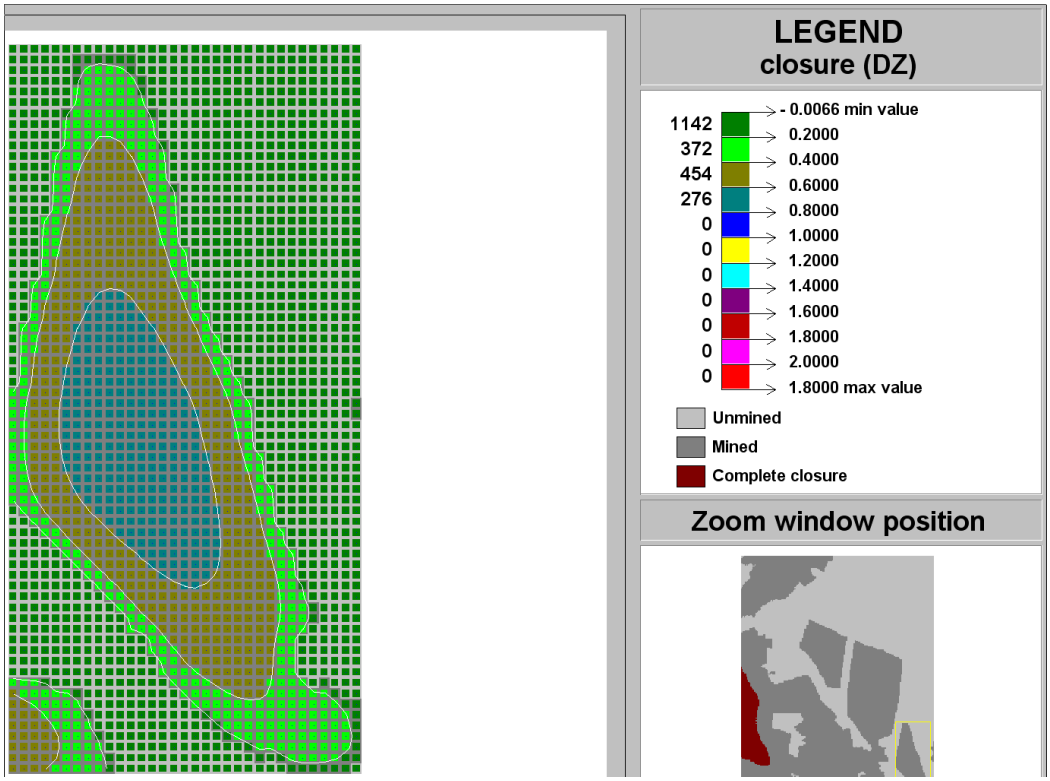

Figure C-157 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block B at STEP 13

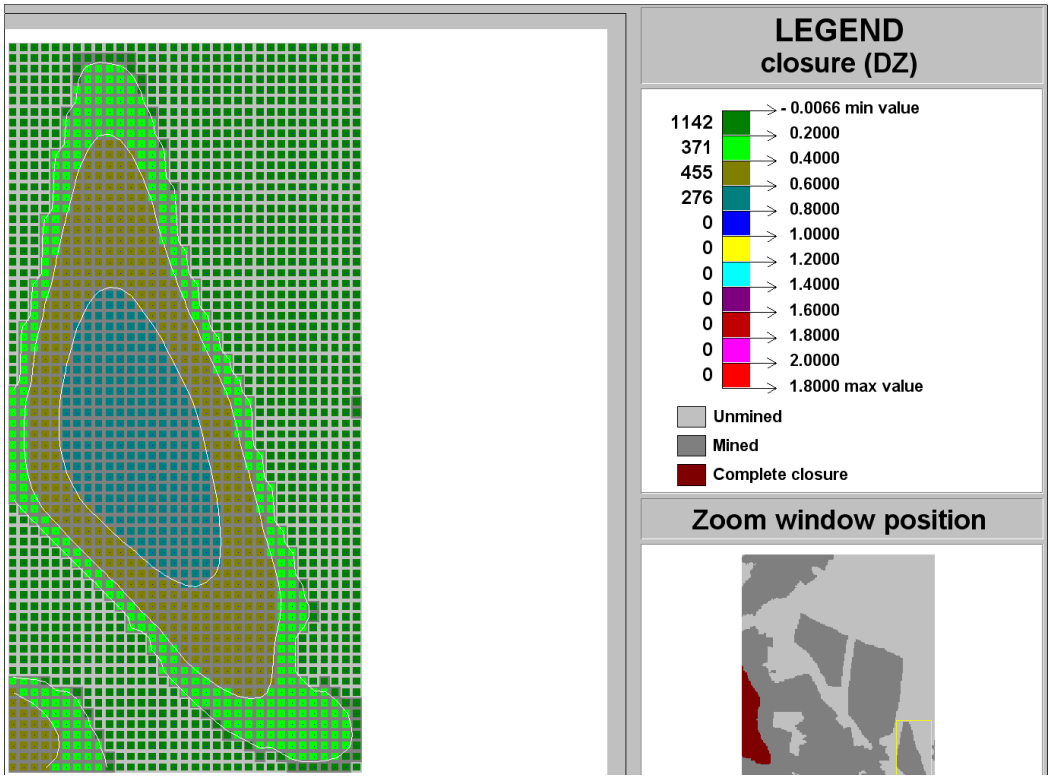

Figure C-158 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block B at STEP 14

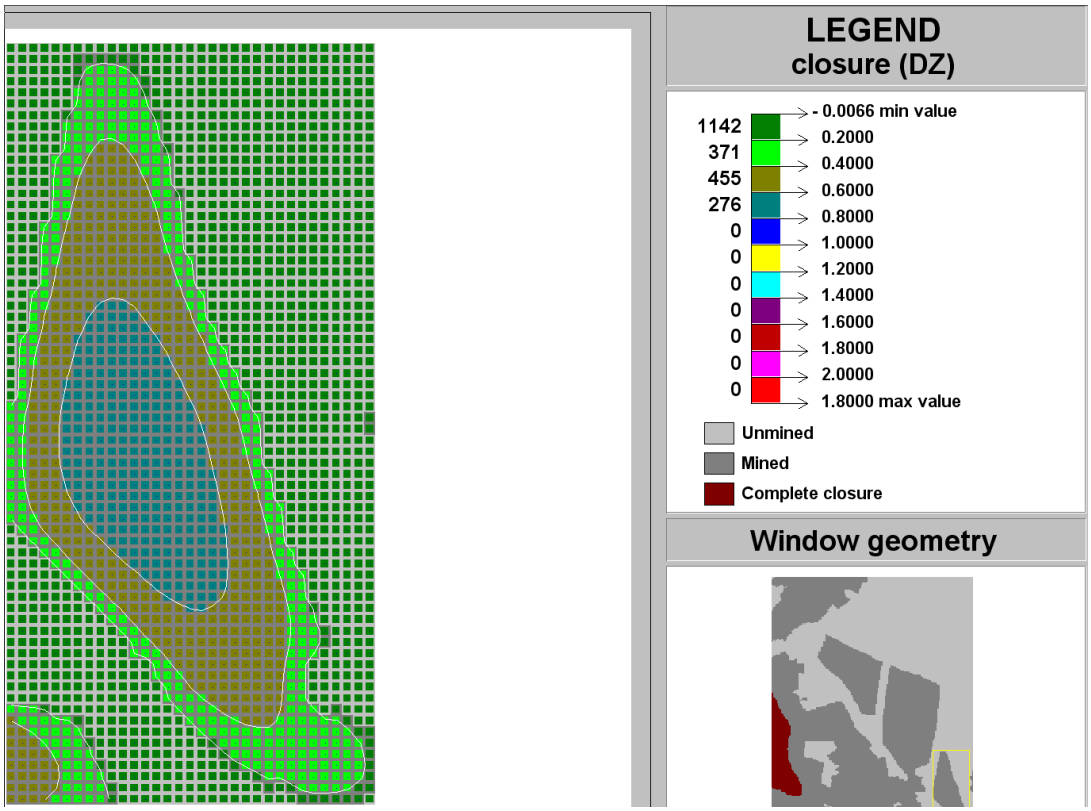

Figure C-159 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block B at STEP 15

C.5.3. Block C - Closure (DZ)

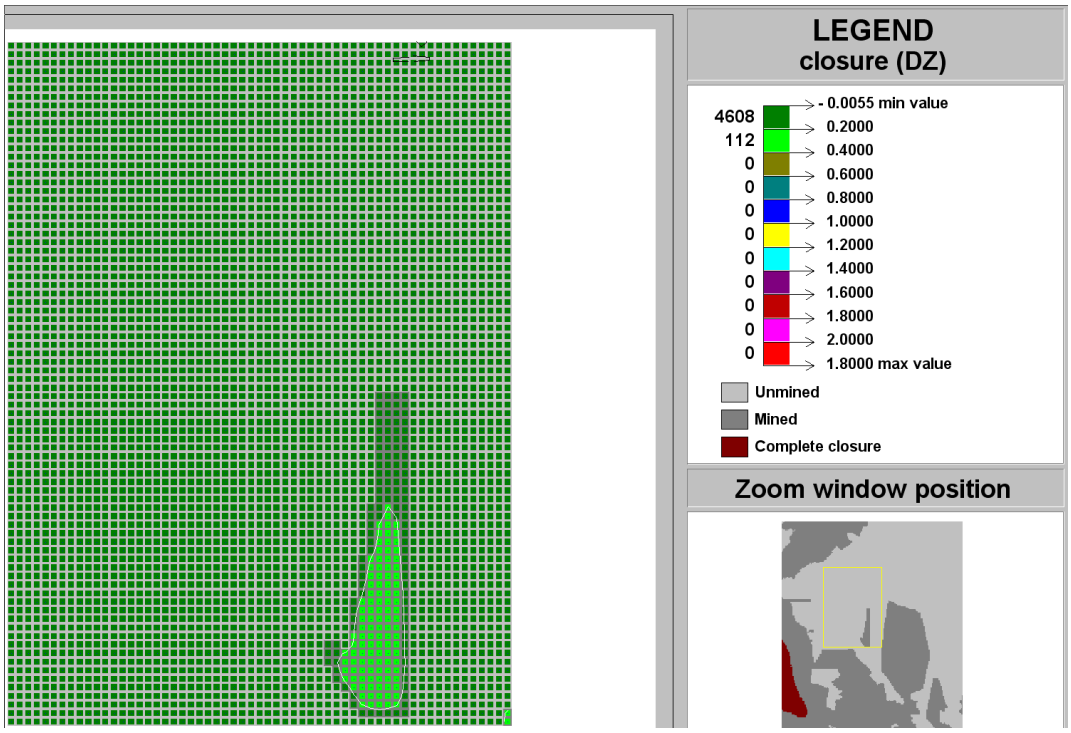

Figure C-160 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block C at STEP 8

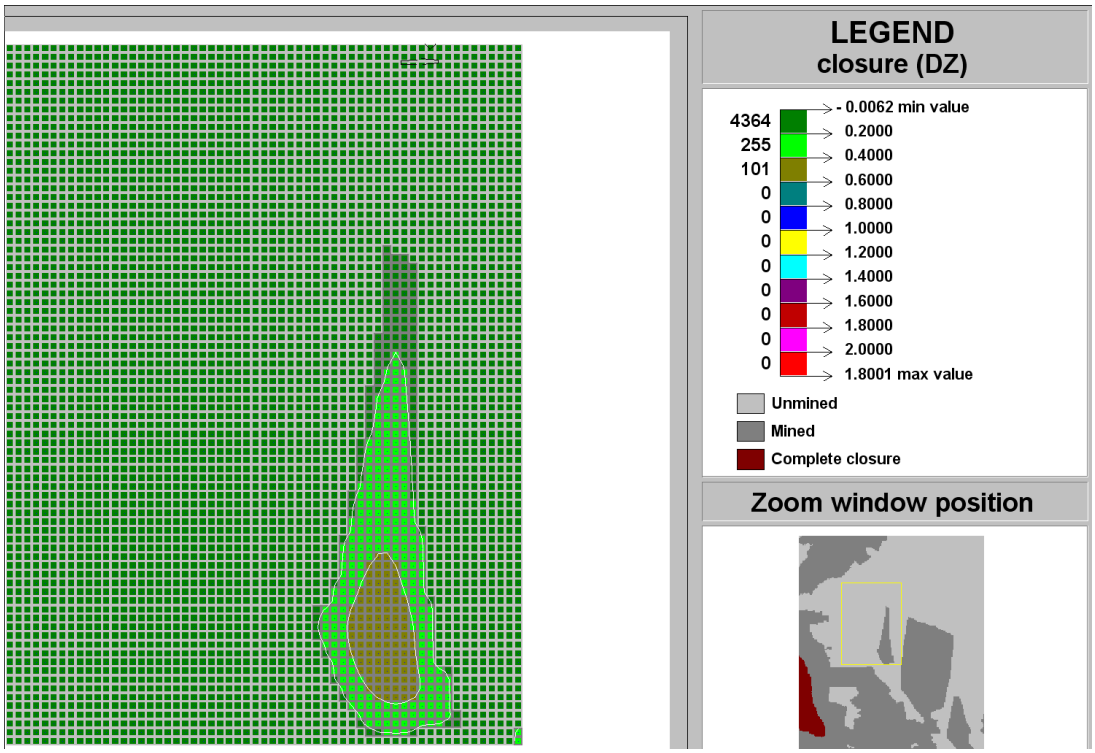

Figure C-161 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block C at STEP 9

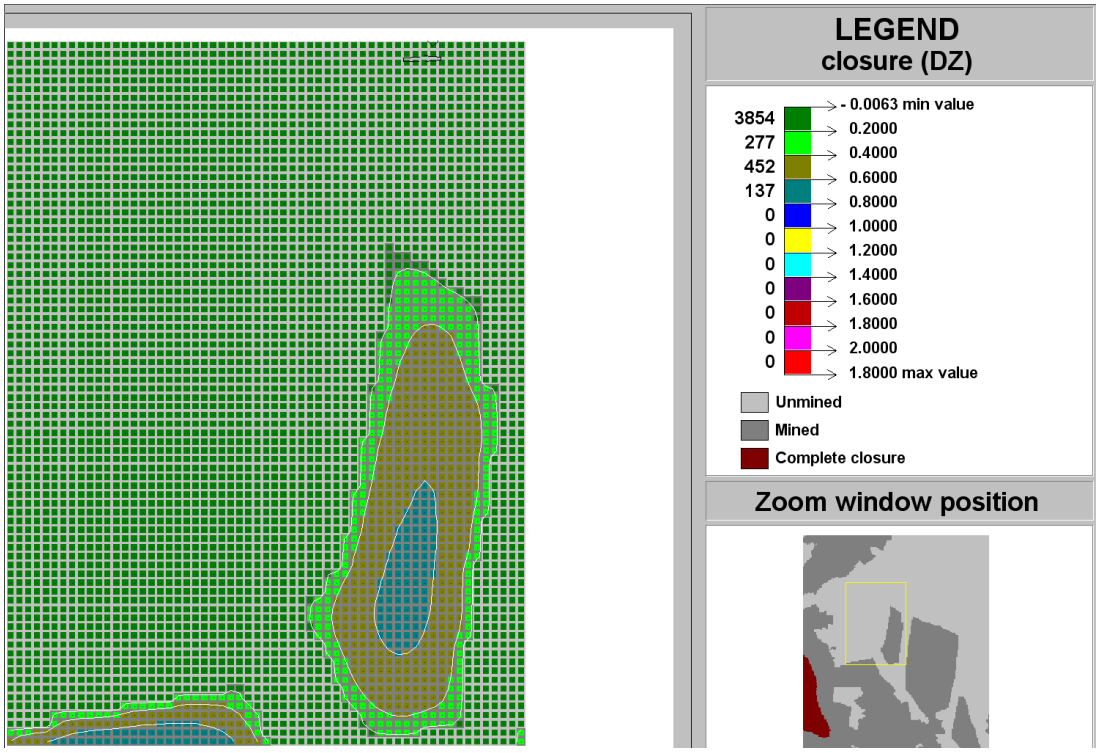

Figure C-162 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block C at STEP 10

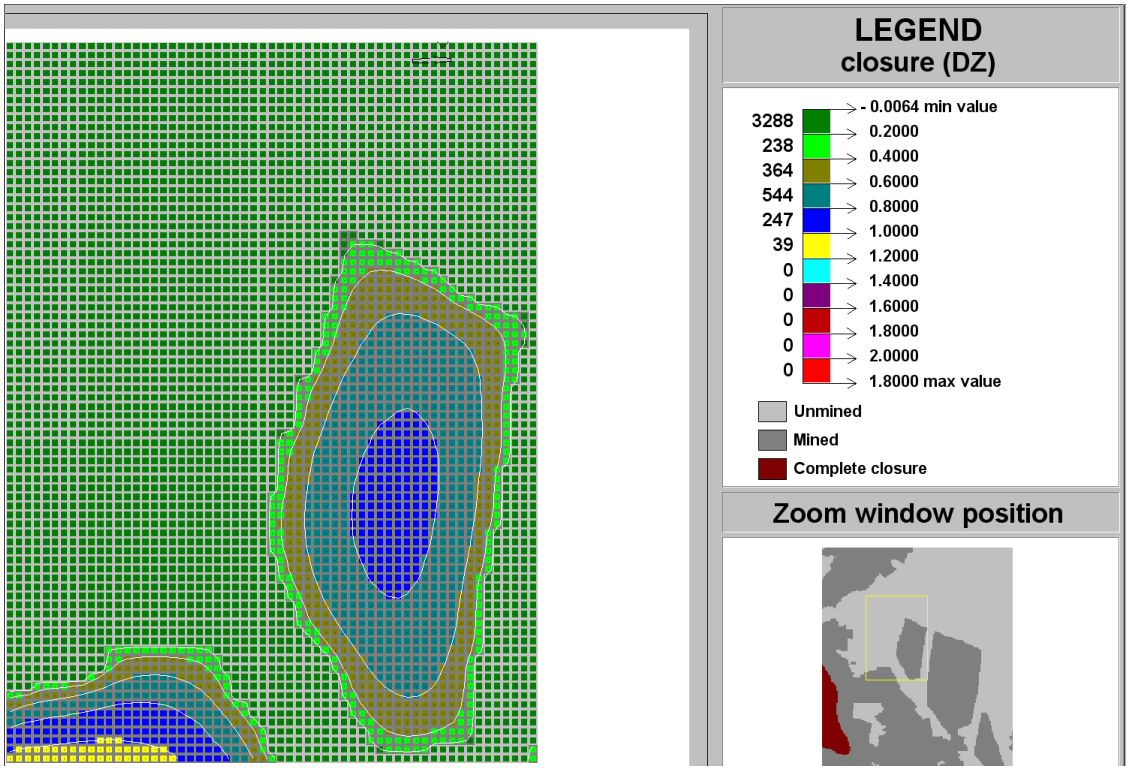

Figure C-163 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block C at STEP 11

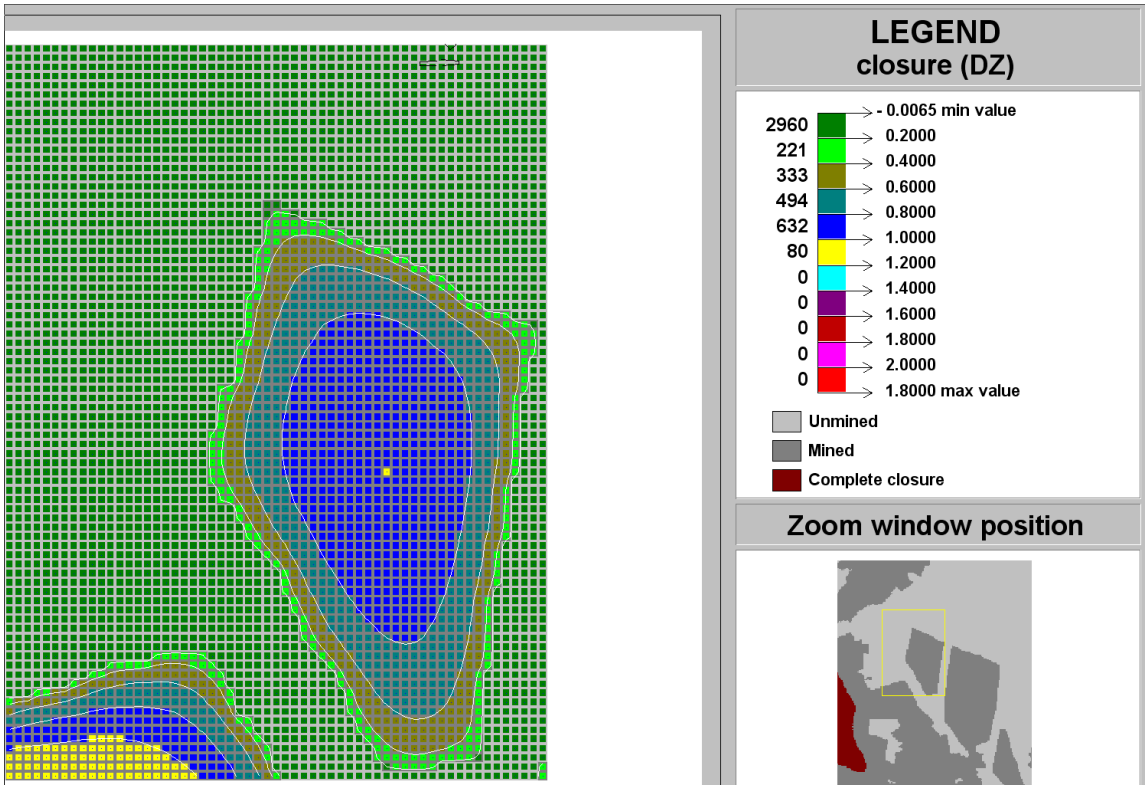

Figure C-164 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block C at STEP 12

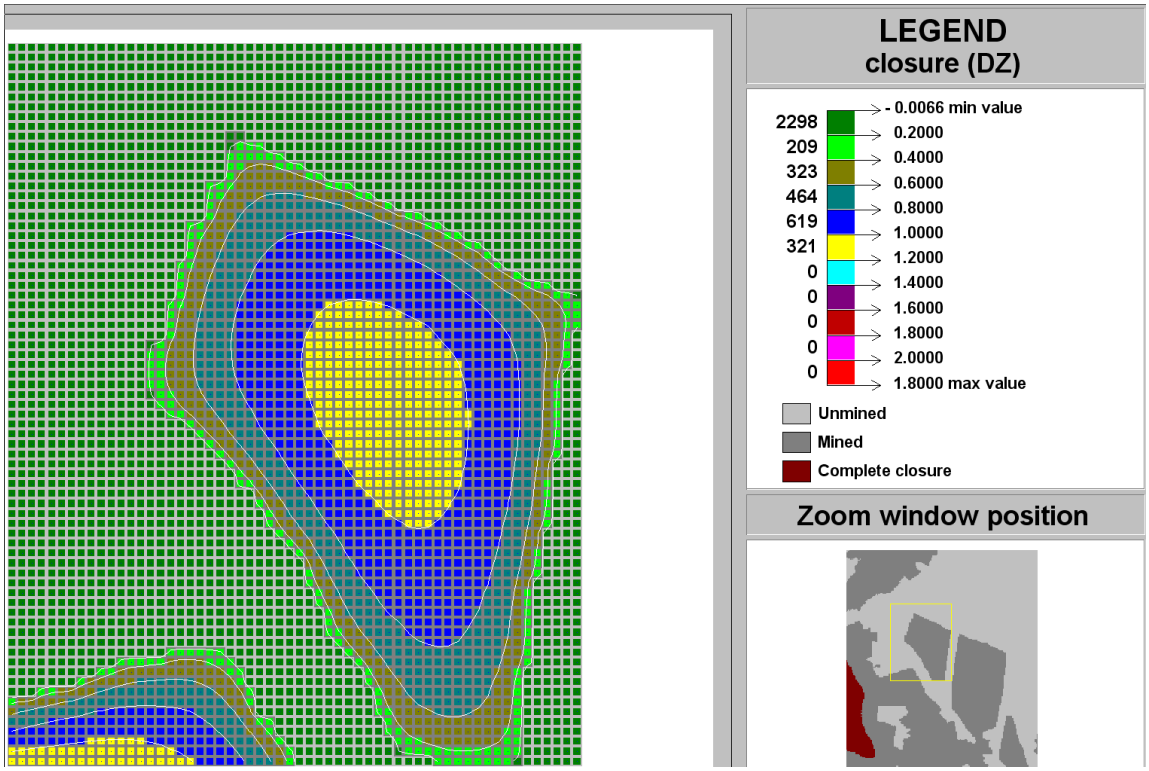

Figure C-165 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block C at STEP 13

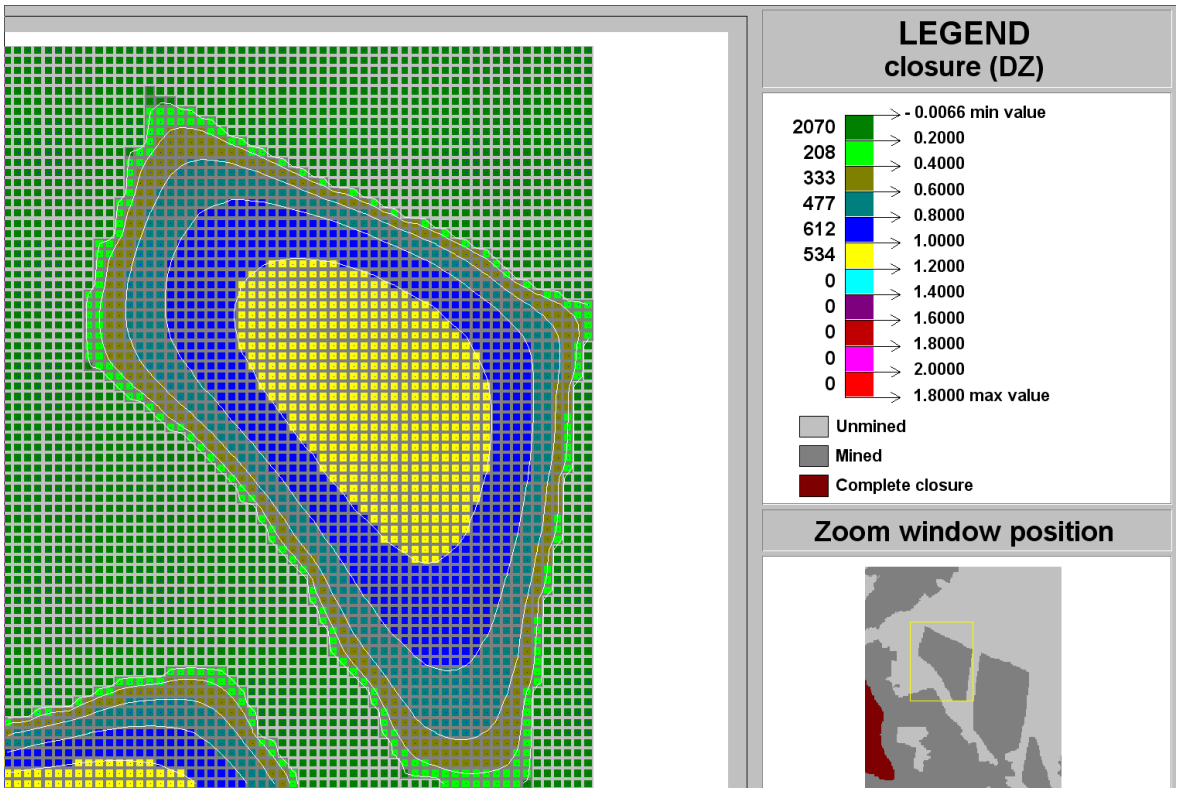

Figure C-166 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block C at STEP 14

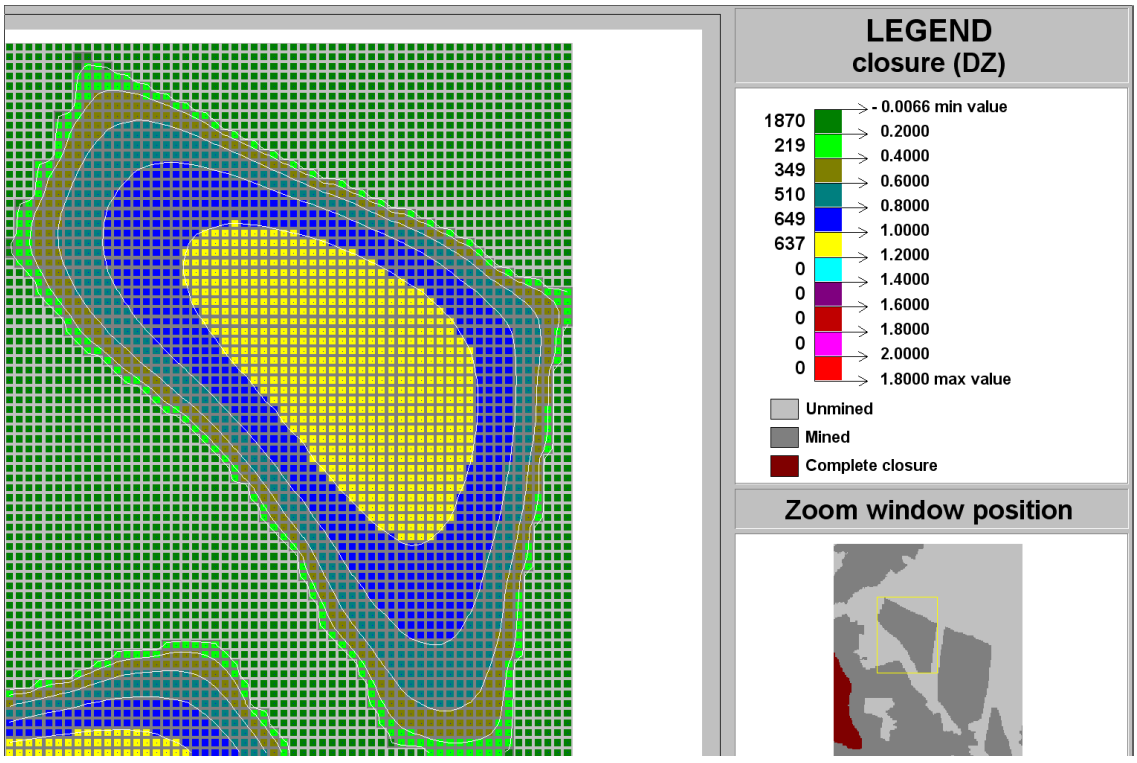

Figure C-167 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block C at STEP 15

C.5.4. Block D - Closure (DZ)

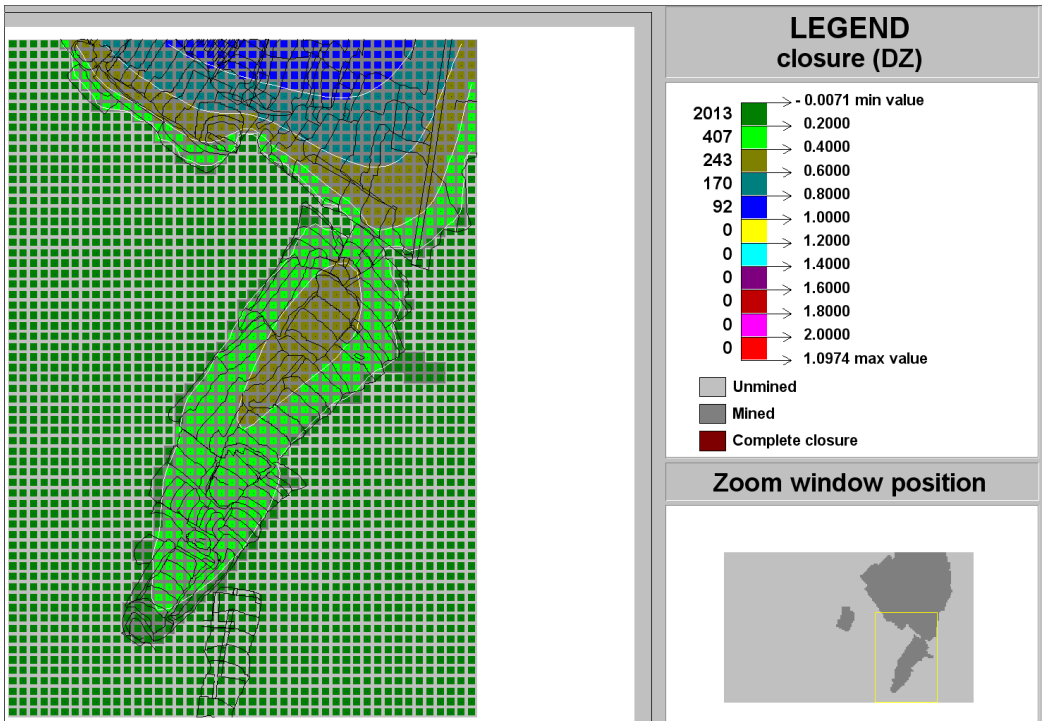

Figure C-168 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block D at STEP 1

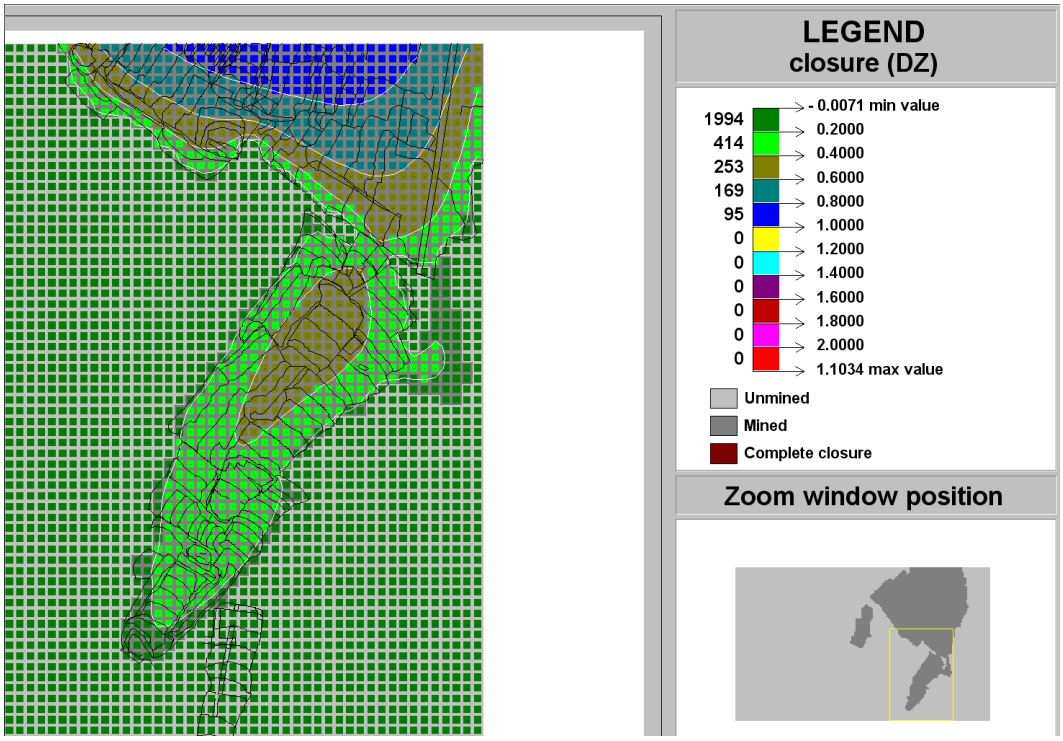

Figure C-169 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block D at STEP 2

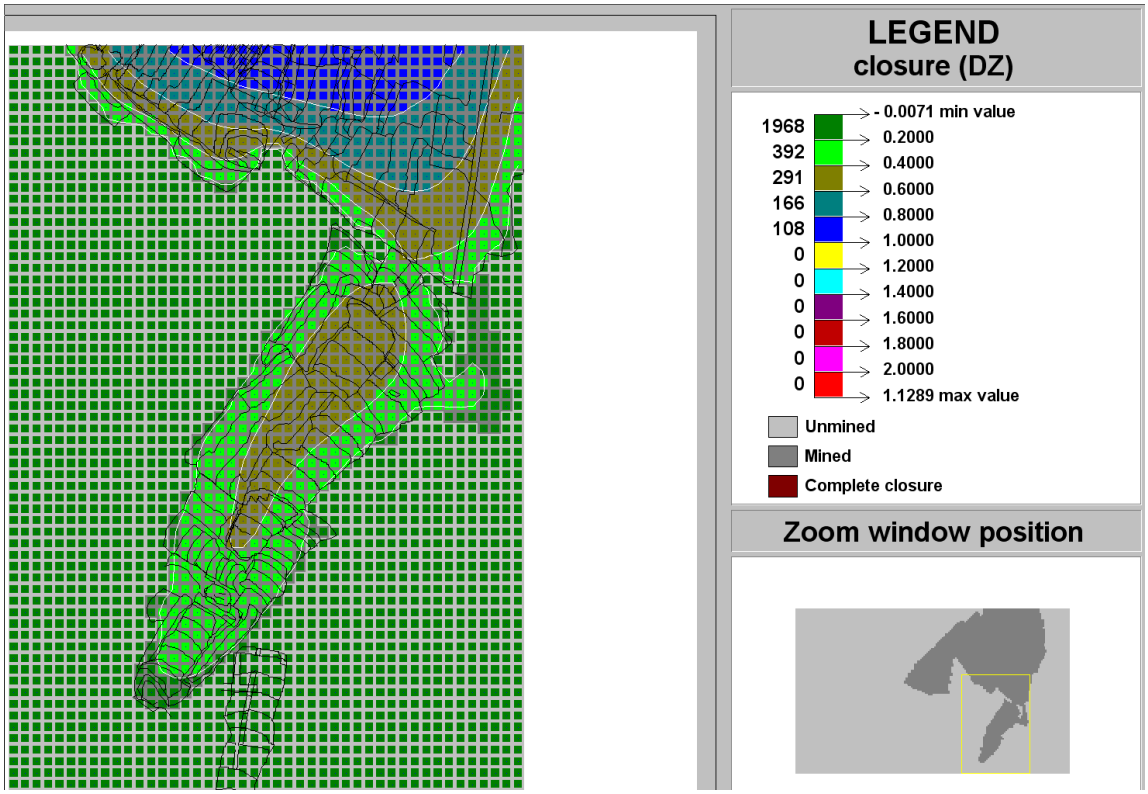

Figure C-170 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block D at STEP 3

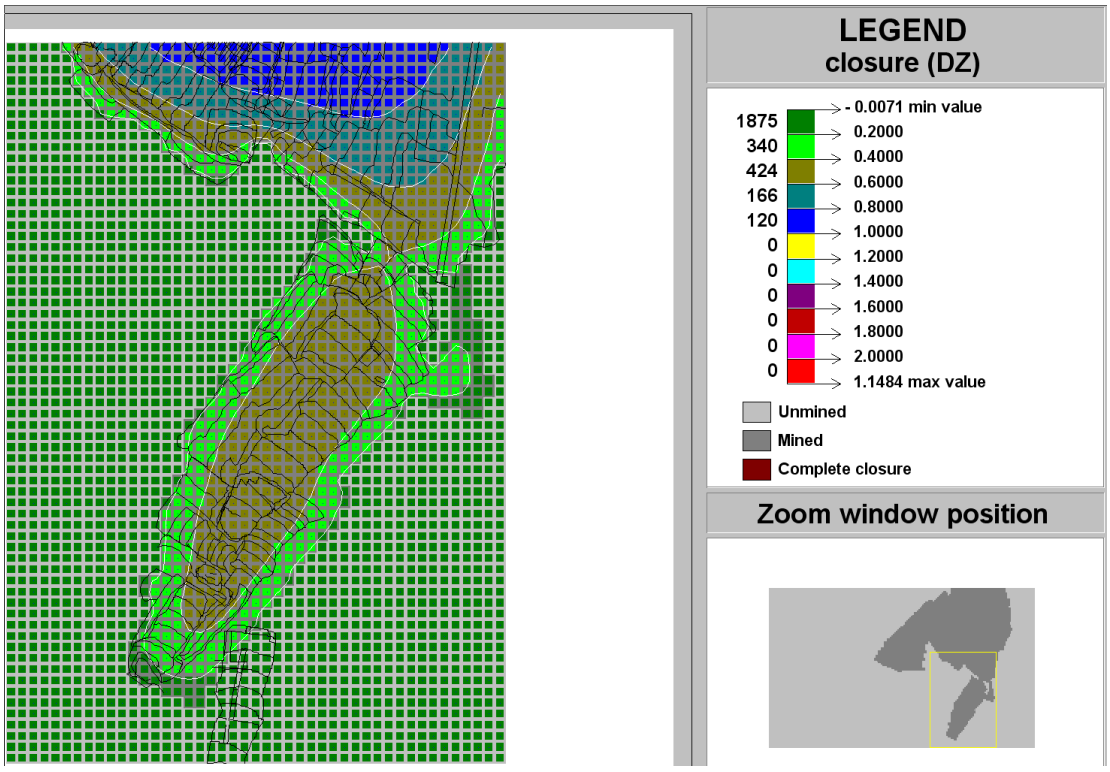

Figure C-171 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block D at STEP 4

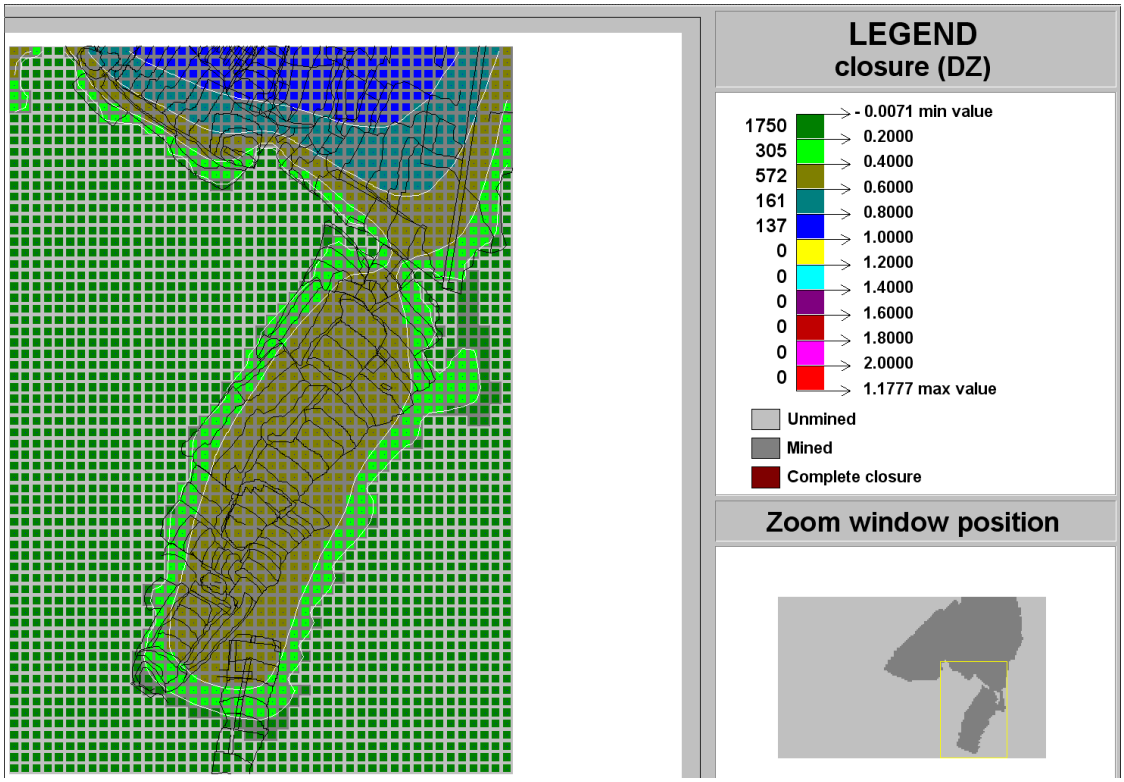

Figure C-172 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block D at STEP 5

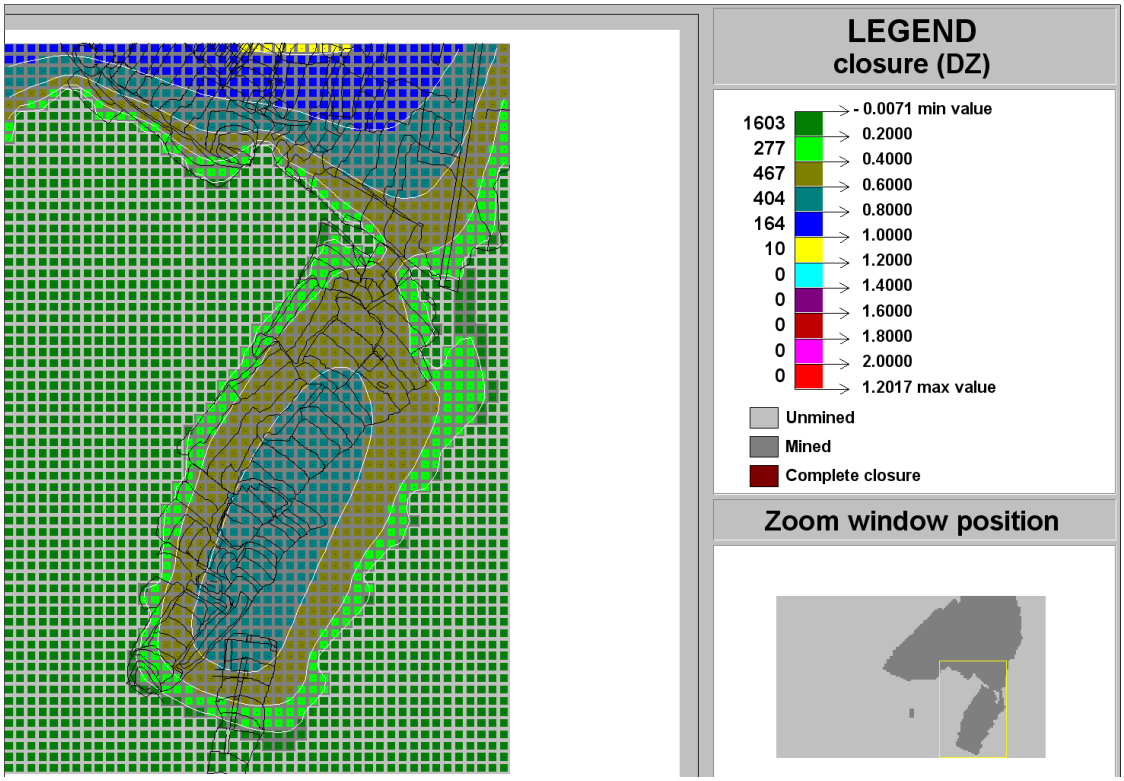

Figure C-173 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block D at STEP 8

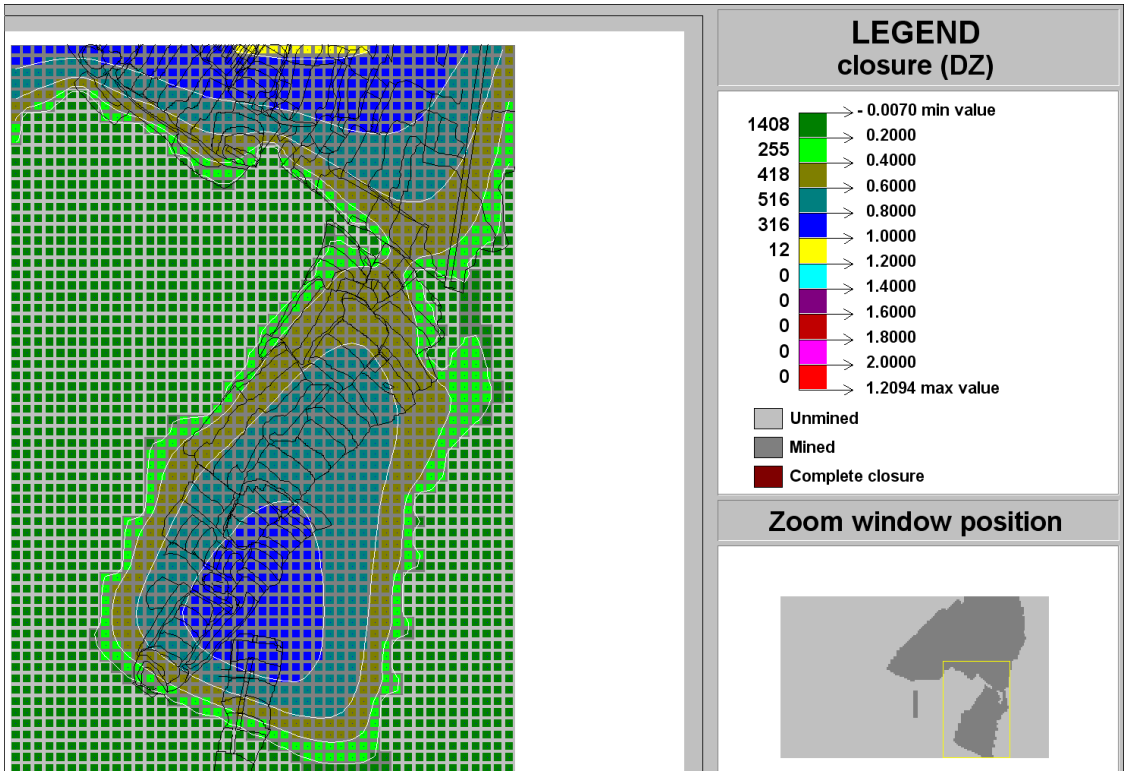

Figure C-174 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block D at STEP 9

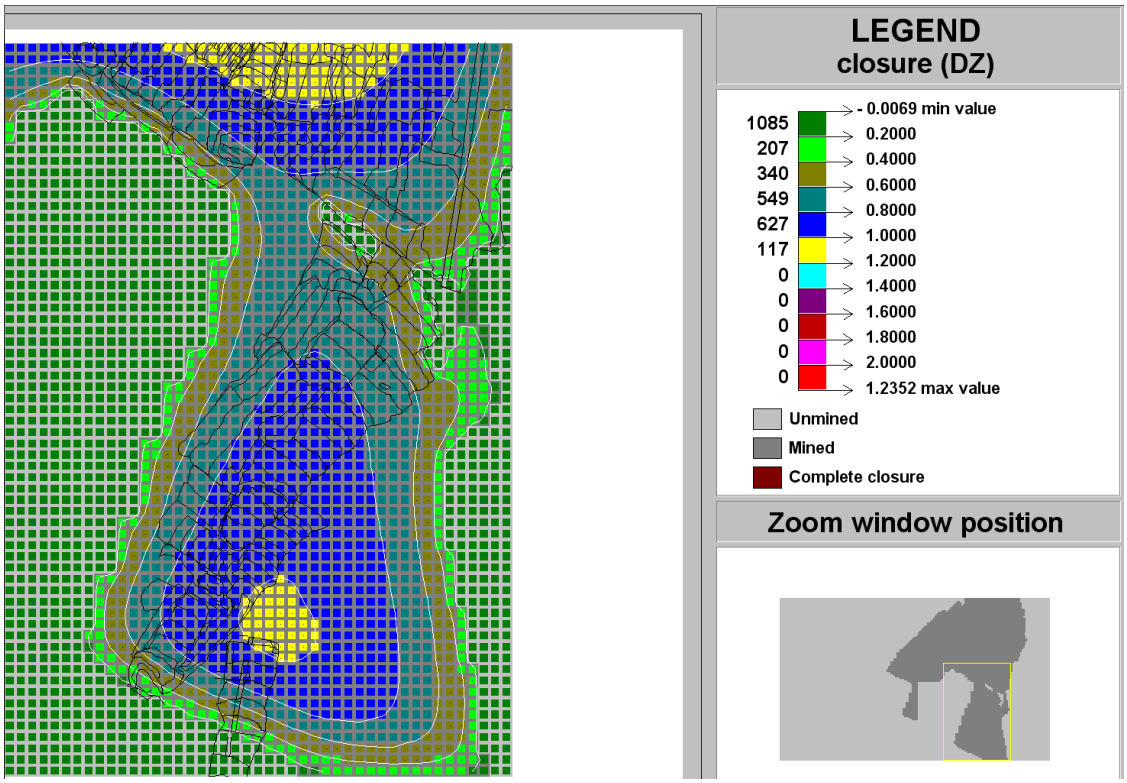

Figure C-175 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block D at STEP 10

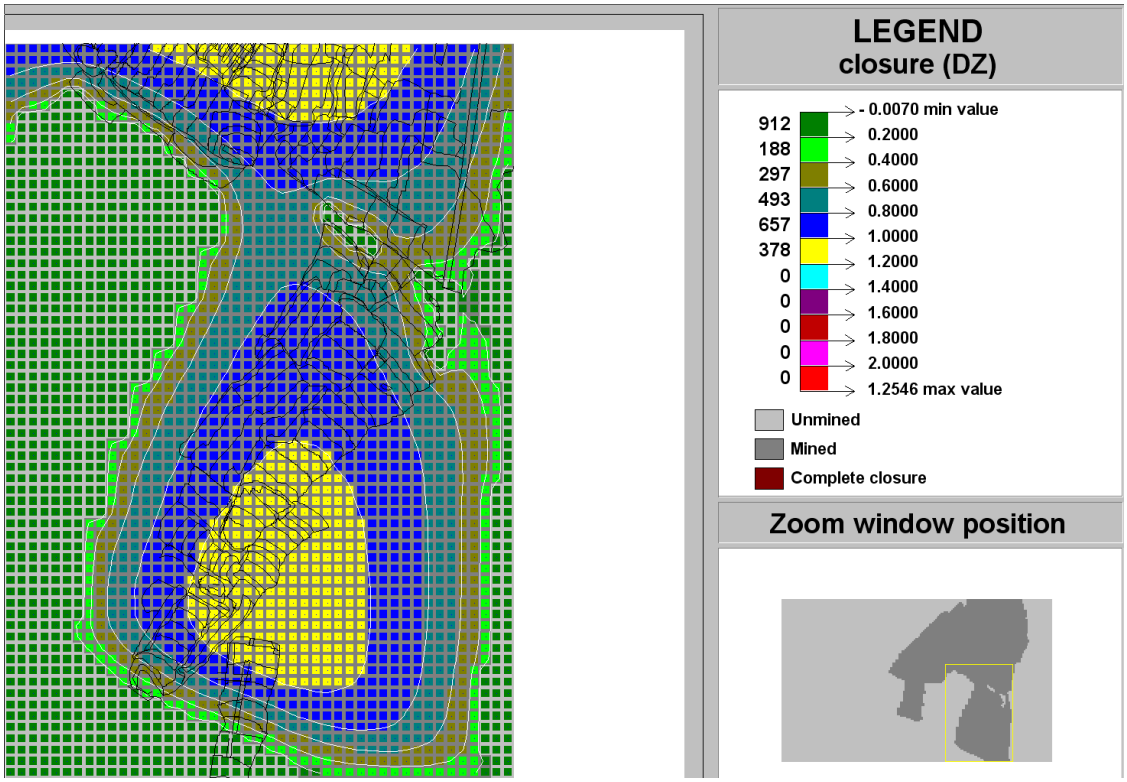

Figure C-176 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block D at STEP 11

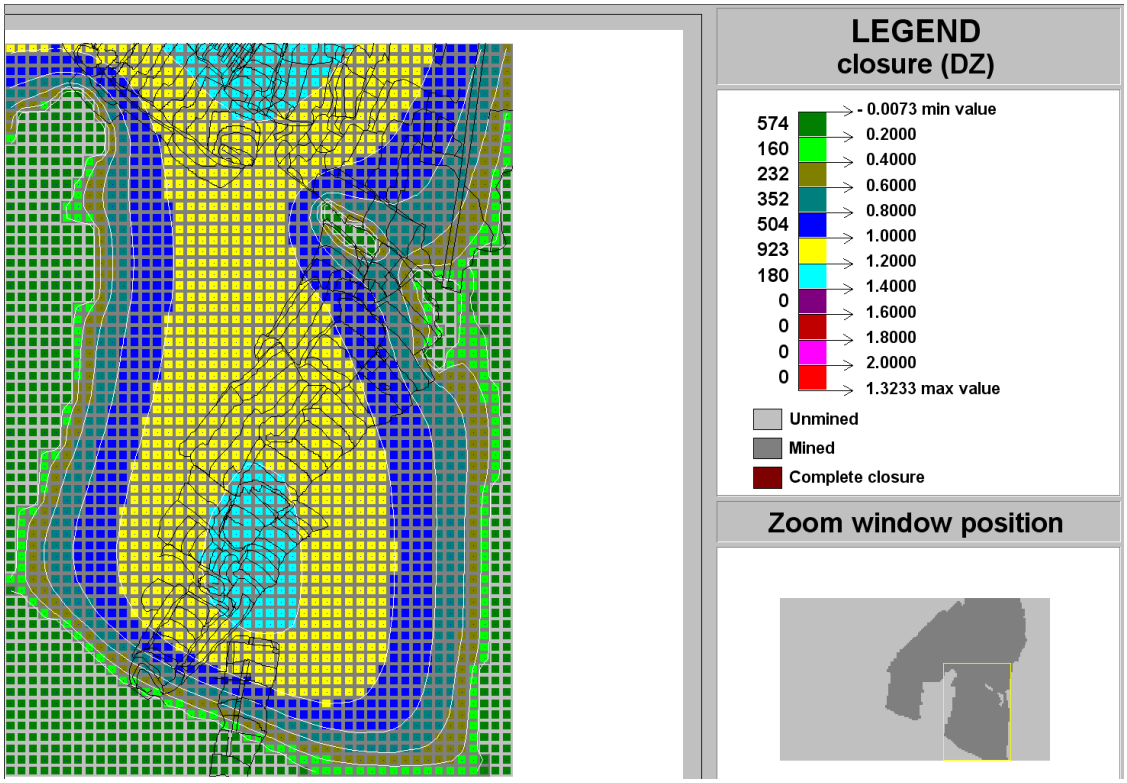

Figure C-177 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block D at STEP 12

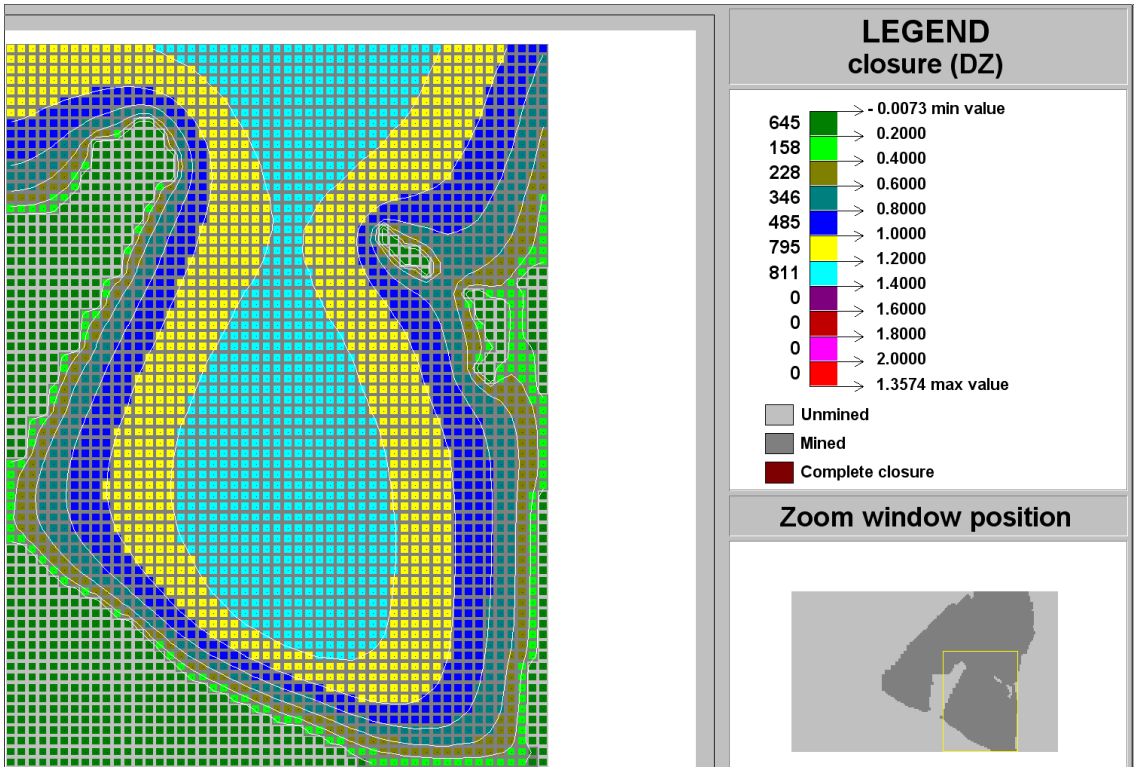

Figure C-178 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block D at STEP 13

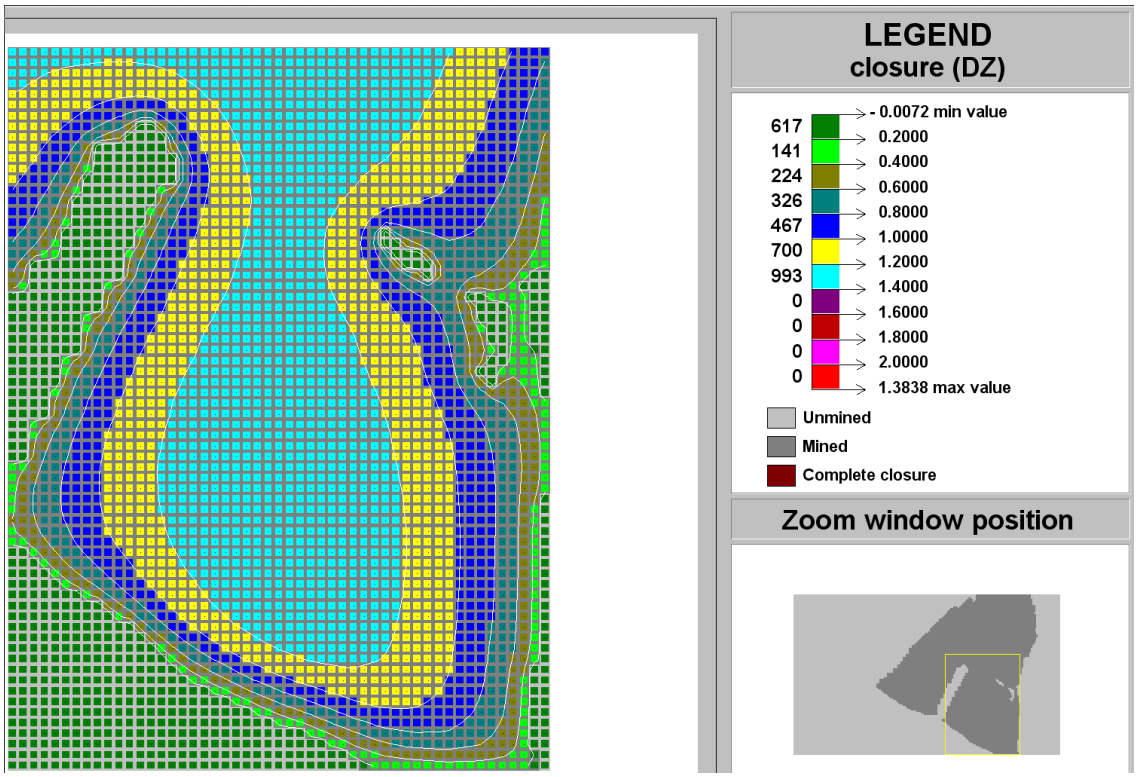

Figure C-179 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block D at STEP 14

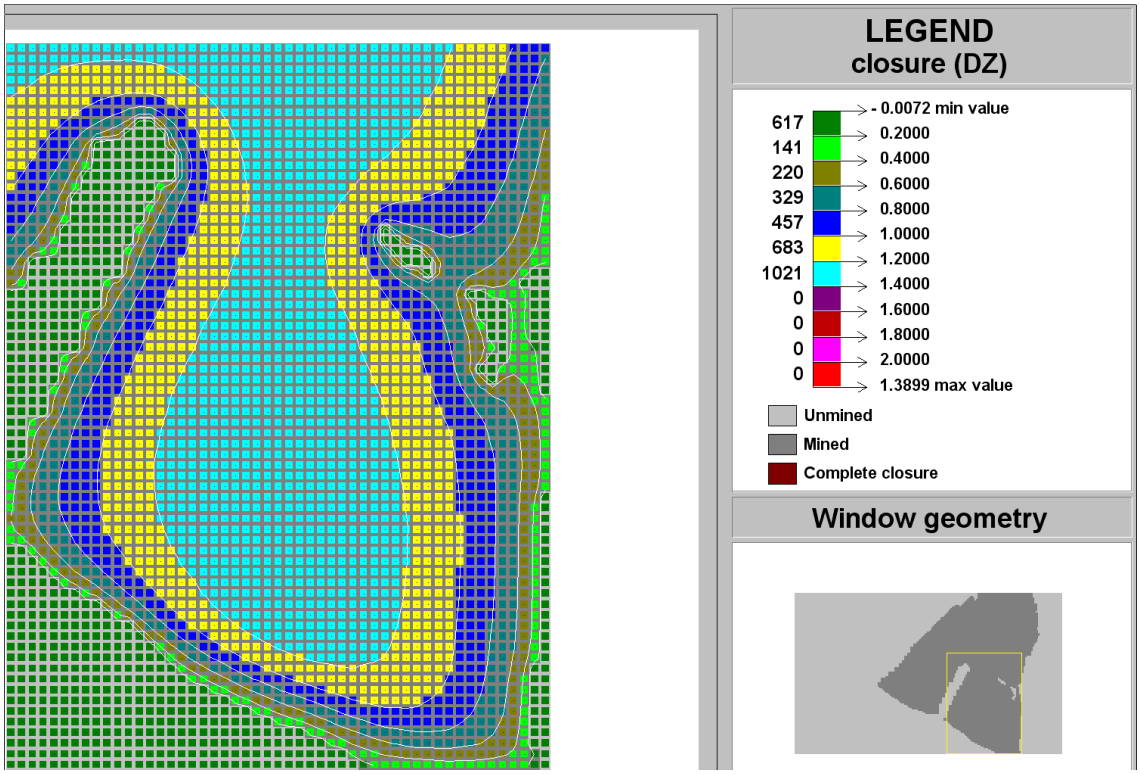

Figure C-180 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block D at STEP 15

C.5.5. Block E - Closure (DZ)

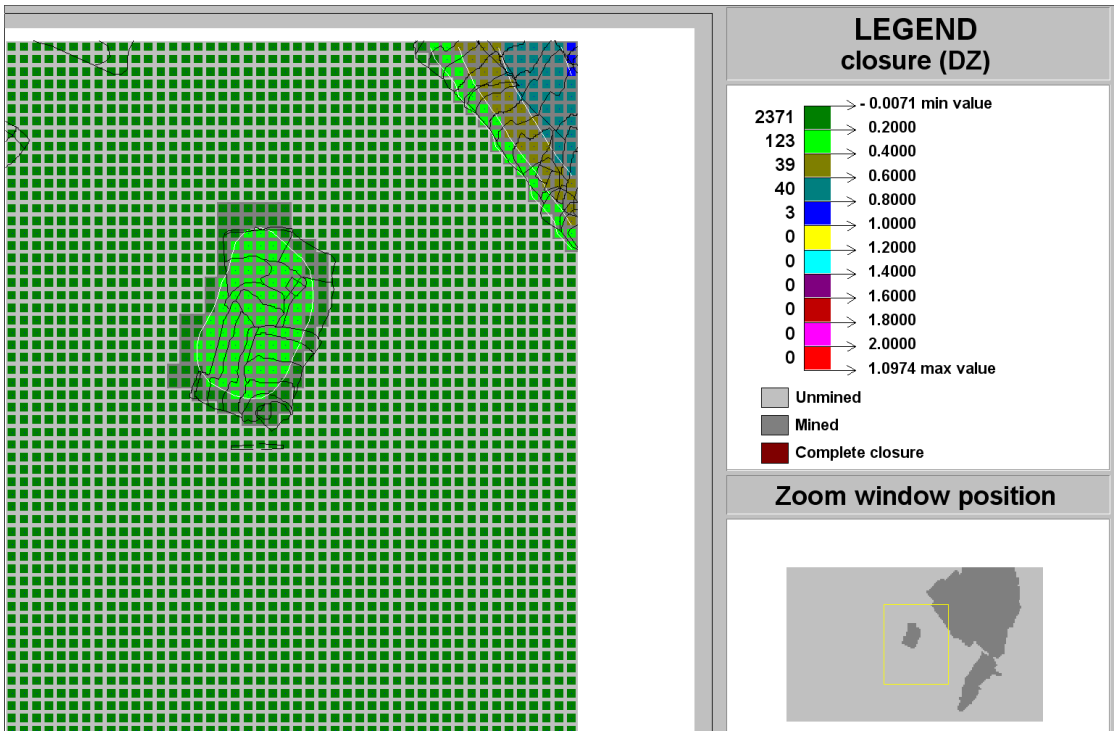

Figure C-181 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block E at STEP 1

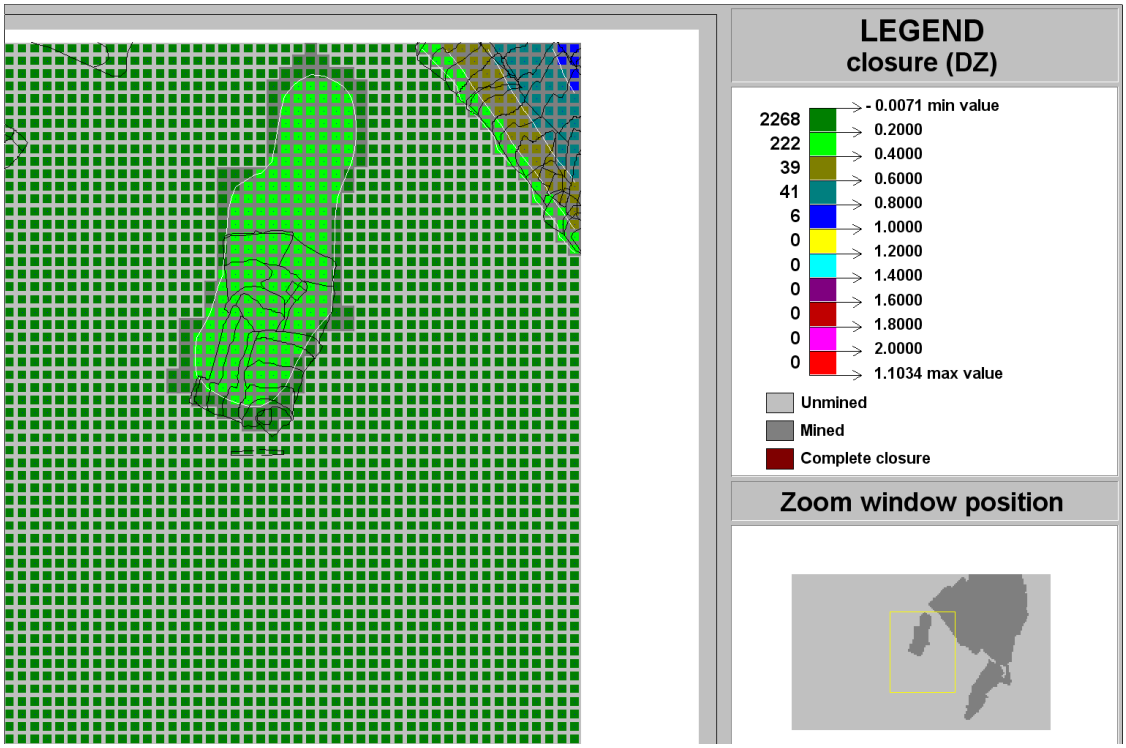

Figure C-182 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block E at STEP 2

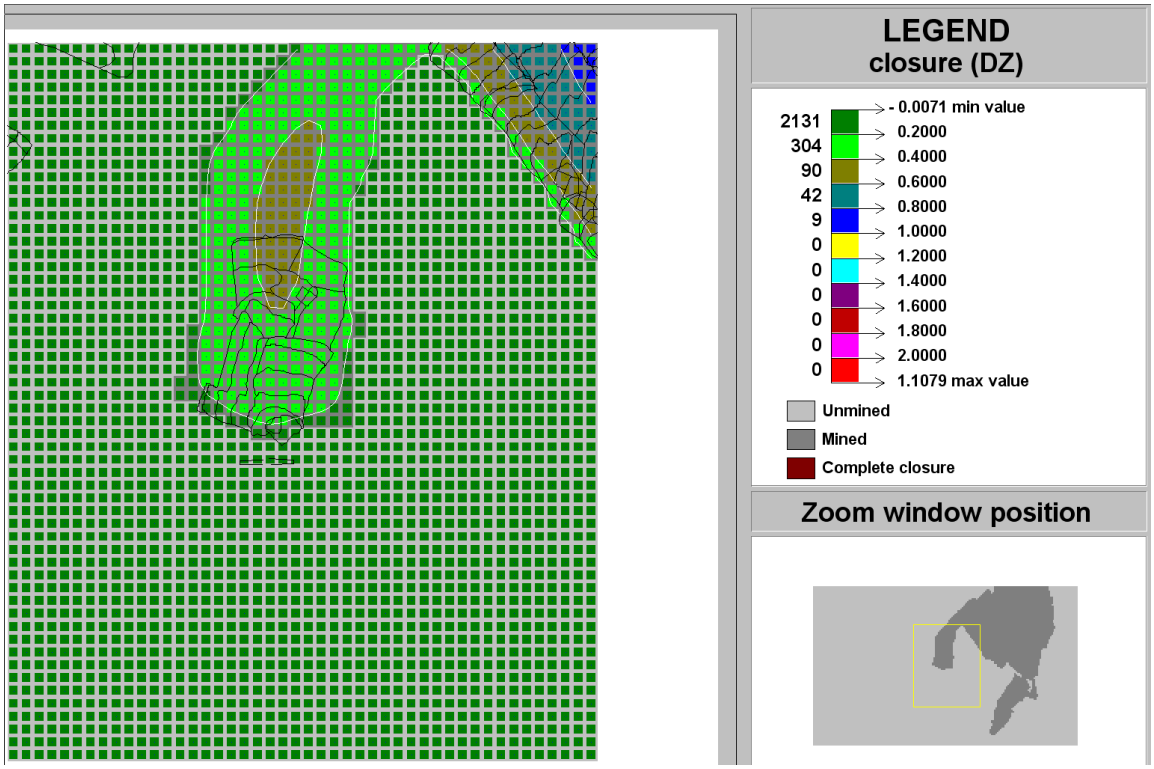

Figure C-183 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block E at STEP 3

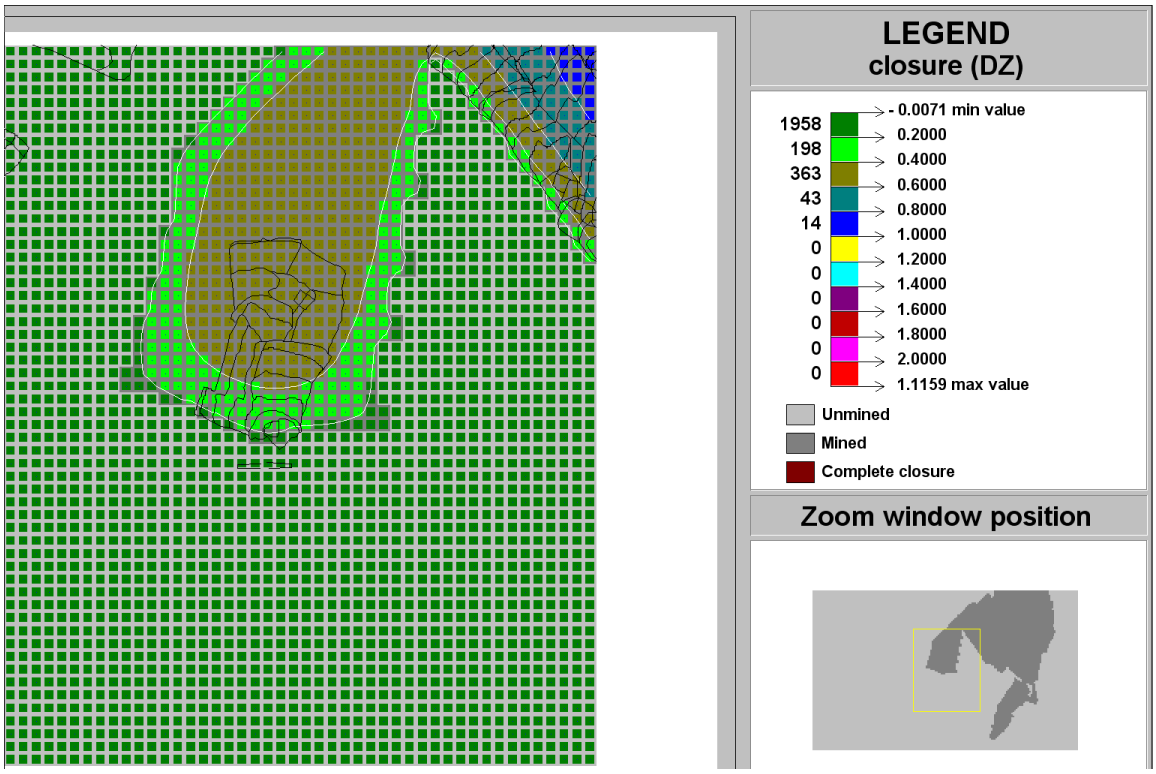

Figure C-184 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block E at STEP 4

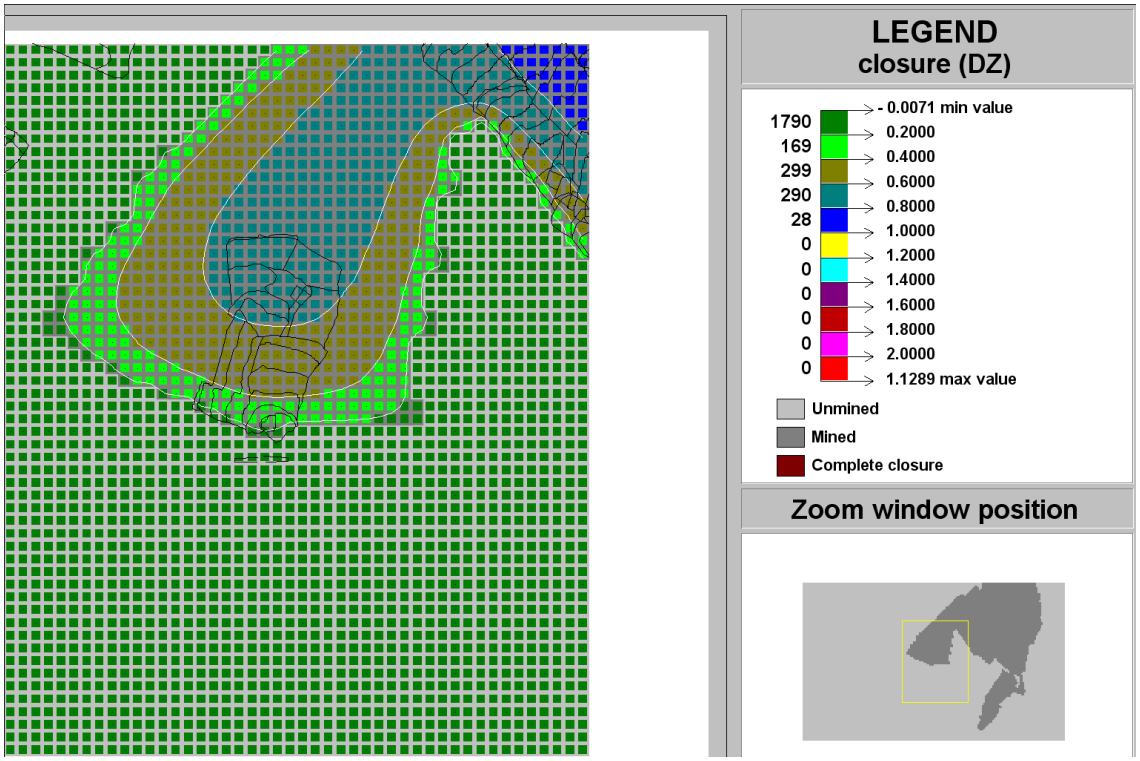

Figure C-185 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block E at STEP 5

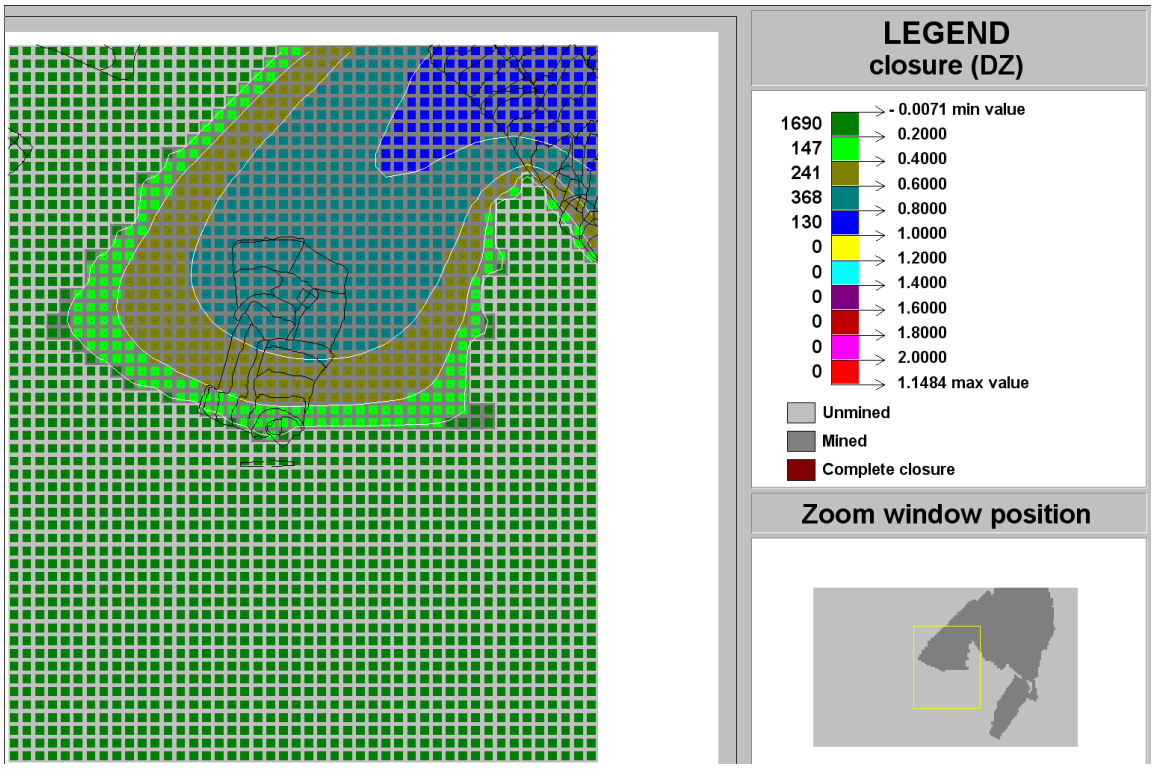

Figure C-186 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block E at STEP 6

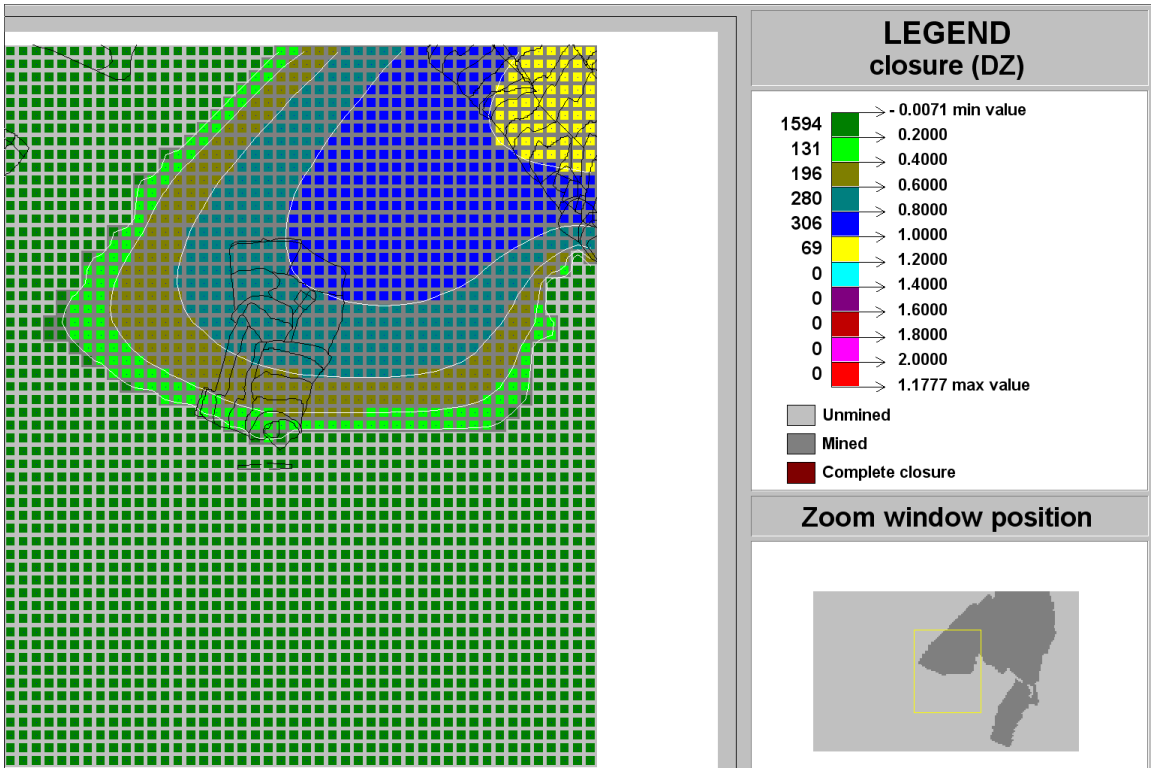

Figure C-187 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block E at STEP 7

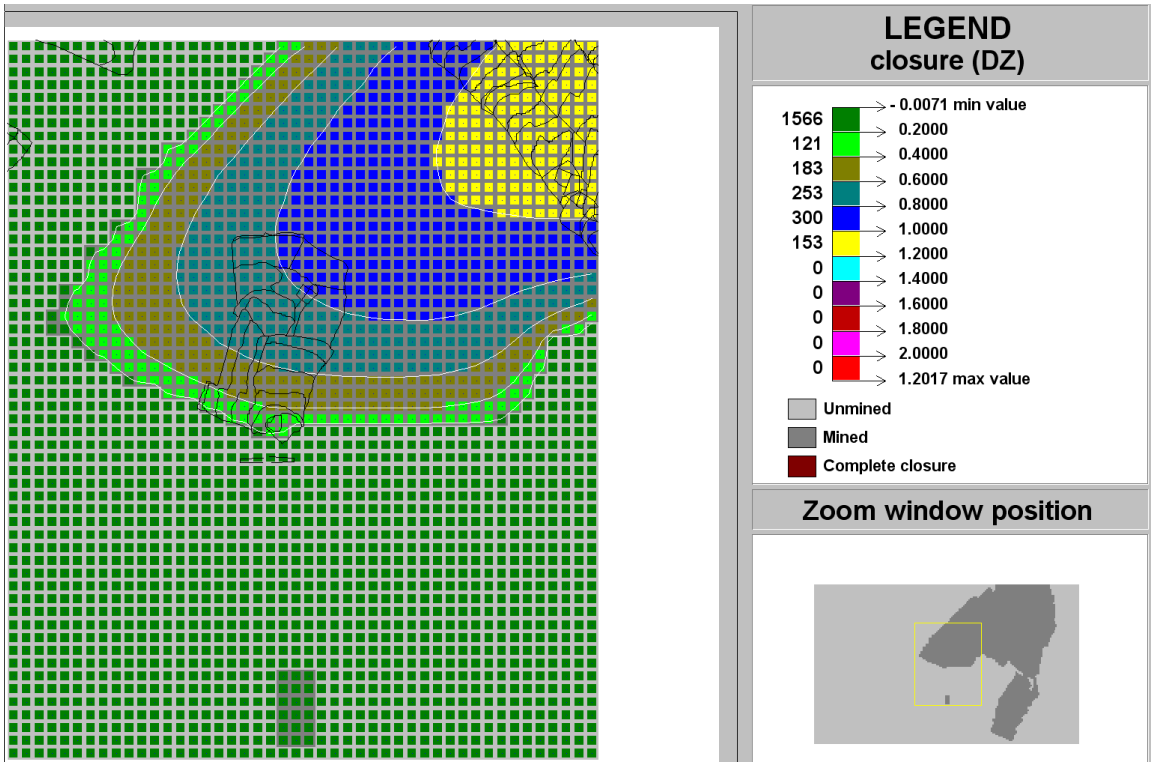

Figure C-188 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block E at STEP 8

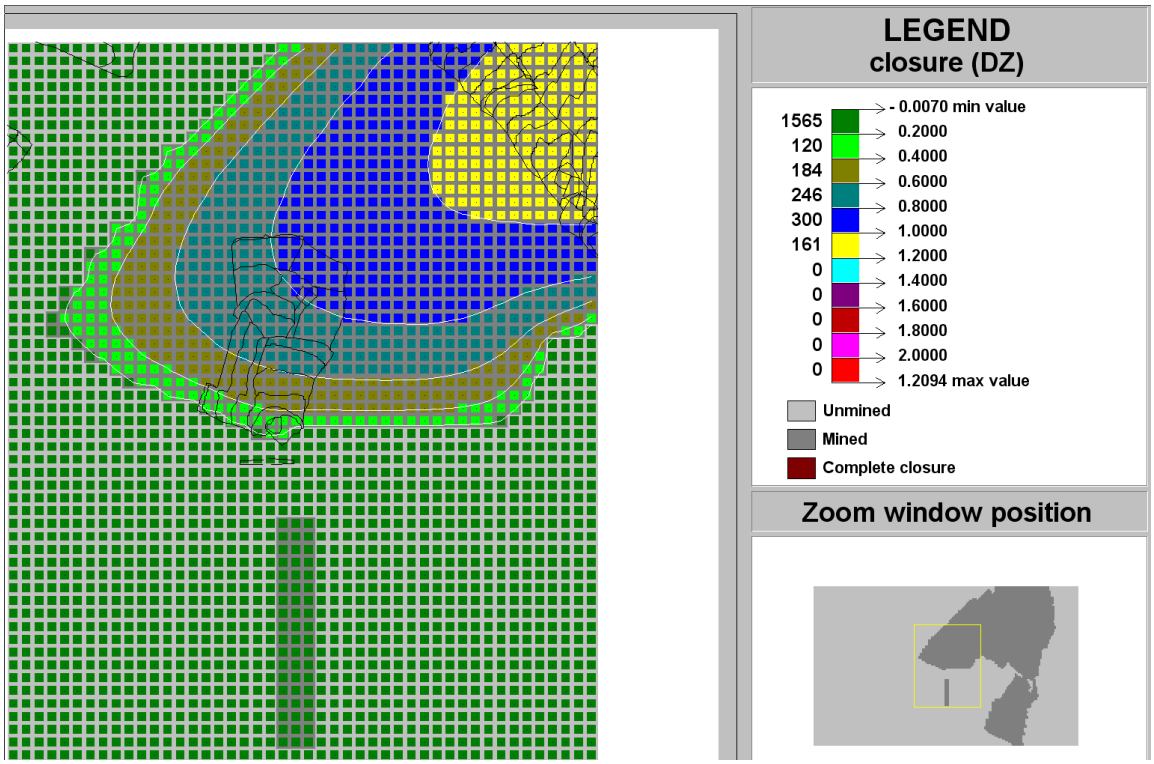

Figure C-189 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block E at STEP 9

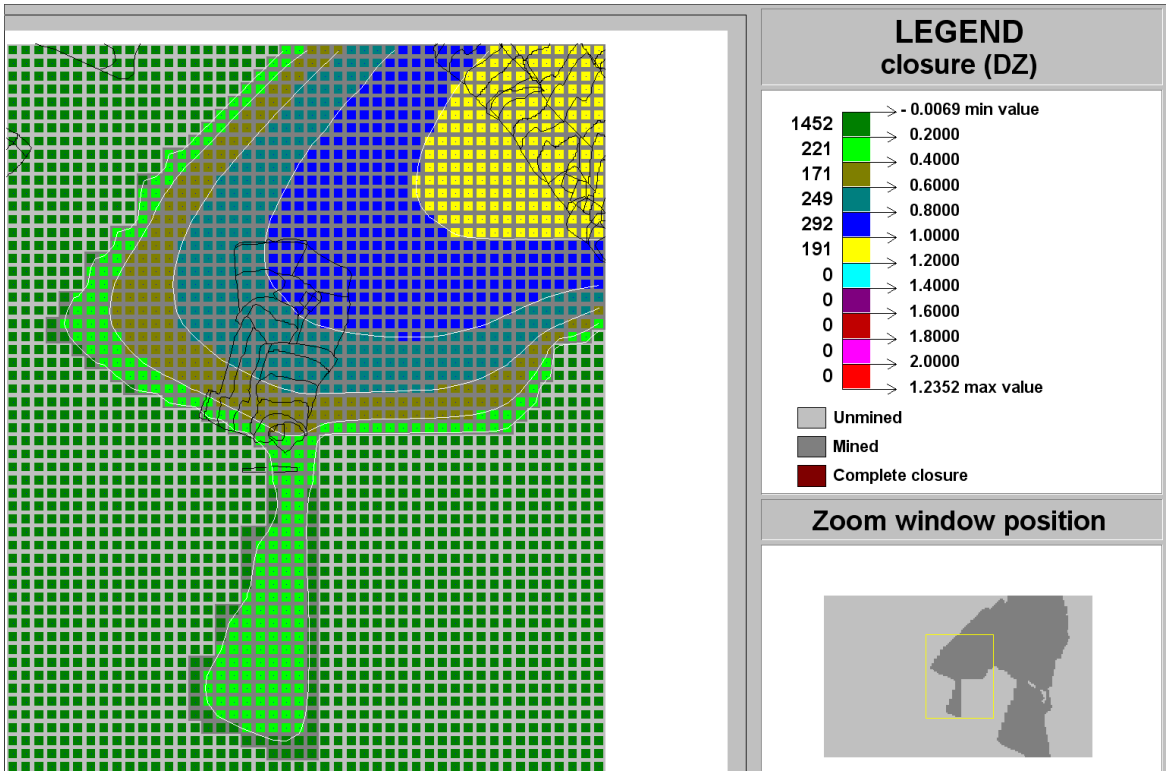

Figure C-190 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block E at STEP 10

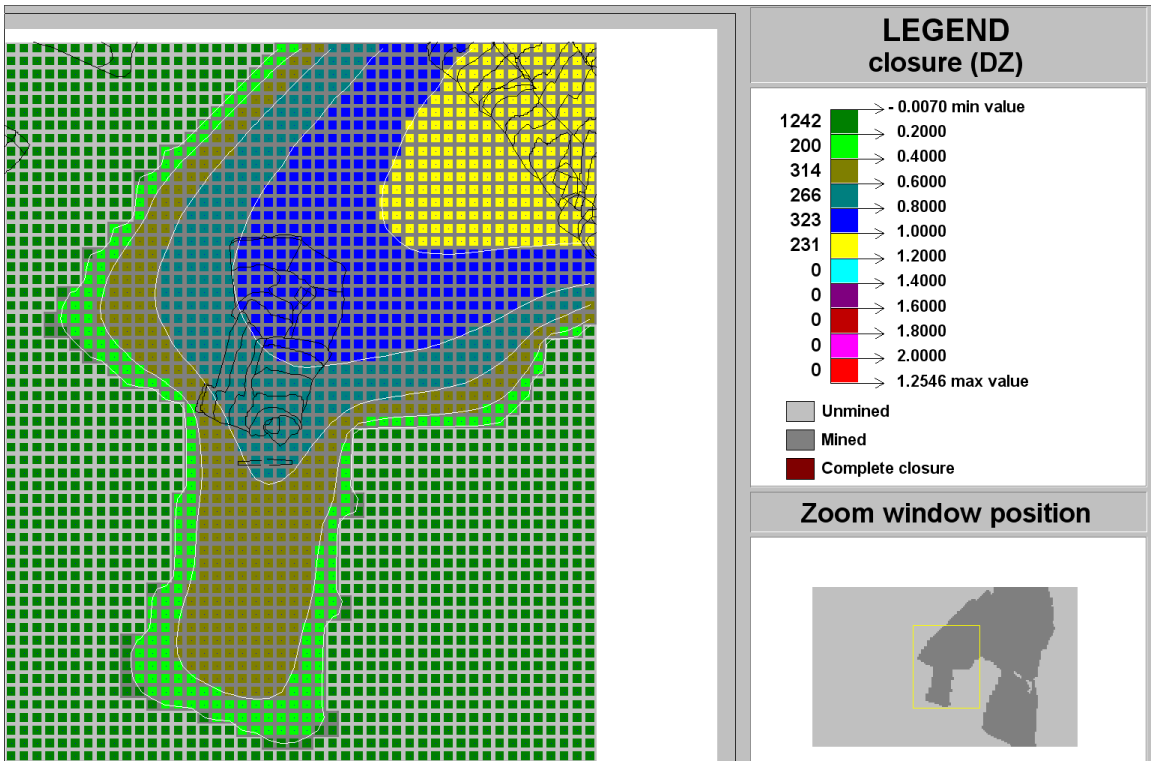

Figure C-191 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block E at STEP 11

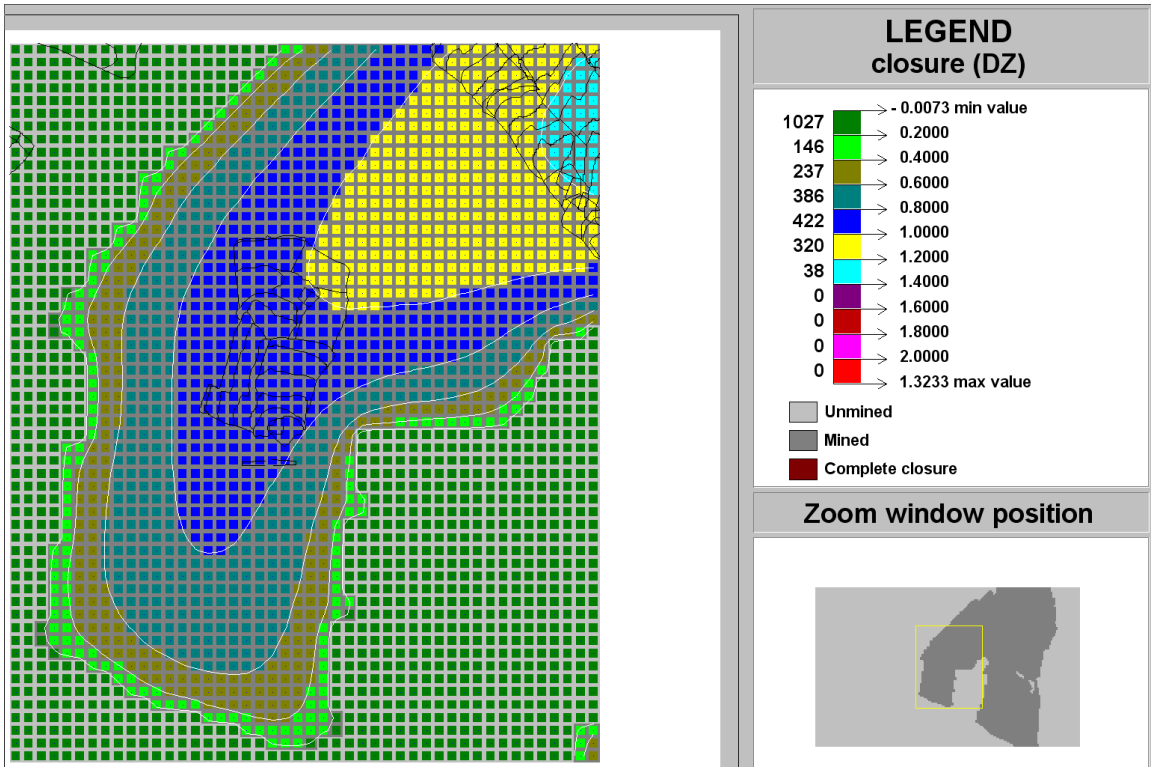

Figure C-192 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block E at STEP 12

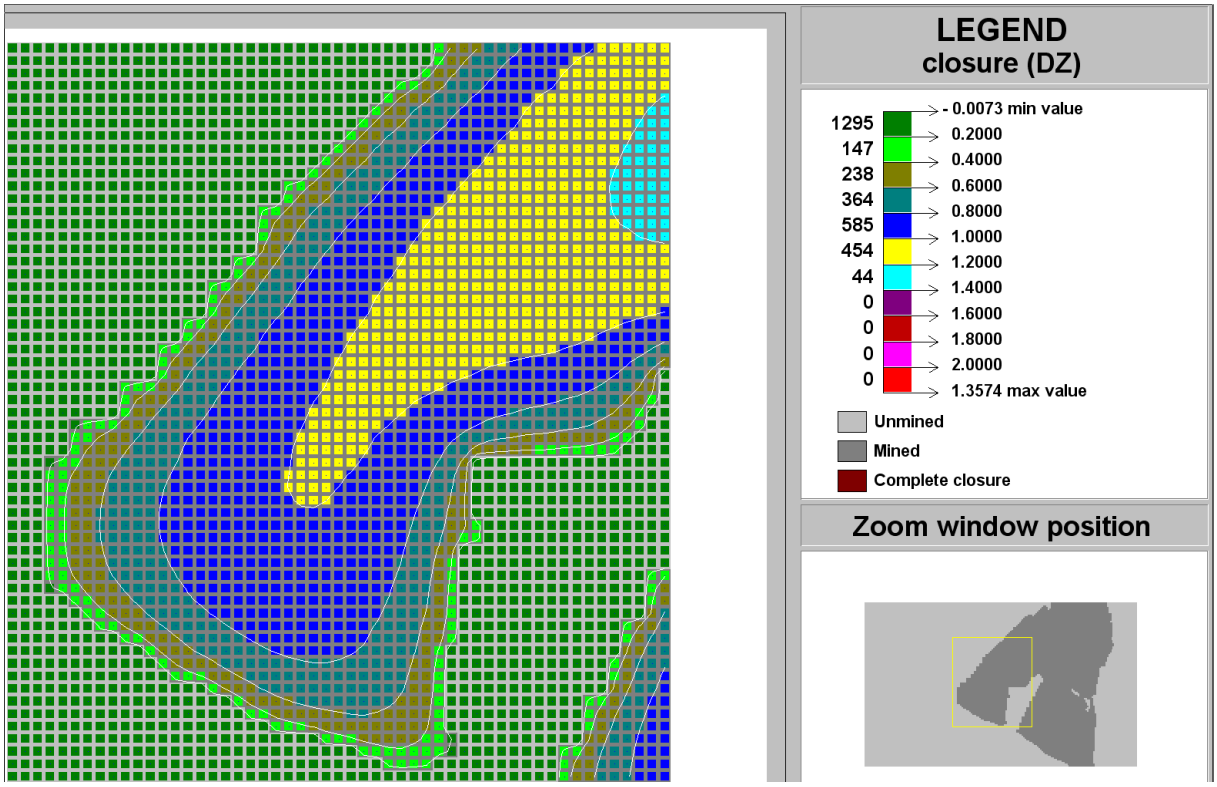

Figure C-193 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block E at STEP 13

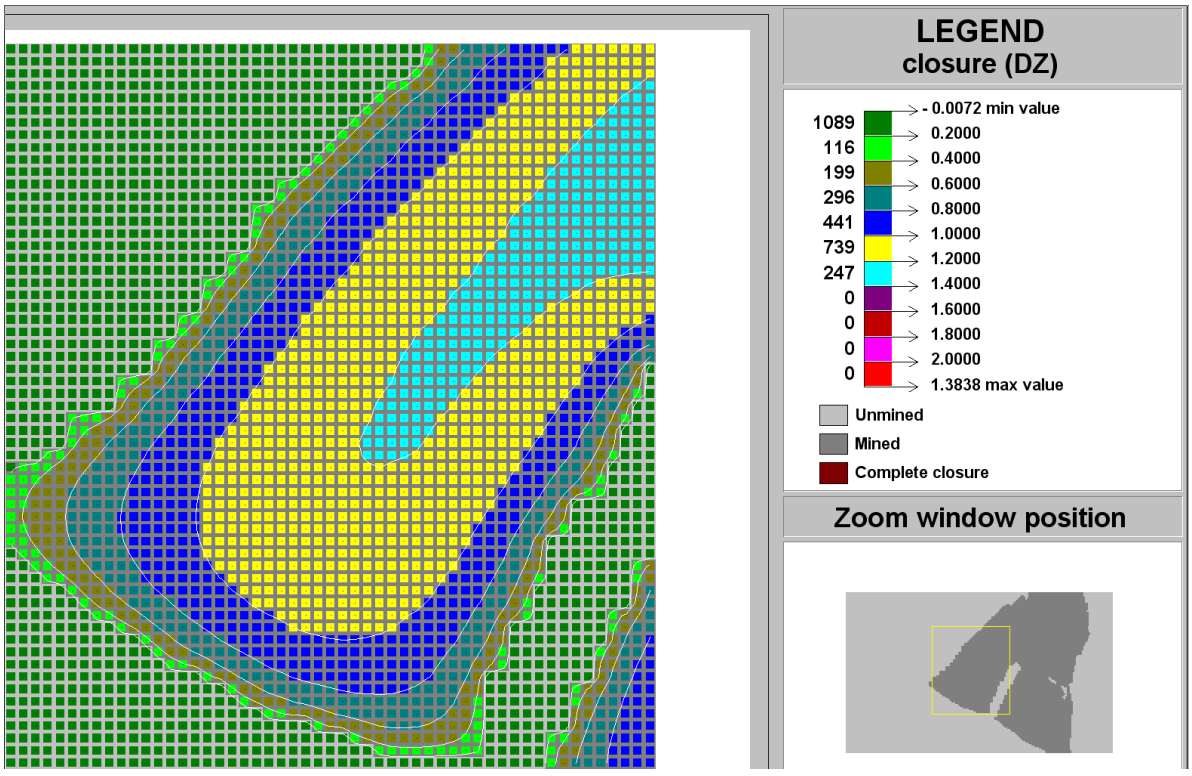

Figure C-194 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block E at STEP 14

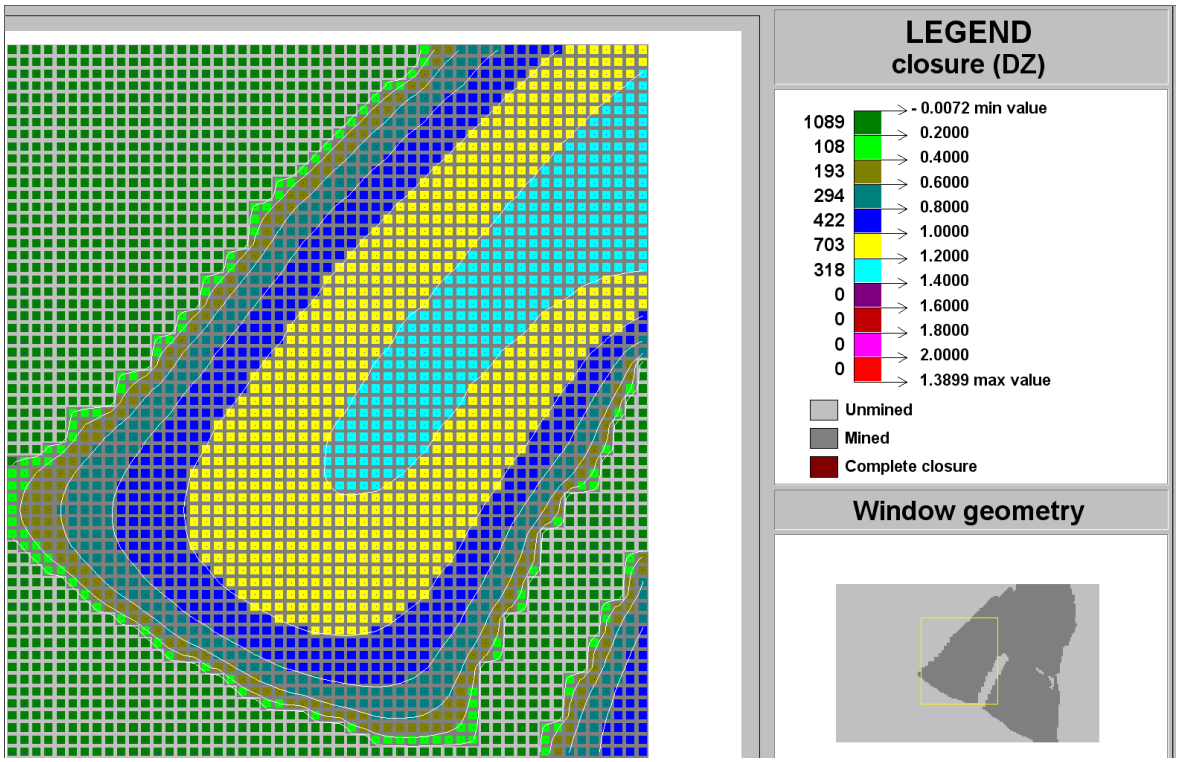

Figure C-195 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block E at STEP 15

C.5.6. Block F - Closure (DZ)

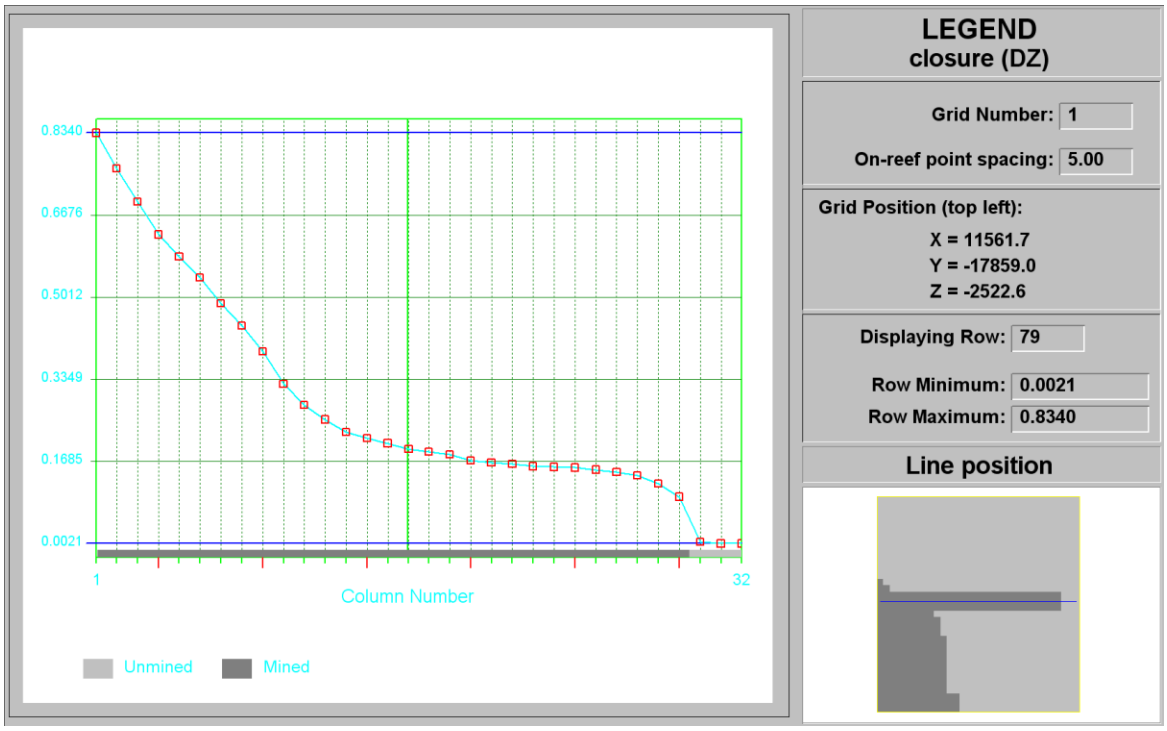

Figure C-196 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block F at STEP 8

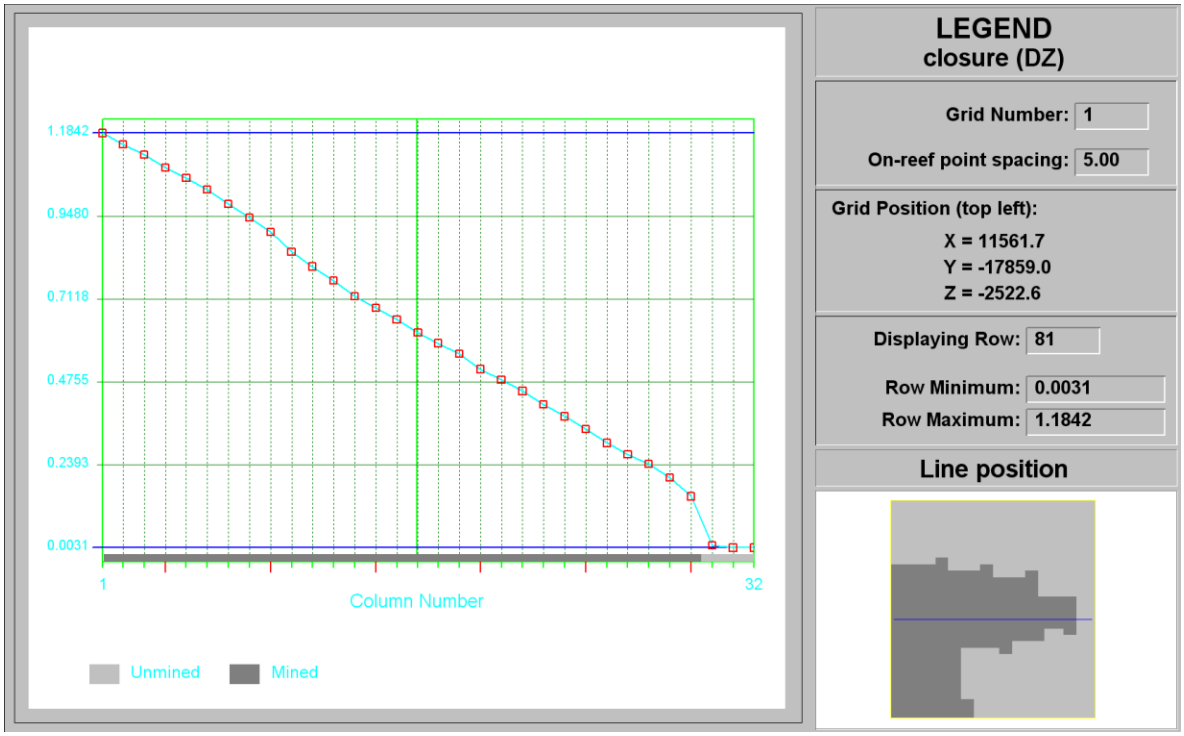

Figure C-197 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block F at STEP 9

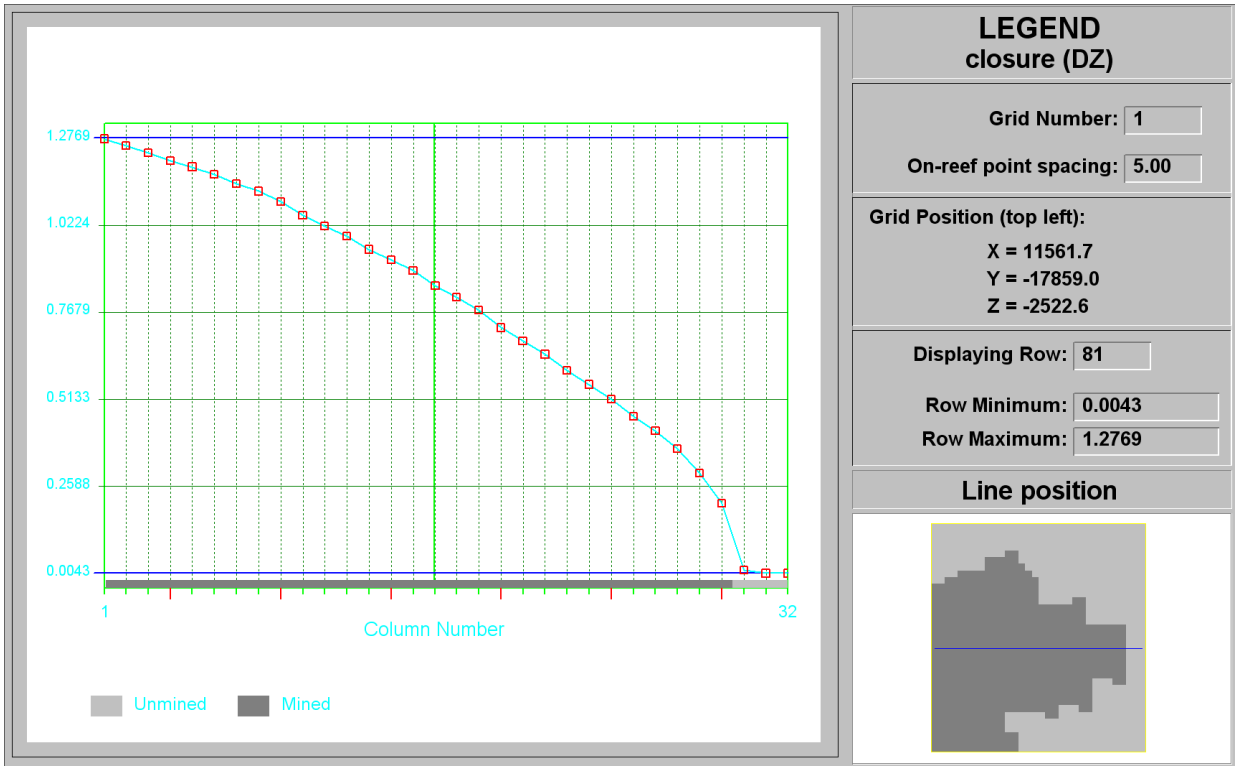

Figure C-198 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block F at STEP 10

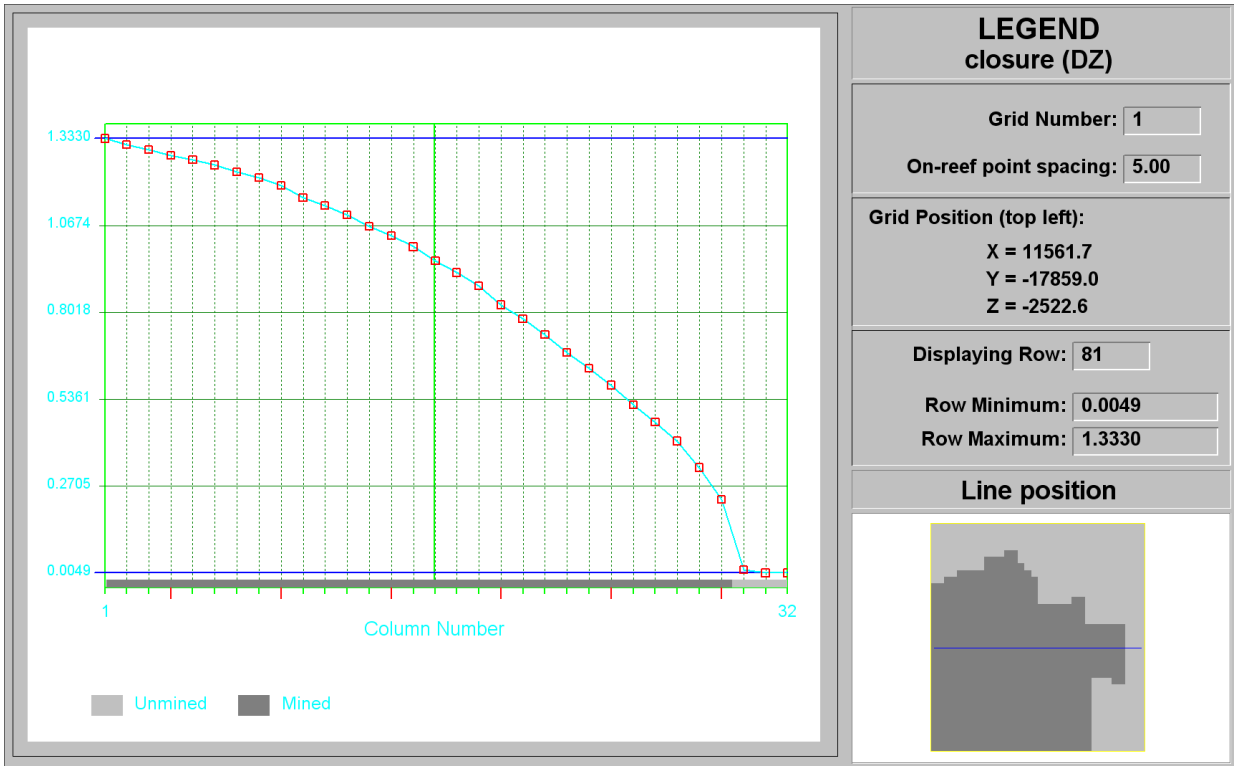

Figure C-199 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block F at STEP 11

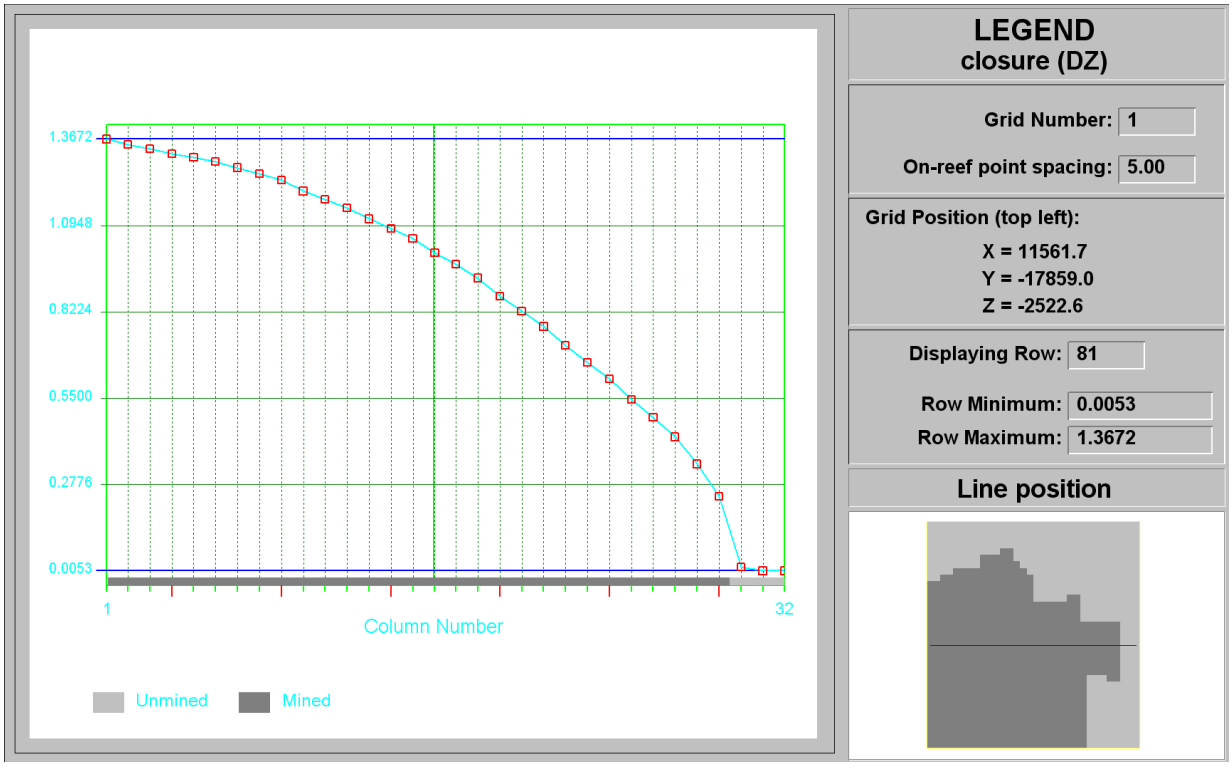

Figure C-200 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block F at STEP 12

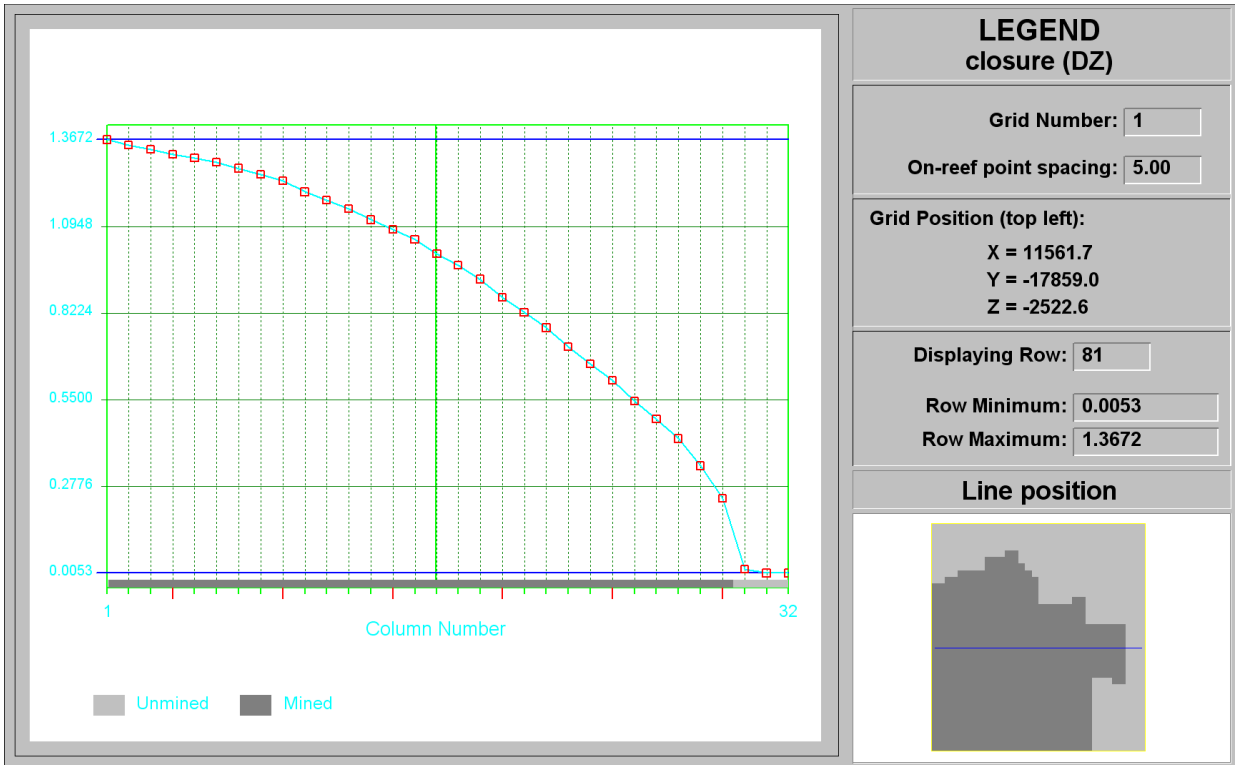

Figure C-201 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block F at STEP 13

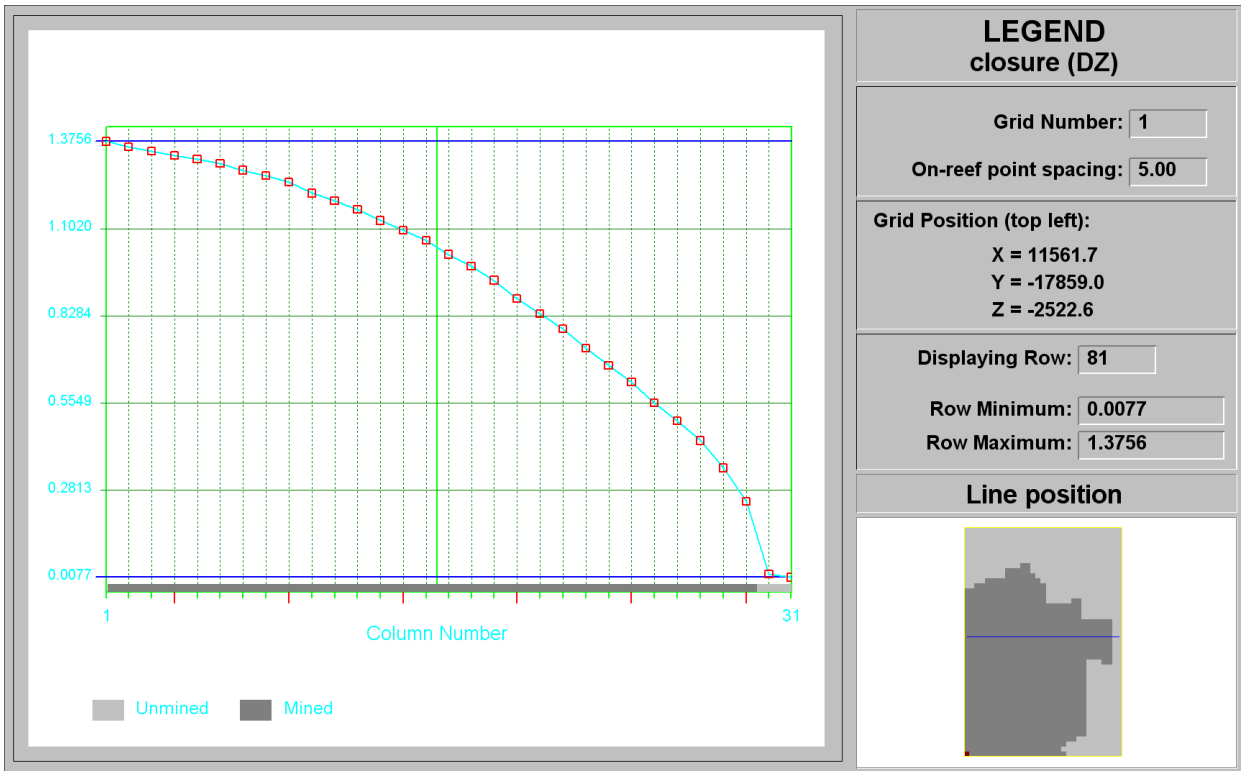

Figure C-201 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block F at STEP 14

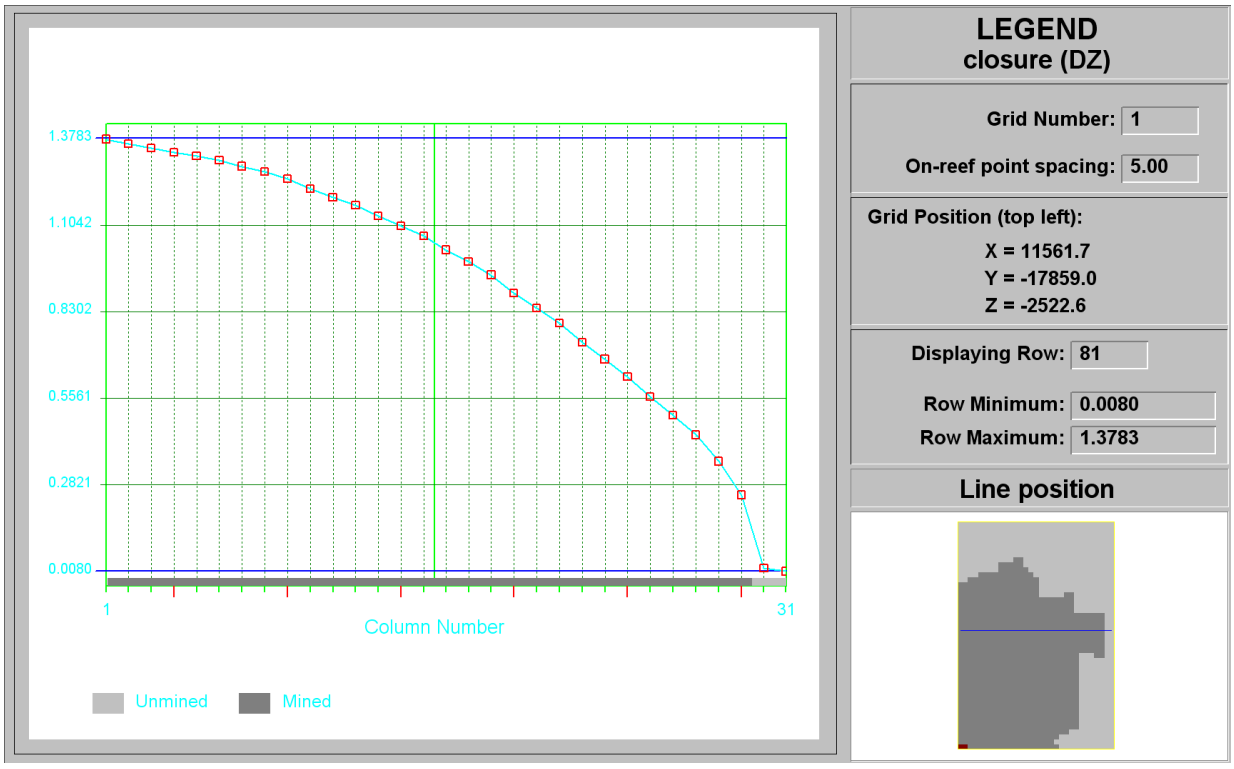

Figure C-202 Contour plot of closure (DZ) of Ya Rona shaft barrel area in Block F at STEP 15