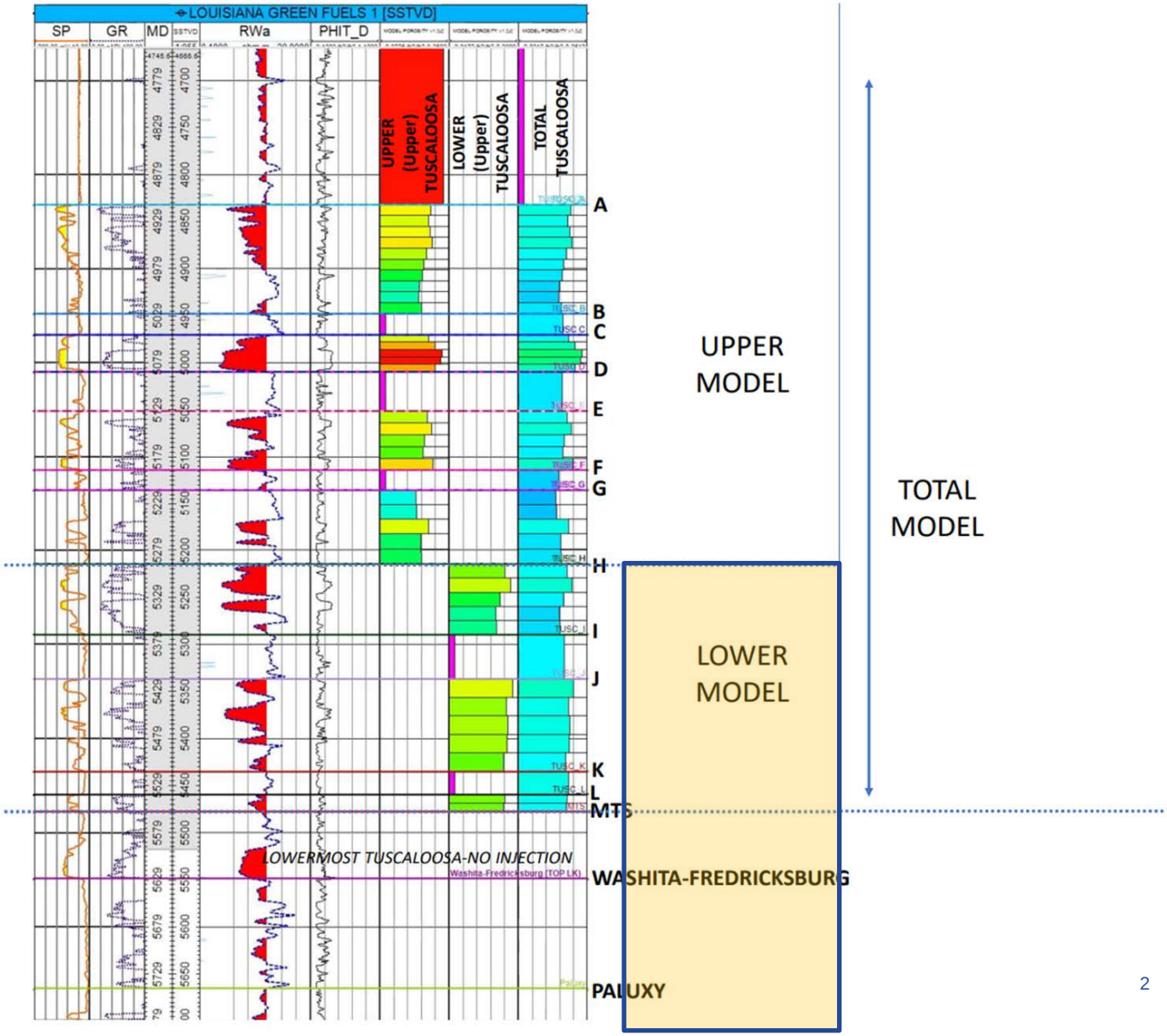
APPENDIX 8 - Upper Tuscaloosa (Lower Interval) / Paluxy Dynamic Model Spatial Porosity and Permeability Distribution

Upper Tuscaloosa and Paluxy Model Layers

Upper
29 Layers

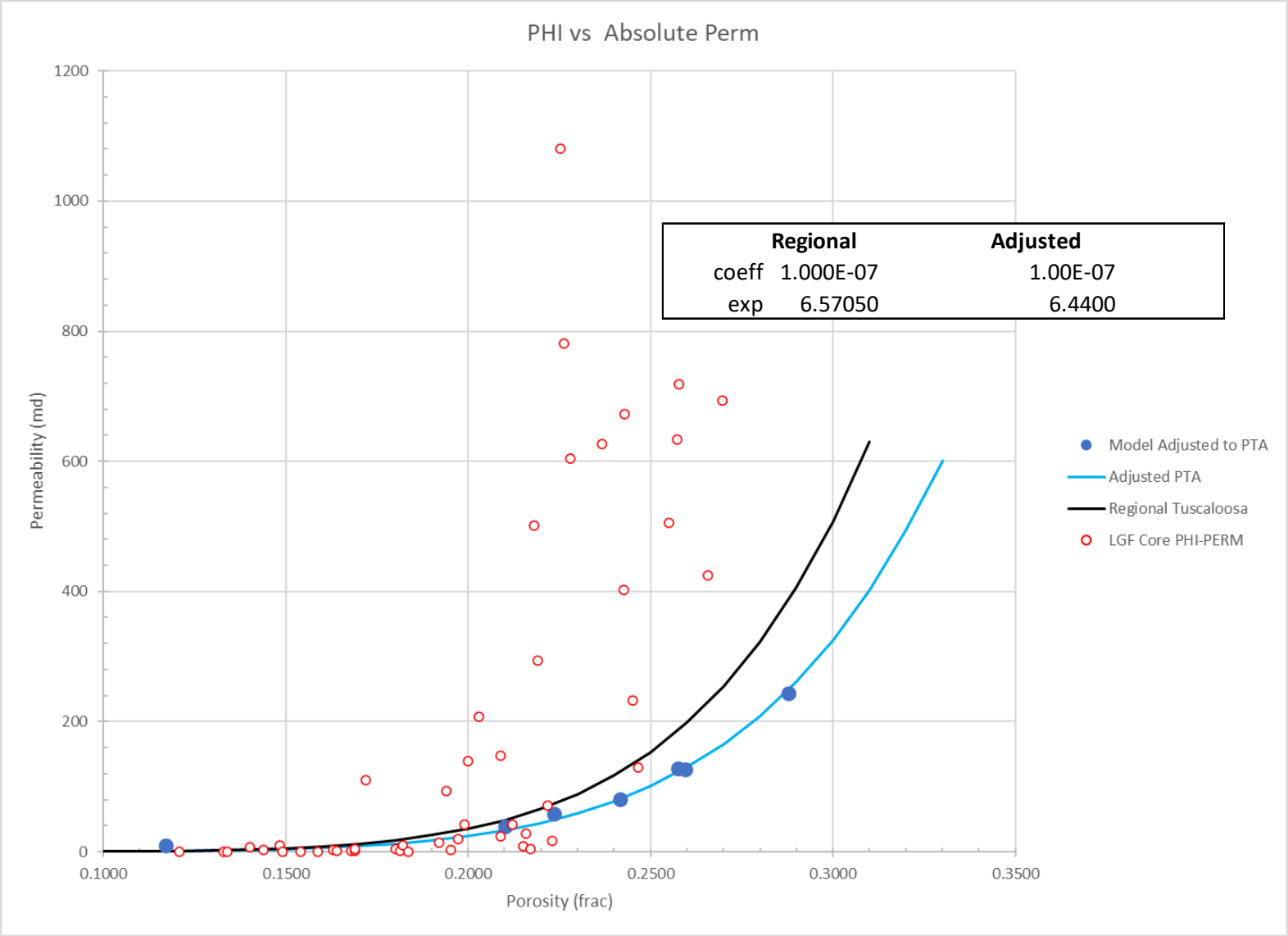
Lower
19 Layers
Including Paluxy



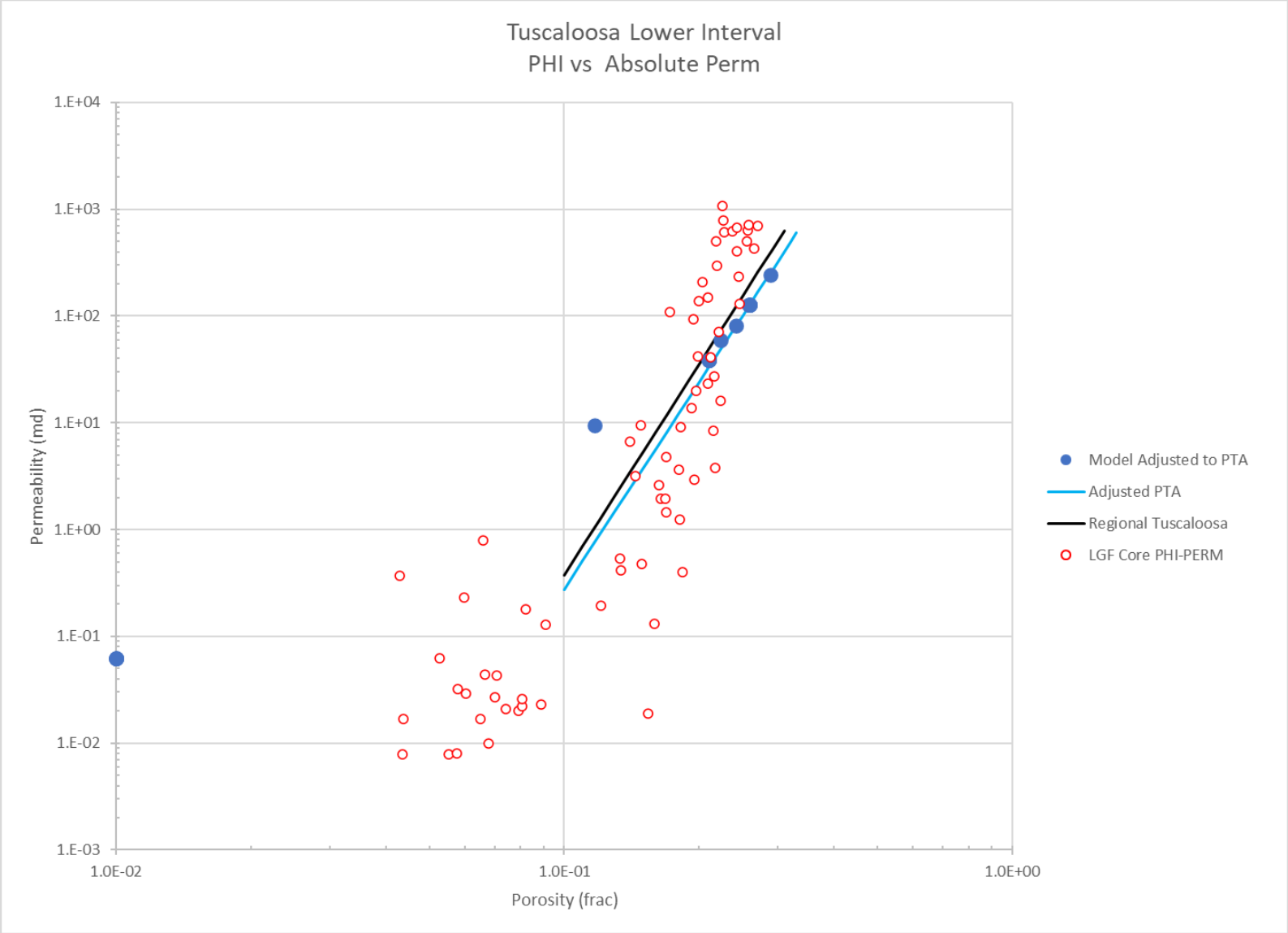
Upper Tuscaloosa Lower Interval / Paluxy Model
Properties within ~2500 ft radius of LGF well

Layer	PHI	Regional Perm (md)	Gross Thickness (ft)	KH (md-ft)	N/G	Hnet (ft)	KH (md-ft)	KH/u (md-ft/cp)	K Adjusted (md)	KH Adj Perm and NG	KH/u adj Perm and NG	Top (TVDSS)	MD (ft)
1	0.2457	136.570	15.0	2050	0.68				85.4	870.7		5209.3	5288.3
2	0.2715	263.419	15.0	3954	0.68	30.60	4,707	9,051	164.6	1679.2	5603	5224.3	5303.3
3	0.2102	61.449	15.0	922	0.68				38.4	391.7		5239.3	5318.3
4	0.0000	0.000	15.0	0	0.00				0.0	0.0		5254.3	5333.3
5	0.0000	0.000	15.0	0	0.00				0.0	0.0		5269.3	5348.3
6	0.0000	0.000	47.0	0	0				0.1	0.0		5284.3	5363.3
7	0.2878	389.178	19.8	7705	0.49				243.2	2343.0		5331.3	5410.3
8	0.2236	94.530	19.8	1872	0.49	28.90	6,623	12,736	59.1	569.2	7884	5351.1	5430.1
9	0.2596	203.801	19.8	4035	0.49				127.4	1226.9		5370.9	5449.9
10	0.0000	217.648	19.8	0	0.49				136.0	0.0		5390.7	5469.7
11	0.0000	56.918	19.8	0	0.49				35.6	0.0		5410.5	5489.5
12	0.0000	0.000	24.3	0					0.1	0.0		5430.3	5509.3
13	0.2417	130.308	8.9	1159	0.49	8.66	2999	5,767	81.4	352.5	1740	5454.6	5533.6
14	0.2575	204.109	8.9	1816	0.49				127.6	552.1		5463.5	5542.5
15	0.0100	0.100	186.6	19	1.000				0.1	11.7		5472.4	5551.4
16	0.0100	0.100	24.3	2	1.000				0.1	1.5		5659.0	5738.0
17	0.0100	0.100	33.4	3	1.000				0.1	2.1		5683.3	5762.3
18	0.0000	58.585	30.3	0	1.000				36.6	0.0		5716.8	5795.8
19	0.1171	15.058	17.0	256	1.000	17	256	492	9.4	159.9	307	5747.1	5826.1
												5764.1	5843.1
			540	21,743		85	14,584	28,047		7,290	15,534		

Upper Tuscaloosa Lower Interval / Paluxy Porosity-Permeability Transform



Upper Tuscaloosa Lower Interval / Paluxy Porosity-Permeability Transform – Log Scale



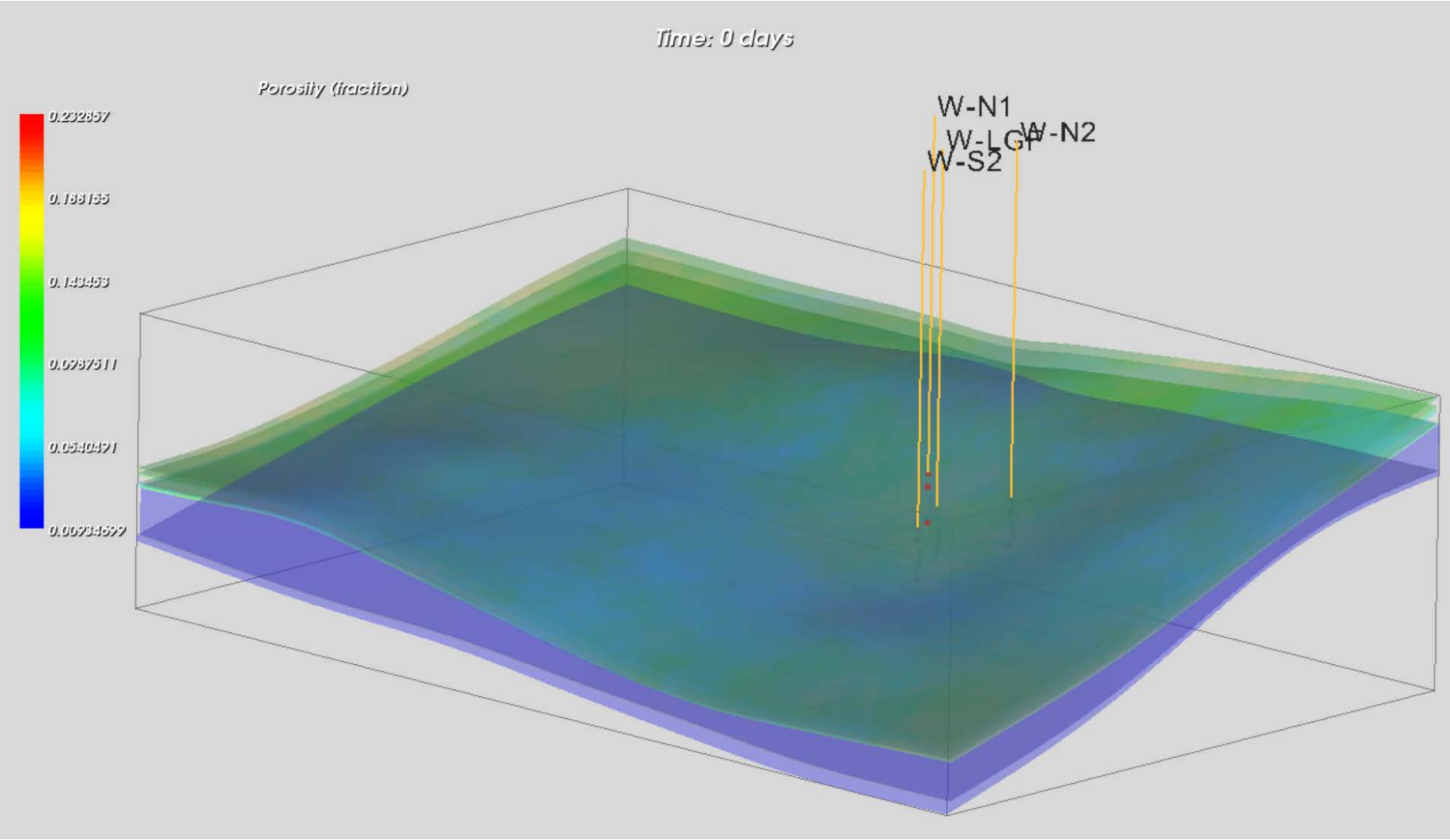
Upper Tuscaloosa Lower Interval / Paluxy Porosity-Permeability Transform Model

Injection Zones (Reservoirs)	Porosity-Permeability Transform
Tuscaloosa	Permeability = 1E-07*(Phi)$^{6.5705}$

	Regional	Adjusted
coeff	1.000E-07	1.00E-07
exp	6.57050	6.4400

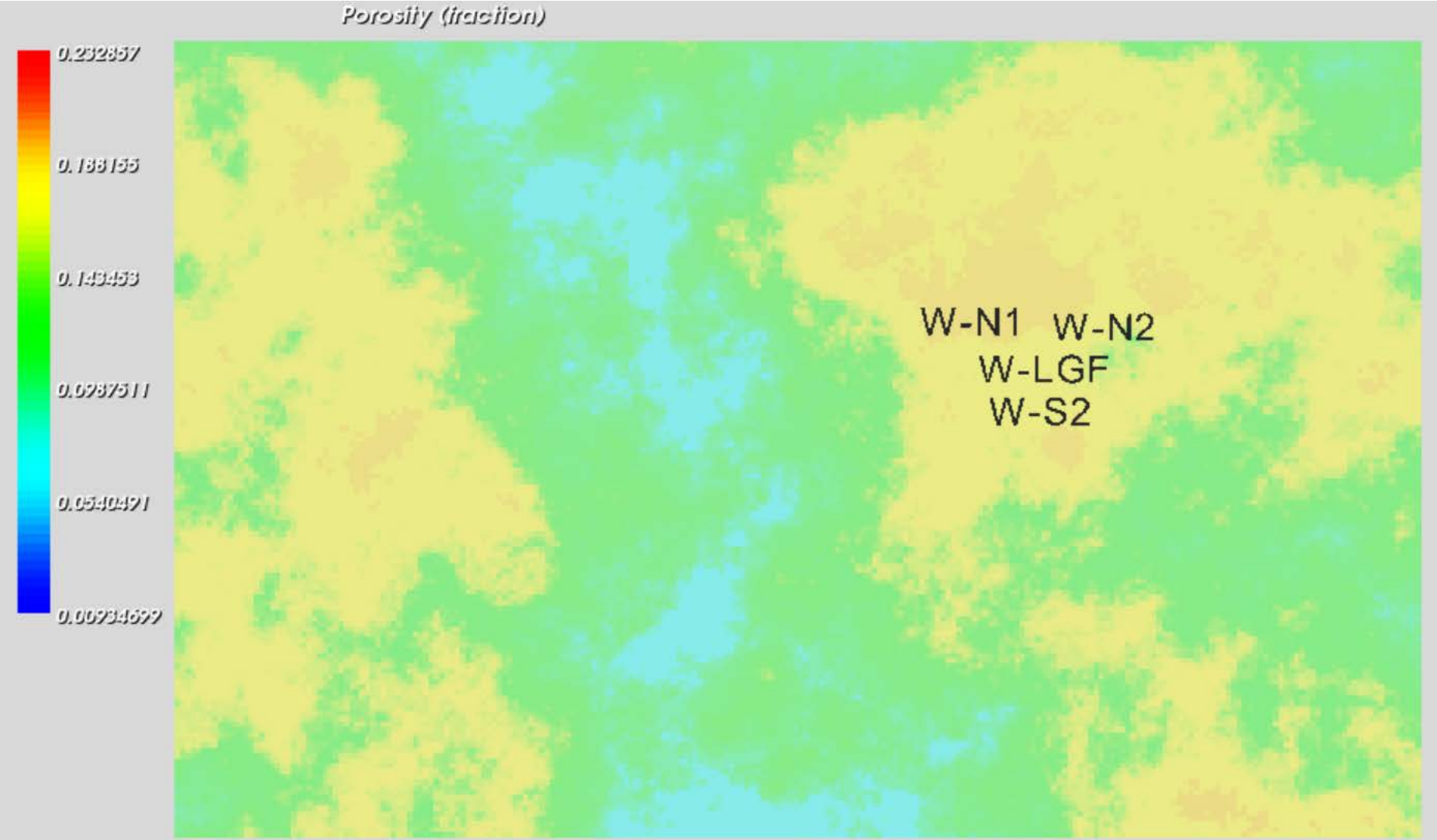
Original PHI	Perm md	Perm md
0.100	0.372	0.275
0.110	0.696	0.509
0.120	1.232	0.891
0.130	2.085	1.492
0.140	3.393	2.405
0.150	5.340	3.750
0.160	8.160	5.682
0.170	12.152	8.396
0.180	17.692	12.133
0.190	25.238	17.186
0.200	35.352	23.913
0.210	48.713	32.741
0.220	66.128	44.178
0.230	88.559	58.820
0.240	117.133	77.368
0.250	153.167	100.631
0.260	198.190	129.547
0.270	253.966	165.190
0.280	322.516	208.784
0.290	406.150	261.724
0.300	507.487	325.582
0.310	629.495	402.133
0.320	775.511	493.362
0.330	949.283	601.492

Upper Tuscaloosa Lower Interval / Paluxy Porosity Composite



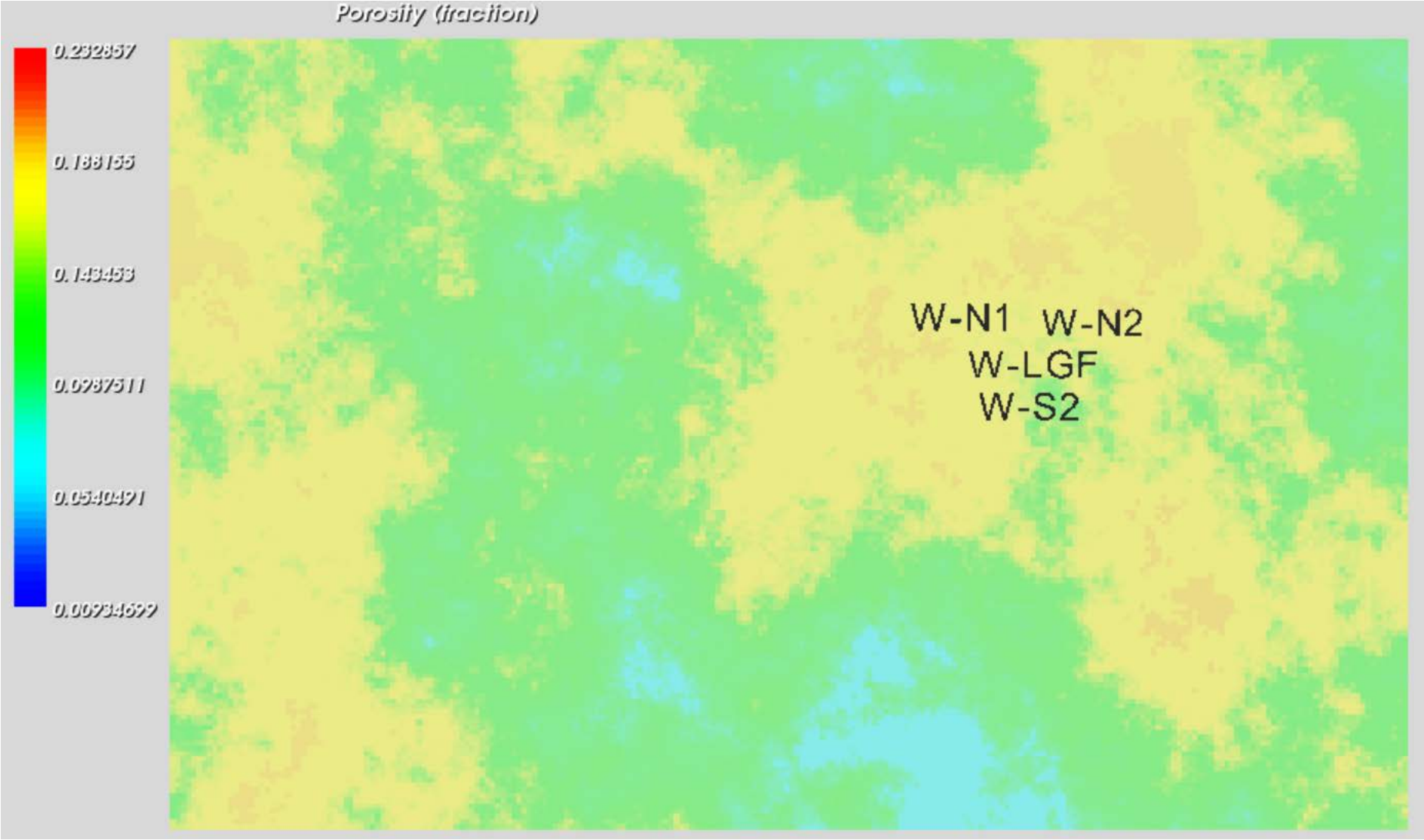
Grid Porosity = Original Porosity x NG
Vertical Exaggeration: 10x

Upper Tuscaloosa Lower Interval / Paluxy Porosity – Layer 1



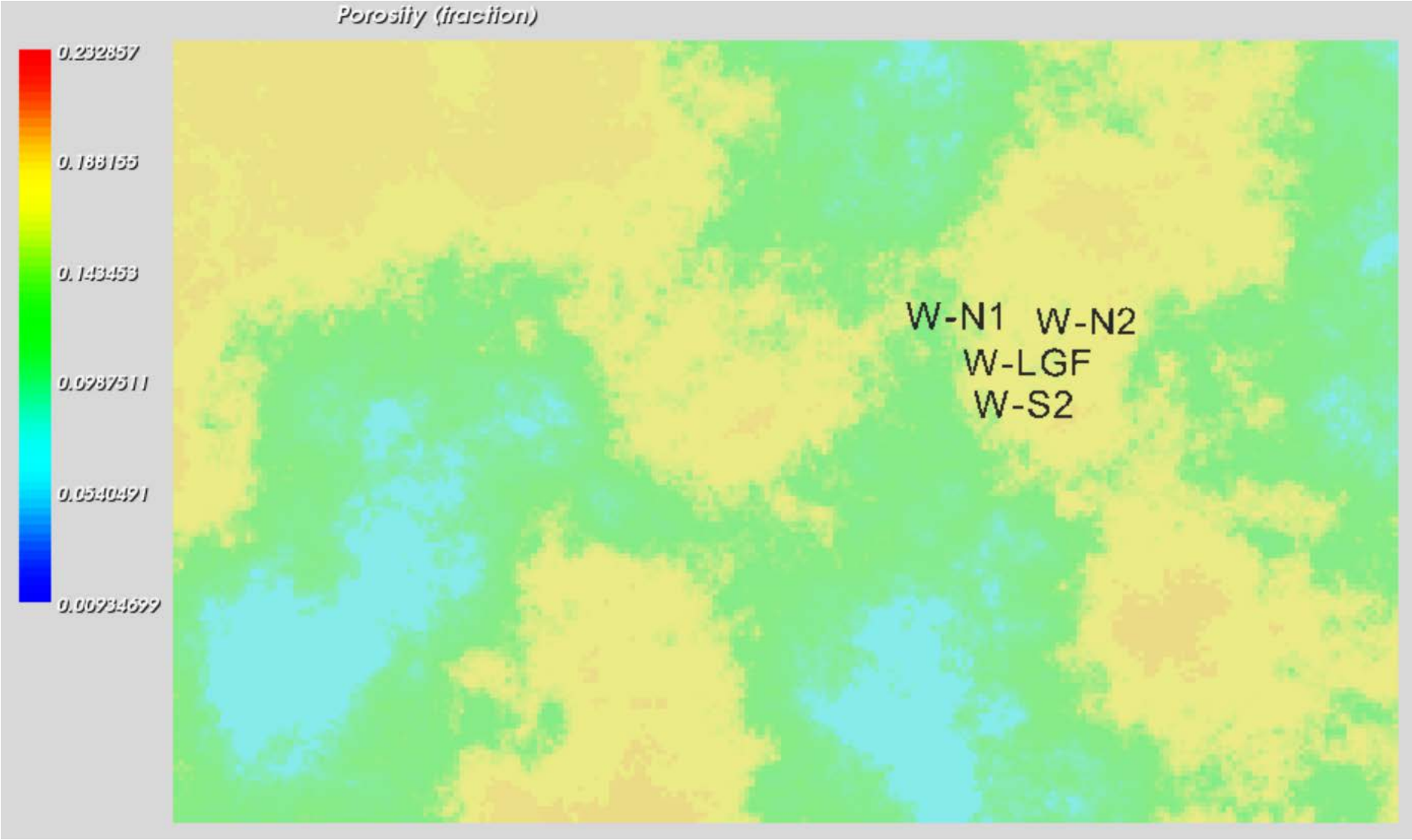
Grid Porosity = Original Porosity x NG

Upper Tuscaloosa Lower Interval / Paluxy Porosity – Layer 2



Grid Porosity = Original Porosity x NG

Upper Tuscaloosa Lower Interval / Paluxy Porosity – Layer 3



Grid Porosity = Original Porosity x NG

Upper Tuscaloosa Lower Interval / Paluxy Porosity – Layer 4

Layer 4 – PHI = 0

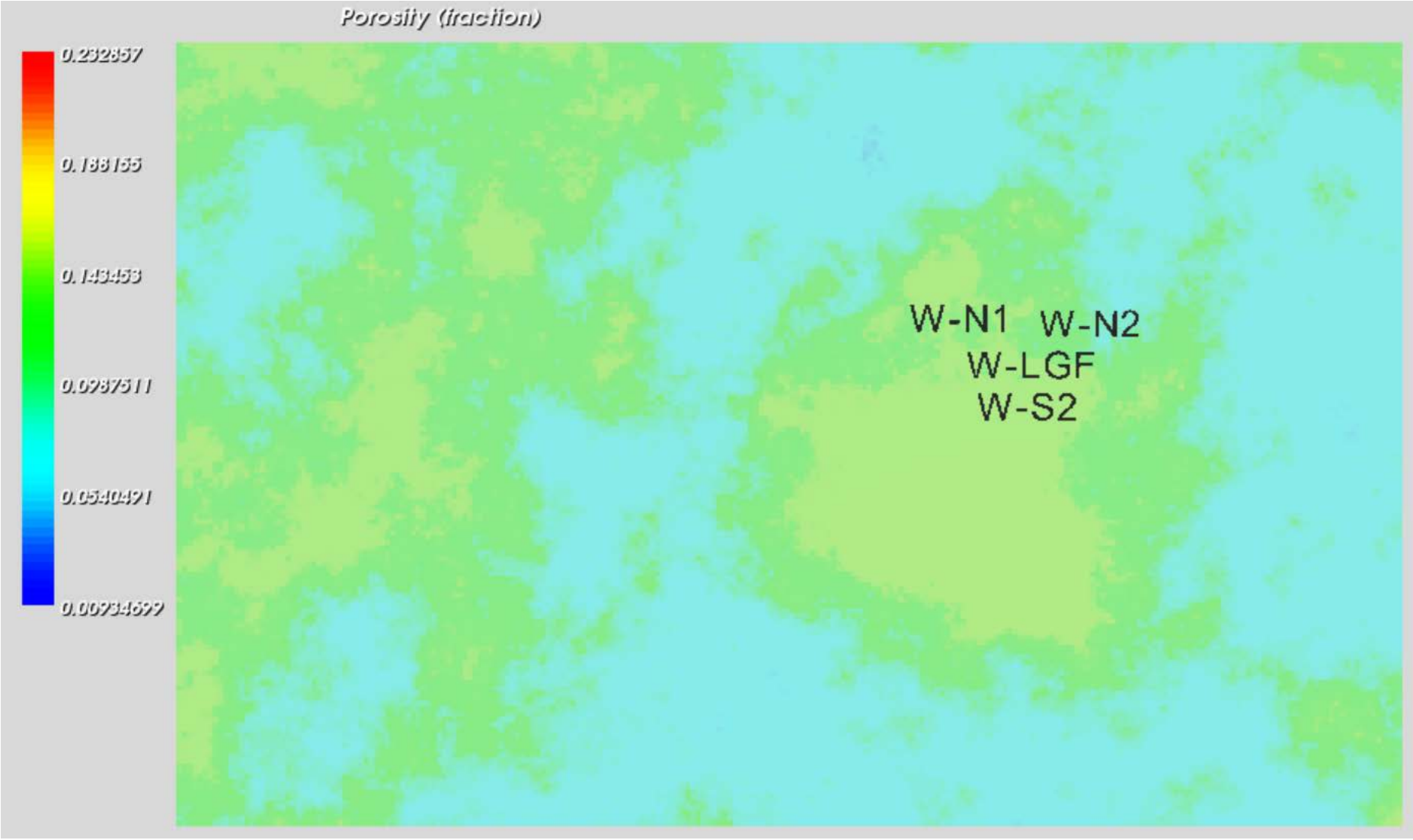
Upper Tuscaloosa Lower Interval / Paluxy Porosity – Layer 5

Layer 5 – PHI = 0

Porosity – Layer 6

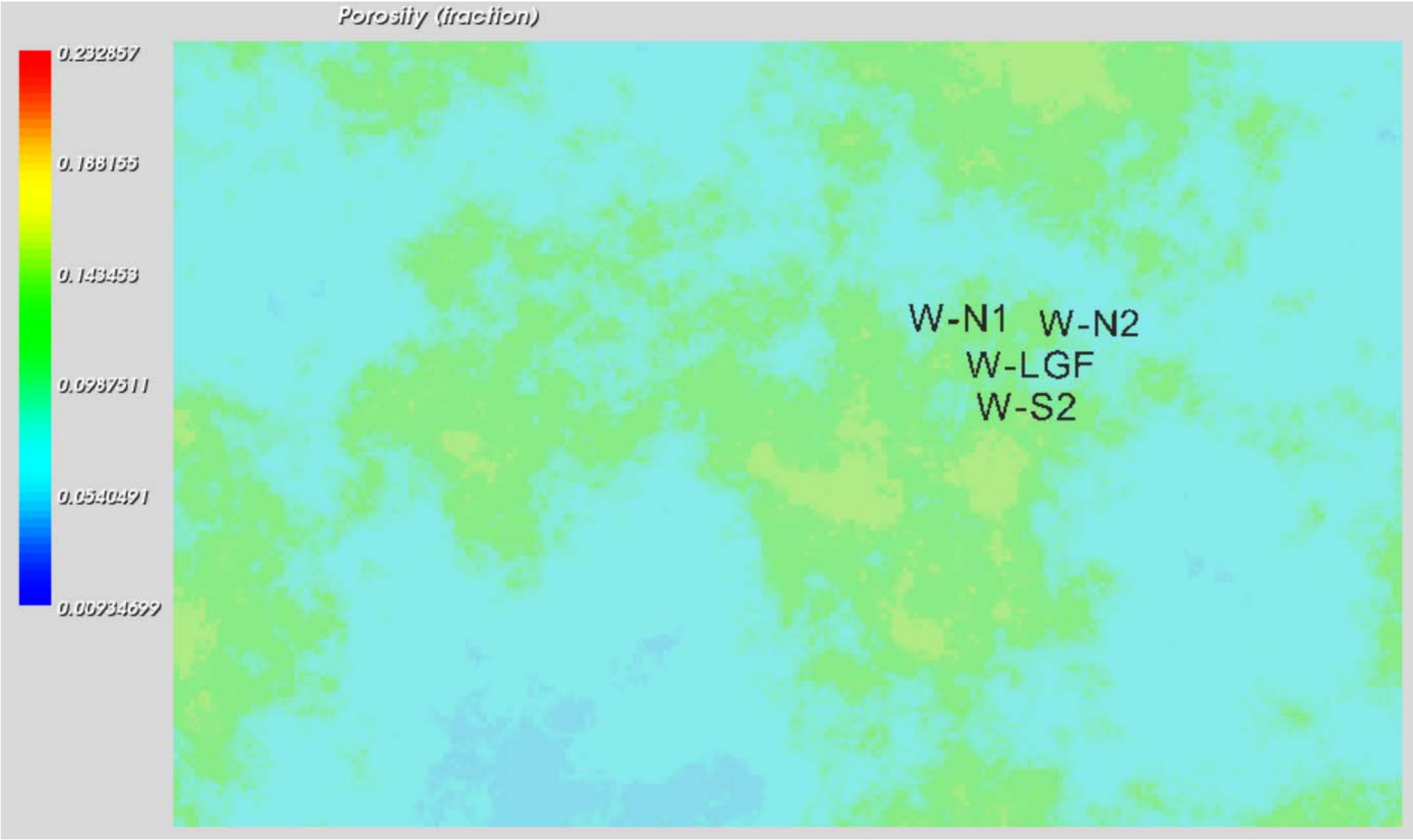
Layer 6 – PHI = 0

Upper Tuscaloosa Lower Interval / Paluxy Porosity – Layer 7



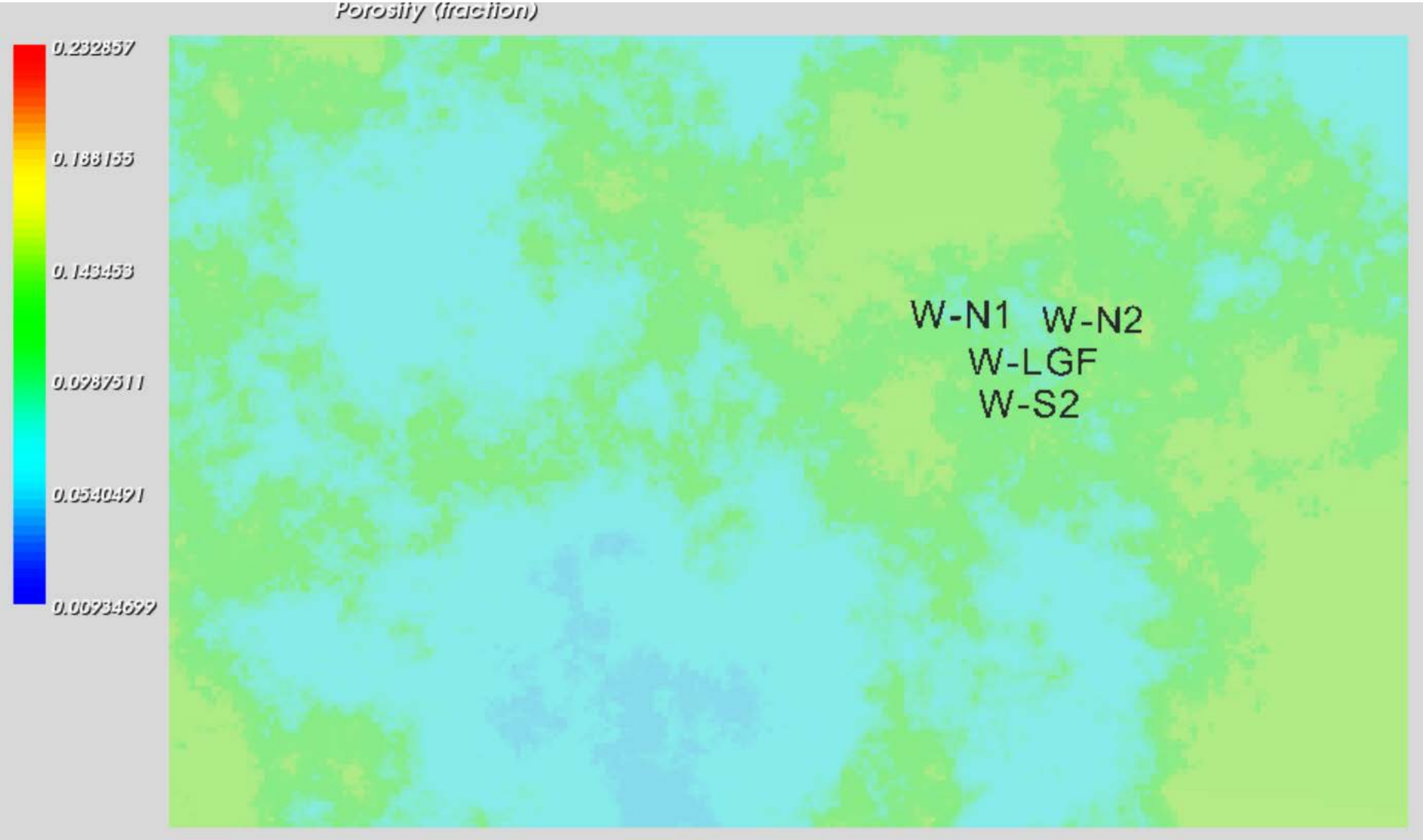
Grid Porosity = Original Porosity x NG

Upper Tuscaloosa Lower Interval / Paluxy Porosity – Layer 8



Grid Porosity = Original Porosity x NG

Upper Tuscaloosa Lower Interval / Paluxy Porosity – Layer 9



Grid Porosity = Original Porosity x NG

Upper Tuscaloosa Lower Interval / Paluxy Porosity – Layer 10

Layer 10 – PHI = 0

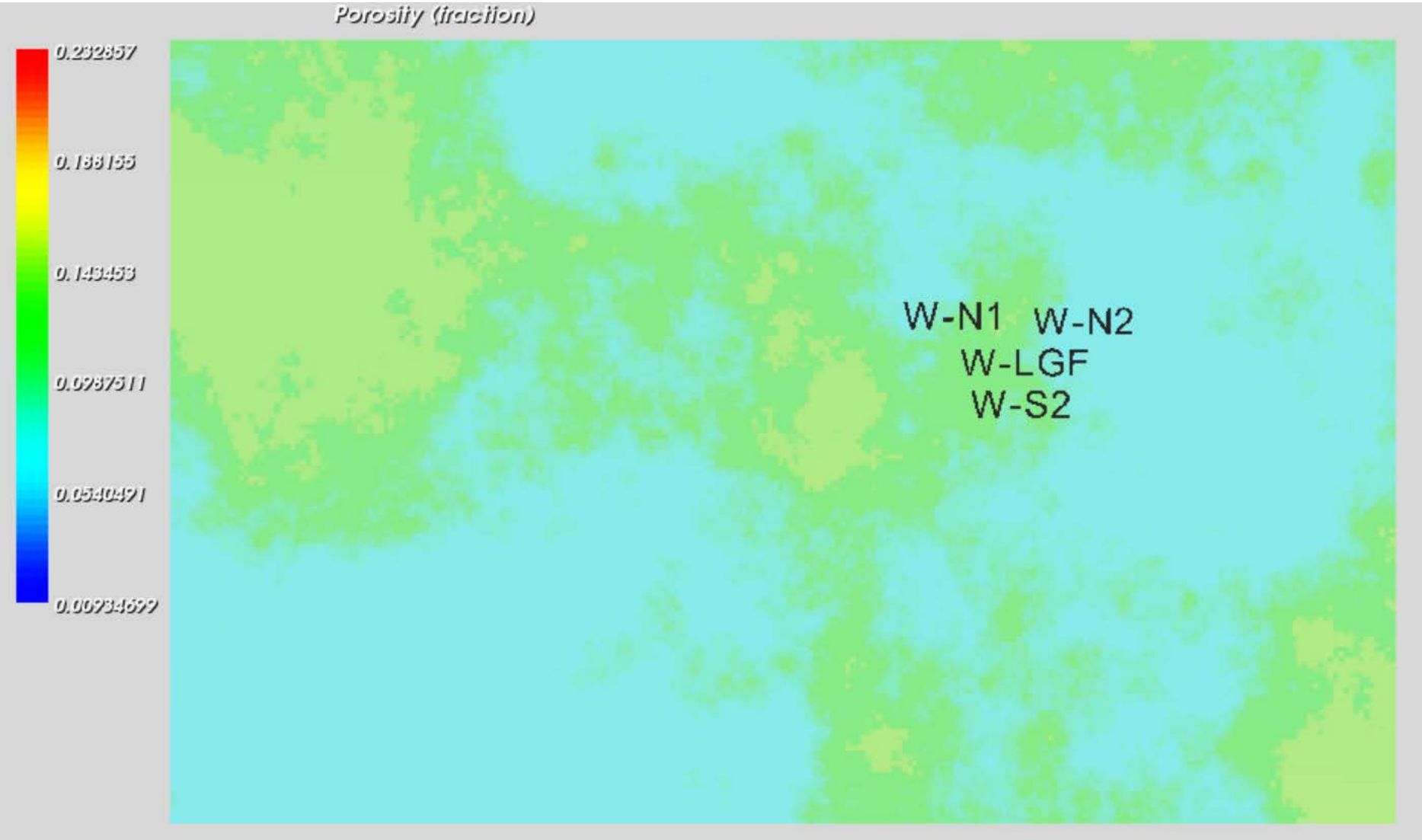
Upper Tuscaloosa Lower Interval / Paluxy Porosity – Layer 11

Layer 11 – PHI = 0

Upper Tuscaloosa Lower Interval / Paluxy Porosity – Layer 12

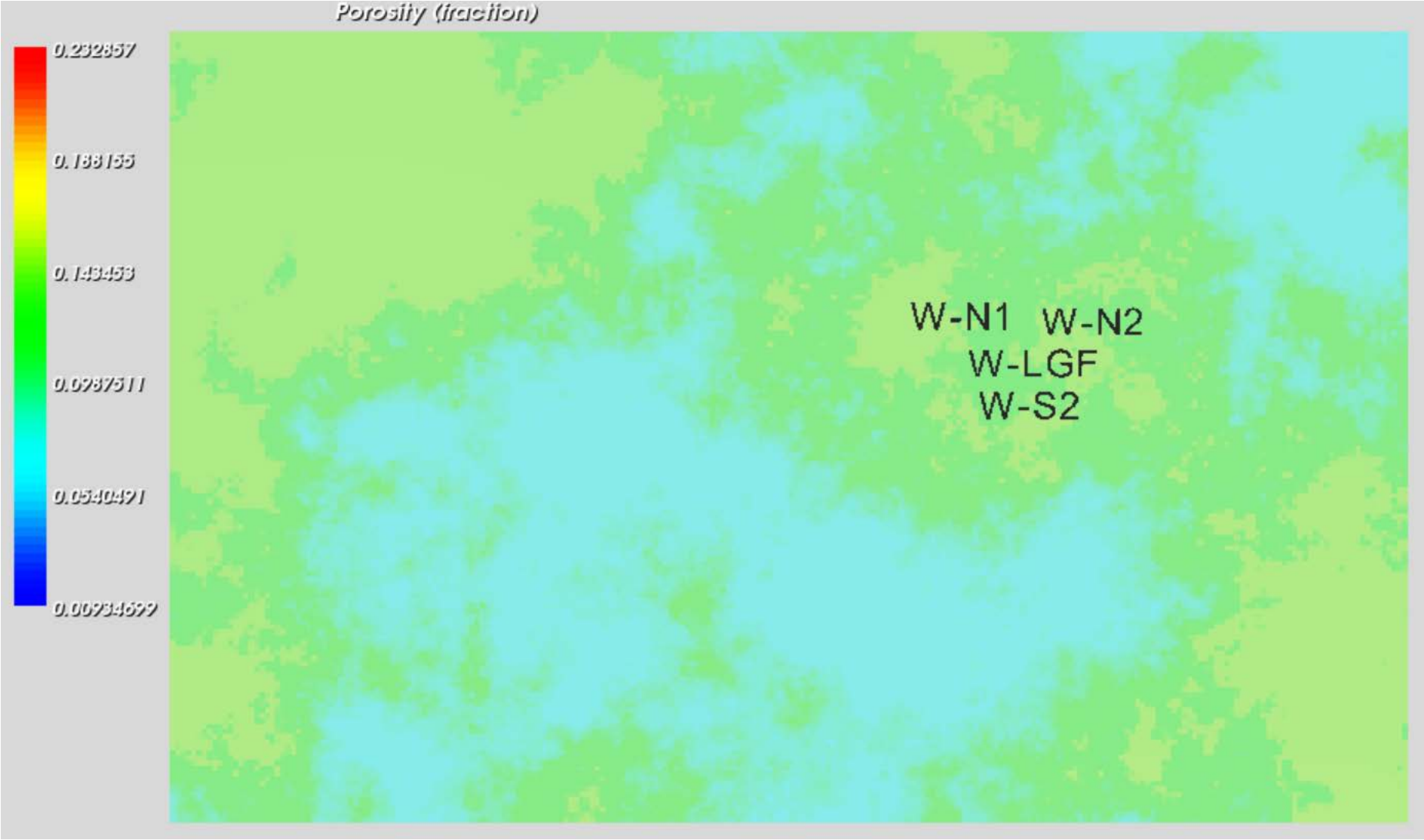
Layer 12 – PHI = 0

Upper Tuscaloosa Lower Interval / Paluxy Porosity – Layer 13



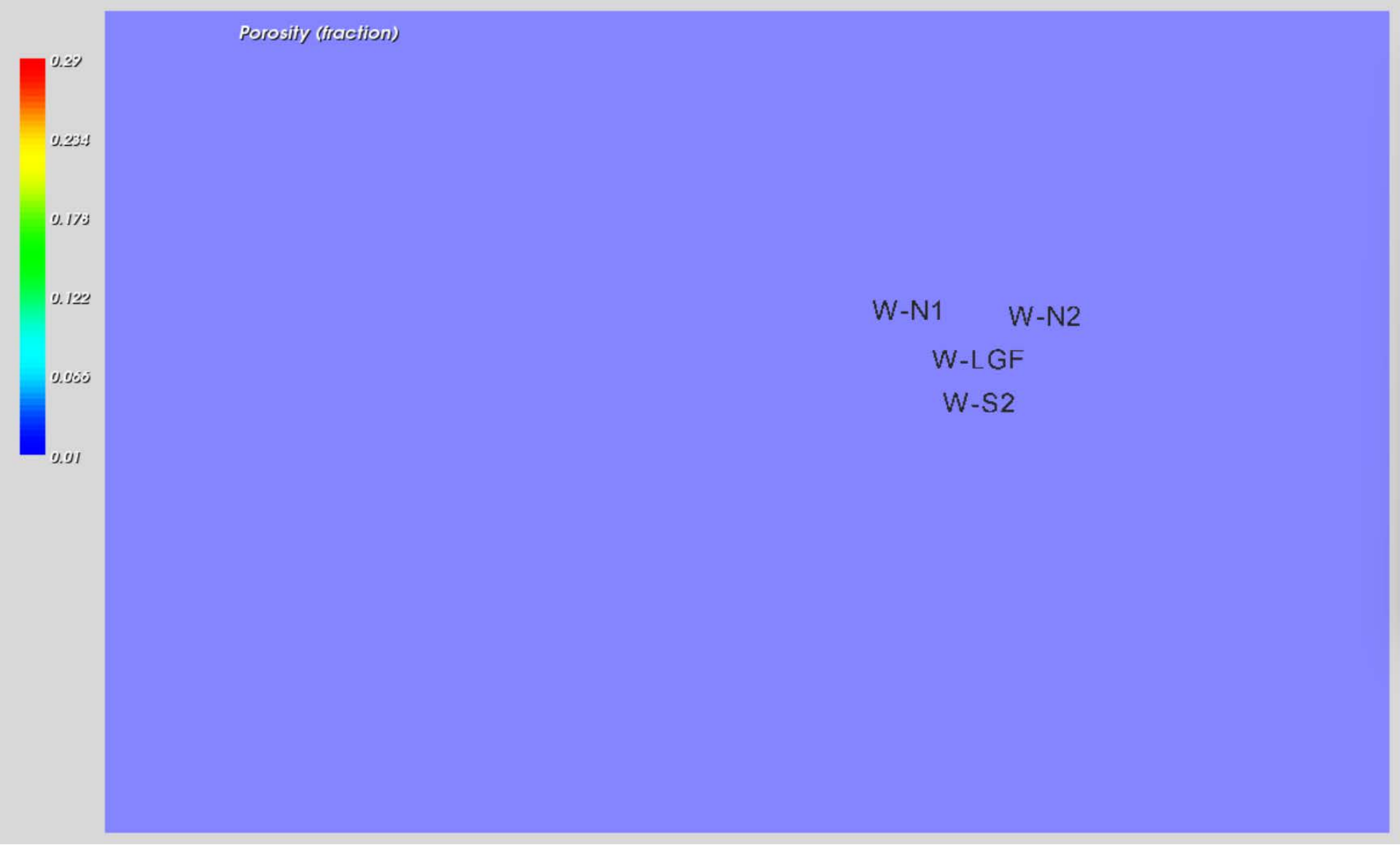
Grid Porosity = Original Porosity x NG

Upper Tuscaloosa Lower Interval / Paluxy Porosity – Layer 14



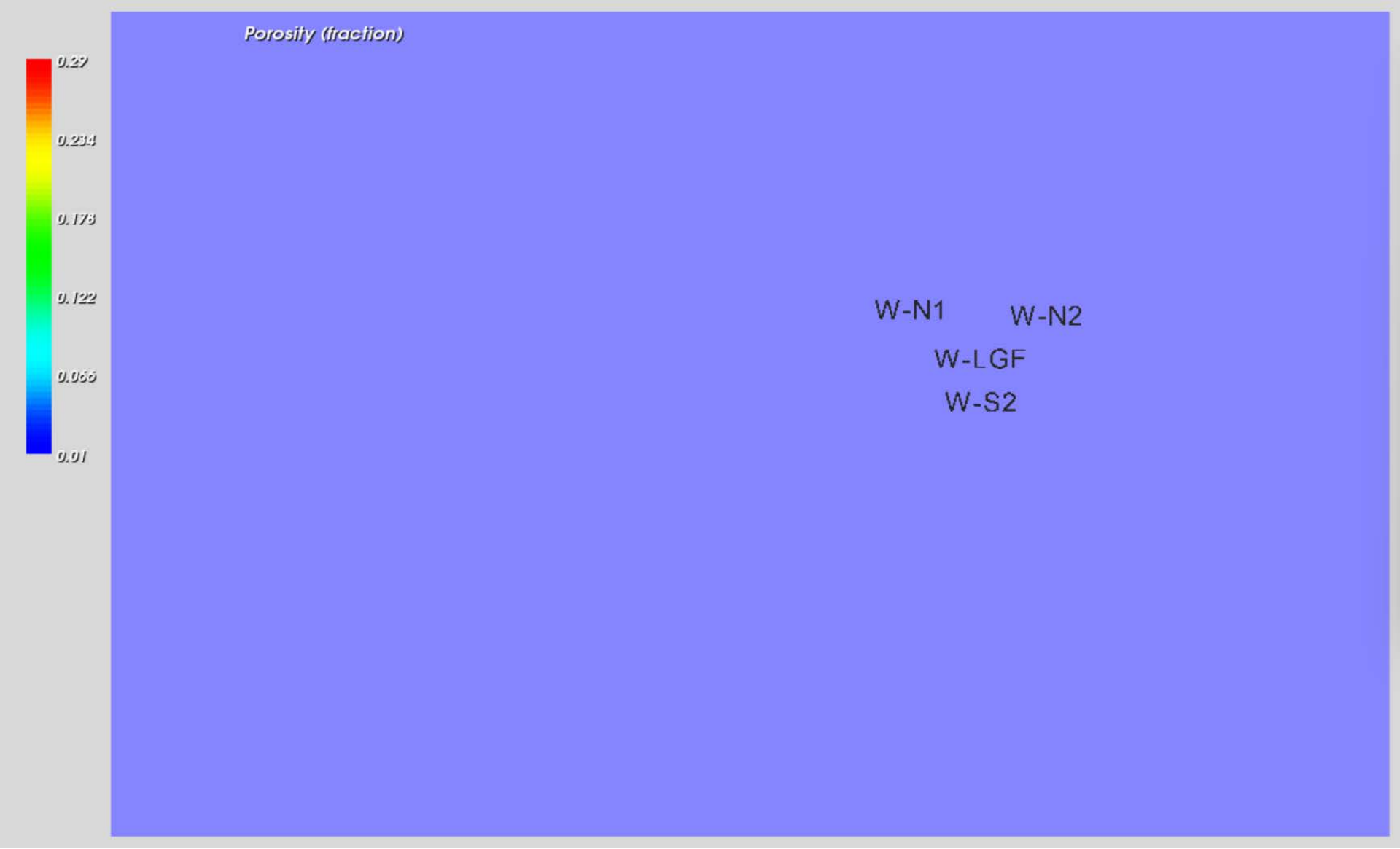
Grid Porosity = Original Porosity x NG

Upper Tuscaloosa Lower Interval / Paluxy Porosity – Layer 15



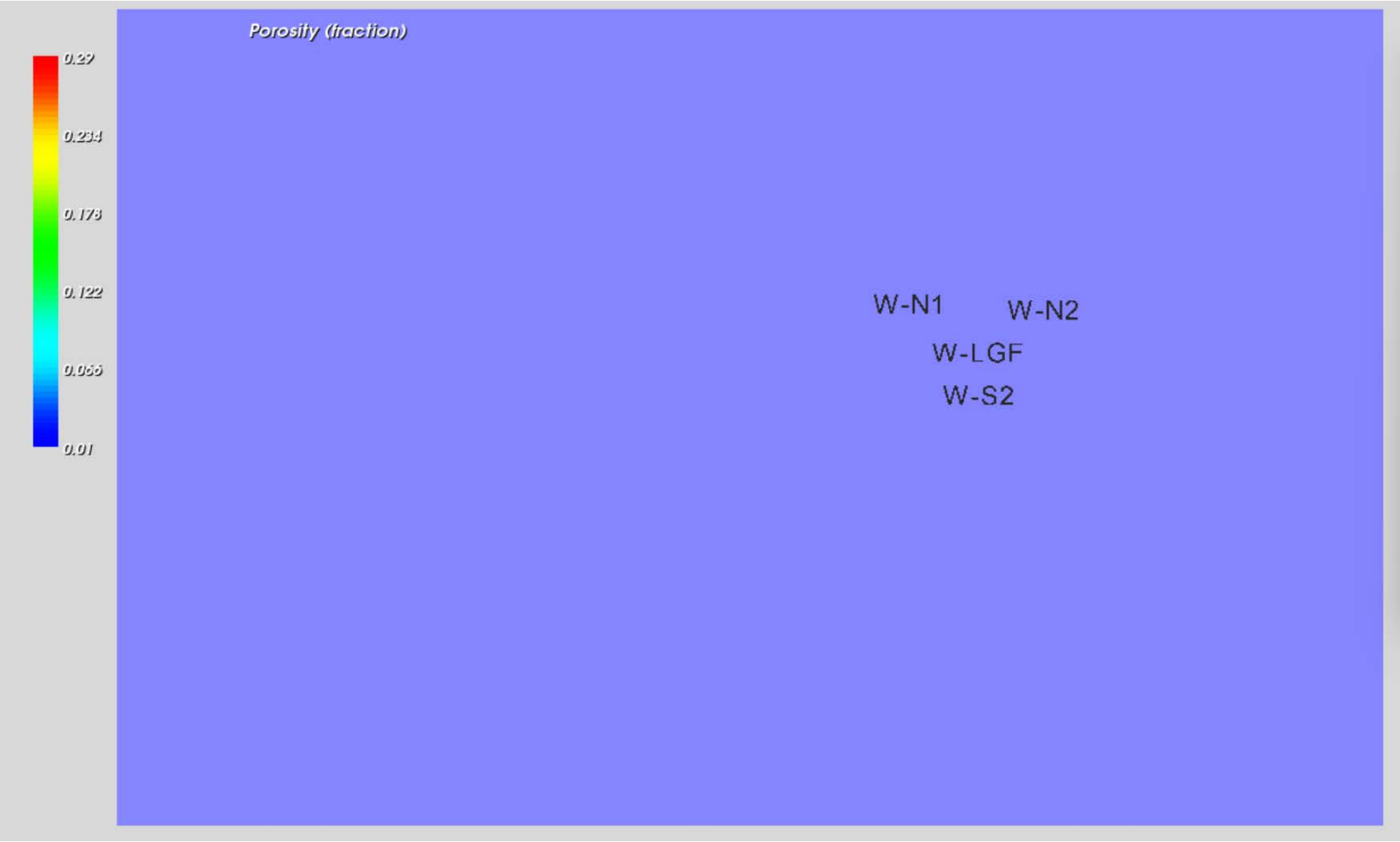
Grid Porosity = Original Porosity x NG

Upper Tuscaloosa Lower Interval / Paluxy Porosity – Layer 16



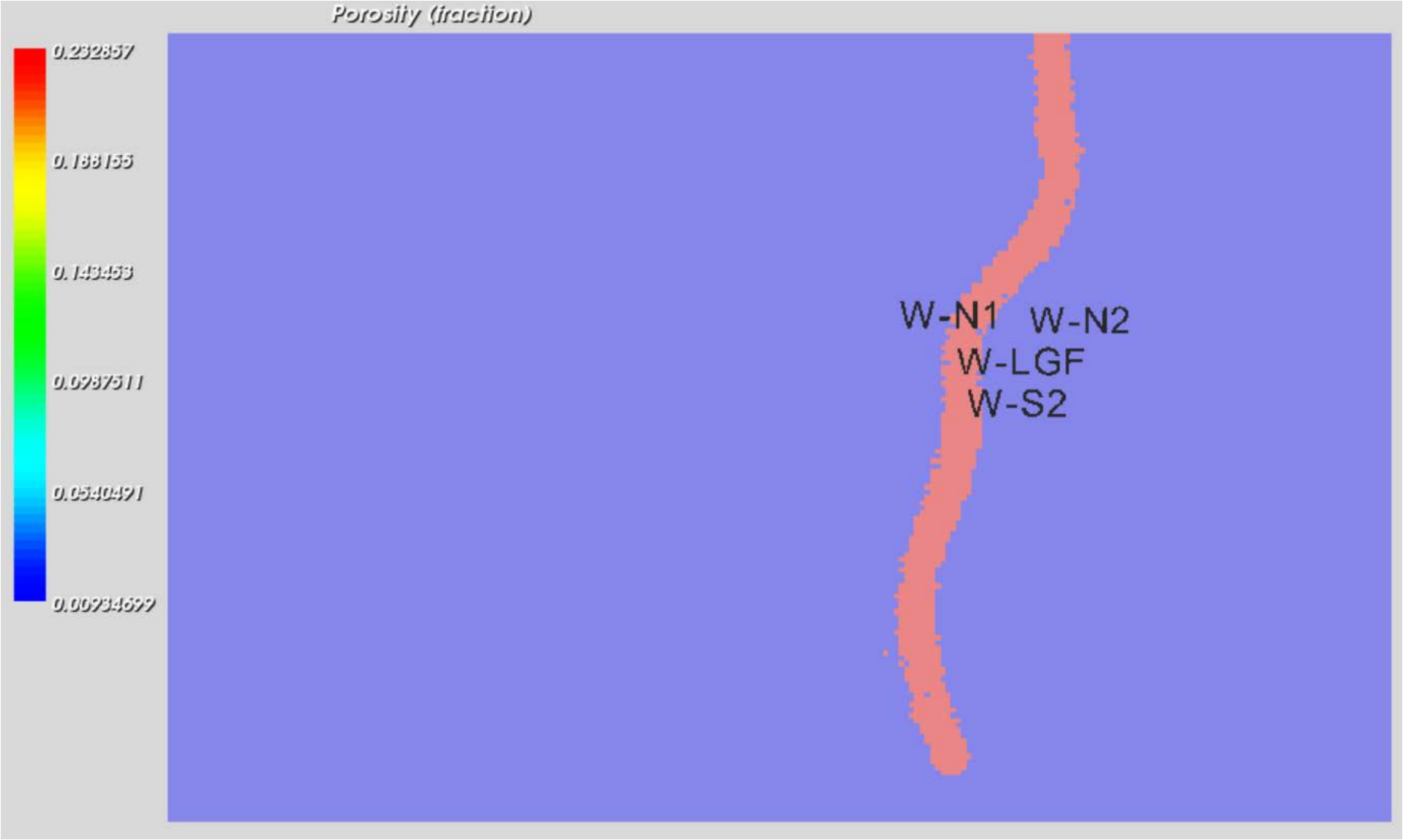
Grid Porosity = Original Porosity x NG

Upper Tuscaloosa Lower Interval / Paluxy Porosity – Layer 17



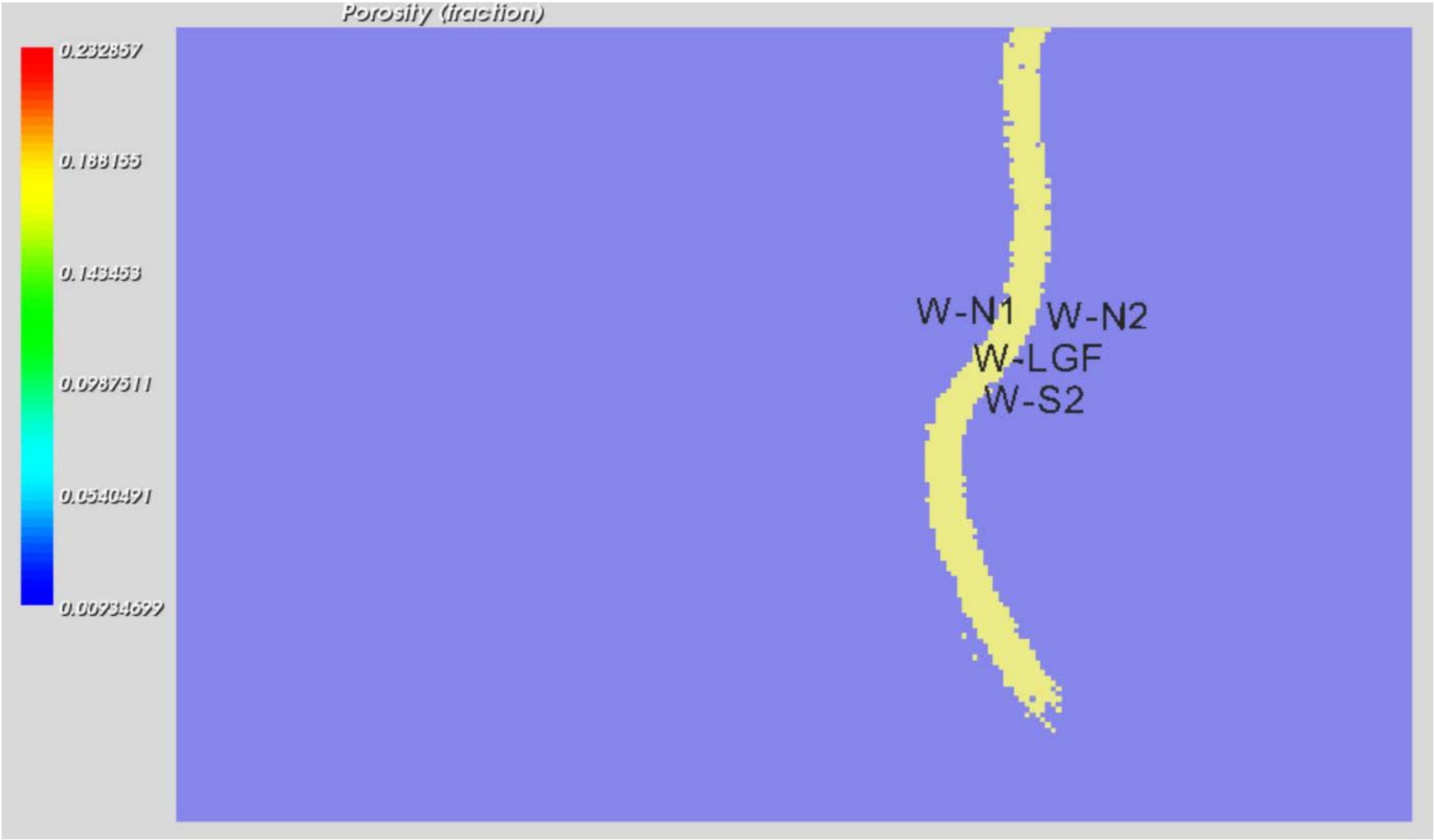
Grid Porosity = Original Porosity x NG

Upper Tuscaloosa Lower Interval / Paluxy Porosity – Layer 18



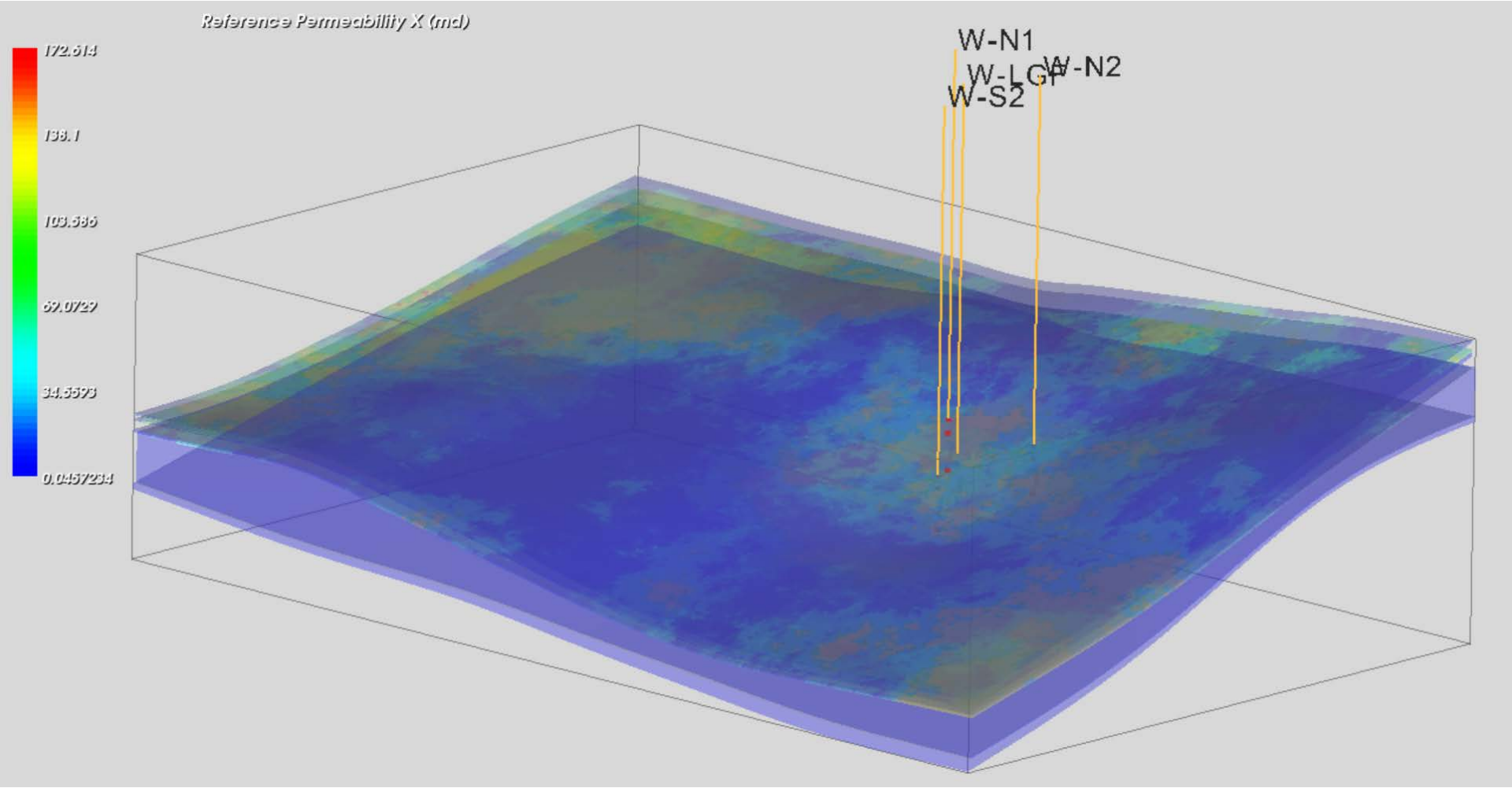
Grid Porosity = Original Porosity x NG

Upper Tuscaloosa Lower Interval / Paluxy Porosity – Layer 19



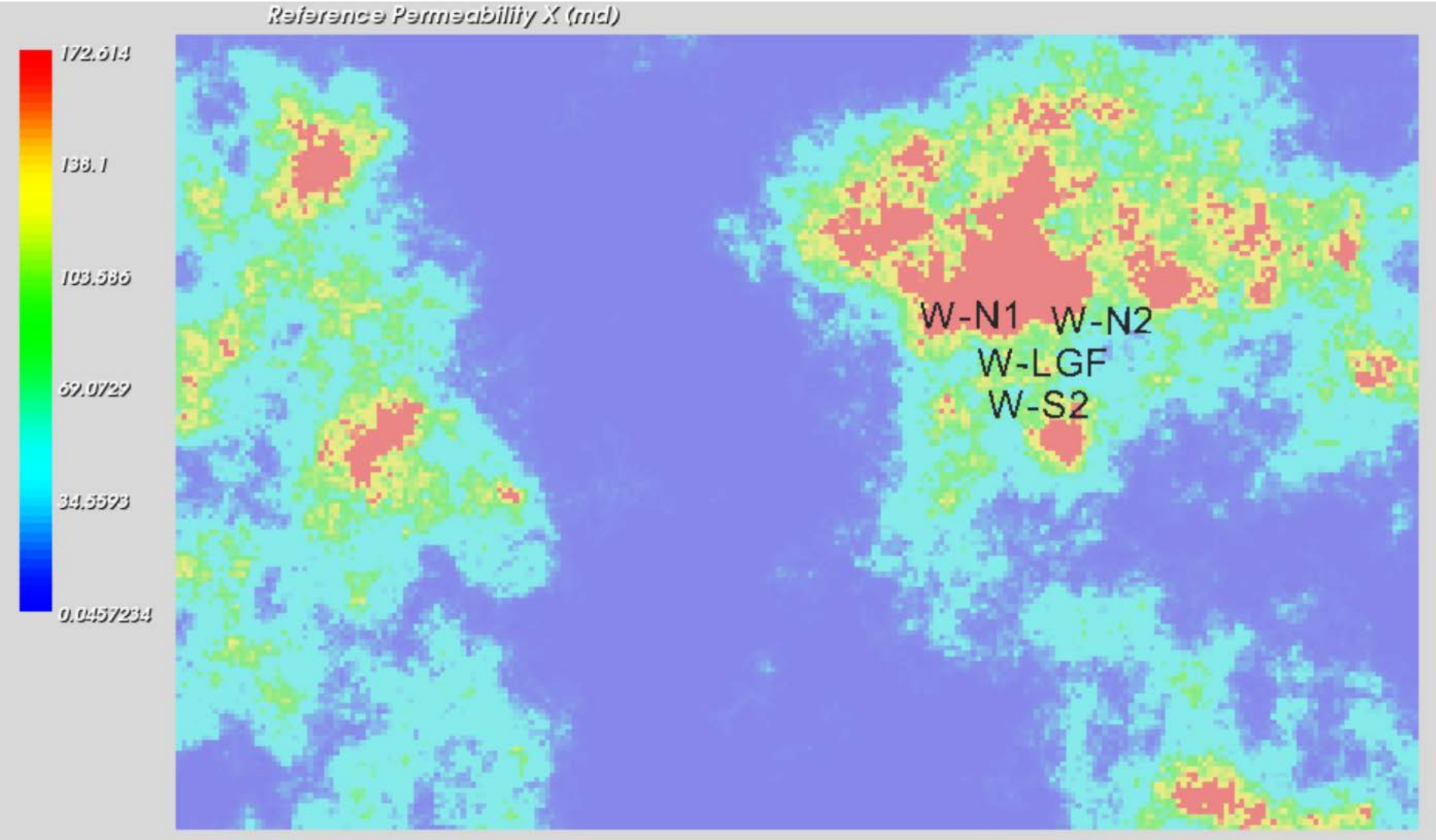
Grid Porosity = Original Porosity x NG

Upper Tuscaloosa Lower Interval / Paluxy Permeability Composite



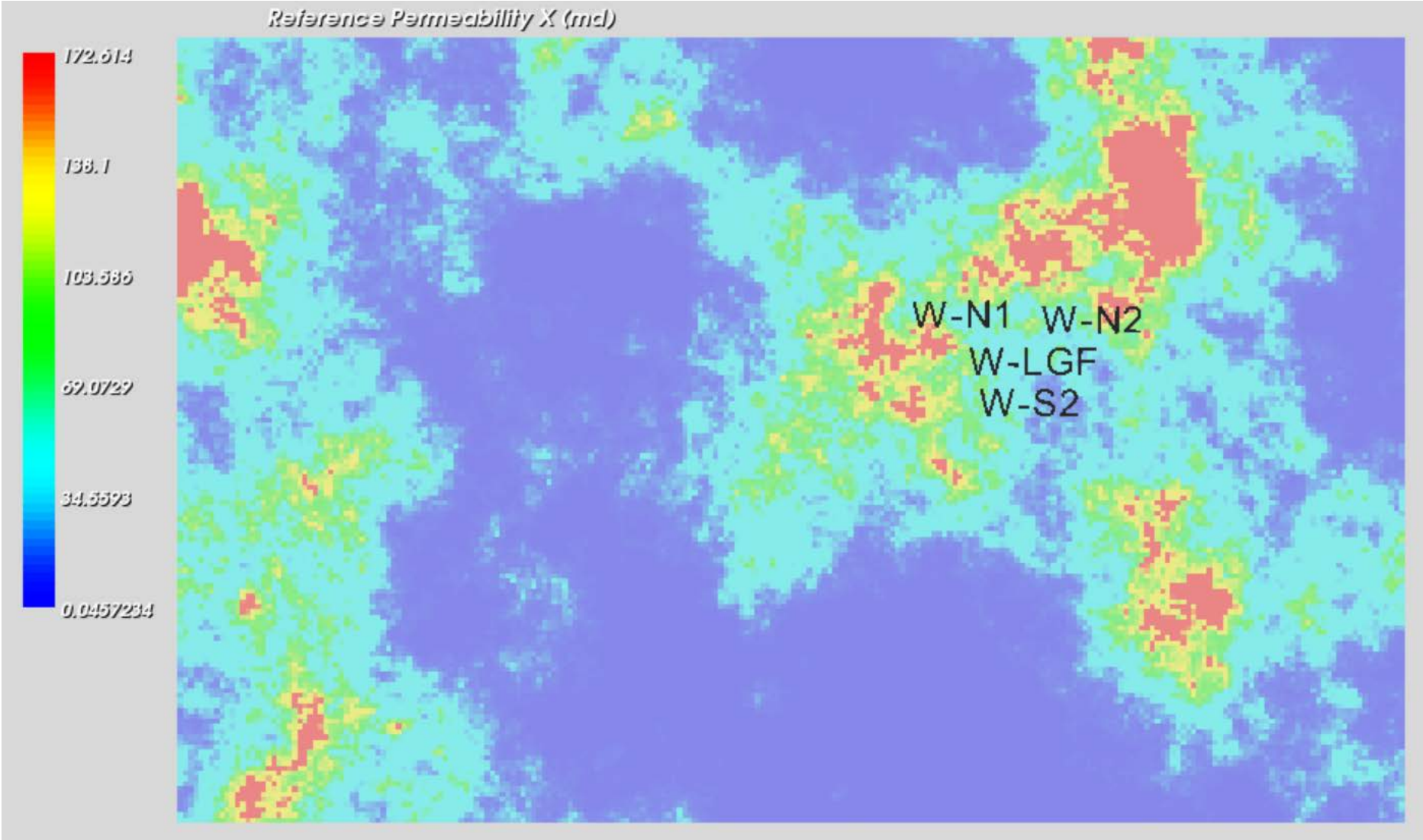
Grid Permeability = Original Permeability x NG
Vertical Exaggeration: 10x

Upper Tuscaloosa Lower Interval / Paluxy Permeability – Layer 1



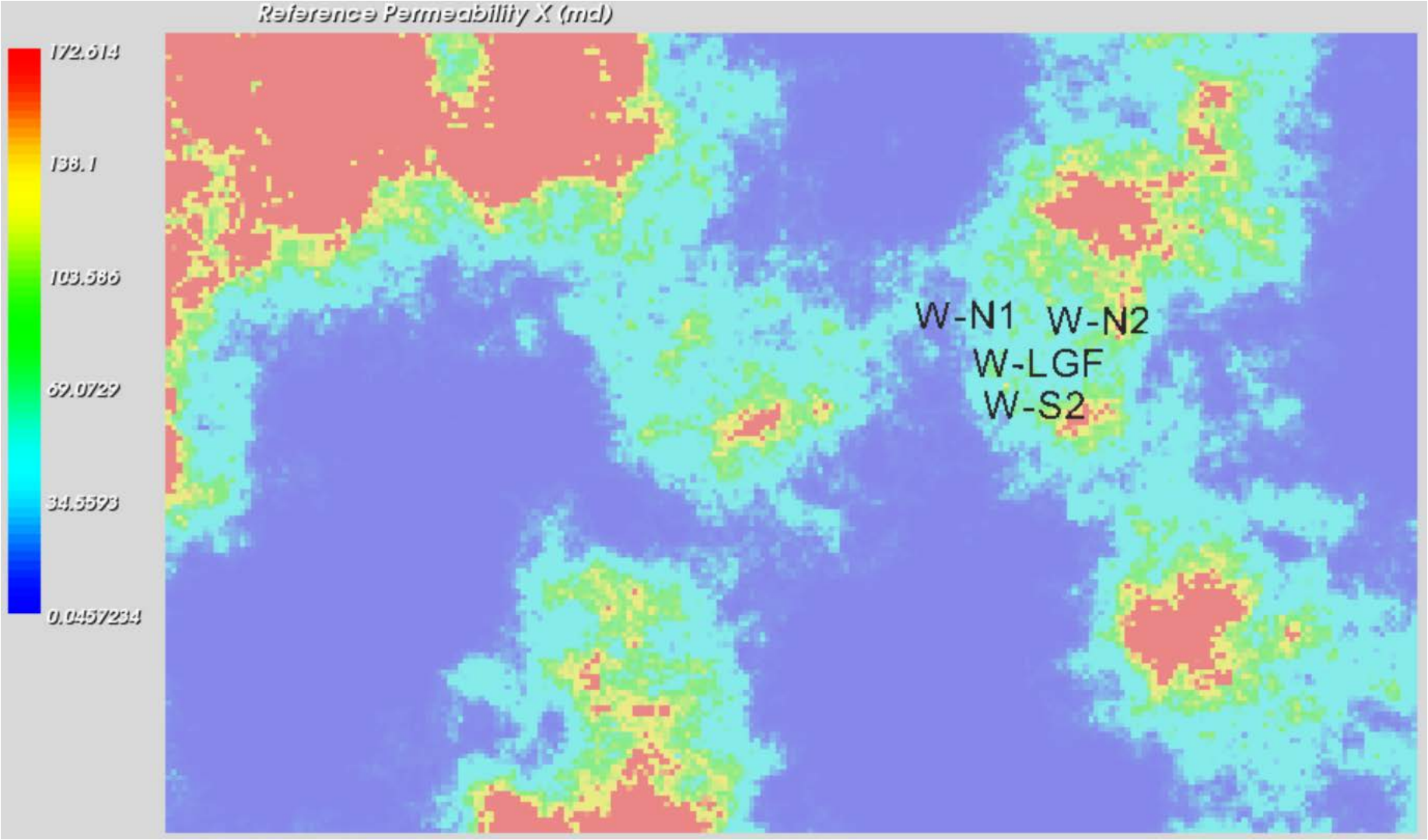
Grid Permeability = Original Permeability x NG

Upper Tuscaloosa Lower Interval / Paluxy Permeability – Layer 2



Grid Permeability = Original Permeability x NG

Upper Tuscaloosa Lower Interval / Paluxy Permeability – Layer 3



Grid Permeability = Original Permeability x NG

Upper Tuscaloosa Lower Interval / Paluxy Permeability – Layer 4

Layer 4 – K = 0.001 md

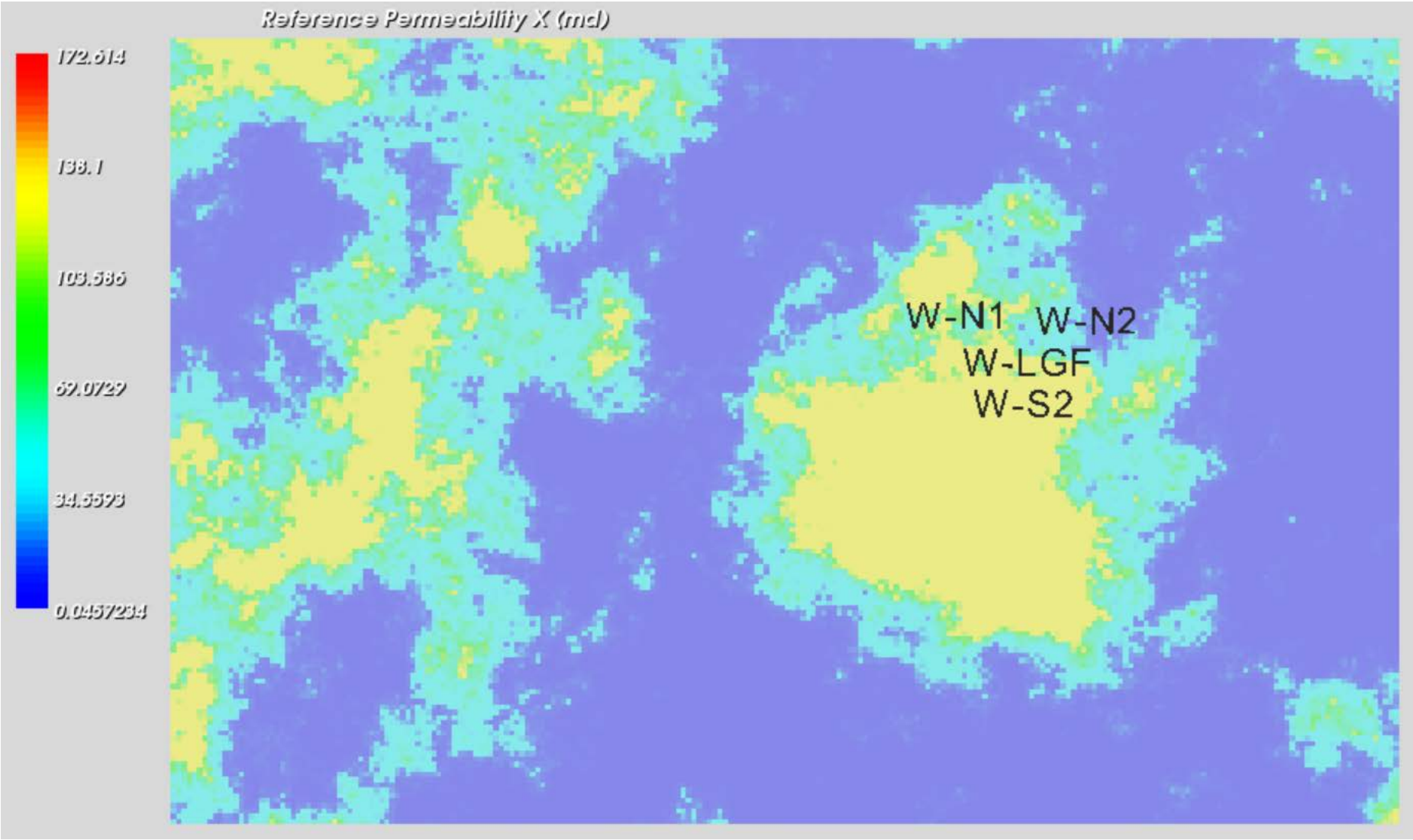
Upper Tuscaloosa Lower Interval / Paluxy Permeability – Layer 5

Layer 5 – K = 0.001 md

Upper Tuscaloosa Lower Interval / Paluxy Permeability – Layer 6

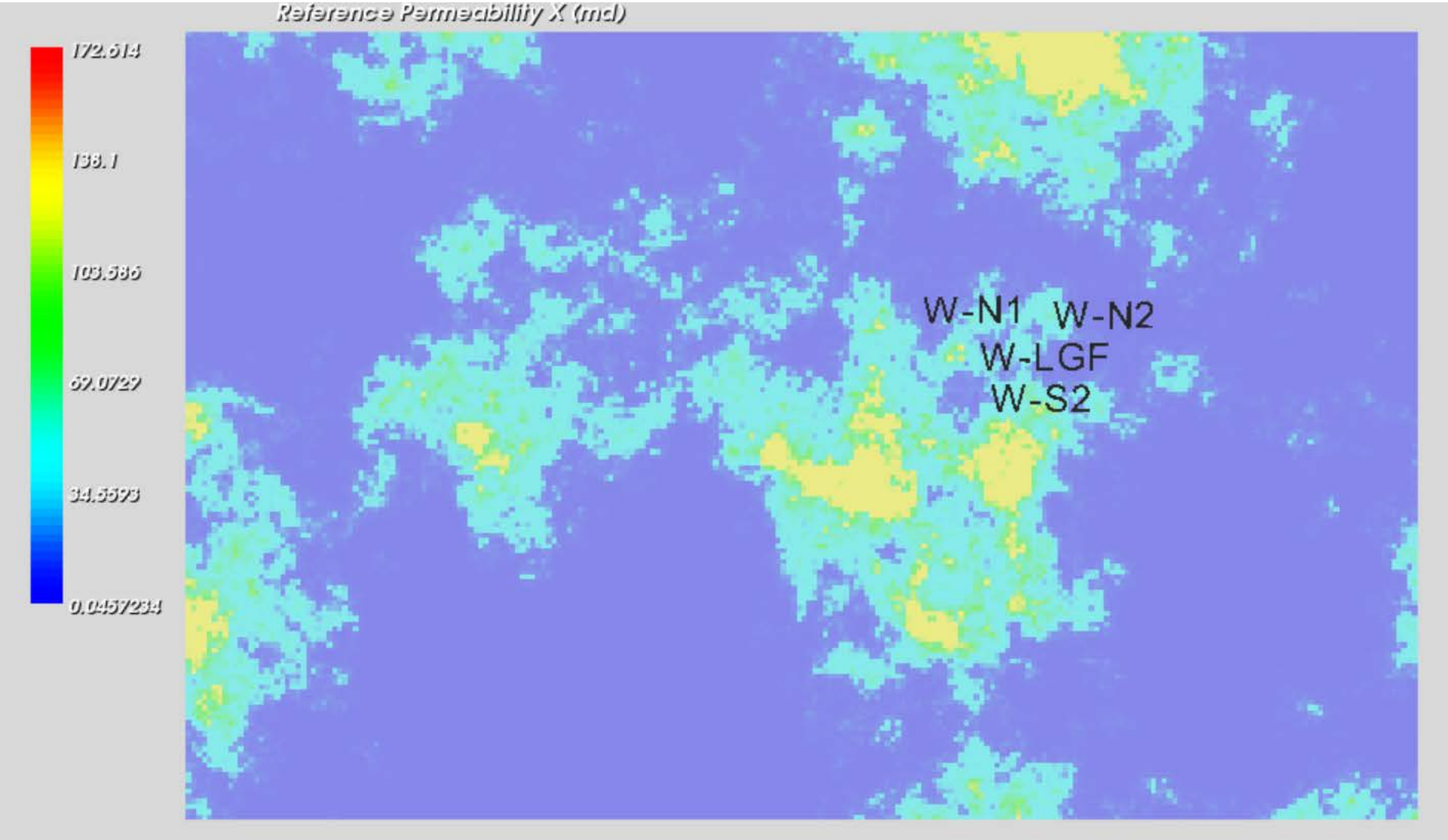
Layer 6 – K = 0.001 md

Upper Tuscaloosa Lower Interval / Paluxy Permeability – Layer 7



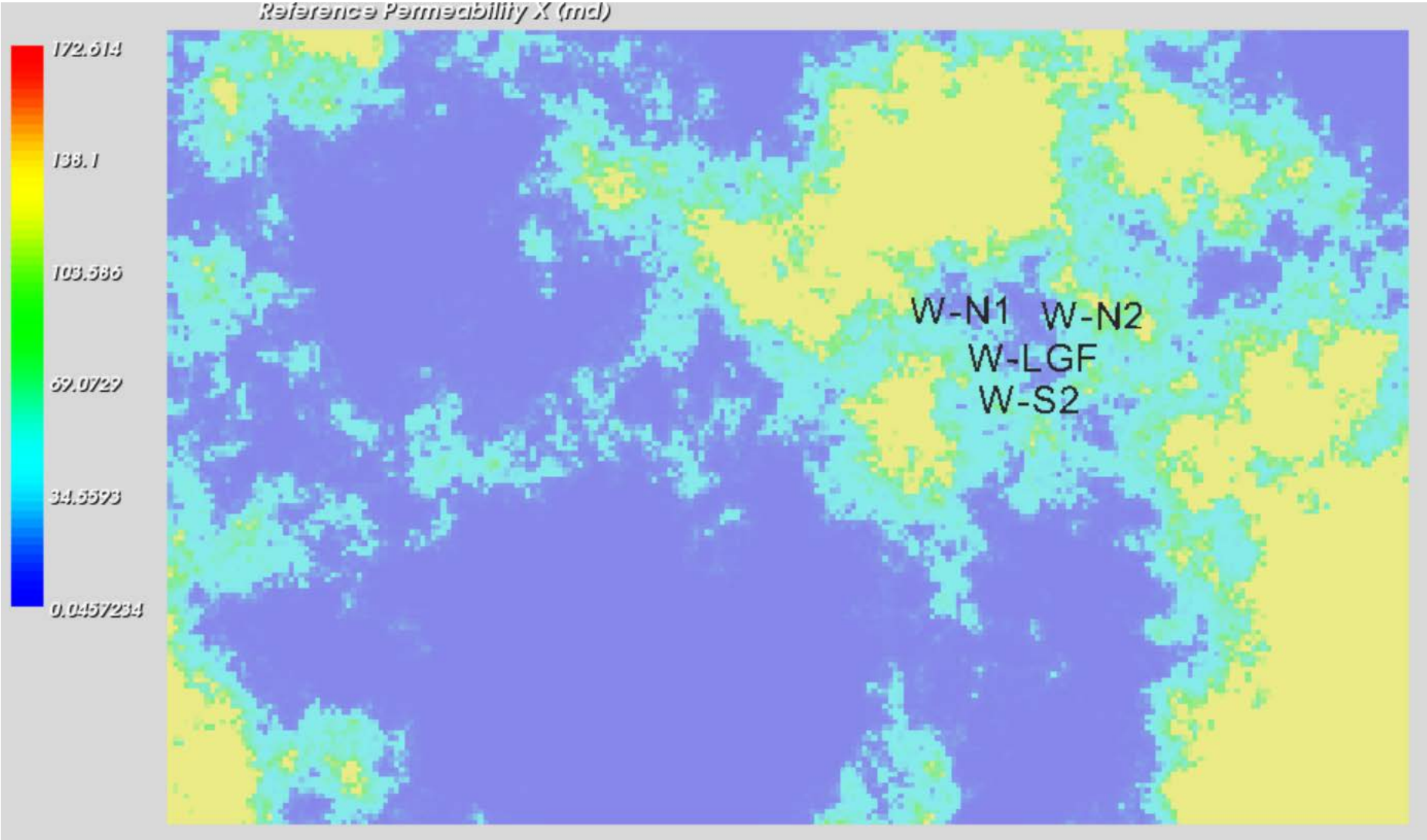
Grid Permeability = Original Permeability x NG

Upper Tuscaloosa Lower Interval / Paluxy Permeability – Layer 8



Grid Permeability = Original Permeability x NG

Upper Tuscaloosa Lower Interval / Paluxy Permeability – Layer 9



Grid Permeability = Original Permeability x NG

Upper Tuscaloosa Lower Interval / Paluxy Permeability – Layer 10

Layer 10 – K = 0.001 md

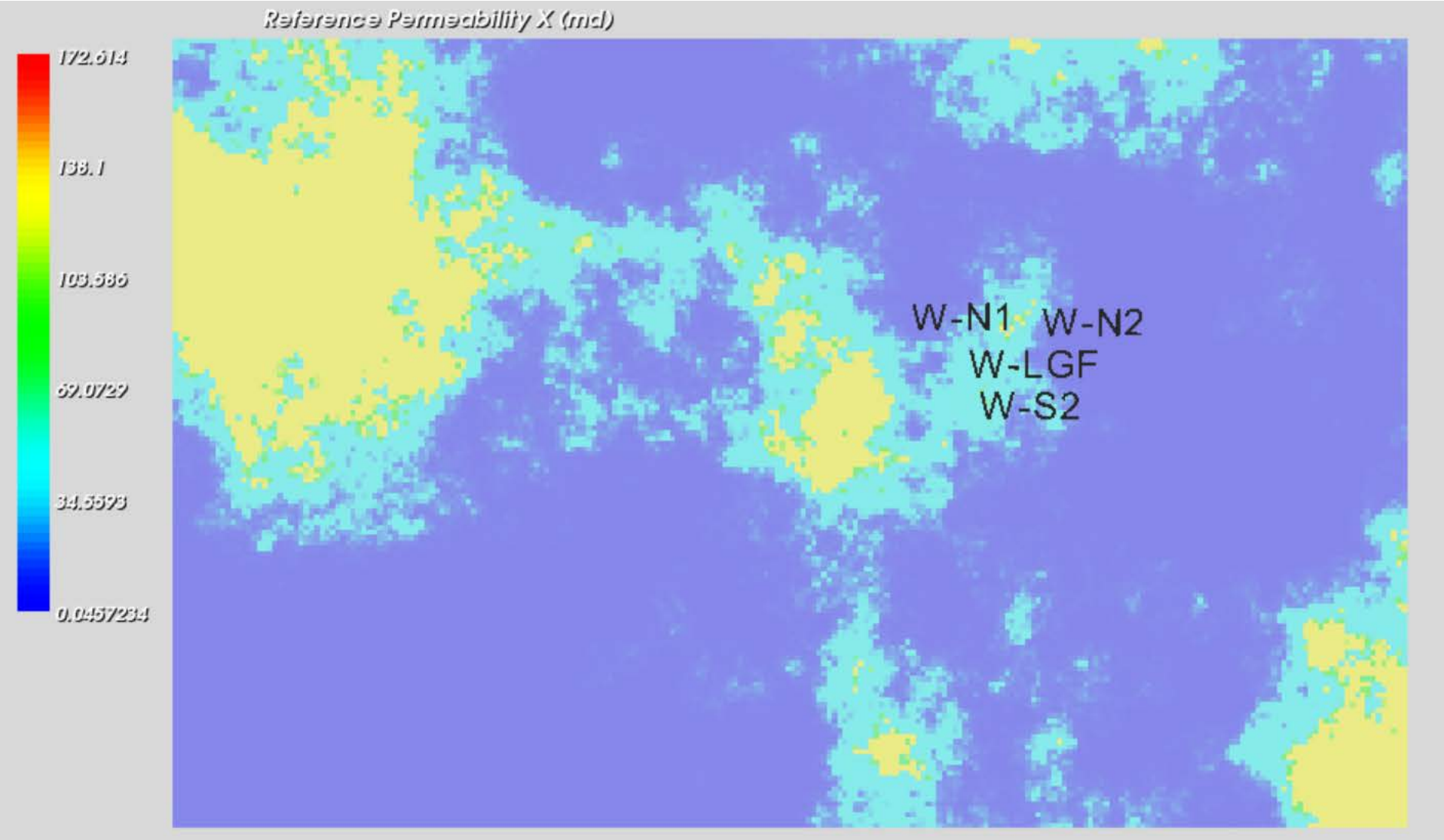
Upper Tuscaloosa Lower Interval / Paluxy Permeability – Layer 11

Layer 11 – K = 0.001 md

Upper Tuscaloosa Lower Interval / Paluxy Permeability – Layer 12

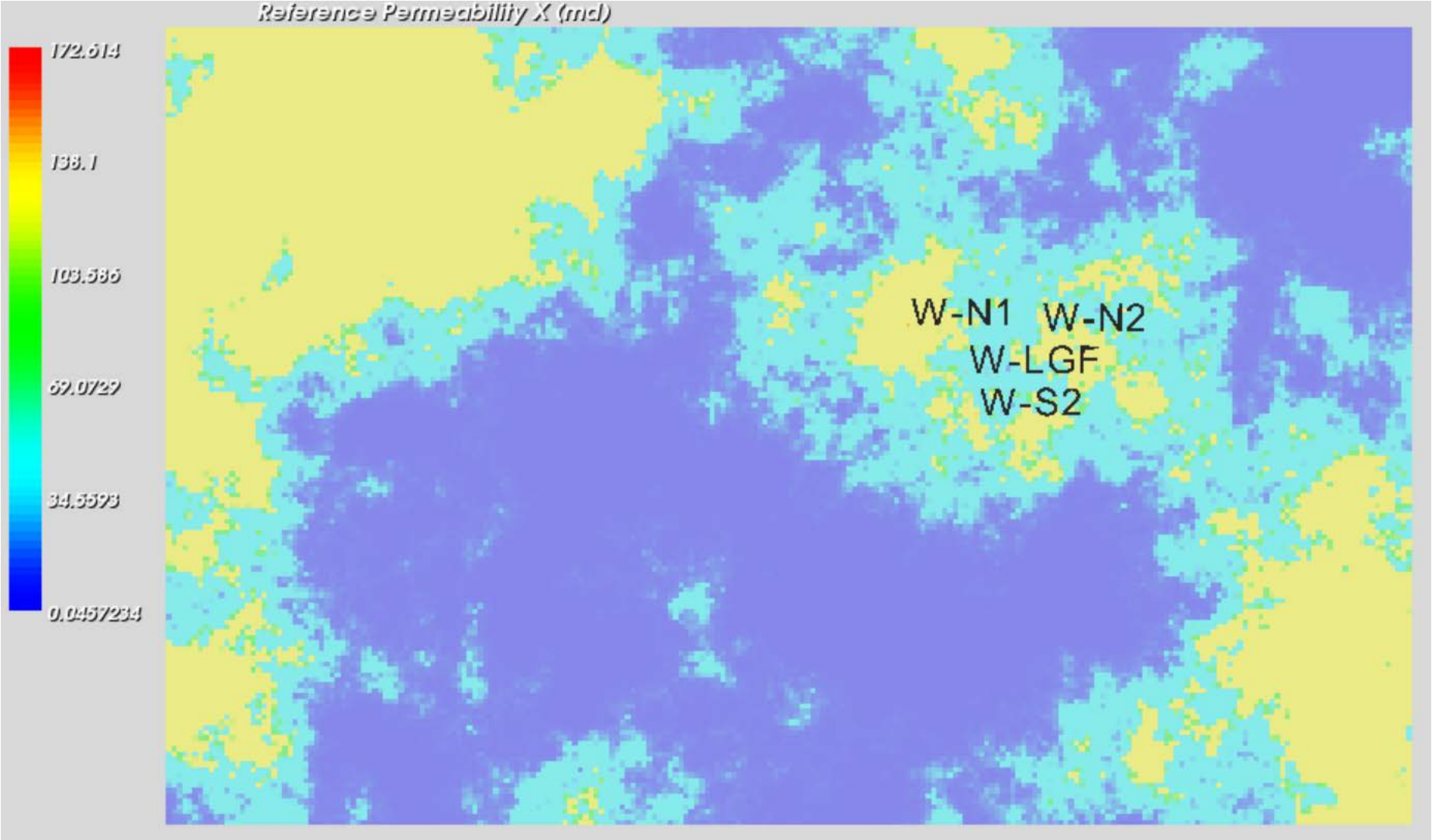
Layer 12 – K = 0.001 md

Upper Tuscaloosa Lower Interval / Paluxy Permeability – Layer 13



Grid Permeability = Original Permeability x NG

Upper Tuscaloosa Lower Interval / Paluxy Permeability – Layer 14

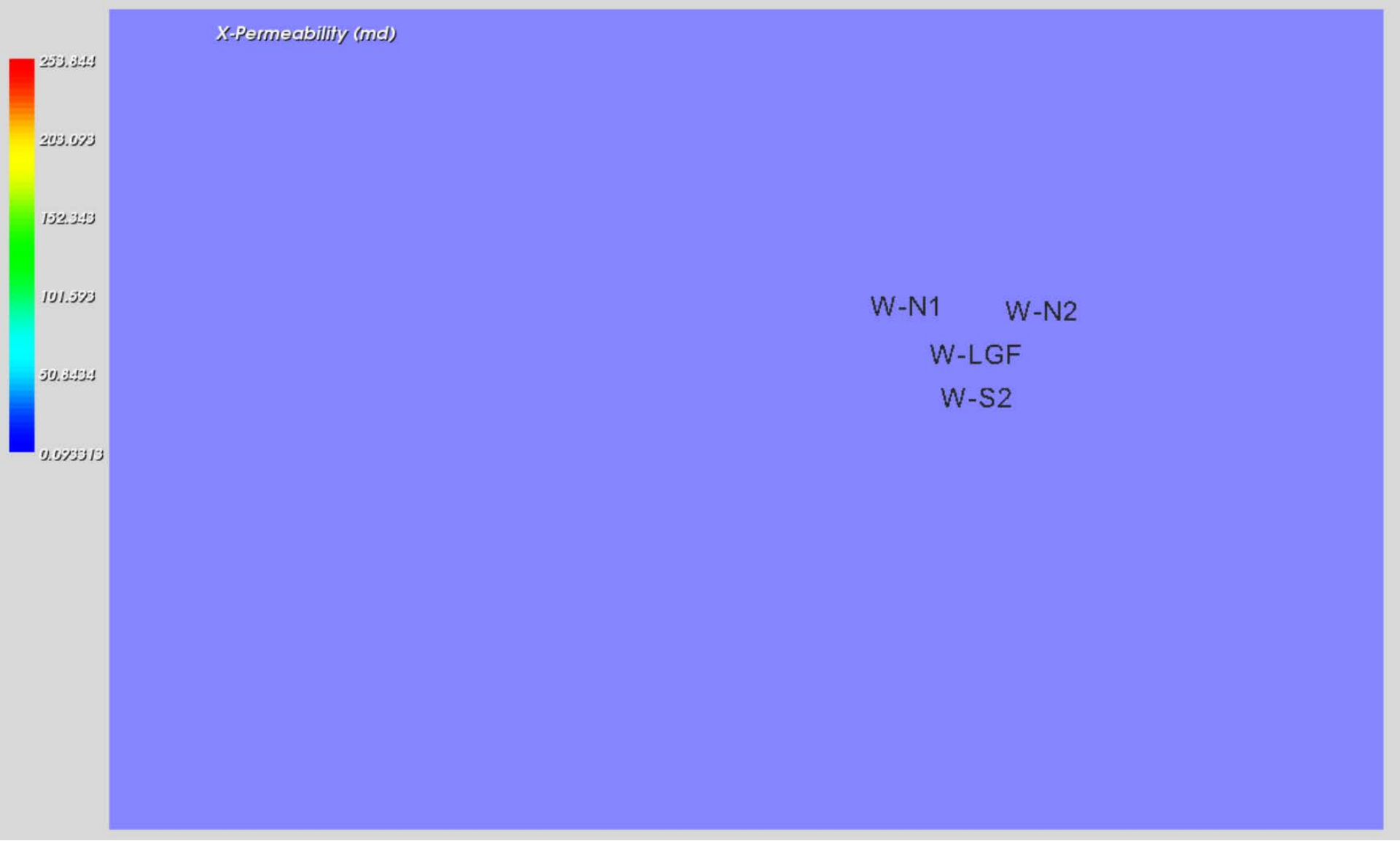


Grid Permeability = Original Permeability x NG

Upper Tuscaloosa Lower Interval / Paluxy Permeability – Layer 15

Grid Permeability = Original Permeability x NG

Upper Tuscaloosa Lower Interval / Paluxy Permeability – Layer 16



Grid Permeability = Original Permeability x NG

Upper Tuscaloosa Lower Interval / Paluxy Permeability – Layer 17

Grid Permeability = Original Permeability x NG

Upper Tuscaloosa Lower Interval / Paluxy Permeability – Layer 18

Grid Permeability = Original Permeability x NG

Upper Tuscaloosa Lower Interval / Paluxy Permeability – Layer 19

Grid Permeability = Original Permeability x NG

Upper Tuscaloosa Lower Interval / Paluxy Relative Permeability

RelPerm Section: saturation function model and data

Relative Permeability Table: Rel Perm 1 | Family Type: Family1 (W-G) | Data Entry: Parametric

Type : Drainage, Tension : Initial (HT), Region : <All>, Direction : <All>

Water			
Sw	Krw	Krow	PCow
fraction			psi
0.2			182
0.202			63.8
0.222			36.5
0.242			24.9
0.262			18.7
0.282			14.7
0.302			12.1
0.322			10.2
0.342			8.8
0.362			7.7
0.381			6.83

Oil		
So	Krow	Krog
fraction		

Gas			
Sg	Krg	Krog	PCog
fraction			psi
0			0

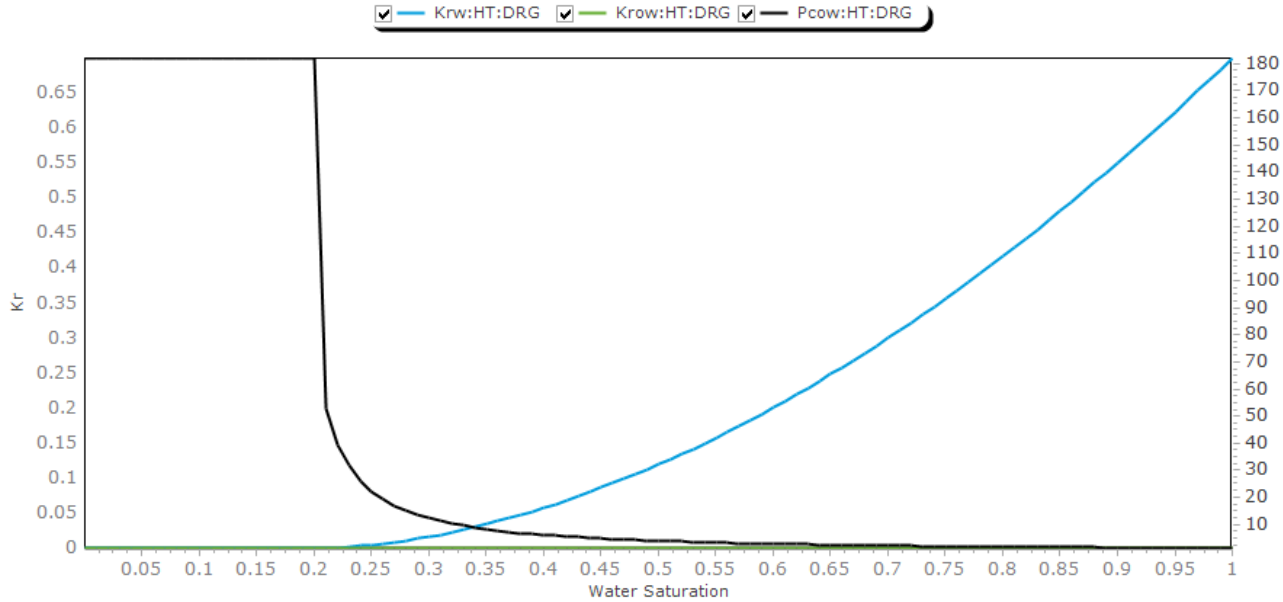
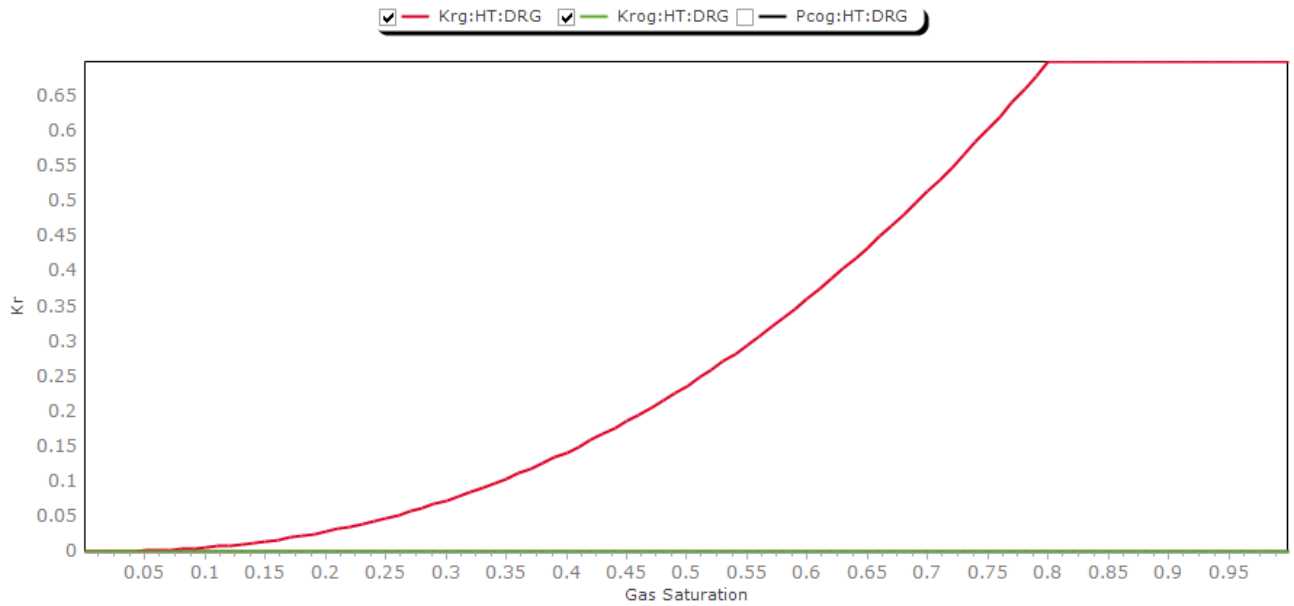
Emulsion	
Sm	Krm
fraction	

WAG2P	
Sw	Krw
fraction	

WAG3P	
Sw	Krw
fraction	

Phase	Parametric		
	Critical Saturation	Endpoint	Exponent
	fraction		
Water	0.2	0.7	1.8
Oil-Water	0	0	0
Oil-Gas	0	0	0
Gas	0	0.7	2.3
Emulsion			
WAG2P			
WAG3P			

- control
- reservoir
- physical
- **relperm**
  - options
  - coverage
  - **sat func**
  - EPS
  - EPS imbibition
  - EPS extende
- aquifer
- mobility
- phase
- adsorption
- wchemistry
- solids
- well
- wellbore heating
- initialisation
- schedule

Previous | Next | Finish | Cancel | Help | Validate | Plot | Calculate

Upper Tuscaloosa Lower Interval / Paluxy Relative Perm and Pc