

Norne public MCP demonstration — EQLNUM 1 and 3

Immutable numerical evidence. Source statuses and NOT RUN checks are preserved. Not recoverable reserves or a production forecast.

Report 1: regional_volumes

Status: PASS; independent validation: PASS

analysis_report-077652fc8df1408d r1 · SHA-256 32ee6dc7aae165042f3f10cf822b0114ae7b8d79b3c992eca1bbf5902f83e241

scope

Static initial oil and free gas, not recoverable reserves or production forecast

assumptions

PUBLIC DEMO ONLY: static sensitivity benchmark, not Norne reserves or simulator initialization

Source coordinates are metres and positive depth; canonical Z is negative source depth; CRS/datum are unverified

Explicit demo fluid assumptions: $S_w=0.25$, $B_o=1.2$ rm³/sm³, $B_g=0.005$ rm³/sm³, oil-zone $S_g=0$, gas-zone $S_o=0.05$

Only EQLNUM 1 and 3 are selected for the regional calculation; the original ACTNUM is preserved

QC findings in other regions remain visible; no cells are silently repaired or removed

limitations

Six-tetrahedron cell geometry convention; Z is positive upward

Saturation-height functions are evaluated at the mean corner height of each selected cell

Polygon selection, when requested, keeps whole cells by mean corner XY; no polygon fractional clipping

Free-gas GIIP excludes dissolved gas; all residual phase saturations and B_o/B_g are explicit user inputs

metric_definitions

GRV: Full active selected region bulk volume m³

GRV_oil_interval: Bulk above OWC and below GOC when provided, m³

NetRockVolume: Oil interval bulk times NTG, m³

PV: Oil interval net pore volume, m³

HCPV: Oil interval pore volume times $(1-S_w-S_{g_oil})$, m³

STOIIP: Initial oil HCPV/Bo, standard m3; not recoverable reserves

TotalPV: Whole selected region net pore volume, m3

GasGRV: Bulk above GOC, m3

GasPV: Gas interval net pore volume, m3

GasHCPV: Gas interval pore volume times (1-Sw-So_gas), m3

GIIP: Free-gas GasHCPV/Bg, standard m3; excludes dissolved gas

independent_checks

scenario: EQUIL-regions-1-and-3; region_id: 1; name: independent_determinant_hull_integral; status: PASS; max_absolute_difference: 7.990002632141113e-05

scenario: EQUIL-regions-1-and-3; region_id: 3; name: independent_determinant_hull_integral; status: PASS; max_absolute_difference: 1.7657876014709473e-05

Report 2: sensitivity_tornado

Status: PASS; independent validation: PASS

analysis_report-0abbc28a52bd4100 r1 · SHA-256 3ad4376b5b06bb7e1df94c294b183c6c73e74295832b59b81739a79ff8a25b69

scope

Static initial oil and free gas, not recoverable reserves or production forecast

assumptions

PUBLIC DEMO ONLY: static sensitivity benchmark, not Norne reserves or simulator initialization

Source coordinates are metres and positive depth; canonical Z is negative source depth; CRS/datum are unverified

Explicit demo fluid assumptions: Sw=0.25, Bo=1.2 rm3/sm3, Bg=0.005 rm3/sm3, oil-zone Sg=0, gas-zone So=0.05

Only EQLNUM 1 and 3 are selected for the regional calculation; the original ACTNUM is preserved

QC findings in other regions remain visible; no cells are silently repaired or removed

limitations

Six-tetrahedron cell geometry convention; Z is positive upward

Saturation-height functions are evaluated at the mean corner height of each selected cell

Polygon selection, when requested, keeps whole cells by mean corner XY; no polygon fractional clipping

Free-gas GIIP excludes dissolved gas; all residual phase saturations and Bo/Bg are explicit user inputs

One-at-a-time tornado ranges have no inferred probabilities and do not capture interactions

metric_definitions

GRV: Full active selected region bulk volume m3

GRV_oil_interval: Bulk above OWC and below GOC when provided, m3

NetRockVolume: Oil interval bulk times NTG, m3

PV: Oil interval net pore volume, m3

HCPV: Oil interval pore volume times $(1-S_w-S_{g_oil})$, m3

STOIIP: Initial oil HCPV/Bo, standard m3; not recoverable reserves

TotalPV: Whole selected region net pore volume, m3

GasGRV: Bulk above GOC, m3

GasPV: Gas interval net pore volume, m3

GasHCPV: Gas interval pore volume times $(1-S_w-S_{o_gas})$, m3

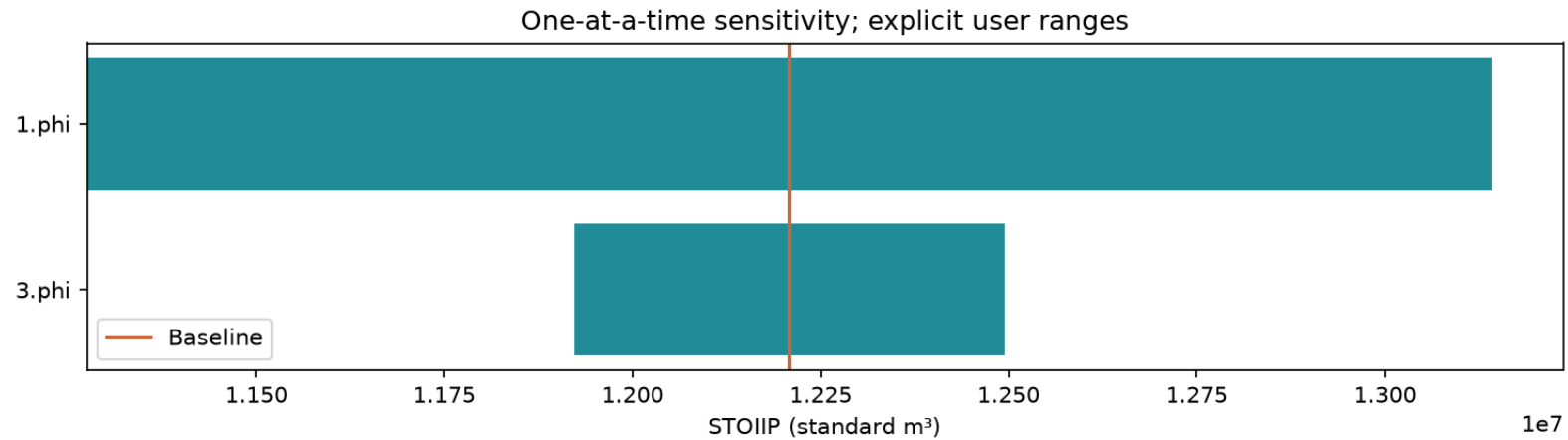
GIIP: Free-gas GasHCPV/Bg, standard m3; excludes dissolved gas

independent_checks

scenario: EQUIL-regions-1-and-3; region_id: 1; name: independent_determinant_hull_integral; status: PASS; max_absolute_difference: 7.990002632141113e-05

scenario: EQUIL-regions-1-and-3; region_id: 3; name: independent_determinant_hull_integral; status: PASS; max_absolute_difference: 1.7657876014709473e-05

tornado.png



Report 3: model_qc

Status: ISSUES; independent validation: PASS

analysis_report-f313f26f90dd474a r1 · SHA-256 31e2d045ba51b95a5c73dfef43a8231d6a8e31a4f624c3881385151626246a84

scope

Numerical model QC; geological fitness requires review

assumptions

PUBLIC DEMO ONLY: static sensitivity benchmark, not Norne reserves or simulator initialization

Source coordinates are metres and positive depth; canonical Z is negative source depth; CRS/datum are unverified

Explicit demo fluid assumptions: $S_w=0.25$, $B_o=1.2$ rm3/sm3, $B_g=0.005$ rm3/sm3, oil-zone $S_g=0$, gas-zone $S_o=0.05$

Only EQLNUM 1 and 3 are selected for the regional calculation; the original ACTNUM is preserved

QC findings in other regions remain visible; no cells are silently repaired or removed

limitations

Clusters use IJK six-neighbour ACTNUM connectivity, not fault transmissibility or flow connectivity

NTG=0 with positive PORO is a review warning, not inherently invalid geology

Signed trilinear Jacobians diagnose geometry; volume reporting retains declared six-tetrahedron convention

independent_checks

name: tetra_einsum_vs_independent_determinants; status: PASS; cells: 113344

name: active_cluster_accounting; status: PASS

regions

report_index	scenario	region_id	selected_cells	owc_z_m	goc_z_m	bo	bg
1	EQUIL-regions-1-and-3	1	4224	-2692.0	-2582.0	1.2	0.005
1	EQUIL-regions-1-and-3	3	1296	-2618.0	-2582.0	1.2	0.005
2	EQUIL-regions-1-and-3	1	4224	-2692.0	-2582.0	1.2	0.005
2	EQUIL-regions-1-and-3	3	1296	-2618.0	-2582.0	1.2	0.005
3	NOT AVAILABLE	1	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
3	NOT AVAILABLE	2	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
3	NOT AVAILABLE	3	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
3	NOT AVAILABLE	4	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
3	NOT AVAILABLE	5	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE

regions

report_index	scenario	region_id	GRV	GRV_oil_interval	NetRockVolume	PV	HCPV
1	EQUIL-regions-1-and-3	1	317358329.53616685	90356476.14376631	60317764.92650142	14956437.66150937	11217328.246132027
1	EQUIL-regions-1-and-3	3	126940440.34922123	23763418.98388316	18244977.615666162	4577369.5391396005	3433027.1543547
2	EQUIL-regions-1-and-3	1	317358329.53616685	90356476.14376631	60317764.92650142	14956437.66150937	11217328.246132027
2	EQUIL-regions-1-and-3	3	126940440.34922123	23763418.98388316	18244977.615666162	4577369.5391396005	3433027.1543547
3	NOT AVAILABLE	1	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
3	NOT AVAILABLE	2	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
3	NOT AVAILABLE	3	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
3	NOT AVAILABLE	4	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
3	NOT AVAILABLE	5	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE

regions

report_index	scenario	region_id	TotalPV	GasGRV	GasPV	GasHCPV	STOIIP
1	EQUIL-regions-1-and-3	1	59484050.34906951	192841095.08877352	38395134.2700135	26876593.989009447	9347773.538443357
1	EQUIL-regions-1-and-3	3	22489076.825437784	28226291.898512136	5868858.953727829	4108201.267609481	2860855.96196225
2	EQUIL-regions-1-and-3	1	59484050.34906951	192841095.08877352	38395134.2700135	26876593.989009447	9347773.538443357
2	EQUIL-regions-1-and-3	3	22489076.825437784	28226291.898512136	5868858.953727829	4108201.267609481	2860855.96196225
3	NOT AVAILABLE	1	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
3	NOT AVAILABLE	2	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
3	NOT AVAILABLE	3	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
3	NOT AVAILABLE	4	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
3	NOT AVAILABLE	5	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE

regions

report_index	scenario	region_id	GIIP	active_cells	GRV_m3	PV_m3	invalid_pore_cells
1	EQUIL-regions-1-and-3	1	5375318797.801889	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
1	EQUIL-regions-1-and-3	3	821640253.5218961	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
2	EQUIL-regions-1-and-3	1	5375318797.801889	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
2	EQUIL-regions-1-and-3	3	821640253.5218961	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
3	NOT AVAILABLE	1	NOT AVAILABLE	4224	317358329.53616685	59484050.34906951	0
3	NOT AVAILABLE	2	NOT AVAILABLE	1227	75486790.95821457	14735334.909008179	0
3	NOT AVAILABLE	3	NOT AVAILABLE	1296	126940440.34922123	22489076.825437784	0
3	NOT AVAILABLE	4	NOT AVAILABLE	5791	244605874.28768277	51484341.123744845	0
3	NOT AVAILABLE	5	NOT AVAILABLE	32389	2610780808.314165	525059022.8112906	0

scenarios

report_index	scenario	GRV	GRV_oil_interval	NetRockVolume	PV	HCPV
1	EQUIL-regions-1-and-3	444298769.8853881	114119895.12764947	78562742.54216759	19533807.20064897	14650355.400486726
2	EQUIL-regions-1-and-3	444298769.8853881	114119895.12764947	78562742.54216759	19533807.20064897	14650355.400486726

scenarios

report_index	scenario	STOIIP	TotalPV	GasGRV	GasPV	GasHCPV
1	EQUIL-regions-1-and-3	12208629.500405606	81973127.17450729	221067386.98728564	44263993.22374132	30984795.25661893
2	EQUIL-regions-1-and-3	12208629.500405606	81973127.17450729	221067386.98728564	44263993.22374132	30984795.25661893

scenarios

report_index	scenario	GIIP
1	EQUIL-regions-1-and-3	6196959051.323786
2	EQUIL-regions-1-and-3	6196959051.323786

tornado

report_index	parameter	mode	input_low	input_high	baseline
2	1.phi	multiplier	0.9	1.1	12208629.500405606
2	3.phi	multiplier	0.9	1.1	12208629.500405606

tornado

report_index	metric_low	metric_high	delta_low	delta_high	swing
2	11273852.146561272	13143406.854249947	-934777.3538443334	934777.3538443409	1869554.7076886743
2	11922543.904209383	12494715.096601833	-286085.59619622305	286085.5961962268	572171.1923924498