



February 29th, 2011

Manitoba Science, Technology, Energy and Mines
Box 1359, 227 King Street West
Virden, Manitoba
R0M 2C0

Attn: Jennifer Abel
Chief Petroleum Engineer

Re: South Pierson Unit No. 1 2011 Waterflood Progress Report

Please find the attached 2011 Waterflood Progress Report for South Pierson Unit No. 1.

If you have any questions or concerns, please contact the undersigned at (403) 386-5335.

Yours truly,

Brittany Trask, E.I.T.
Exploitation Engineer
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Canadian Natural Resources Limited

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South Pierson Unit No. 1 2011 Progress Report

The Pierson area continued to increase in activity for Canadian Natural Resources Limited (CNRL) in 2011. With record setting rainfall, lots of drilling, converting wells into injectors, building pipelines to start waterflooding in South Pierson Unit No. 2, and conducting a pressure survey; there were times that South Pierson Unit No. 1 had longer than usual downtime.

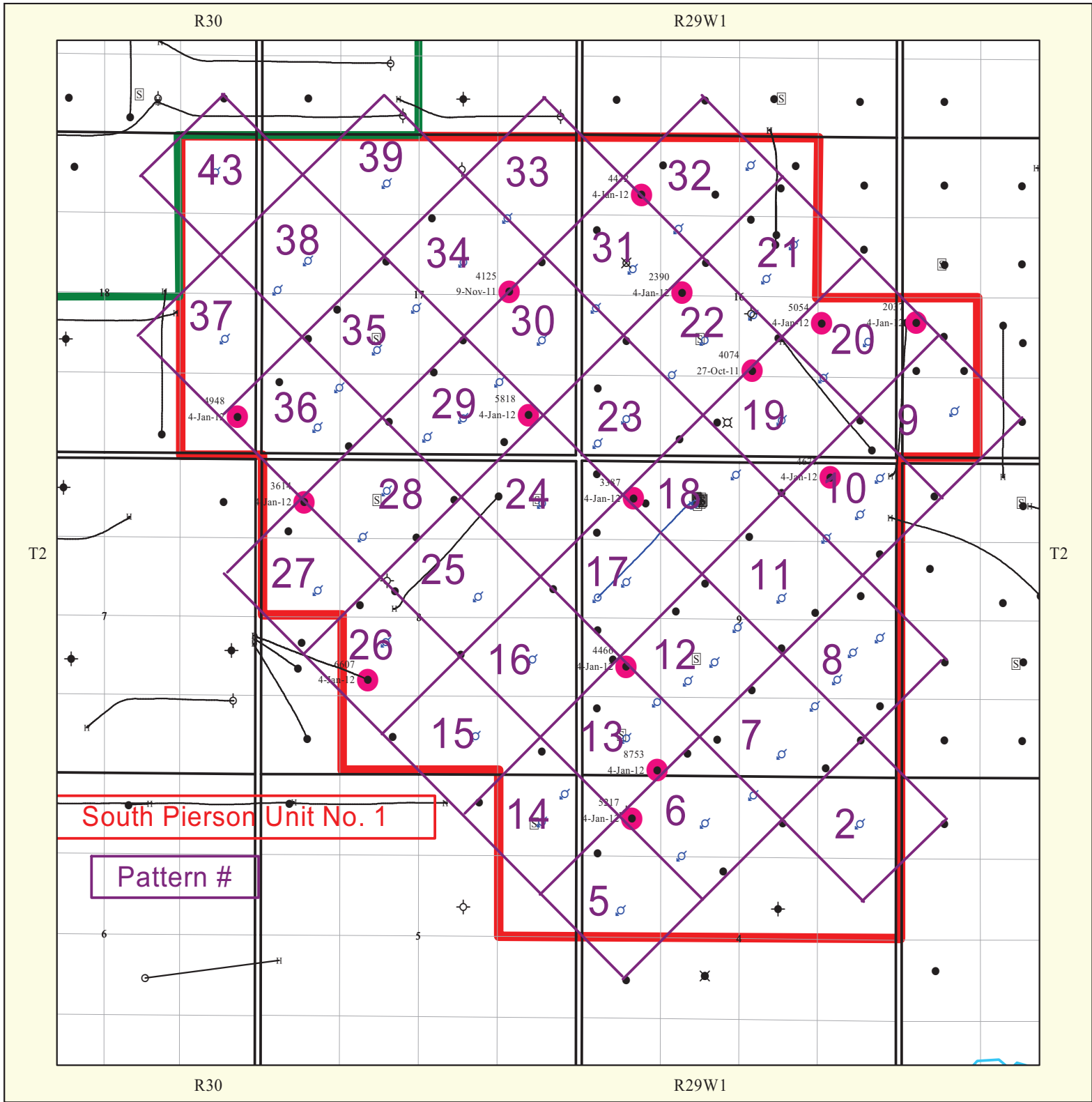
A spike in oil production was seen early in 2011 due to the horizontal well that was drilled in 2010. Production from the horizontal well declined quite quickly and along with wells being shut in due to weather during break up, production fell below the expected trend for several months. In the third quarter, as wells were reactivated, production got back on trend until several wells were shut in to conduct a pressure survey in the unit. A map of the unit is provided in Figure A.1, which highlights the wells that were shut in to do the pressure survey. Historical and forecasted production for the unit can be found in Figures A.2 and A.3, respectively.

Monthly production, injection, instantaneous voidage replacement ratios (VRR's) and cumulative VRR's for each pattern and the overall unit are summarized in Table B.1 and the corresponding plots follow the table. From these plots it can be observed that water oil ratios jumped around a bit over the last year but have remained relatively low with no obvious upward trends that would indicate water breakthrough. Also, it is difficult to determine an obvious trend in the gas oil ratios that may indicate that the overall reservoir pressure is decreasing.

A summary of the cumulative production and injection for the overall unit and each pattern can be found in Table C.1 and in the subsequent plots. The average injection pressures and daily injection rates for each injector are entered in Table D.1 and their respective injection plots follow. It has been an ongoing project to try and increase injectivity by doing solvent stimulations on injectors as well as by cleaning up the water more effectively with an additional filtration system. The additional filtration system consists of a Tri-Sep vessel to assist with the original bag filters and should be commissioned in the early part of 2012. Turbidity along with oil and grease testing are being conducted regularly to ensure water quality

A list of the workovers done in the unit over the past year can be found in Table E.1. The pressure survey that commenced in late October 2011 and was wrapped up in early January 2012 is summarized in Table F.1. Results of the pressure survey showed pressures ranging from 2037 kPa up to 8753 kPa, which indicates that some areas are being more effectively waterflooded than others. Further work will be done with the results of the pressure survey to try and correlate the lower pressures to injectivity problems and work on rectifying them if possible.

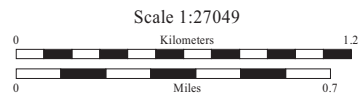
Due to the recent success of the horizontal Spearfish wells in Pierson, the porosity cutoff used for mapping the original oil in place (OOIP) was lowered. This resulted in the OOIP increasing to $7,118 \text{ E}^3\text{m}^3$ from $4,339 \text{ E}^3\text{m}^3$ and the recovery factors (RF's) decreasing. The expected 20 acre waterflood RF went from 23% to 14% and it is anticipated that production will get back on trend in 2012 after the wells that were shut in for the pressure survey are back on production.



WELL LEGEND	
Bottom Hole Locations:	
○ Location	◇ Suspended
✕ Service or Drain	● Oil
□ Dry & Abandoned	◆ Abandoned Oil
✕ Abandoned Service	⊕ Injection
Surface Hole Locations:	
—○— Directional	— Horizontal
Well Postings:	
WC Pressure (kPa)	Date *

WELL LISTS	
★	SPU 1 - 2011-2012 Pressure Survey

Canadian Natural Resources L	
SPU 1 2011 Progress Report Figure A.1	
	Created in AcquiMap™ Product of IHS Datum: NAD27 Vol. 22 No. 02, Jan 27 2012 (403) 770-4646
Grid Information: DLS: IHS Enhanced Grid NTS: Theoretical Grid FPS: Theoretical Grid US: IHS US Grid	Author: Brittany Trask Date: February 29, 2012 File: Pierson - 2009 Progress Report Scale: 1 : 27049 Projection: Stereographic Center: N49.11372 W101.31935 DLS Version Information: AB: ATS 2.6 BC: PRB 2.0 SK: STS 2.5 MB: ML107



South Pierson Unit No 1 Production History

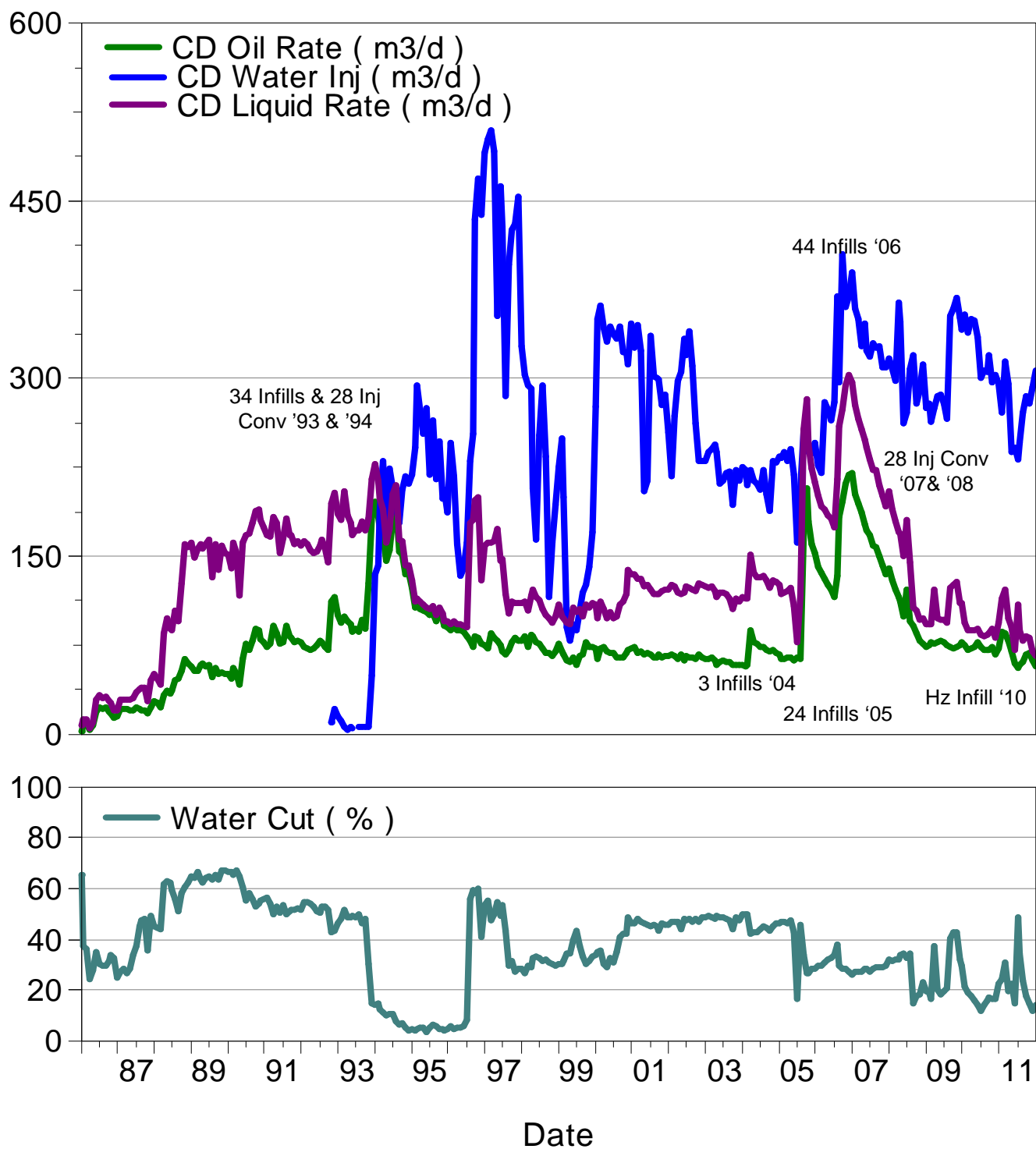


Figure A.2

South Pierson Unit No. 1 - Forecast

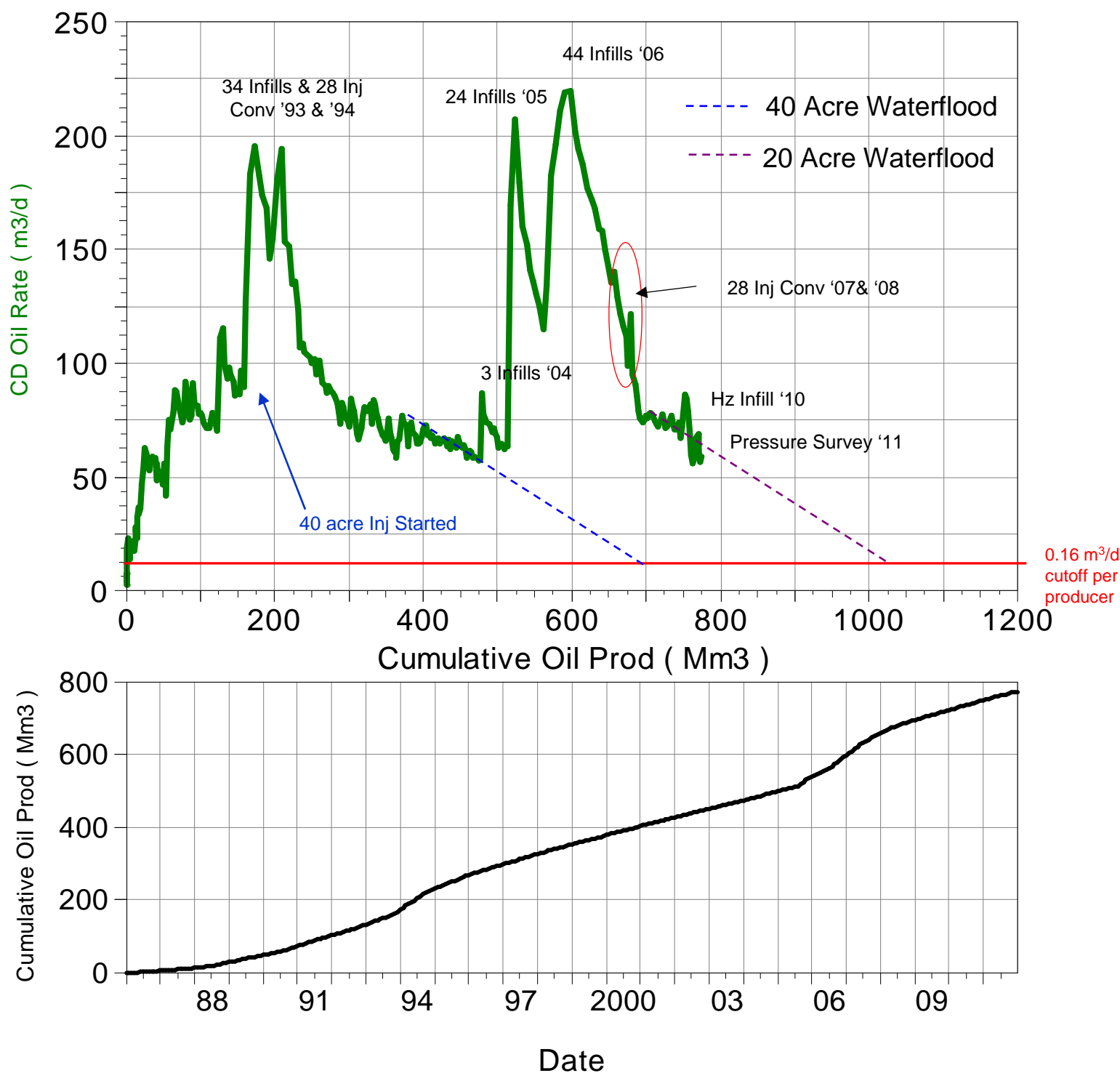


Figure A.3

TABLE B.1: 2011 MONTHLY PRODUCTION, INJECTION AND VRR BY PATTERN

	Month	CD Oil Rate (m ³ /d)	CD Water Inj Rate (m ³ /d)	Gas Oil Ratio m ³ /m ³	Water Oil Ratio m ³ /m ³	Monthly VRR	Cum VRR
OVERALL UNIT	January	86.52	270.59	43.73	0.32	2.07	1.26
	February	84.39	314.14	57.60	0.44	2.28	1.27
	March	78.88	294.95	71.16	0.24	2.62	1.27
	April	70.28	237.96	73.76	0.29	2.29	1.27
	May	59.82	241.48	84.02	0.18	2.96	1.28
	June	56.03	231.01	122.70	0.96	1.92	1.28
	July	57.89	245.38	50.70	0.52	2.48	1.28
	August	60.42	271.80	44.21	0.31	3.00	1.28
	September	67.32	285.30	89.01	0.22	3.01	1.29
	October	68.72	278.42	102.51	0.17	2.97	1.29
	November	61.66	293.00	147.38	0.14	3.58	1.29
	December	56.53	307.17	176.09	0.16	4.02	1.30
PATTERN: P-02	January	1.07	0.01	154.25	0.03	0.01	0.60
	February	1.08	0.02	154.23	0.05	0.02	0.60
	March	1.00	0.04	132.64	0.07	0.03	0.60
	April	0.87	0.05	120.46	0.09	0.05	0.60
	May	0.76	0.05	105.49	0.04	0.06	0.59
	June	0.83	0.06	93.47	0.04	0.06	0.59
	July	1.07	0.05	12.77	0.03	0.04	0.59
	August	1.10	0.04	7.36	0.05	0.03	0.59
	September	1.30	0.04	0.00	0.03	0.03	0.58
	October	1.22	0.03	0.00	0.04	0.02	0.58
	November	0.75	0.02	0.00	0.03	0.03	0.58
	December	0.59	0.02	0.00	0.02	0.03	0.58
PATTERN: P-05	January	0.31	1.07	125.33	0.31	2.32	0.88
	February	0.25	1.05	373.24	0.64	2.25	0.89
	March	0.28	1.08	414.29	0.56	2.18	0.89
	April	0.27	0.96	376.54	0.75	1.82	0.90
	May	0.18	1.00	284.44	0.89	2.64	0.90
	June	0.18	0.98	322.43	0.24	3.84	0.90
	July	0.18	1.06	322.73	0.13	4.54	0.91
	August	0.17	1.06	331.78	0.21	4.40	0.92
	September	0.06	1.03	0.00	0.52	9.33	0.92
	October	0.10	1.03	0.00	0.42	6.19	0.93
	November	0.08	0.98	0.00	0.43	7.37	0.93
	December	0.13	0.96	0.00	0.38	4.58	0.94
PATTERN: P-06	January	2.12	2.13	41.76	0.07	0.80	0.63
	February	2.00	1.95	83.33	0.08	0.77	0.63
	March	1.91	1.92	75.59	0.06	0.81	0.63
	April	1.57	1.91	55.17	0.03	1.00	0.63
	May	1.46	2.09	67.52	0.03	1.18	0.63
	June	1.42	1.88	66.78	0.03	1.08	0.63
	July	1.49	1.85	23.86	0.02	1.03	0.63
	August	1.50	1.80	23.68	0.03	0.98	0.63
	September	1.76	2.16	200.69	0.06	0.98	0.64
	October	2.04	2.14	319.15	0.11	0.81	0.64
	November	1.64	2.82	372.80	0.09	1.35	0.64
	December	1.31	1.48	507.33	0.14	0.85	0.64

TABLE B.1: 2011 MONTHLY PRODUCTION, INJECTION AND VRR BY PATTERN

	Month	CD Oil Rate (m ³ /d)	CD Water Inj Rate (m ³ /d)	Gas Oil Ratio m ³ /m ³	Water Oil Ratio m ³ /m ³	Monthly VRR	Cum VRR
PATTERN: P-07	January	2.84	1.62	65.89	1.05	0.26	0.23
	February	2.74	1.59	72.54	1.11	0.25	0.23
	March	2.78	18.93	49.81	0.04	5.54	0.24
	April	2.68	16.33	37.37	0.49	3.64	0.25
	May	2.47	14.25	38.59	0.02	4.77	0.25
	June	2.50	12.45	230.02	4.17	0.93	0.26
	July	2.68	12.74	8.42	2.12	1.44	0.26
	August	2.68	12.48	4.22	0.29	3.16	0.27
	September	3.13	10.37	113.29	0.02	2.74	0.27
	October	3.04	9.80	142.77	0.03	2.64	0.28
	November	2.59	10.57	235.68	0.02	3.39	0.28
	December	2.34	7.68	285.68	0.01	2.73	0.28
PATTERN: P-08	January	2.13	77.21	87.22	1.41	13.98	2.67
	February	1.91	90.66	91.42	1.61	16.91	2.70
	March	2.03	72.95	107.36	0.04	29.21	2.72
	April	2.03	49.55	112.43	0.64	13.33	2.74
	May	1.76	52.71	118.86	0.06	24.05	2.76
	June	1.70	47.17	406.21	6.17	3.76	2.76
	July	1.97	52.12	67.21	2.91	6.46	2.78
	August	1.83	56.27	29.14	0.47	18.51	2.79
	September	1.88	53.65	0.00	0.07	22.71	2.81
	October	1.73	53.74	0.00	0.08	24.55	2.83
	November	1.52	67.93	0.00	0.06	35.63	2.86
	December	1.49	93.38	0.00	0.07	49.69	2.89
PATTERN: P-09	January	2.09	4.54	28.24	0.23	1.54	0.93
	February	2.42	4.88	54.50	0.36	1.30	0.93
	March	2.84	5.18	85.62	0.31	1.22	0.93
	April	2.71	4.21	103.16	0.47	0.93	0.93
	May	2.48	5.06	118.61	0.43	1.26	0.93
	June	2.50	4.90	121.13	0.51	1.15	0.93
	July	2.40	5.28	115.09	0.28	1.50	0.94
	August	2.31	5.19	101.82	0.47	1.35	0.94
	September	2.56	4.55	100.98	0.38	1.13	0.94
	October	2.50	4.73	107.76	0.43	1.17	0.94
	November	2.44	4.76	135.90	0.36	1.26	0.94
	December	2.43	5.00	149.67	0.39	1.30	0.94
PATTERN: P-10	January	2.16	5.61	41.38	0.01	2.17	1.18
	February	2.12	5.30	40.52	0.01	2.08	1.18
	March	2.24	6.44	46.84	0.01	2.40	1.18
	April	2.22	5.53	50.64	0.01	2.07	1.18
	May	1.95	6.27	70.00	0.02	2.67	1.18
	June	2.00	6.45	78.65	0.04	2.63	1.19
	July	2.08	5.90	62.56	0.02	2.35	1.19
	August	1.94	5.79	32.34	0.03	2.44	1.19
	September	2.17	7.15	161.78	0.03	2.71	1.19
	October	2.05	5.33	183.32	0.03	2.12	1.19
	November	1.82	5.27	289.17	0.03	2.36	1.19
	December	1.84	4.91	313.57	0.04	2.17	1.20

TABLE B.1: 2011 MONTHLY PRODUCTION, INJECTION AND VRR BY PATTERN

	Month	CD Oil Rate (m ³ /d)	CD Water Inj Rate (m ³ /d)	Gas Oil Ratio m ³ /m ³	Water Oil Ratio m ³ /m ³	Monthly VRR	Cum VRR
PATTERN: P-11	January	3.27	1.60	31.53	0.91	0.23	2.22
	February	3.01	1.54	31.44	1.01	0.23	2.22
	March	3.14	3.13	33.16	0.01	0.83	2.21
	April	3.15	2.29	32.77	0.39	0.46	2.21
	May	3.06	2.18	41.90	0.01	0.59	2.21
	June	2.90	2.00	213.08	3.60	0.14	2.20
	July	3.42	1.98	39.39	1.66	0.20	2.19
	August	3.23	1.70	30.50	0.25	0.37	2.19
	September	3.26	3.11	141.40	0.02	0.79	2.19
	October	3.17	1.96	155.80	0.02	0.51	2.18
	November	3.10	2.99	223.08	0.06	0.77	2.18
	December	3.01	2.38	251.93	0.07	0.63	2.18
PATTERN: P-12	January	3.12	11.52	40.89	0.95	1.73	0.82
	February	2.99	10.99	50.21	1.02	1.66	0.82
	March	3.11	15.01	50.51	0.03	3.96	0.83
	April	3.16	12.56	37.71	0.41	2.49	0.83
	May	3.16	12.88	36.71	0.02	3.37	0.83
	June	2.99	12.55	197.24	3.49	0.90	0.83
	July	3.25	12.98	14.88	1.74	1.36	0.83
	August	3.21	12.80	2.26	0.24	2.79	0.84
	September	3.36	10.68	204.33	0.02	2.64	0.84
	October	3.23	11.38	244.43	0.03	2.90	0.84
	November	3.04	10.21	365.03	0.06	2.69	0.85
	December	2.91	8.76	416.77	0.07	2.39	0.85
PATTERN: P-13	January	2.14	3.24	72.51	0.01	1.26	1.82
	February	2.18	1.74	94.52	0.01	0.66	1.81
	March	2.19	1.34	104.49	0.01	0.51	1.81
	April	2.31	1.92	80.09	0.01	0.69	1.81
	May	1.82	1.41	77.26	0.02	0.64	1.81
	June	1.51	1.39	75.01	0.02	0.76	1.81
	July	1.31	0.88	54.19	0.00	0.57	1.81
	August	1.31	1.79	57.37	0.01	1.15	1.81
	September	1.92	1.71	569.62	0.02	0.74	1.80
	October	1.99	0.92	725.29	0.04	0.38	1.80
	November	1.76	0.89	975.63	0.03	0.42	1.80
	December	1.60	1.46	1178.10	0.02	0.75	1.80
PATTERN: P-14	January	1.12	3.79	64.84	0.01	2.83	0.97
	February	1.23	2.40	100.07	0.01	1.63	0.97
	March	1.33	2.64	114.96	0.01	1.66	0.97
	April	1.32	2.21	105.23	0.01	1.39	0.97
	May	1.08	0.72	87.99	0.01	0.55	0.97
	June	0.96	0.71	98.62	0.01	0.61	0.97
	July	0.95	0.17	99.92	0.00	0.15	0.97
	August	0.63	1.11	146.31	0.01	1.47	0.97
	September	0.47	1.27	0.00	0.01	2.23	0.97
	October	0.43	2.52	0.00	0.02	4.87	0.97
	November	0.35	2.85	0.00	0.01	6.86	0.97
	December	0.49	2.95	0.00	0.01	5.01	0.97

TABLE B.1: 2011 MONTHLY PRODUCTION, INJECTION AND VRR BY PATTERN

	Month	CD Oil Rate (m ³ /d)	CD Water Inj Rate (m ³ /d)	Gas Oil Ratio m ³ /m ³	Water Oil Ratio m ³ /m ³	Monthly VRR	Cum VRR
PATTERN: P-15	January	2.04	3.13	31.95	0.04	1.25	0.51
	February	2.23	3.04	47.14	0.05	1.10	0.51
	March	2.37	3.05	61.33	0.04	1.05	0.51
	April	2.36	2.72	61.73	0.05	0.93	0.51
	May	2.18	2.86	65.21	0.04	1.07	0.51
	June	1.46	2.87	74.29	0.06	1.58	0.52
	July	1.14	2.63	85.63	0.04	1.88	0.52
	August	0.80	2.93	117.35	0.08	2.86	0.52
	September	1.04	2.75	0.00	0.03	2.16	0.52
	October	1.53	2.70	0.00	0.02	1.46	0.53
	November	1.30	2.73	0.00	0.02	1.74	0.53
	December	1.25	2.35	0.00	0.02	1.56	0.53
PATTERN: P-16	January	2.89	2.67	61.99	0.01	0.77	1.12
	February	3.02	2.09	64.16	0.01	0.58	1.12
	March	3.01	1.86	85.25	0.01	0.52	1.12
	April	3.03	1.88	71.17	0.01	0.52	1.12
	May	2.29	1.73	62.68	0.01	0.63	1.12
	June	1.61	1.70	55.01	0.01	0.88	1.11
	July	1.27	1.73	59.57	0.00	1.14	1.11
	August	1.28	1.77	72.19	0.01	1.15	1.11
	September	2.72	2.02	332.79	0.02	0.62	1.11
	October	3.18	1.98	304.61	0.02	0.51	1.11
	November	2.89	1.92	470.70	0.02	0.55	1.11
	December	2.52	1.91	590.49	0.02	0.63	1.11
PATTERN: P-17	January	3.55	4.71	40.91	0.01	1.10	0.73
	February	3.46	5.20	45.71	0.02	1.24	0.73
	March	3.47	5.72	58.56	0.01	1.37	0.73
	April	3.40	4.85	72.53	0.01	1.19	0.73
	May	3.09	5.15	68.98	0.01	1.39	0.73
	June	3.06	5.08	65.41	0.02	1.38	0.73
	July	3.37	5.48	43.08	0.01	1.35	0.74
	August	3.36	5.85	36.26	0.02	1.44	0.74
	September	3.61	5.35	138.14	0.02	1.23	0.74
	October	3.32	5.24	160.76	0.02	1.30	0.74
	November	3.21	5.56	233.30	0.07	1.38	0.74
	December	3.06	5.31	267.97	0.08	1.36	0.74
PATTERN: P-18	January	3.70	15.77	17.90	0.10	3.31	0.64
	February	3.58	16.06	29.92	0.17	3.30	0.64
	March	3.60	8.19	36.30	0.13	1.72	0.64
	April	3.69	9.69	70.48	0.14	1.98	0.64
	May	3.53	10.13	84.25	0.12	2.19	0.65
	June	3.87	10.39	80.42	0.14	2.02	0.65
	July	4.02	10.05	42.34	0.07	1.98	0.65
	August	3.91	9.09	37.16	0.12	1.78	0.65
	September	4.06	8.44	113.61	0.10	1.61	0.65
	October	3.99	8.28	123.80	0.11	1.60	0.65
	November	4.01	7.63	172.61	0.12	1.45	0.65
	December	3.92	6.75	193.70	0.14	1.30	0.65

TABLE B.1: 2011 MONTHLY PRODUCTION, INJECTION AND VRR BY PATTERN

	Month	CD Oil Rate (m ³ /d)	CD Water Inj Rate (m ³ /d)	Gas Oil Ratio m ³ /m ³	Water Oil Ratio m ³ /m ³	Monthly VRR	Cum VRR
PATTERN: P-19	January	1.79	7.32	18.95	0.20	2.95	1.95
	February	1.78	6.86	22.04	0.33	2.54	1.96
	March	1.83	6.12	27.33	0.26	2.31	1.96
	April	1.82	7.70	23.32	0.28	2.87	1.96
	May	1.69	7.96	62.66	0.25	3.29	1.96
	June	1.72	8.25	66.31	0.30	3.21	1.96
	July	1.58	7.77	36.86	0.17	3.62	1.96
	August	1.47	6.60	20.87	0.29	3.04	1.97
	September	1.66	6.18	144.81	0.23	2.62	1.97
	October	1.55	6.08	166.29	0.27	2.68	1.97
	November	1.43	5.26	252.21	0.25	2.57	1.97
	December	1.41	4.50	279.53	0.27	2.19	1.97
PATTERN: P-20	January	1.60	0.62	18.68	0.02	0.32	0.25
	February	1.60	0.91	42.54	0.03	0.47	0.25
	March	1.59	0.68	75.80	0.03	0.35	0.25
	April	1.49	0.56	89.94	0.02	0.31	0.25
	May	1.38	0.57	136.51	0.02	0.34	0.26
	June	1.40	0.87	156.36	0.04	0.51	0.26
	July	1.26	0.56	130.32	0.02	0.37	0.26
	August	1.18	0.31	99.44	0.02	0.22	0.26
	September	1.35	0.49	109.23	0.02	0.30	0.26
	October	1.24	0.61	120.93	0.01	0.41	0.26
	November	1.16	0.32	142.82	0.01	0.23	0.26
	December	1.06	0.15	171.73	0.01	0.12	0.26
PATTERN: P-21	January	1.67	7.47	66.18	0.01	3.73	1.61
	February	1.64	6.49	58.86	0.02	3.28	1.62
	March	1.66	7.05	64.44	0.02	3.51	1.62
	April	1.60	6.67	61.46	0.02	3.44	1.63
	May	1.54	6.69	79.37	0.02	3.57	1.63
	June	1.72	6.46	80.50	0.05	3.03	1.64
	July	1.66	6.98	21.36	0.03	3.45	1.64
	August	1.54	7.08	34.46	0.04	3.73	1.65
	September	1.63	5.70	0.00	0.03	2.87	1.65
	October	1.49	6.43	0.00	0.03	3.54	1.66
	November	1.32	5.14	0.00	0.03	3.19	1.66
	December	1.22	5.06	0.00	0.03	3.39	1.66
PATTERN: P-22	January	2.10	5.03	29.89	0.17	1.76	0.65
	February	2.00	4.21	43.65	0.29	1.42	0.65
	March	1.96	4.44	56.88	0.25	1.58	0.65
	April	1.86	4.72	31.36	0.28	1.72	0.66
	May	1.80	4.79	47.13	0.24	1.87	0.66
	June	1.88	4.67	53.96	0.30	1.66	0.66
	July	1.81	5.00	30.76	0.16	2.04	0.66
	August	1.66	4.67	19.40	0.29	1.90	0.67
	September	1.79	3.56	0.00	0.24	1.39	0.67
	October	1.63	4.28	0.00	0.28	1.79	0.67
	November	1.32	3.08	0.00	0.28	1.59	0.67
	December	1.31	2.85	0.00	0.30	1.46	0.67

TABLE B.1: 2011 MONTHLY PRODUCTION, INJECTION AND VRR BY PATTERN

	Month	CD Oil Rate (m ³ /d)	CD Water Inj Rate (m ³ /d)	Gas Oil Ratio m ³ /m ³	Water Oil Ratio m ³ /m ³	Monthly VRR	Cum VRR
PATTERN: P-23	January	2.77	5.66	25.04	0.16	1.52	1.21
	February	2.70	5.10	39.67	0.27	1.30	1.21
	March	2.72	5.53	49.27	0.22	1.44	1.21
	April	2.44	6.07	47.86	0.21	1.78	1.21
	May	2.04	5.92	48.34	0.20	2.09	1.21
	June	2.36	5.77	58.99	0.23	1.73	1.21
	July	2.28	5.99	22.30	0.13	2.00	1.21
	August	2.25	5.76	11.49	0.20	1.84	1.22
	September	2.58	4.20	0.00	0.16	1.21	1.22
	October	2.81	4.84	0.00	0.20	1.24	1.22
	November	2.80	3.41	0.00	0.16	0.90	1.21
	December	2.76	2.94	0.00	0.18	0.78	1.21
PATTERN: P-24	January	5.59	6.79	20.92	0.30	0.81	0.47
	February	5.52	6.70	28.52	0.47	0.73	0.47
	March	4.40	6.87	31.52	0.42	0.97	0.48
	April	2.79	6.62	60.94	0.22	1.68	0.48
	May	1.60	6.82	80.79	0.10	3.31	0.48
	June	1.28	6.61	90.55	0.01	4.29	0.49
	July	1.60	7.07	52.06	0.10	3.44	0.49
	August	2.44	7.21	44.68	0.27	2.03	0.50
	September	2.88	5.97	57.55	0.22	1.47	0.50
	October	3.50	5.67	50.96	0.23	1.14	0.50
	November	3.56	5.31	70.13	0.19	1.08	0.50
	December	3.20	4.75	85.52	0.24	1.04	0.51
PATTERN: P-25	January	13.46	0.29	18.99	0.48	0.01	0.34
	February	13.62	0.13	28.37	0.72	0.01	0.33
	March	9.51	0.16	41.39	0.73	0.01	0.33
	April	4.61	0.21	54.95	0.54	0.03	0.32
	May	2.02	0.52	81.42	0.32	0.17	0.32
	June	0.58	0.62	149.43	0.09	0.83	0.32
	July	1.40	0.49	55.13	0.41	0.22	0.32
	August	4.36	0.24	37.11	0.59	0.03	0.32
	September	5.33	0.14	31.16	0.46	0.02	0.32
	October	5.82	1.21	30.65	0.44	0.13	0.32
	November	5.43	0.72	45.92	0.36	0.09	0.31
	December	4.81	0.29	56.83	0.47	0.04	0.31
PATTERN: P-26	January	2.96	2.95	23.40	0.14	0.75	0.97
	February	2.88	2.98	47.18	0.23	0.73	0.97
	March	2.68	2.93	75.72	0.18	0.80	0.97
	April	2.32	2.75	76.79	0.20	0.85	0.97
	May	2.17	3.03	80.07	0.16	1.03	0.97
	June	1.55	3.08	78.04	0.32	1.32	0.97
	July	1.55	3.30	68.68	0.27	1.46	0.97
	August	1.85	3.22	68.32	0.48	1.04	0.97
	September	1.87	2.68	0.00	0.36	0.92	0.97
	October	2.04	14.20	0.00	0.26	4.79	0.98
	November	1.55	2.24	0.00	0.19	1.05	0.98
	December	1.33	1.98	0.00	0.24	1.04	0.98

TABLE B.1: 2011 MONTHLY PRODUCTION, INJECTION AND VRR BY PATTERN

	Month	CD Oil Rate (m ³ /d)	CD Water Inj Rate (m ³ /d)	Gas Oil Ratio m ³ /m ³	Water Oil Ratio m ³ /m ³	Monthly VRR	Cum VRR
PATTERN: P-27	January	1.48	0.07	44.24	0.12	0.04	0.47
	February	1.41	0.07	98.29	0.23	0.03	0.47
	March	1.31	0.15	129.23	0.22	0.08	0.47
	April	0.91	0.06	148.08	0.22	0.05	0.46
	May	0.74	0.05	171.77	0.15	0.06	0.46
	June	0.62	0.11	157.68	0.27	0.13	0.46
	July	0.75	0.05	97.22	0.23	0.04	0.46
	August	1.05	0.06	88.19	0.45	0.04	0.46
	September	0.92	0.05	0.00	0.35	0.04	0.46
	October	1.00	0.51	0.00	0.24	0.36	0.46
	November	1.01	0.18	0.00	0.28	0.12	0.46
	December	0.69	0.06	0.00	0.43	0.05	0.46
PATTERN: P-28	January	1.31	2.60	76.26	0.06	1.58	0.56
	February	1.31	2.73	95.56	0.11	1.60	0.57
	March	1.32	2.35	105.49	0.13	1.35	0.57
	April	1.19	2.28	118.18	0.27	1.31	0.57
	May	1.10	2.40	147.79	0.21	1.57	0.58
	June	1.02	2.45	163.68	0.26	1.66	0.58
	July	1.03	2.45	53.21	0.15	1.77	0.58
	August	0.89	2.52	38.95	0.28	1.92	0.59
	September	0.69	1.99	0.00	0.24	2.00	0.59
	October	0.90	2.27	0.00	0.21	1.80	0.59
	November	0.90	1.87	0.00	0.12	1.58	0.59
	December	0.87	1.97	0.00	0.07	1.79	0.60
PATTERN: P-29	January	1.87	3.79	58.21	0.02	1.68	0.39
	February	1.77	4.07	66.20	0.03	1.89	0.40
	March	1.71	3.81	62.88	0.03	1.83	0.40
	April	1.66	3.32	64.06	0.03	1.63	0.40
	May	1.26	3.57	87.37	0.03	2.31	0.41
	June	1.18	3.45	99.37	0.05	2.35	0.41
	July	1.22	3.63	24.55	0.03	2.46	0.42
	August	1.12	3.42	10.82	0.05	2.47	0.42
	September	0.97	2.54	0.00	0.05	2.13	0.42
	October	1.64	2.76	0.00	0.05	1.35	0.43
	November	1.52	2.02	0.00	0.05	1.07	0.43
	December	1.26	2.21	0.00	0.05	1.41	0.43
PATTERN: P-30	January	1.81	6.62	9.80	0.18	2.66	8.74
	February	1.71	37.00	34.00	0.30	14.51	8.76
	March	1.67	12.76	79.19	0.23	5.38	8.74
	April	1.63	11.67	88.11	0.32	4.75	8.73
	May	1.44	3.28	88.57	0.31	1.52	8.71
	June	1.34	3.20	91.87	0.40	1.50	8.68
	July	1.37	4.90	35.23	0.21	2.56	8.66
	August	1.46	4.19	53.96	0.37	1.83	8.64
	September	1.58	40.94	0.00	0.21	18.46	8.67
	October	1.35	71.26	0.00	0.02	43.67	8.76
	November	1.23	100.33	0.00	0.01	67.55	8.89
	December	1.19	60.78	0.00	0.01	42.32	8.96

TABLE B.1: 2011 MONTHLY PRODUCTION, INJECTION AND VRR BY PATTERN

	Month	CD Oil Rate (m ³ /d)	CD Water Inj Rate (m ³ /d)	Gas Oil Ratio m ³ /m ³	Water Oil Ratio m ³ /m ³	Monthly VRR	Cum VRR
PATTERN: P-31	January	2.01	5.67	33.69	0.17	2.07	0.66
	February	1.84	5.53	50.87	0.30	2.02	0.66
	March	1.76	5.90	80.59	0.24	2.35	0.67
	April	1.52	5.14	59.79	0.34	2.21	0.67
	May	1.39	5.56	52.66	0.31	2.67	0.68
	June	1.45	5.59	51.12	0.38	2.46	0.69
	July	1.43	5.92	37.87	0.20	2.98	0.69
	August	1.45	5.81	50.58	0.40	2.52	0.70
	September	1.74	4.93	0.00	0.23	2.00	0.70
	October	1.47	5.21	0.00	0.05	2.86	0.71
	November	0.92	4.29	0.00	0.02	3.84	0.71
	December	0.92	4.05	0.00	0.03	3.61	0.71
PATTERN: P-32	January	2.49	2.37	97.12	0.39	0.60	0.18
	February	2.41	2.48	99.74	0.65	0.56	0.18
	March	2.54	2.53	97.62	0.61	0.55	0.18
	April	2.52	2.28	91.93	0.84	0.45	0.18
	May	2.41	2.55	93.47	0.67	0.57	0.18
	June	2.35	2.61	96.39	0.82	0.55	0.18
	July	2.16	2.55	20.51	0.48	0.70	0.19
	August	2.09	2.48	78.17	0.78	0.60	0.19
	September	2.44	2.15	0.00	0.59	0.49	0.19
	October	2.48	2.64	0.00	0.67	0.57	0.19
	November	2.37	2.11	0.00	0.58	0.50	0.19
	December	2.28	1.98	0.00	0.63	0.48	0.19
PATTERN: P-33	January	0.45		85.41	0.73		0.06
	February	0.36	0.01	127.18	1.46	0.01	0.06
	March	0.32		211.97	1.23		0.06
	April	0.21	0.01	266.13	2.37	0.02	0.06
	May	0.15	0.01	329.84	2.65	0.03	0.06
	June	0.17	0.00	217.39	2.85	0.00	0.06
	July	0.17	0.03	123.81	1.54	0.06	0.06
	August	0.26		156.44	1.98		0.06
	September	0.44	0.03	0.00	0.80	0.03	0.06
	October	0.30	0.01	0.00	0.13	0.02	0.06
	November	0.18	0.05	0.00	0.00	0.23	0.06
	December	0.19	0.00	0.00	0.00	0.01	0.06
PATTERN: P-34	January	1.43		19.12	1.71		0.04
	February	1.34	0.01	72.62	2.87	0.00	0.04
	March	1.13		177.48	1.97		0.04
	April	1.07	0.01	153.97	2.59	0.00	0.04
	May	0.96	0.01	143.93	2.22	0.01	0.04
	June	0.90	0.00	210.97	2.88	0.00	0.04
	July	0.86	0.03	169.01	1.59	0.01	0.04
	August	1.10		166.18	3.58		0.04
	September	1.15	0.03	0.00	3.59	0.01	0.04
	October	0.37	0.01	0.00	3.87	0.00	0.04
	November	0.12	0.05	0.00	0.07	0.33	0.04
	December	0.14	0.00	0.00	0.10	0.02	0.04

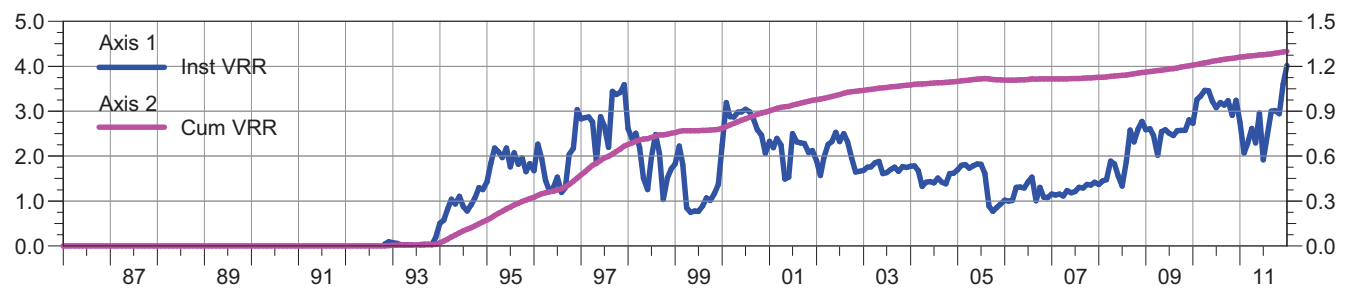
TABLE B.1: 2011 MONTHLY PRODUCTION, INJECTION AND VRR BY PATTERN

	Month	CD Oil Rate (m ³ /d)	CD Water Inj Rate (m ³ /d)	Gas Oil Ratio m ³ /m ³	Water Oil Ratio m ³ /m ³	Monthly VRR	Cum VRR
PATTERN: P-35	January	1.66	2.59	55.91	0.06	1.25	1.87
	February	1.56	2.48	66.55	0.10	1.24	1.86
	March	1.41	2.42	97.48	0.07	1.36	1.86
	April	1.46	2.74	95.59	0.09	1.47	1.86
	May	1.30	2.59	108.83	0.09	1.57	1.86
	June	1.24	2.66	111.04	0.10	1.66	1.86
	July	1.25	2.59	41.85	0.06	1.66	1.86
	August	1.22	2.22	32.51	0.11	1.41	1.86
	September	0.98	1.55	0.00	0.10	1.23	1.86
	October	1.25	2.07	0.00	0.08	1.31	1.86
	November	1.15	1.34	0.00	0.08	0.92	1.86
	December	1.07	1.17	0.00	0.09	0.85	1.86
PATTERN: P-36	January	1.54	1.65	87.53	0.07	0.85	0.98
	February	1.33	1.55	107.38	0.11	0.89	0.98
	March	1.30	1.61	115.46	0.10	0.97	0.98
	April	1.31	1.73	103.18	0.20	0.95	0.98
	May	1.03	1.50	124.90	0.19	1.06	0.98
	June	1.11	1.62	136.19	0.21	1.04	0.98
	July	1.19	1.52	48.23	0.12	0.98	0.98
	August	1.18	1.41	33.36	0.20	0.86	0.98
	September	1.00	1.01	0.00	0.15	0.75	0.98
	October	1.02	1.20	0.00	0.17	0.87	0.98
	November	0.95	0.75	0.00	0.09	0.62	0.98
	December	0.84	0.66	0.00	0.05	0.63	0.98
PATTERN: P-37	January	4.77	0.22	29.90	0.37	0.03	0.51
	February	4.84	0.19	37.30	0.54	0.02	0.49
	March	3.05	0.17	49.12	0.43	0.04	0.48
	April	2.35	0.19	46.42	0.41	0.05	0.48
	May	1.79	0.20	34.78	0.23	0.08	0.47
	June	0.40	0.25	145.57	0.09	0.49	0.47
	July	0.39	0.17	78.84	0.02	0.36	0.47
	August	1.05	0.18	26.03	0.30	0.11	0.47
	September	1.72	0.17	0.00	0.51	0.06	0.47
	October	2.41	1.78	0.00	0.47	0.44	0.47
	November	2.32	3.83	0.00	0.39	1.05	0.48
	December	1.82	3.17	0.00	0.47	1.05	0.48
PATTERN: P-38	January	0.50	0.00	63.31	0.16	0.00	0.22
	February	0.42	0.07	105.49	0.26	0.12	0.22
	March	0.26		263.16	0.24		0.22
	April	0.32	0.03	172.24	0.27	0.05	0.22
	May	0.27	0.01	188.06	0.27	0.03	0.22
	June	0.21		205.65	0.33		0.21
	July	0.23		112.68	0.18		0.21
	August	0.23		120.14	0.32		0.21
	September	0.22		0.00	0.27		0.21
	October	0.31		0.00	0.17		0.21
	November	0.34		0.00	0.16		0.21
	December	0.36		0.00	0.18		0.21

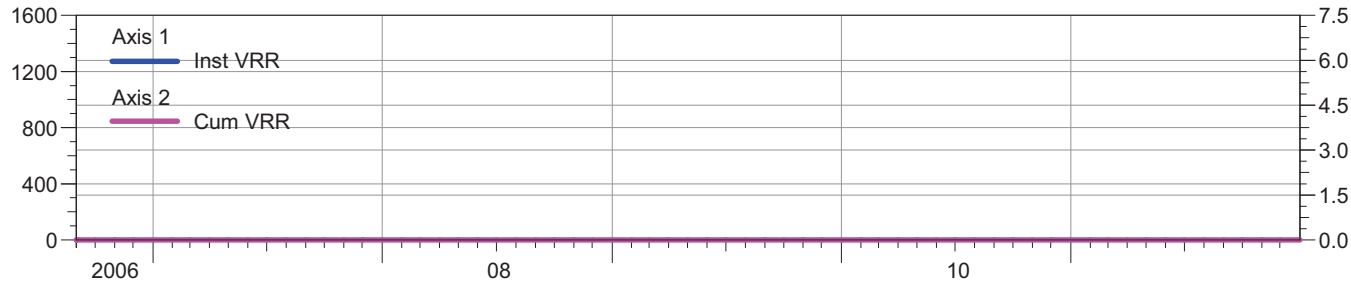
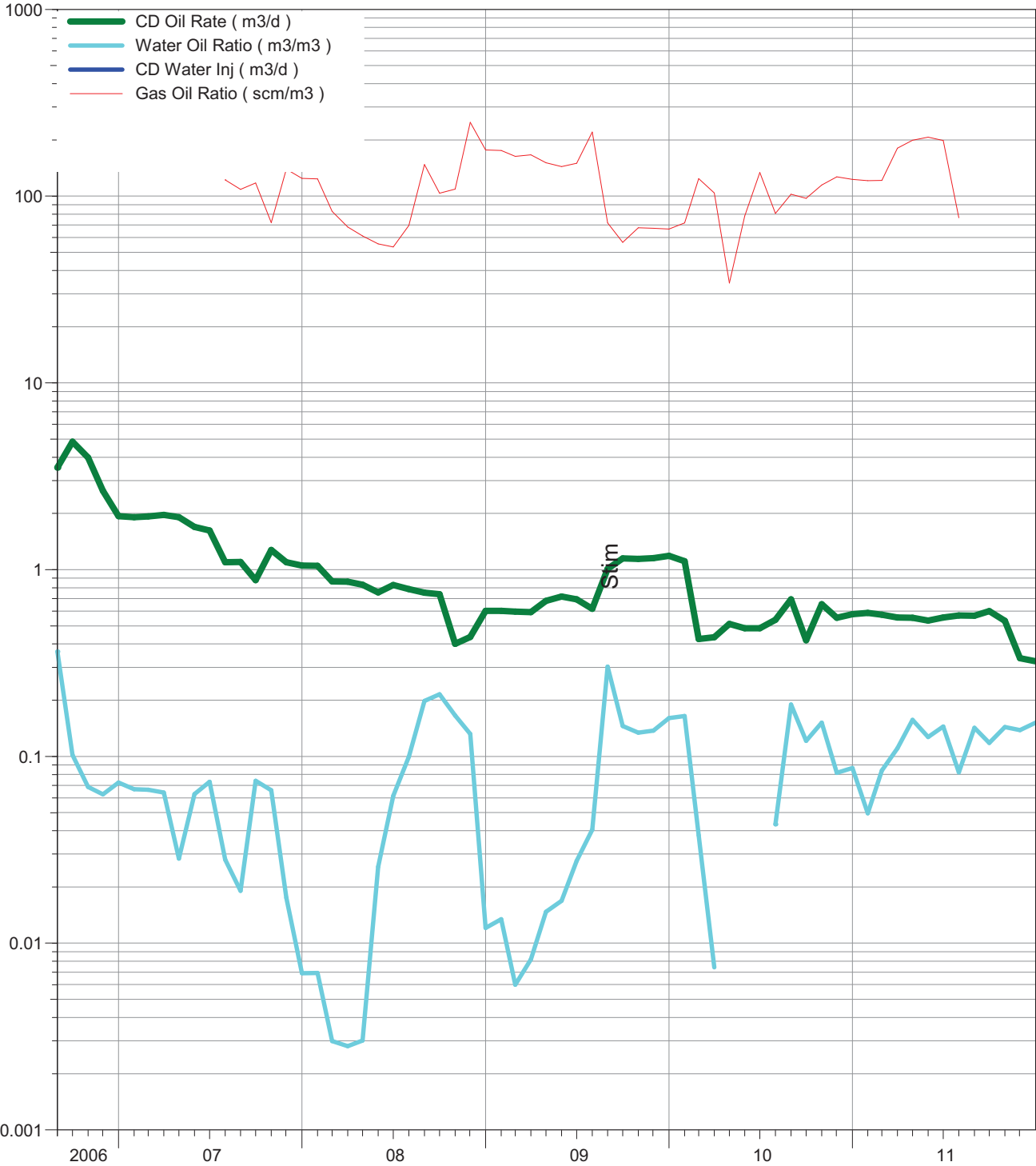
TABLE B.1: 2011 MONTHLY PRODUCTION, INJECTION AND VRR BY PATTERN

	Month	CD Oil Rate (m ³ /d)	CD Water Inj Rate (m ³ /d)	Gas Oil Ratio m ³ /m ³	Water Oil Ratio m ³ /m ³	Monthly VRR	Cum VRR
PATTERN: P-39	January	0.53	65.65	51.59	0.03	101.49	17.09
	February	0.52	71.68	105.62	0.04	110.80	17.23
	March	0.51	76.60	108.83	0.05	121.23	17.40
	April	0.51	51.54	88.24	0.06	81.14	17.50
	May	0.45	59.68	109.91	0.05	107.34	17.63
	June	0.39	57.08	107.59	0.03	118.28	17.75
	July	0.37	64.40	21.93	0.01	146.09	17.89
	August	0.36	89.56	0.00	0.01	207.84	18.10
	September	0.38	82.36	0.00	0.01	180.52	18.28
	October	0.11	28.51	0.00	0.02	223.61	18.35
	November	0.00	19.44				18.40
	December	0.03	59.85	0.00	0.19	1587.06	18.55
PATTERN: P-43	January	0.05	0.00	132.35	0.82	0.03	1.37
	February	0.04		840.00	1.32		1.35
	March	0.05	0.02	821.43	1.25	0.18	1.34
	April	0.05	0.00	777.78	1.57	0.01	1.32
	May	0.03		0.00	1.07		1.31
	June	0.04		0.00	1.24		1.29
	July	0.08	0.00	0.00	0.28	0.00	1.28
	August	0.08	0.00	0.00	0.43	0.00	1.26
	September	0.08		0.00	0.36		1.24
	October	0.06		0.00	0.33		1.23
	November	0.00	0.00				1.23
	December	0.00					1.23

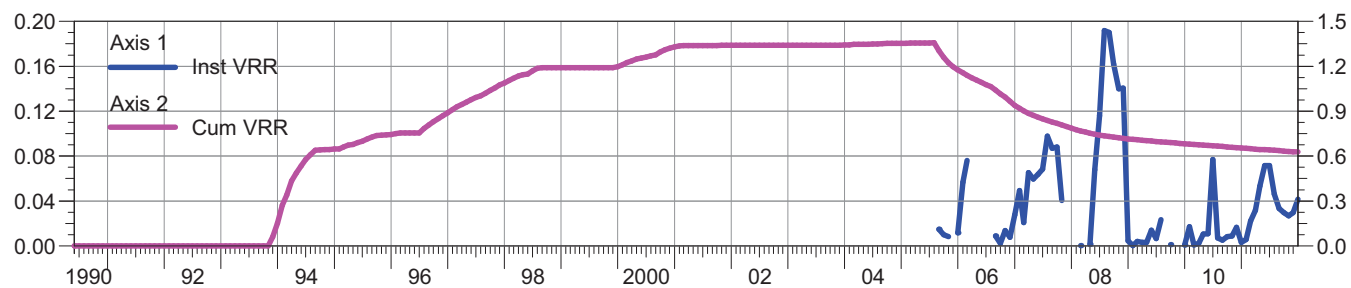
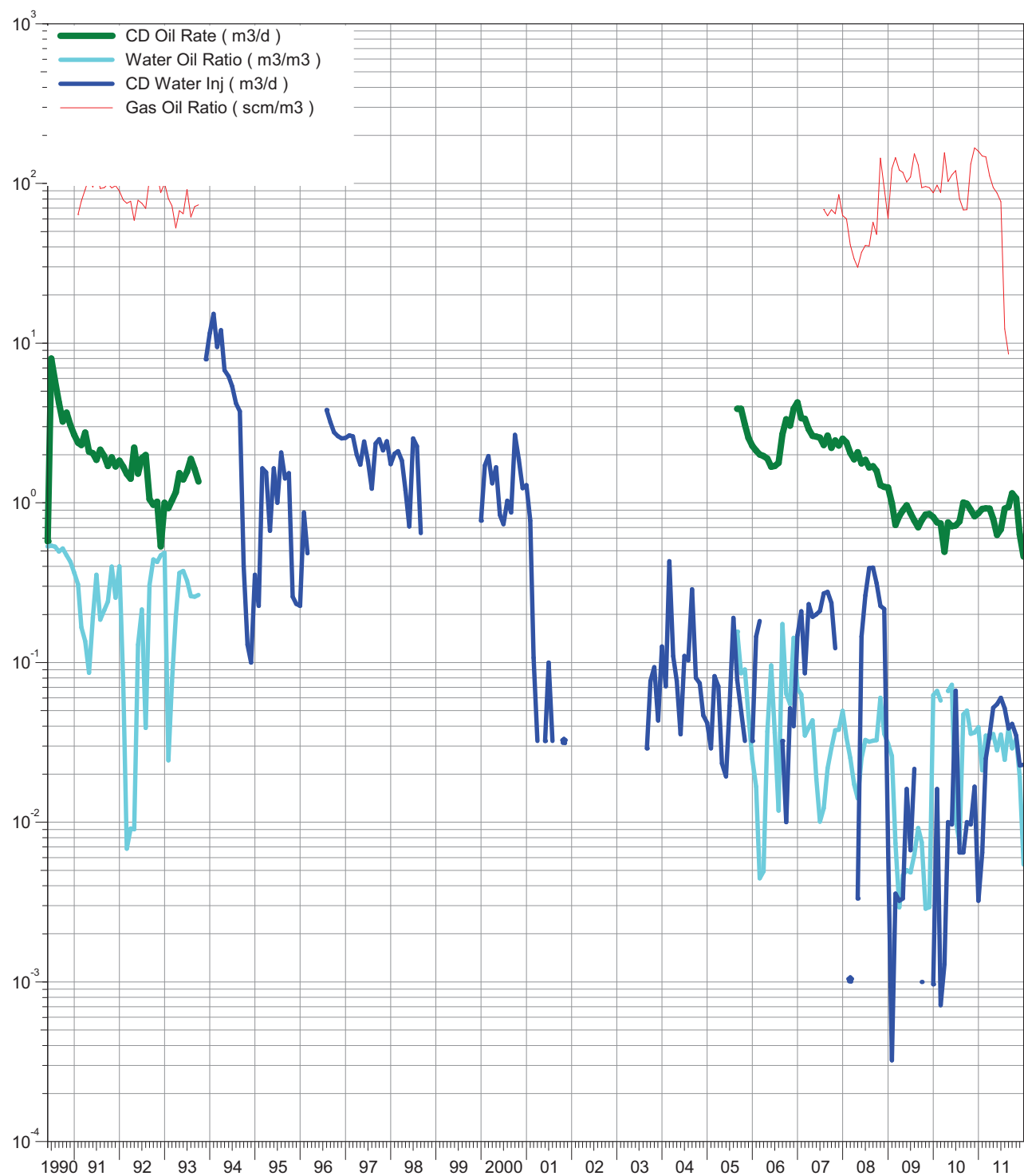
South Pierson Unit No. 1 Overall Calendar Day Production



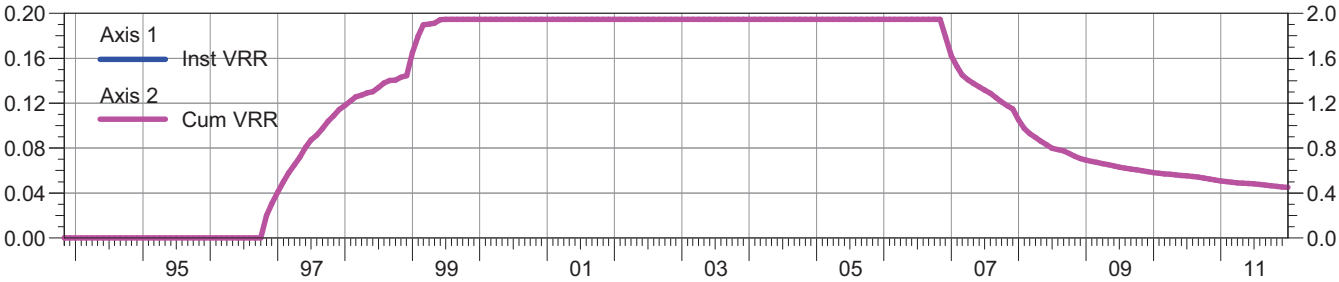
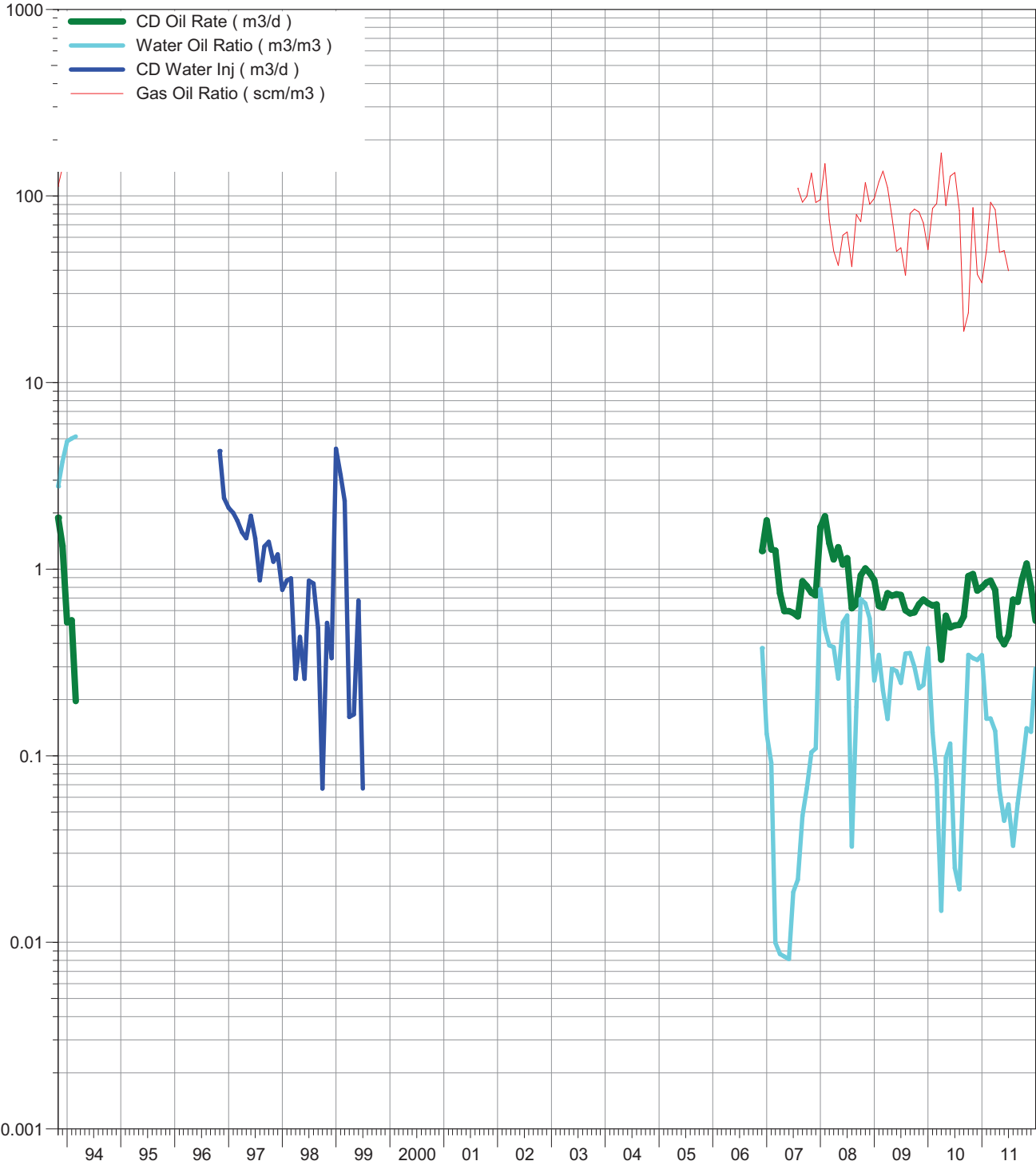
Calendar Day Production for Pattern: P-01 Set: PIERSON UNIT



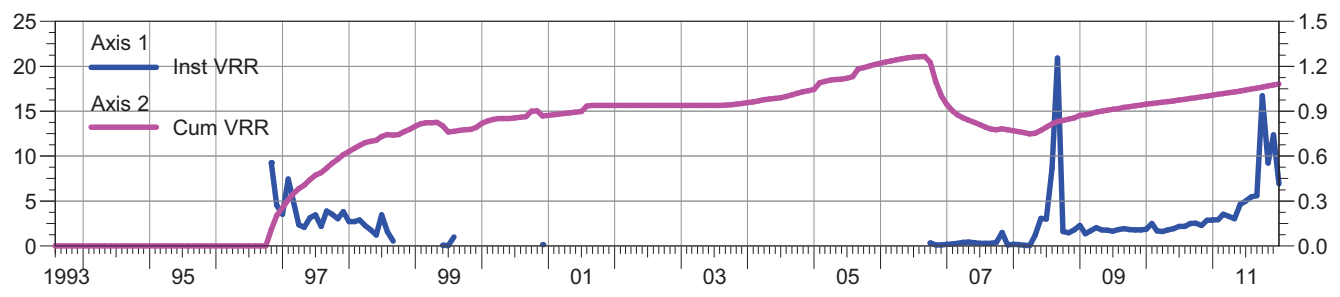
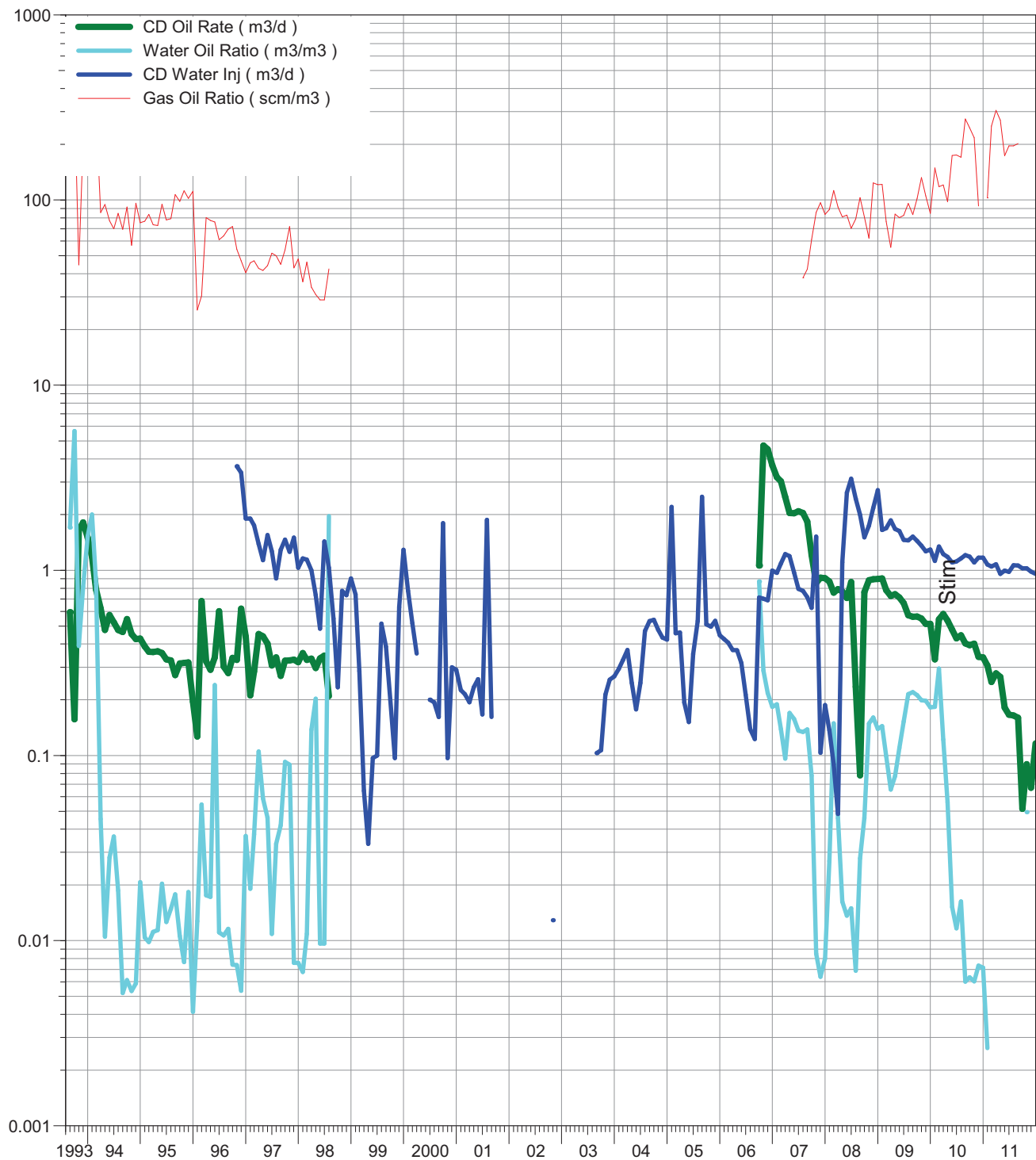
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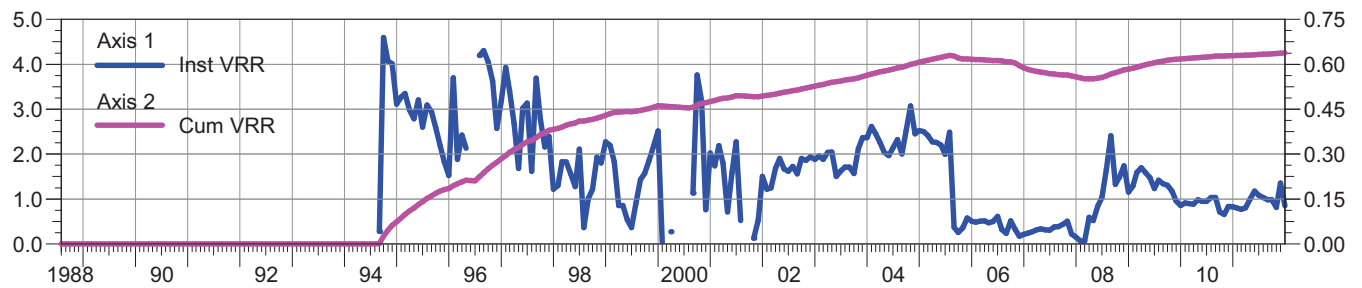
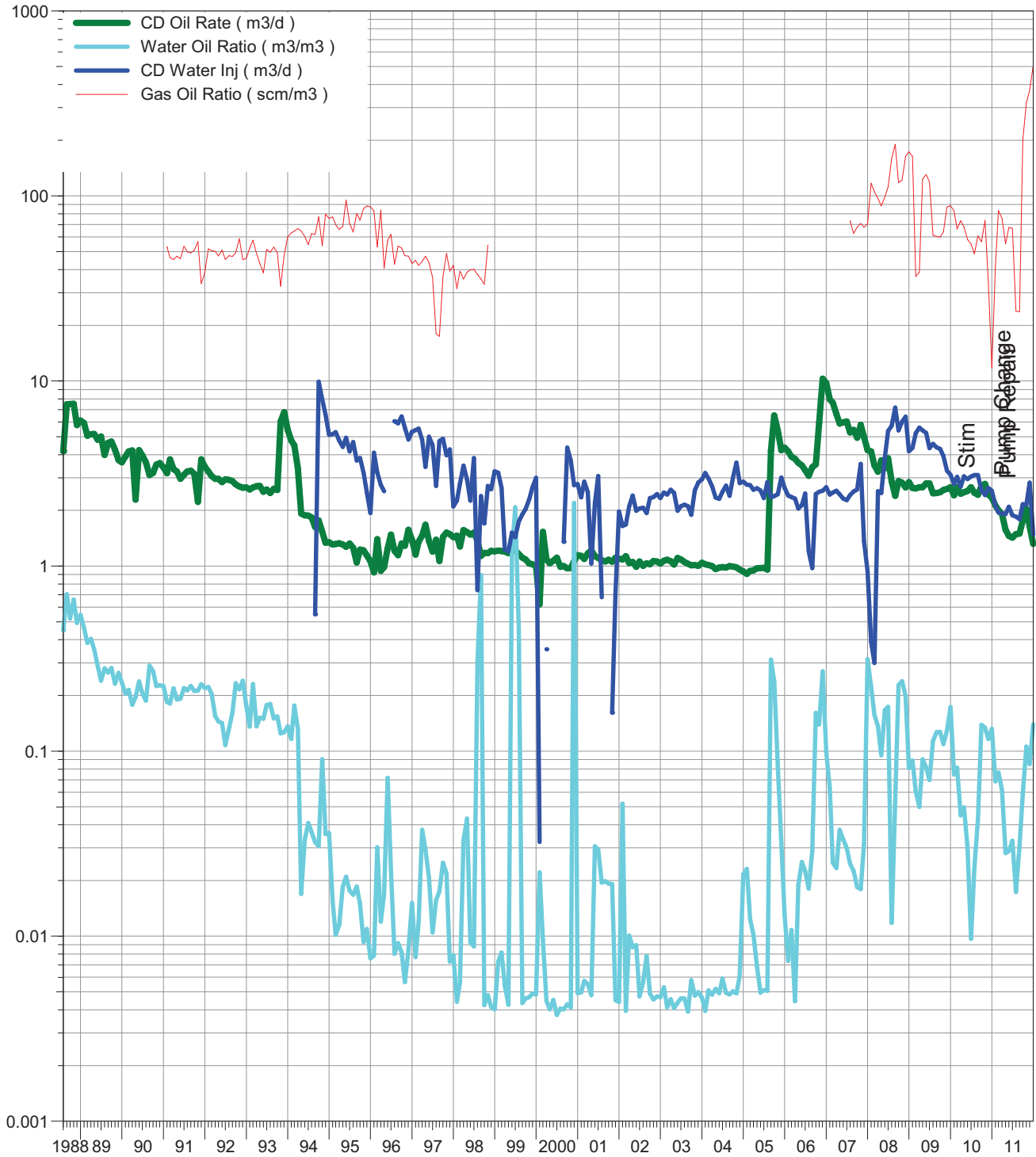
Calendar Day Production for Pattern: P-03 Set: PIERSON UNIT



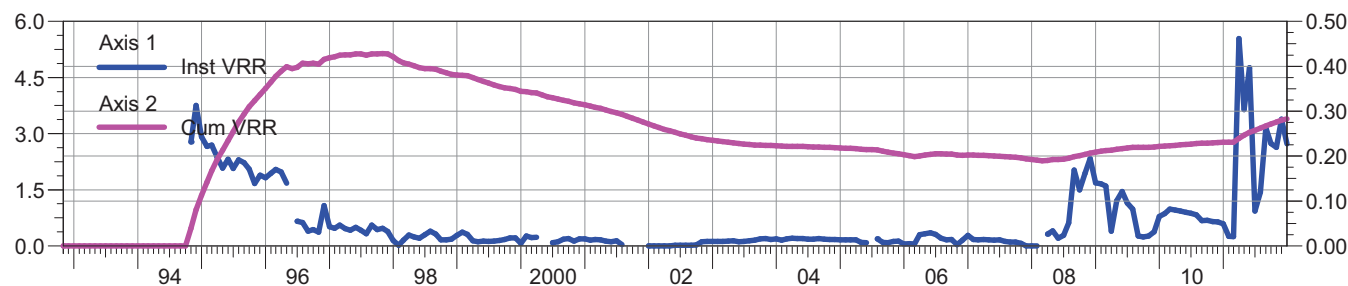
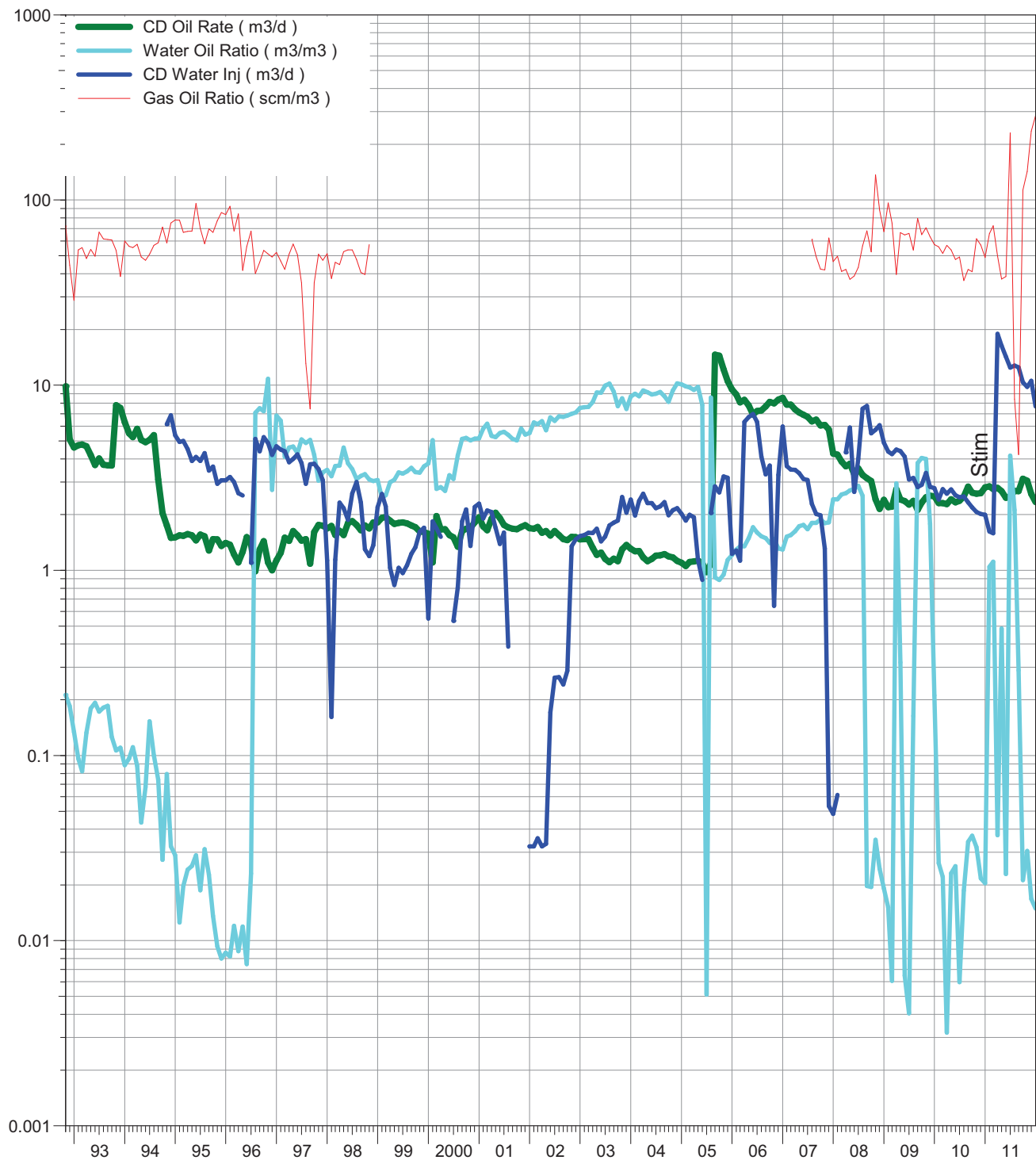
Calendar Day Production for Pattern: P-05 Set: PIERSON UNIT



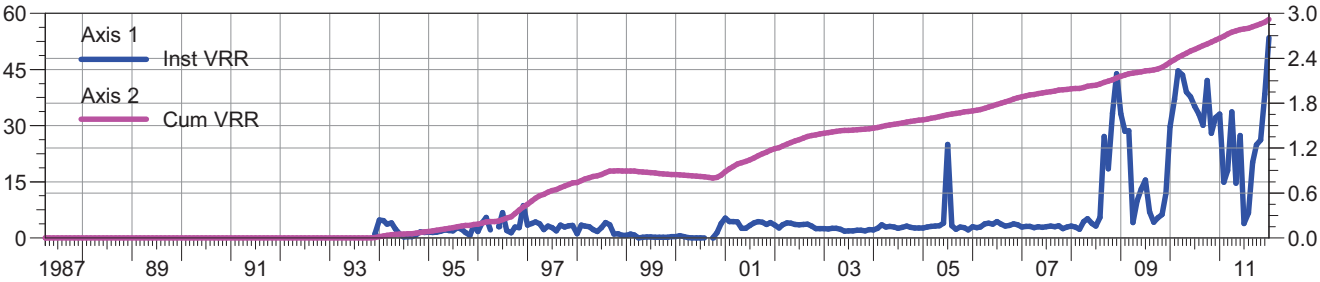
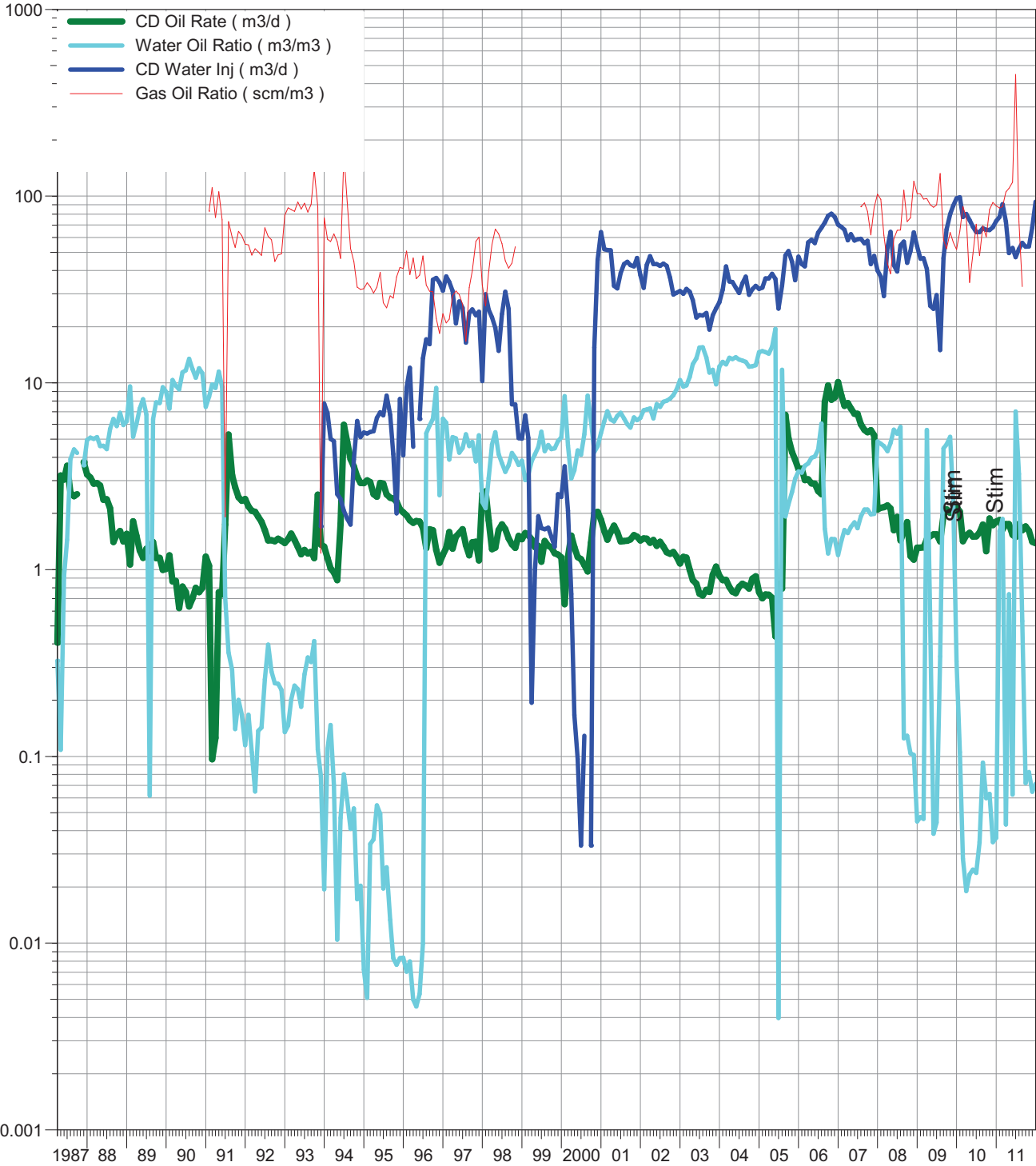
Calendar Day Production for Pattern: P-06 Set: PIERSON UNIT



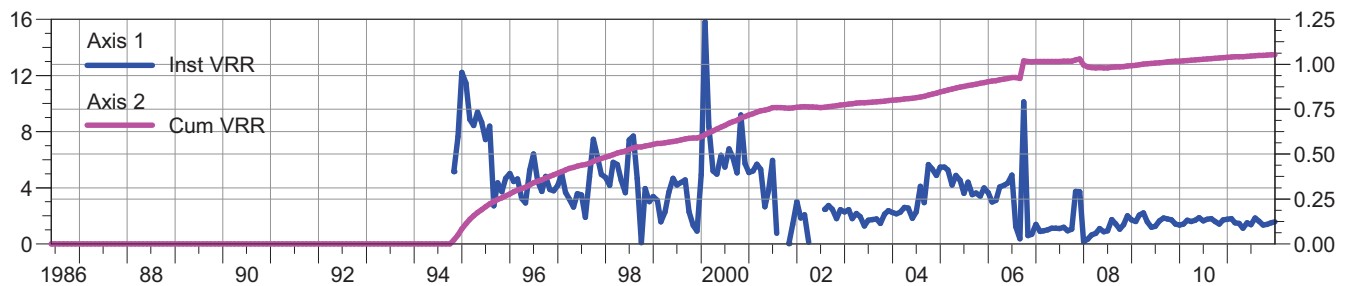
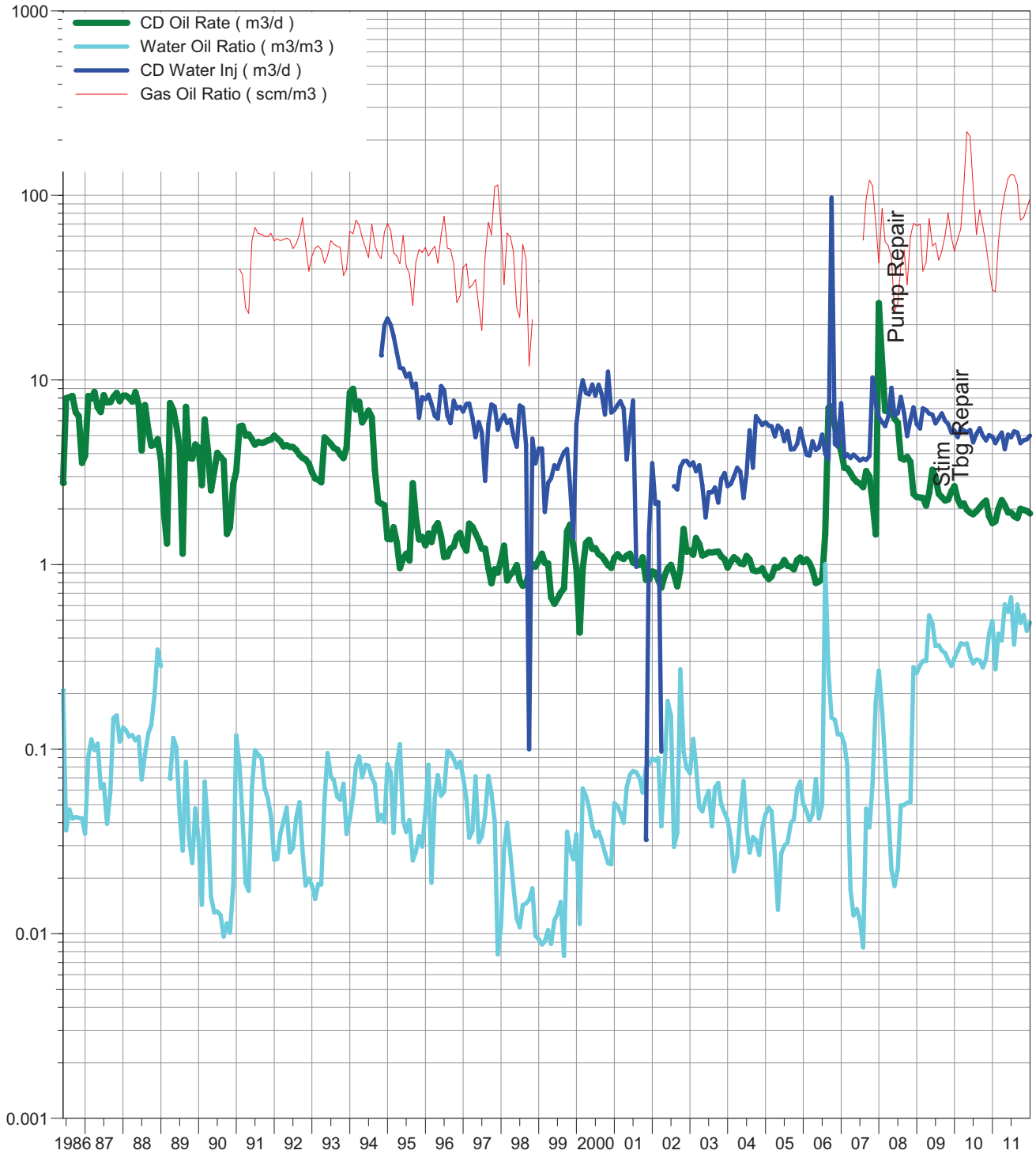
Calendar Day Production for Pattern: P-07 Set: PIERSON UNIT



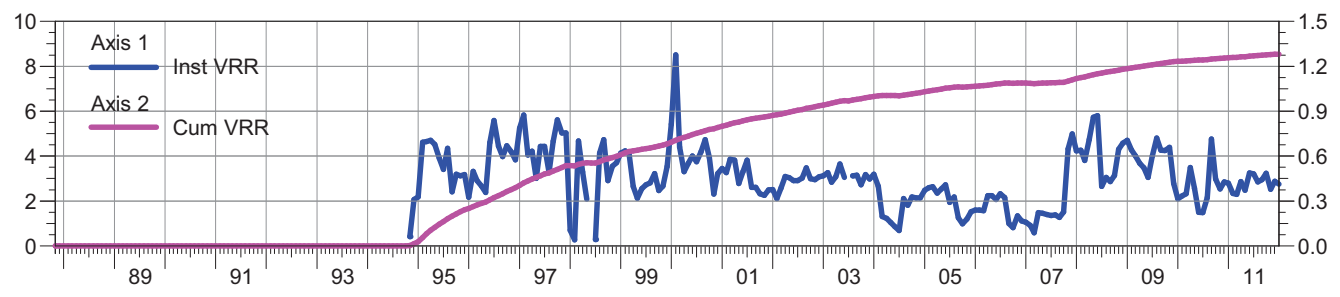
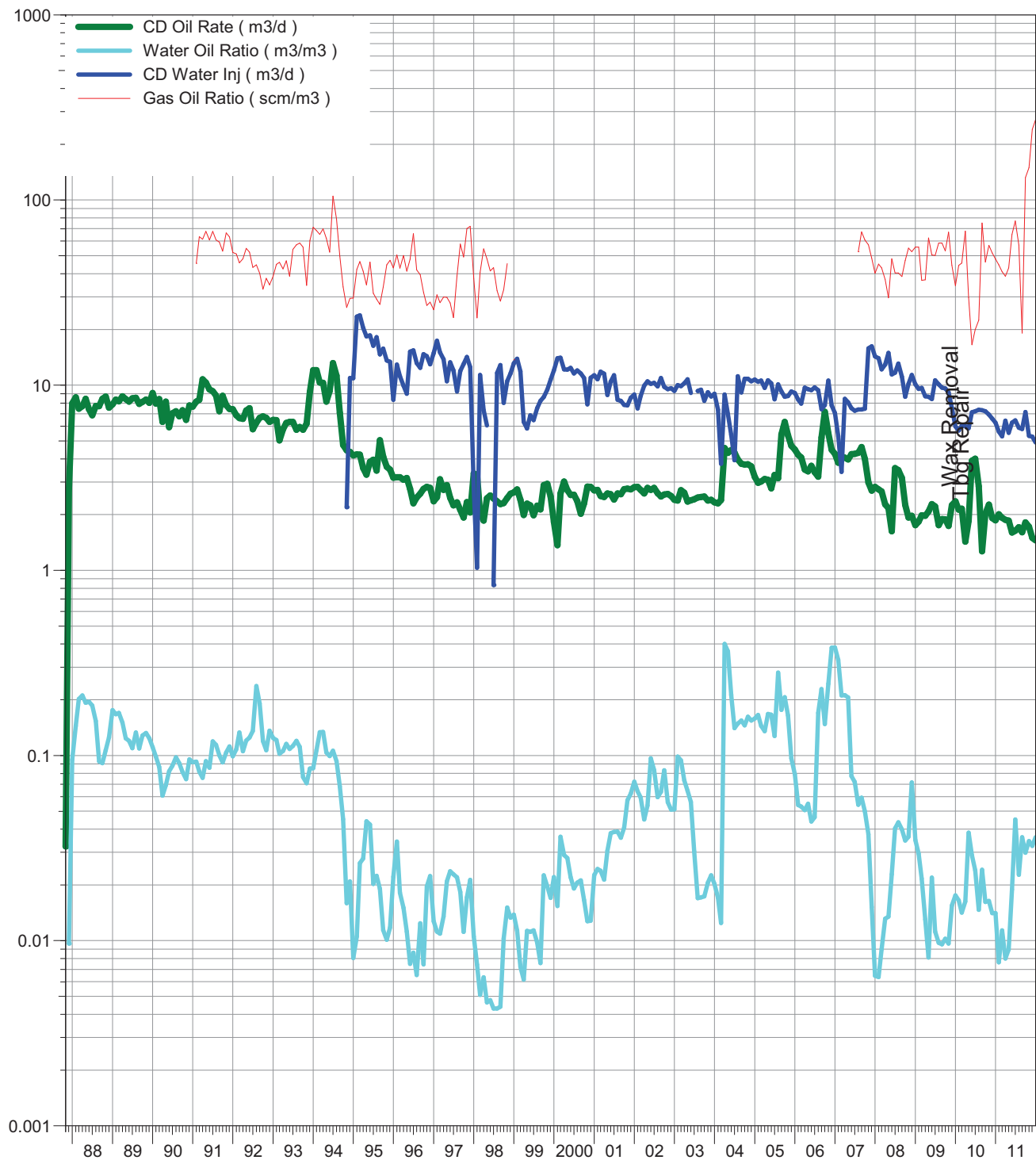
Calendar Day Production for Pattern: P-08 Set: PIERSON UNIT



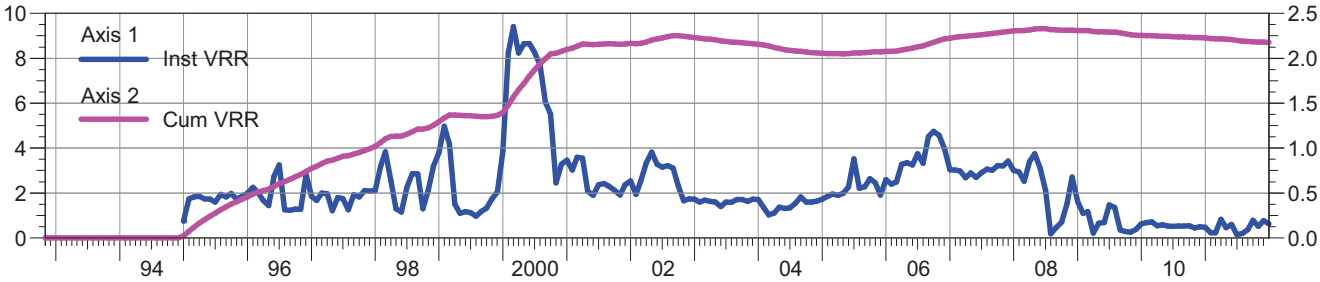
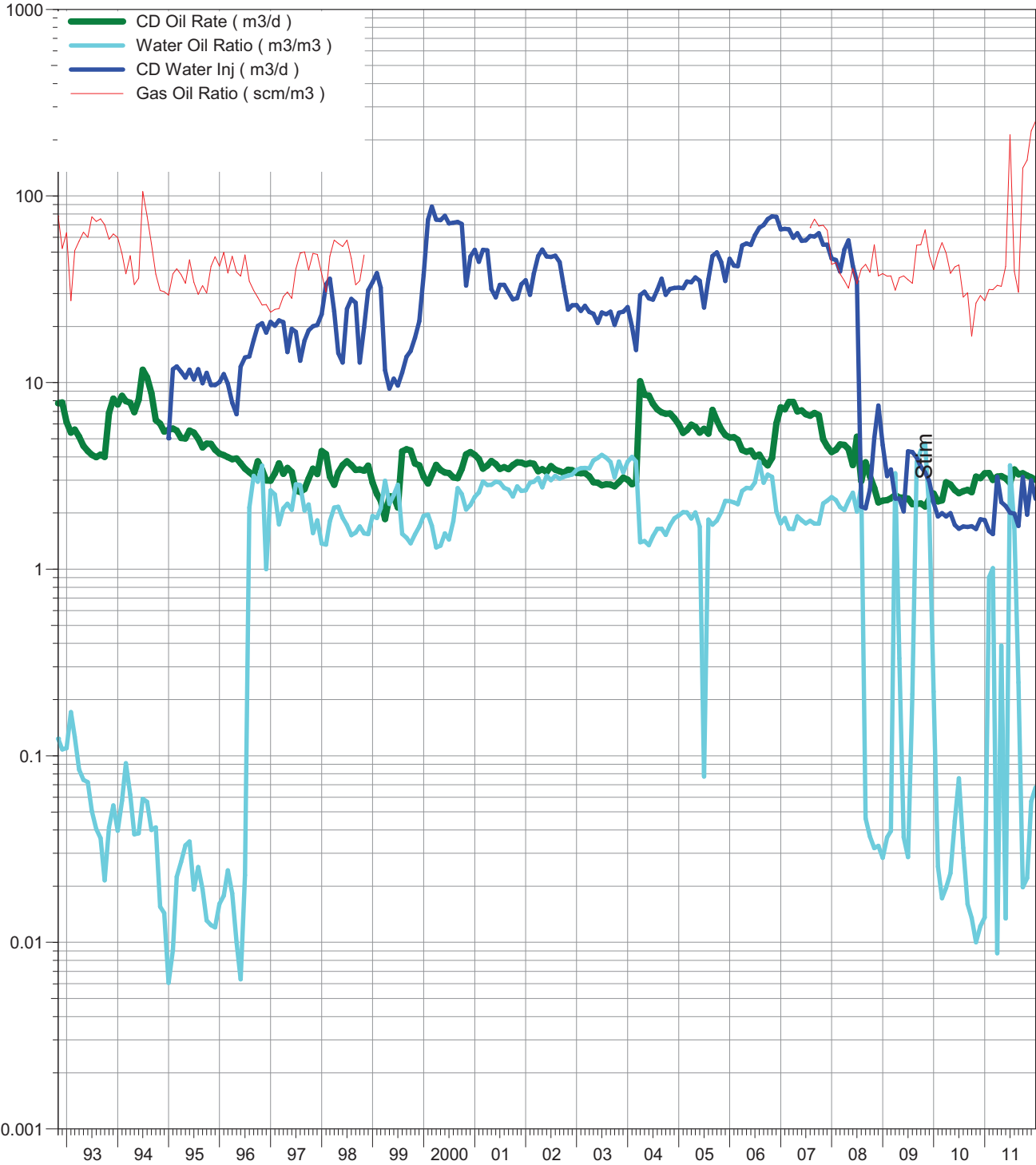
Calendar Day Production for Pattern: P-09 Set: PIERSON UNIT



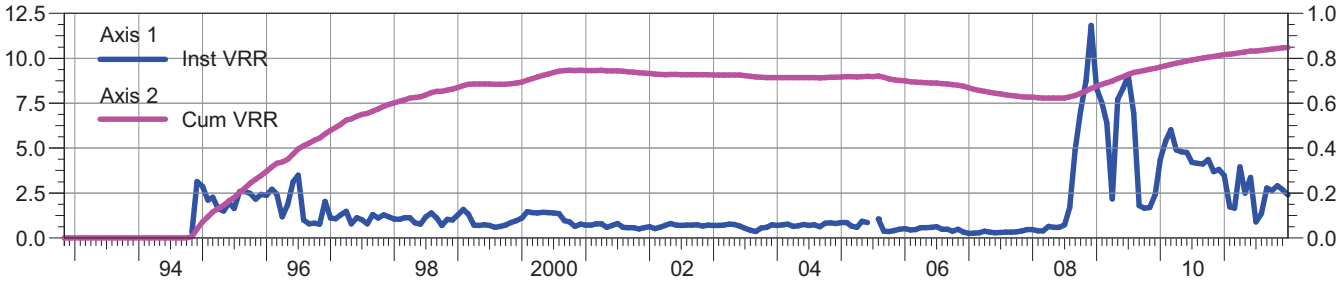
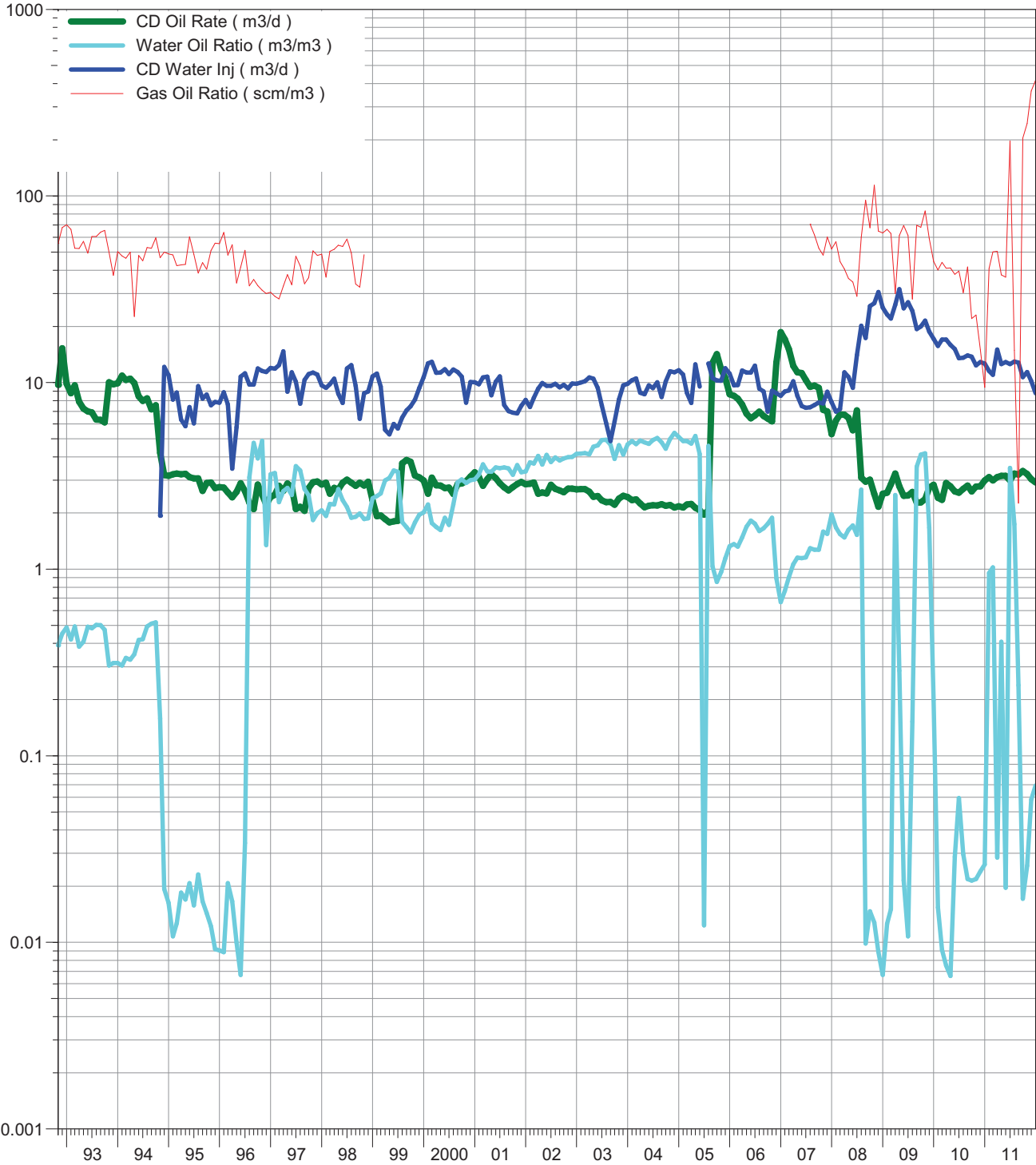
Calendar Day Production for Pattern: P-10 Set: PIERSON UNIT



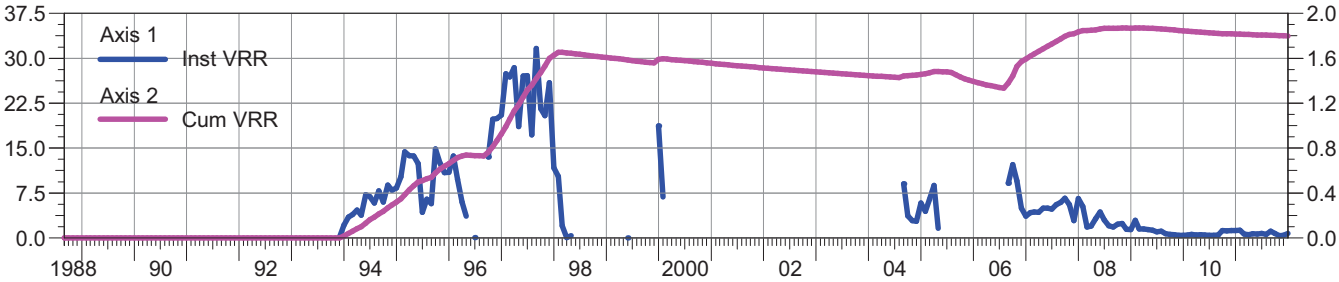
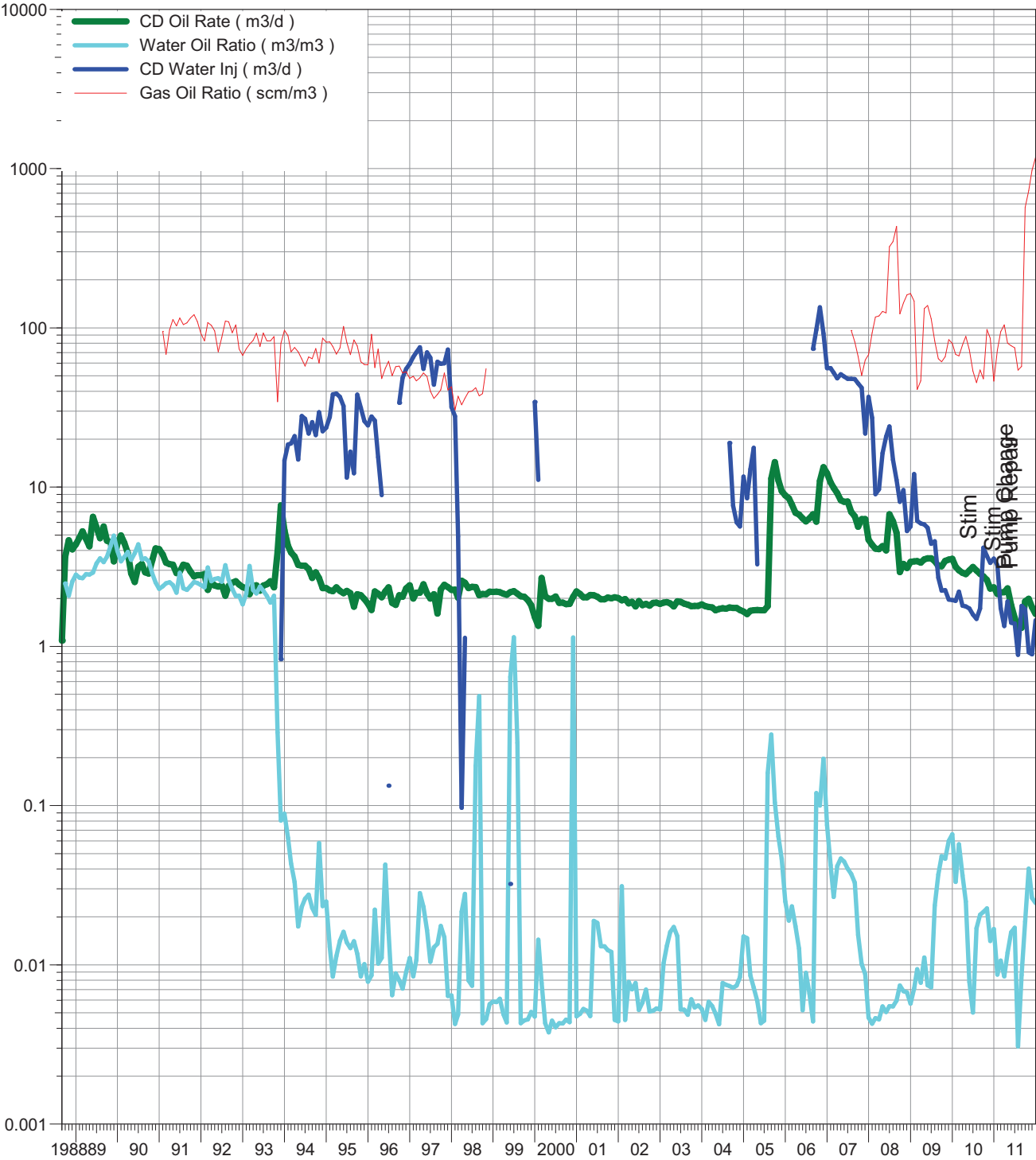
Calendar Day Production for Pattern: P-11 Set: PIERSON UNIT



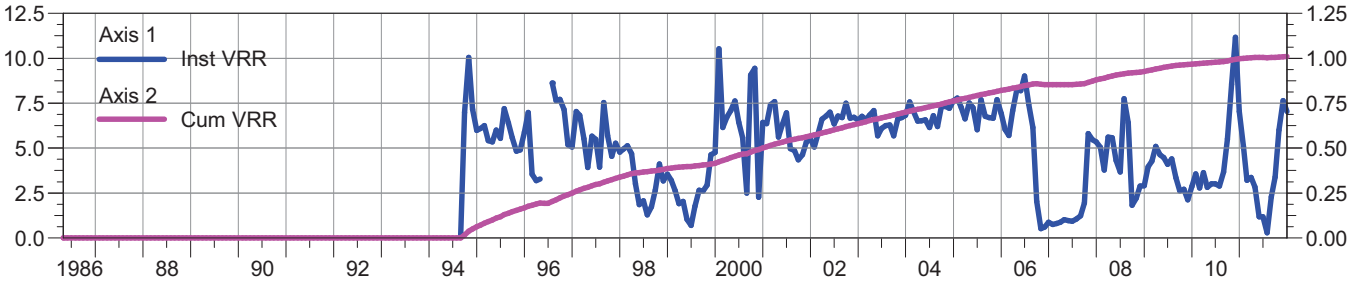
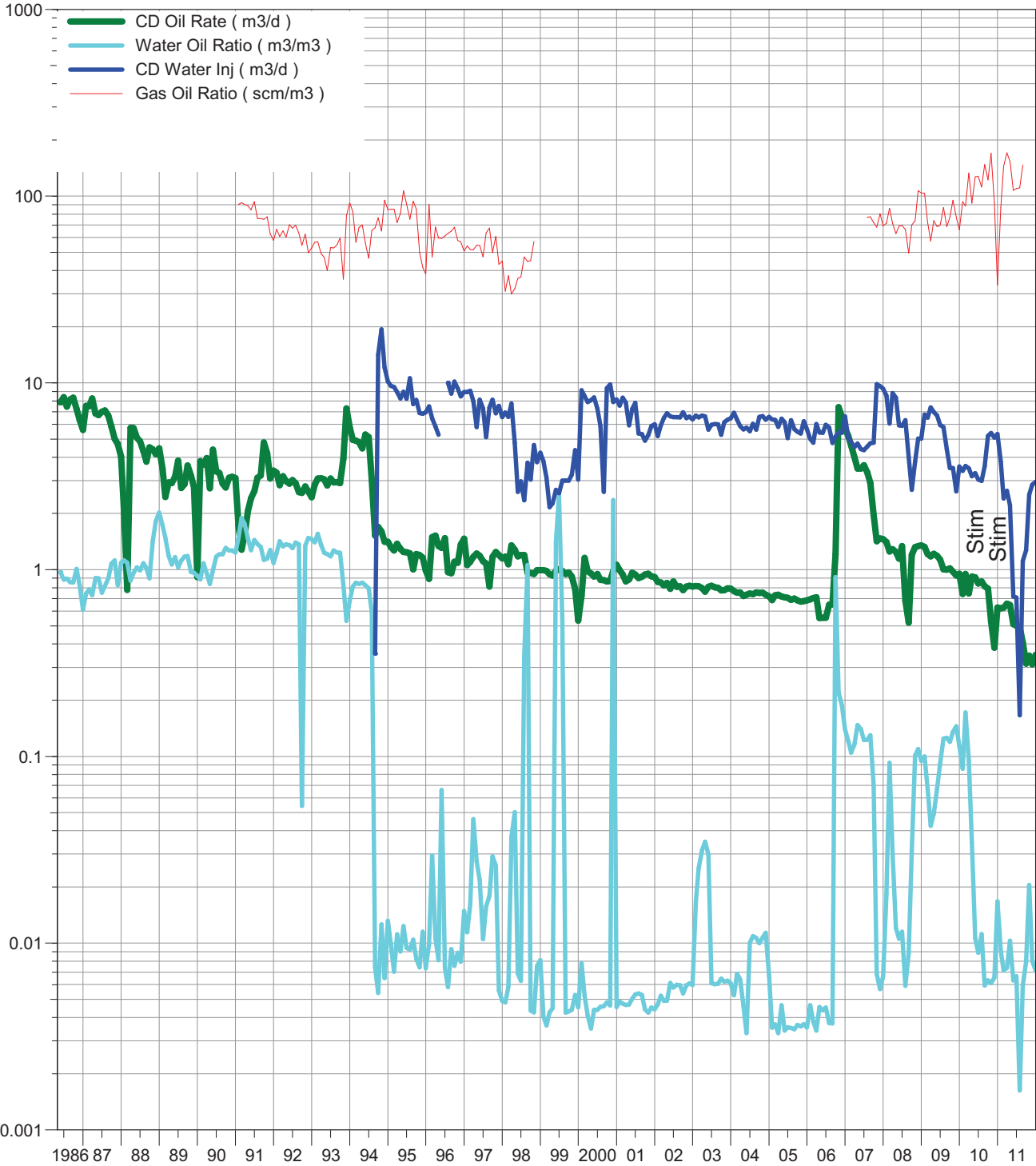
Calendar Day Production for Pattern: P-12 Set: PIERSON UNIT



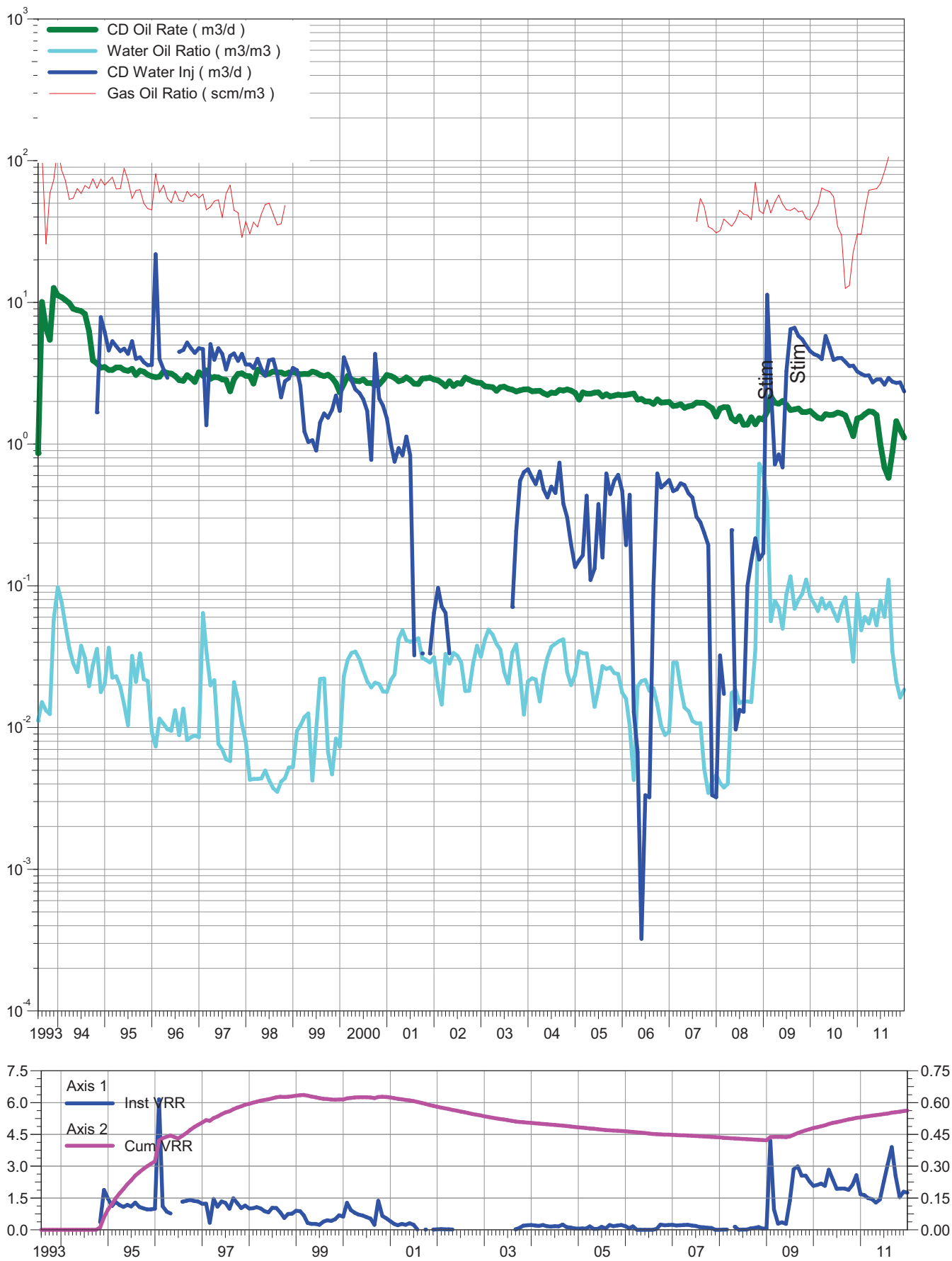
Calendar Day Production for Pattern: P-13 Set: PIERSON UNIT



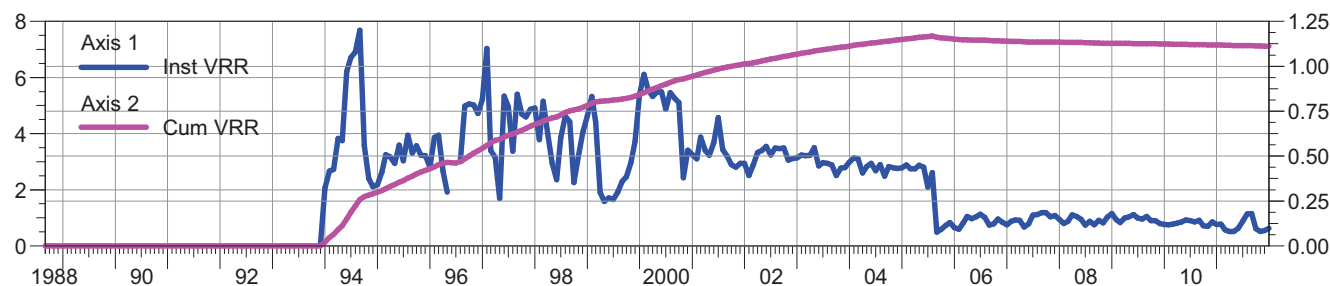
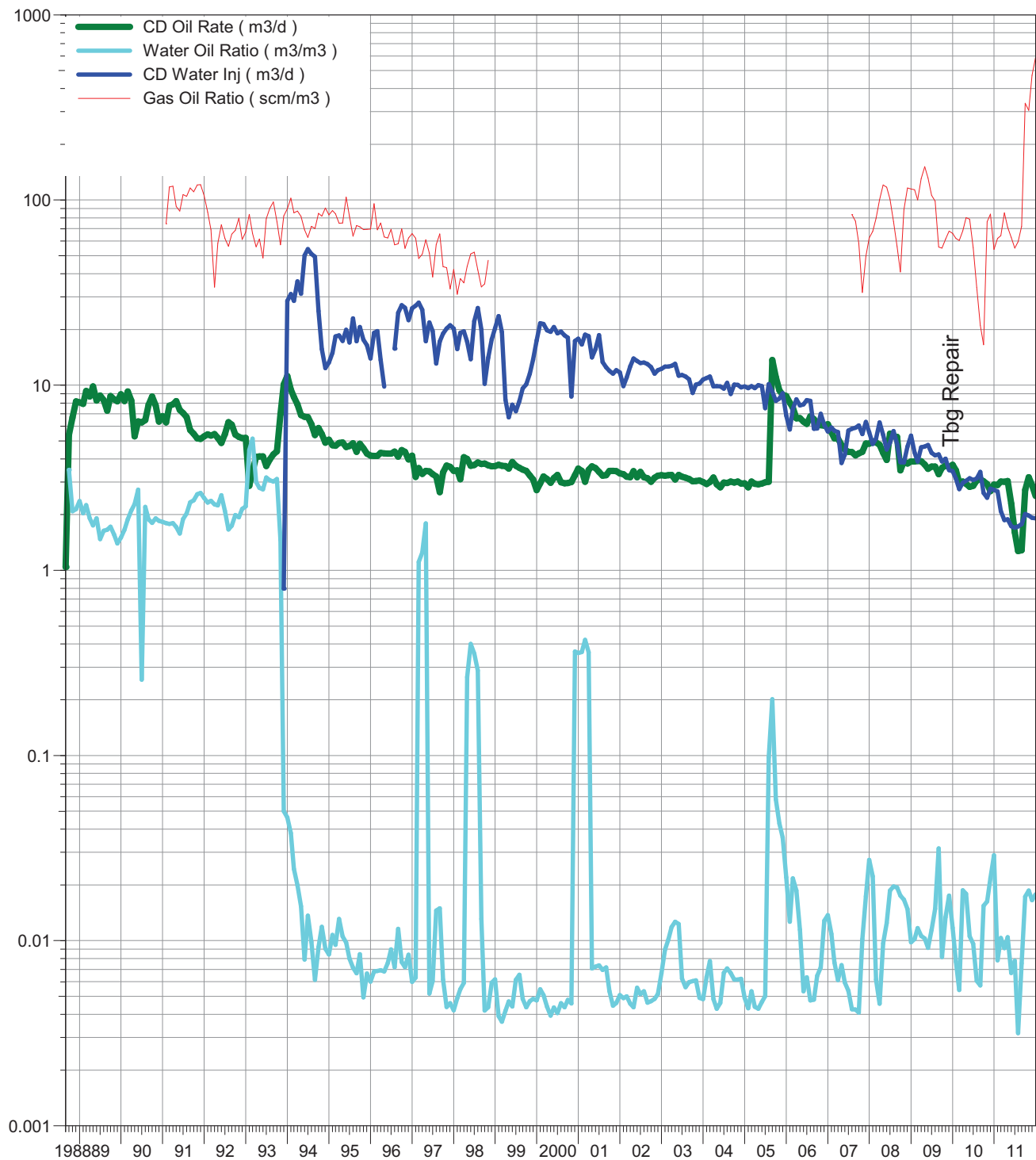
Calendar Day Production for Pattern: P-14 Set: PIERSON UNIT



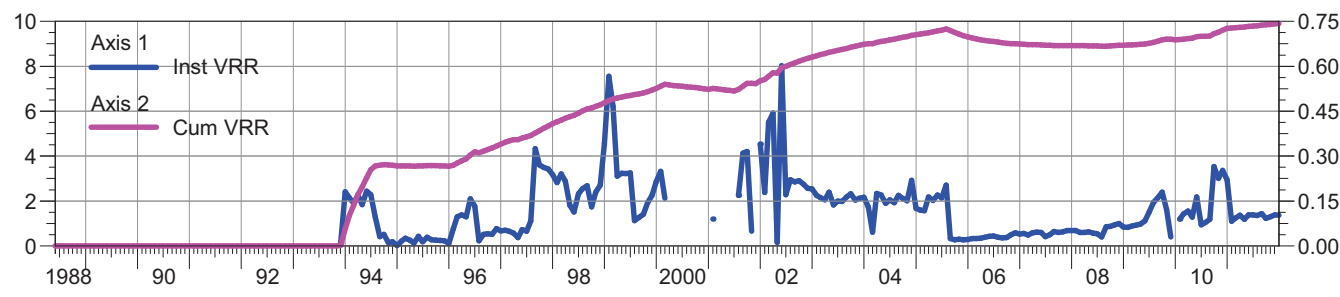
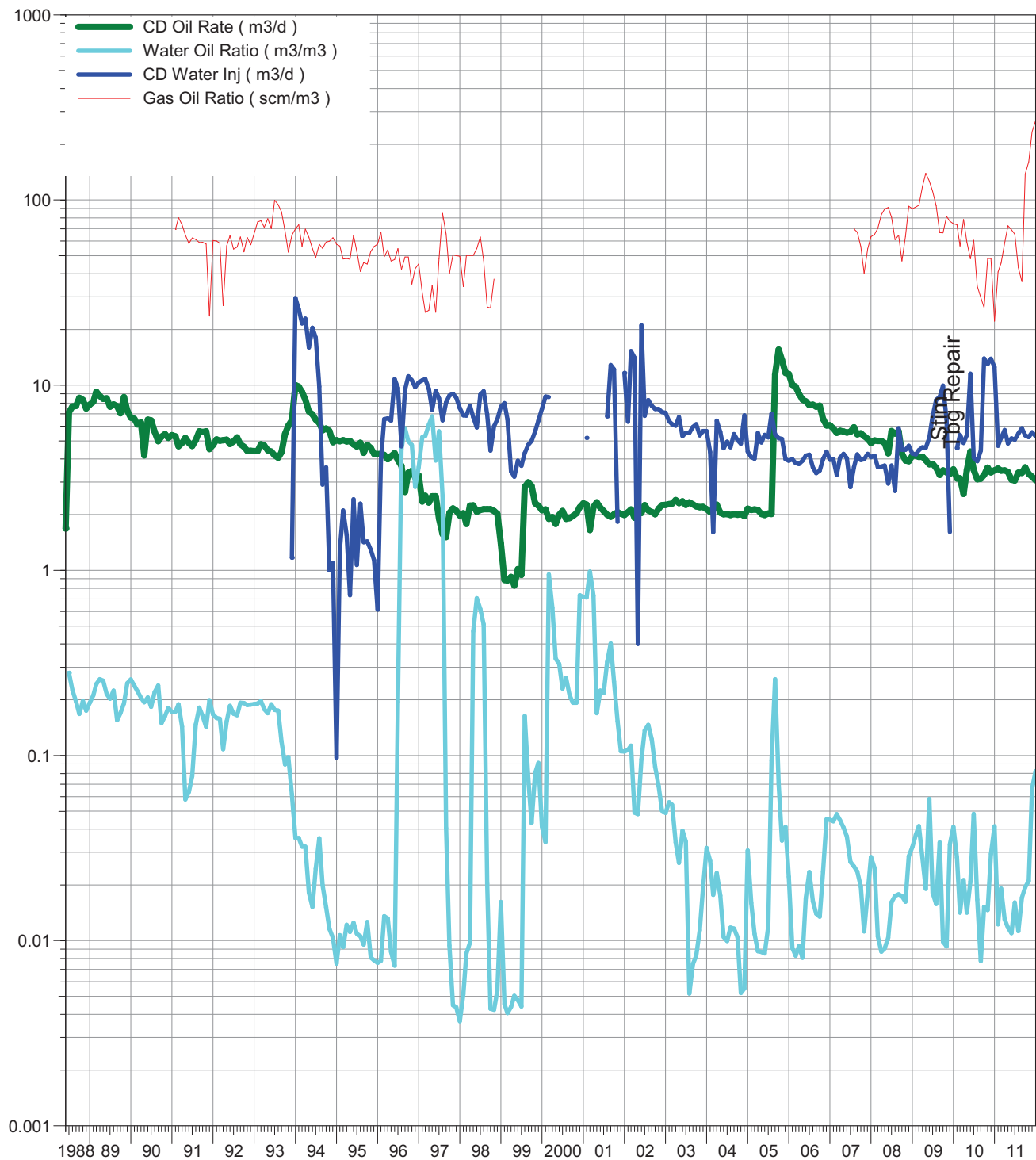
Calendar Day Production for Pattern: P-15 Set: PIERSON UNIT



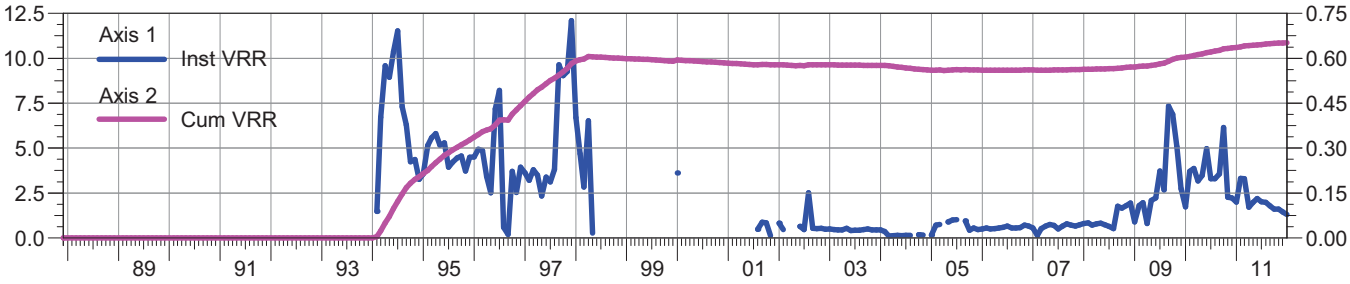
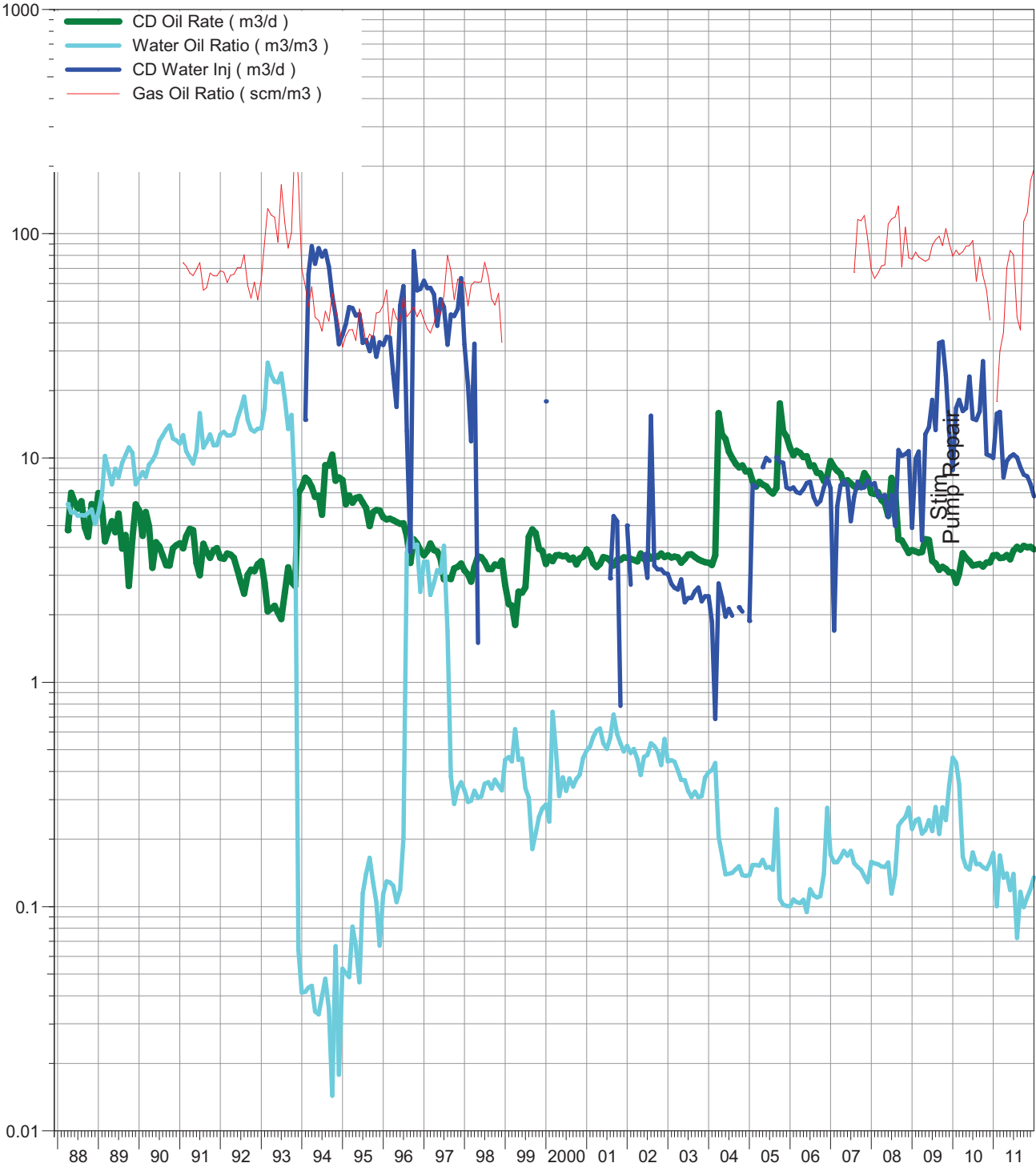
Calendar Day Production for Pattern: P-16 Set: PIERSON UNIT



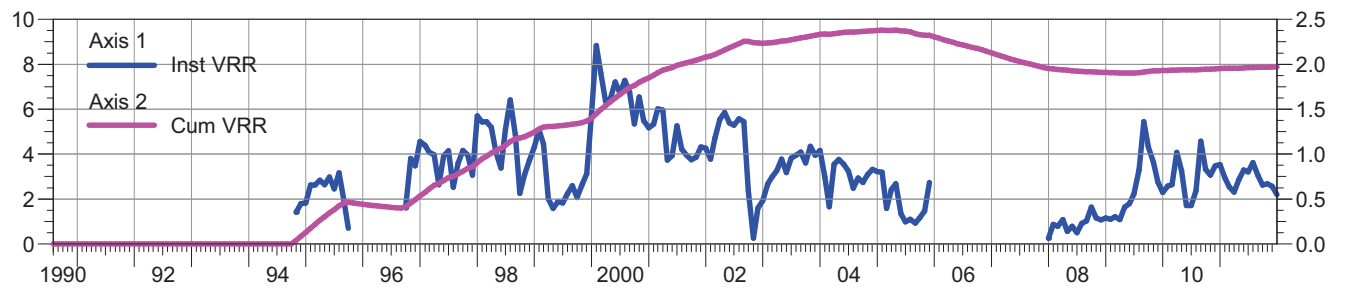
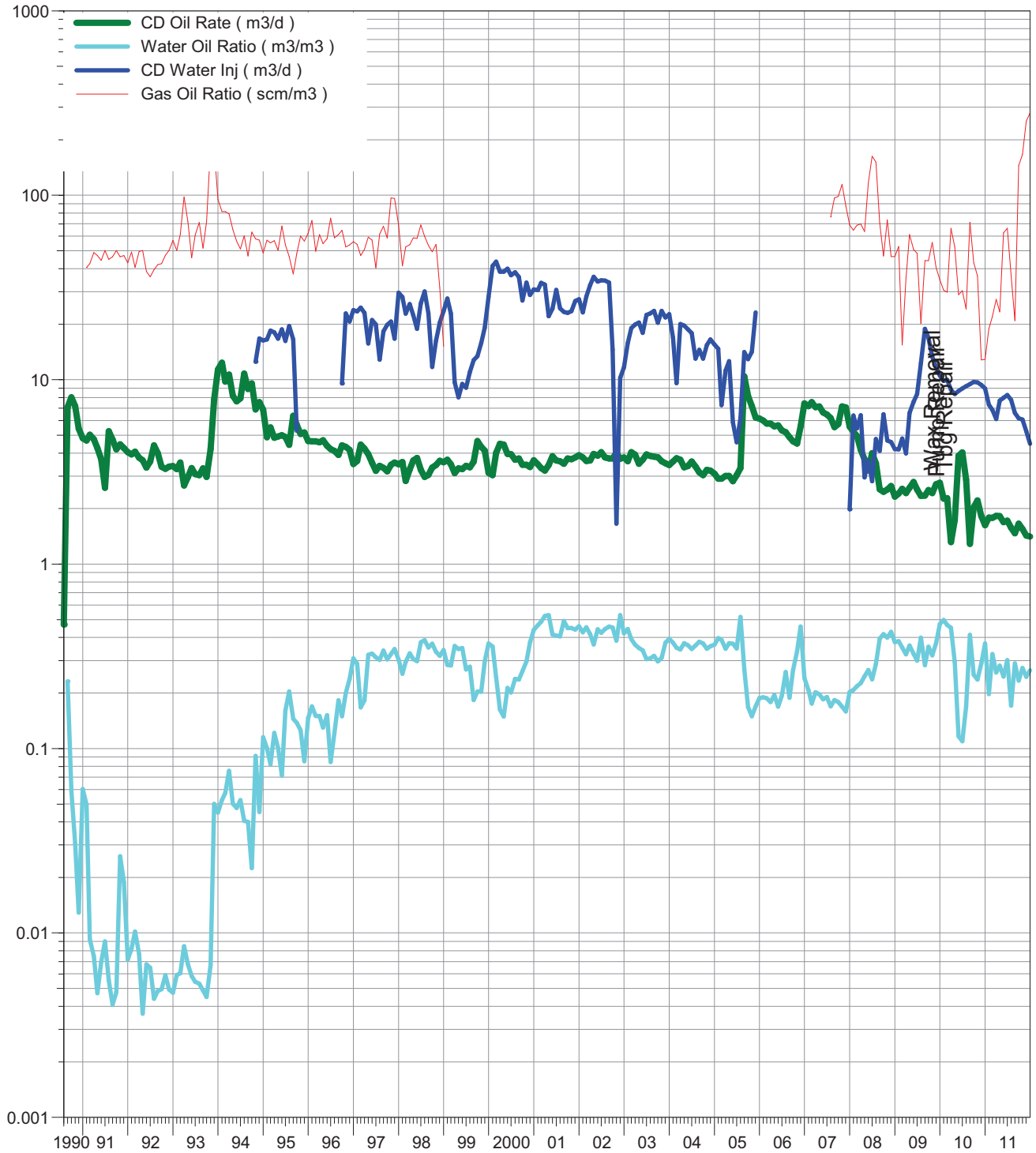
Calendar Day Production for Pattern: P-17 Set: PIERSON UNIT



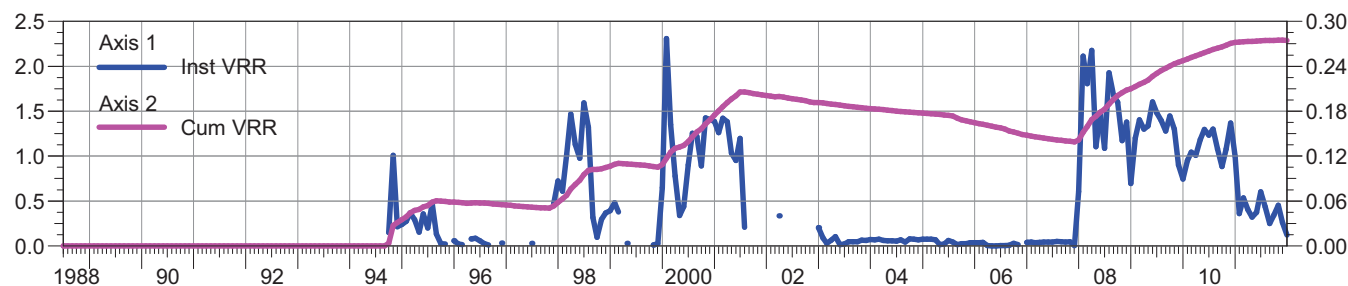
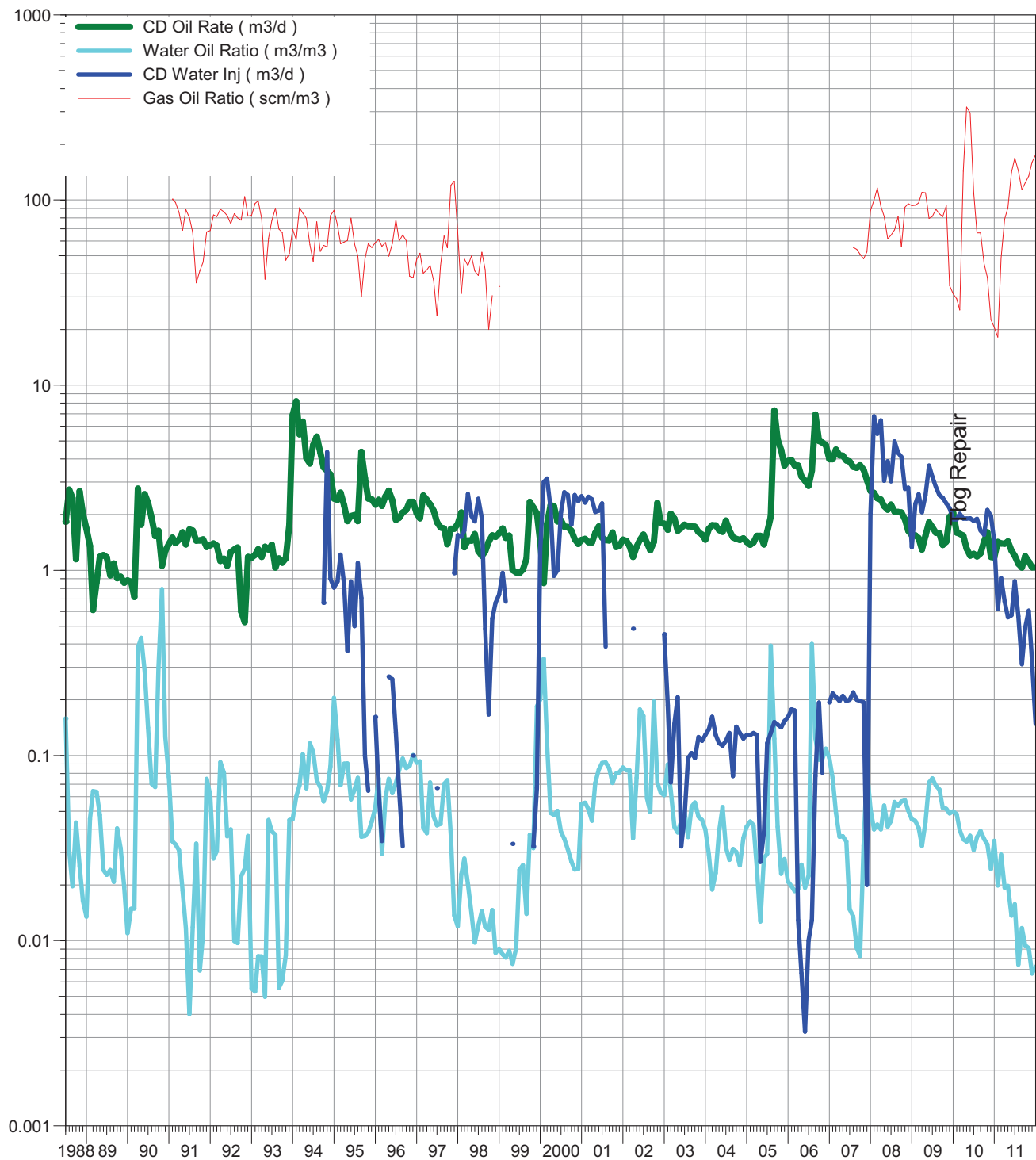
Calendar Day Production for Pattern: P-18 Set: PIERSON UNIT



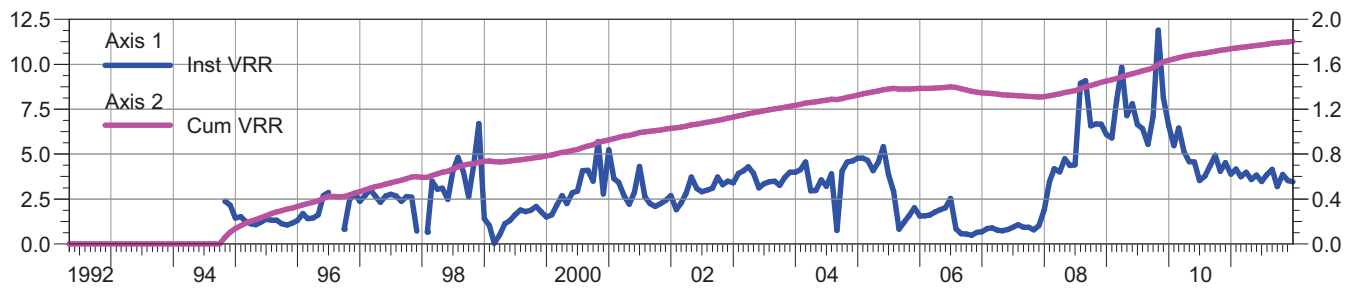
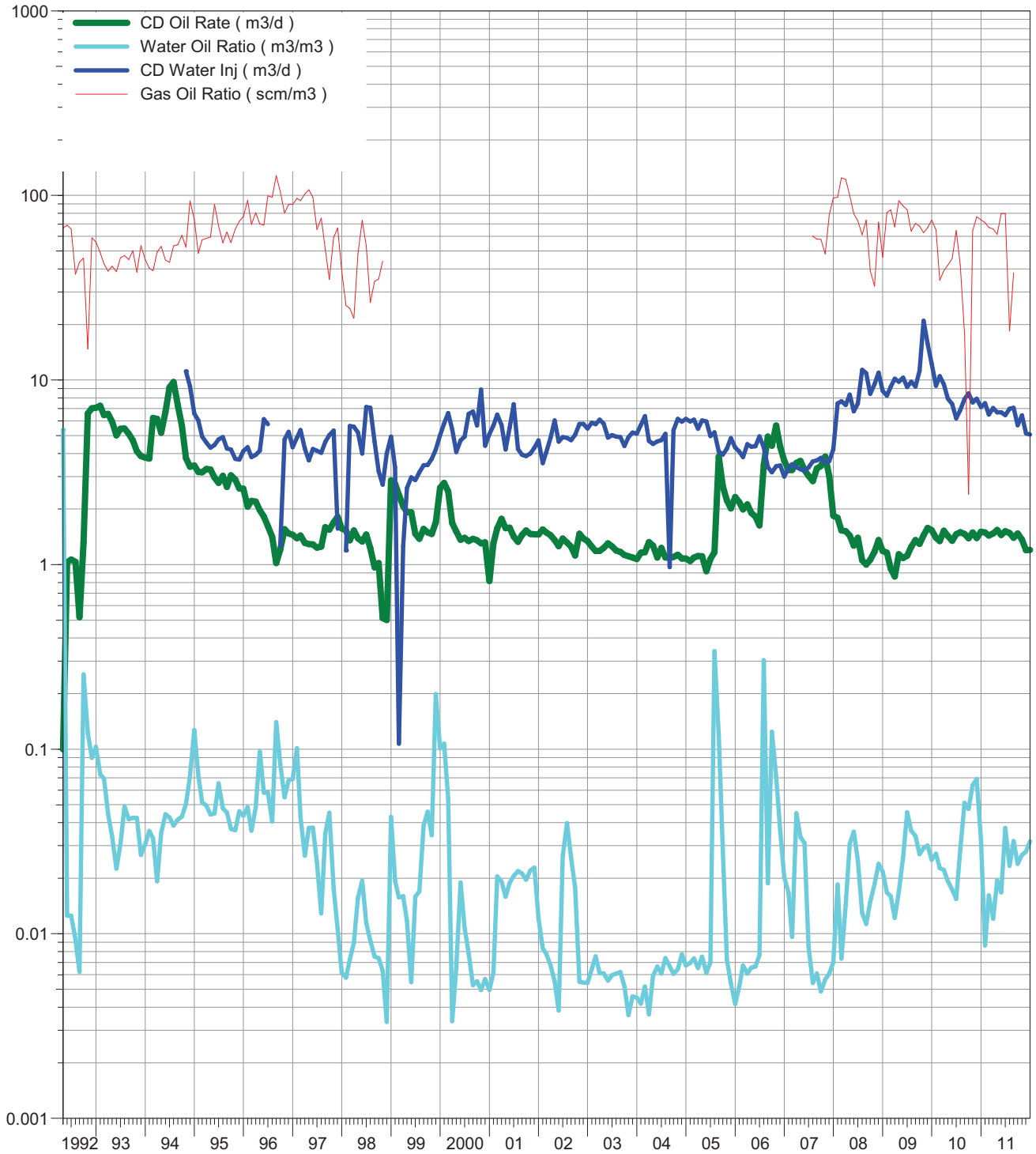
Calendar Day Production for Pattern: P-19 Set: PIERSON UNIT



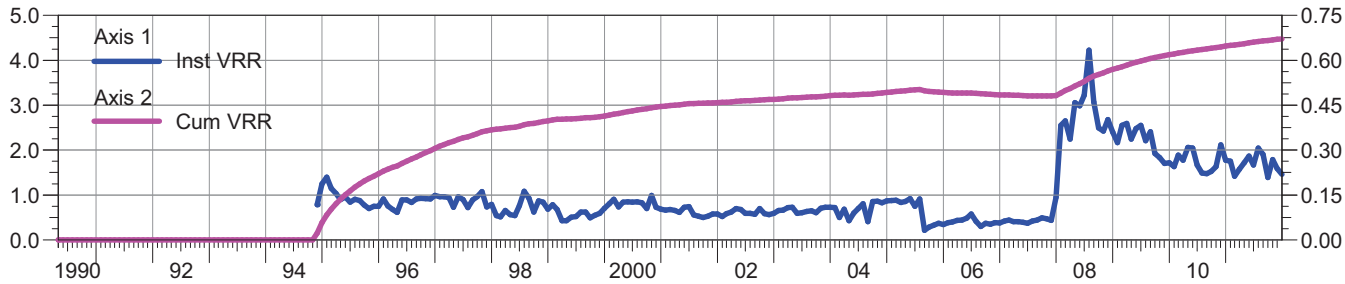
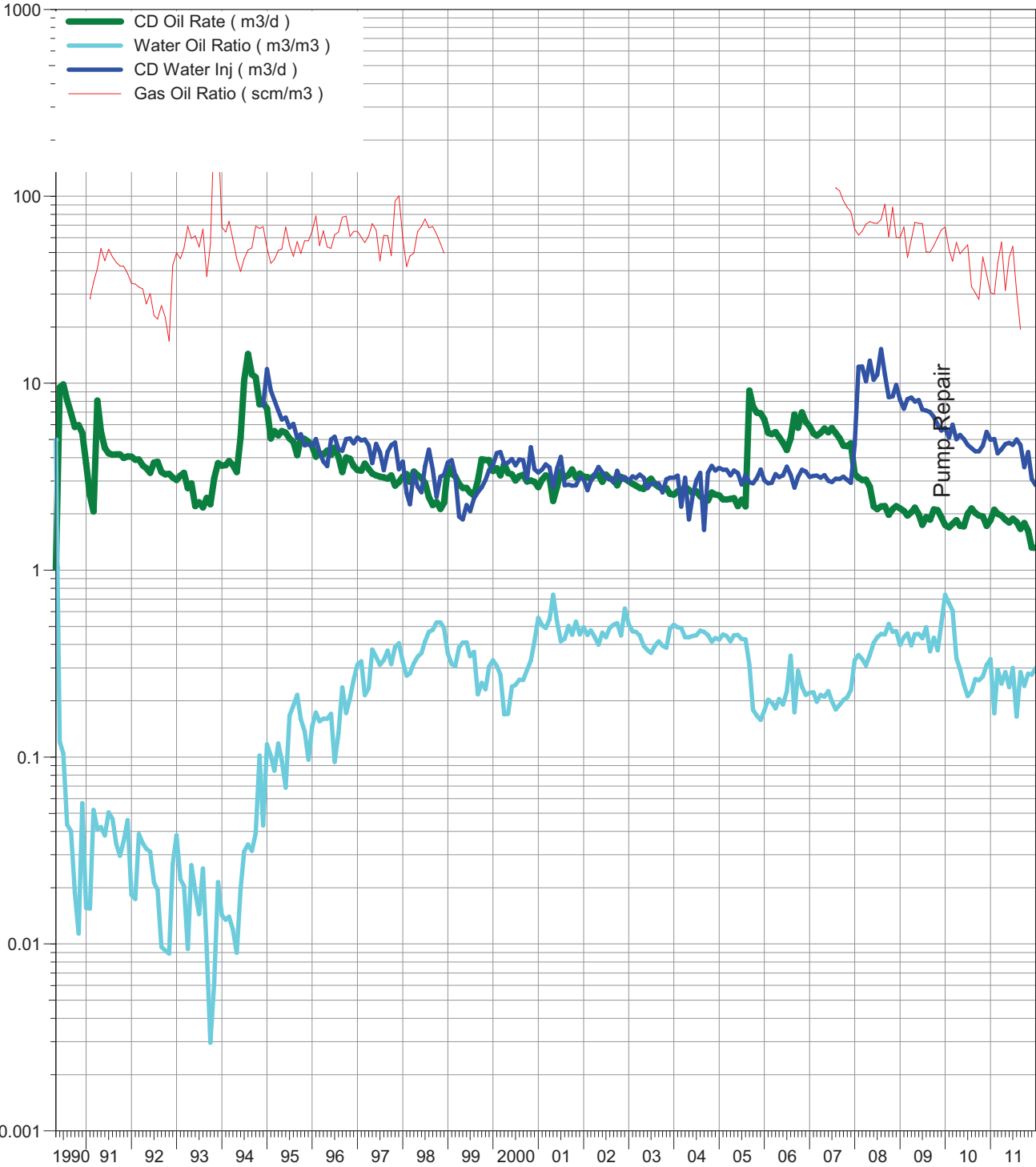
Calendar Day Production for Pattern: P-20 Set: PIERSON UNIT



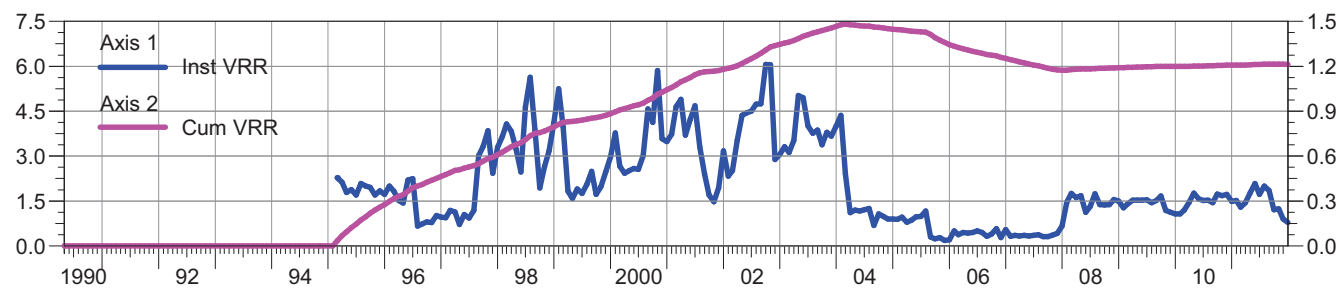
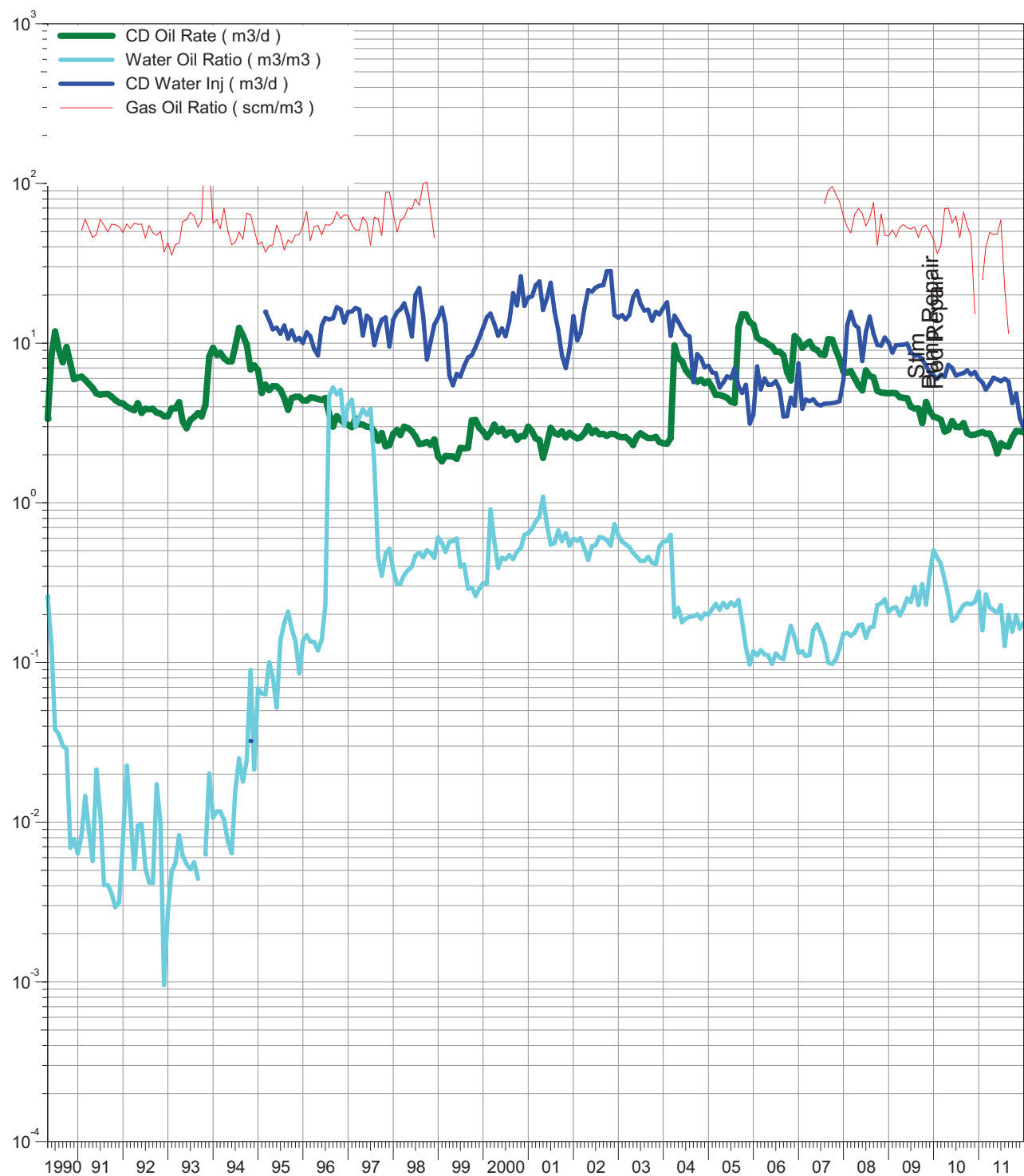
Calendar Day Production for Pattern: P-21 Set: PIERSON UNIT



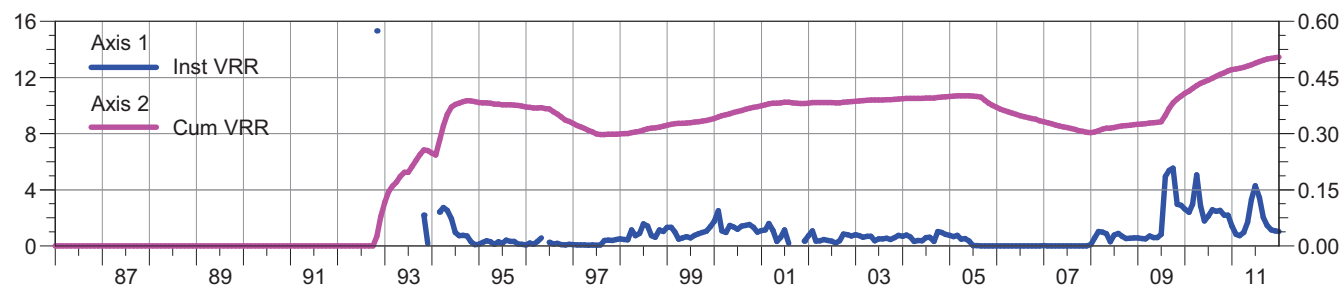
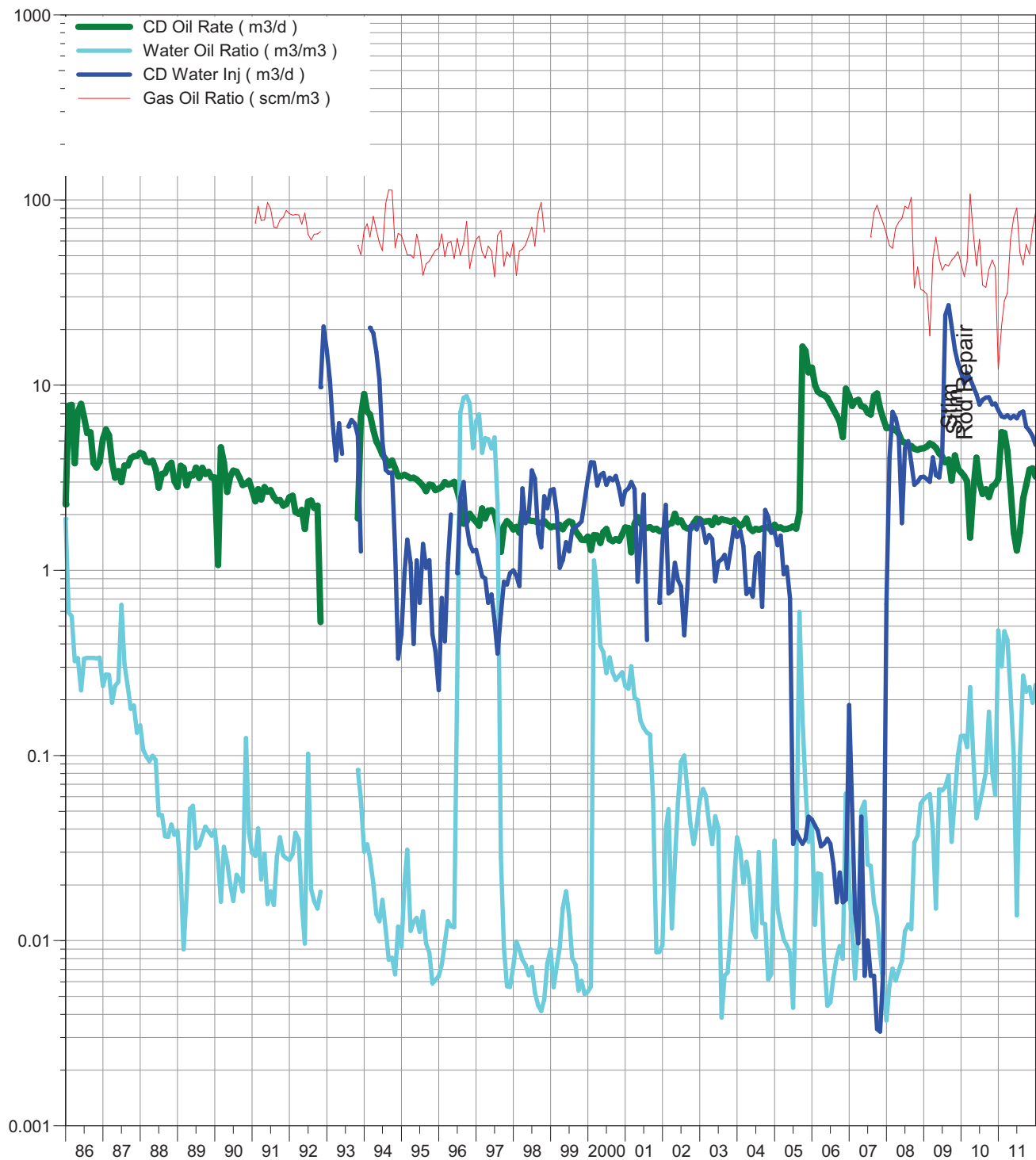
Calendar Day Production for Pattern: P-22 Set: PIERSON UNIT



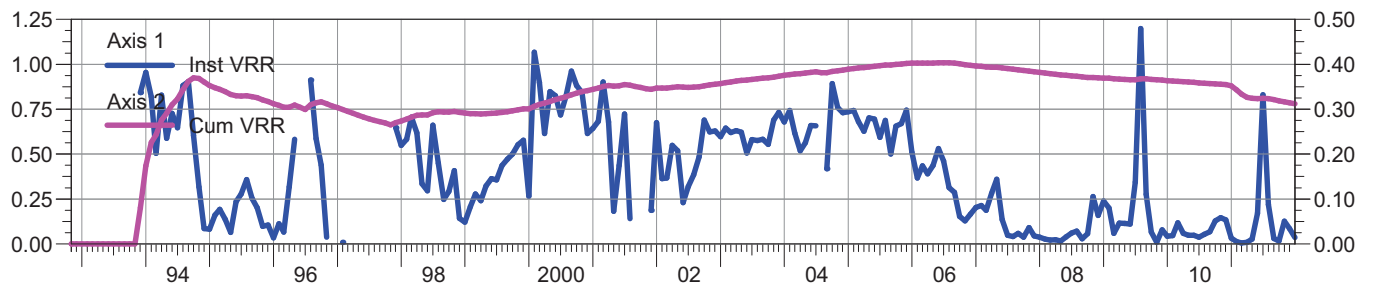
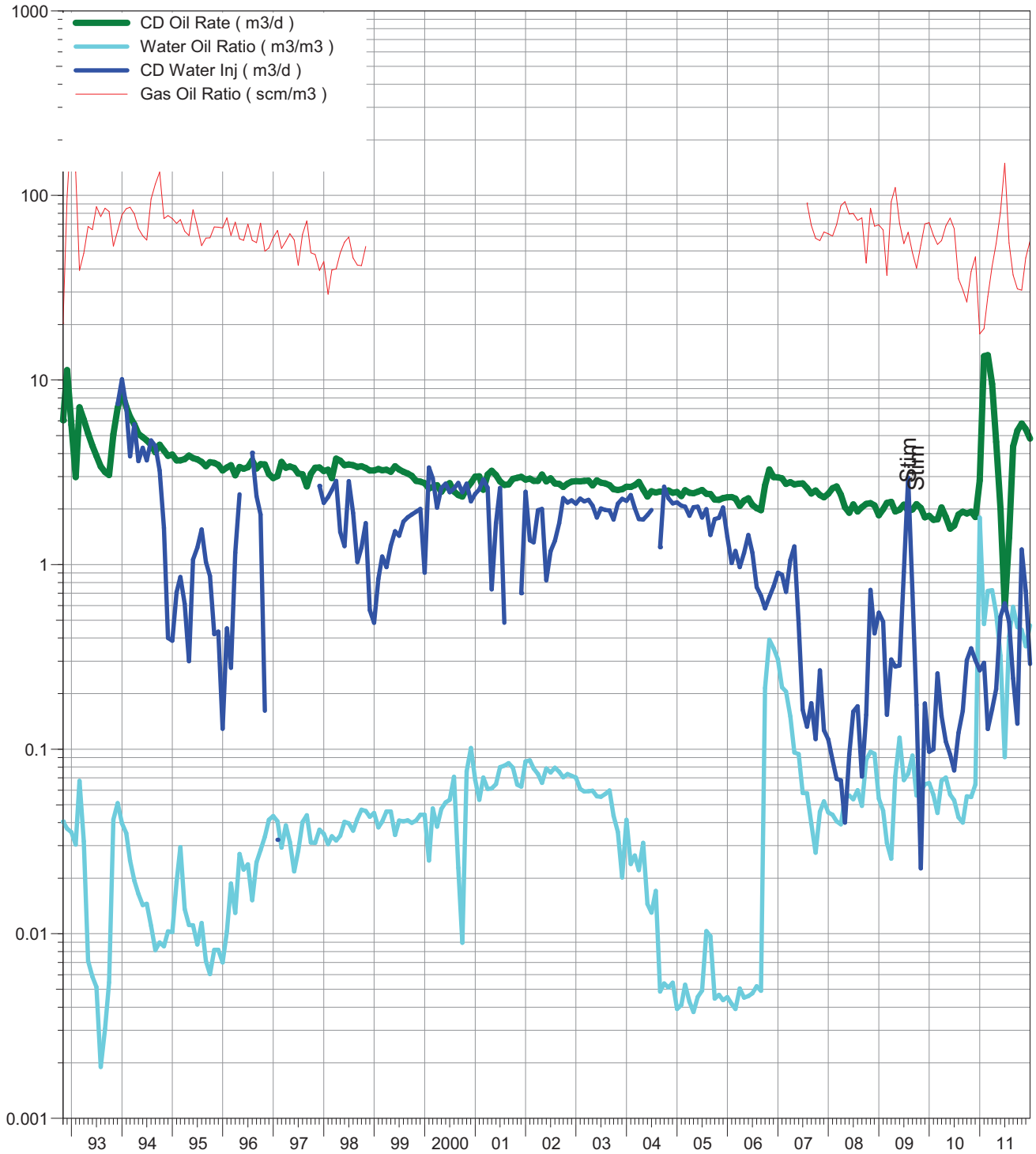
Calendar Day Production for Pattern: P-23 Set: PIERSON UNIT



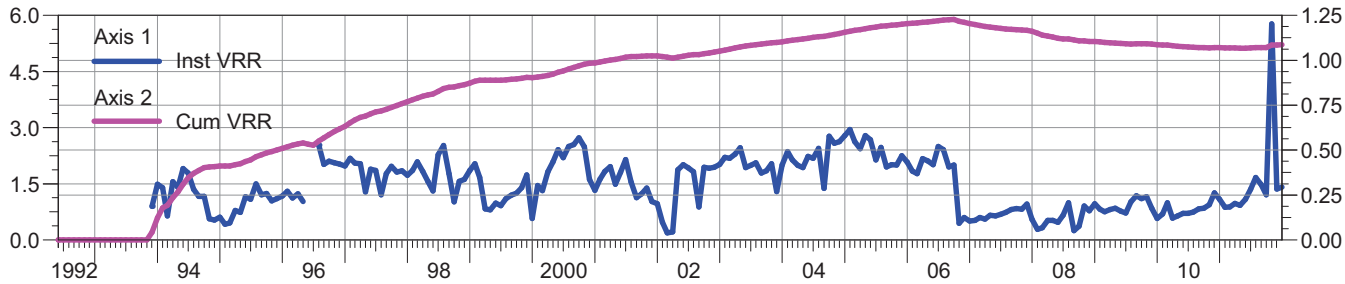
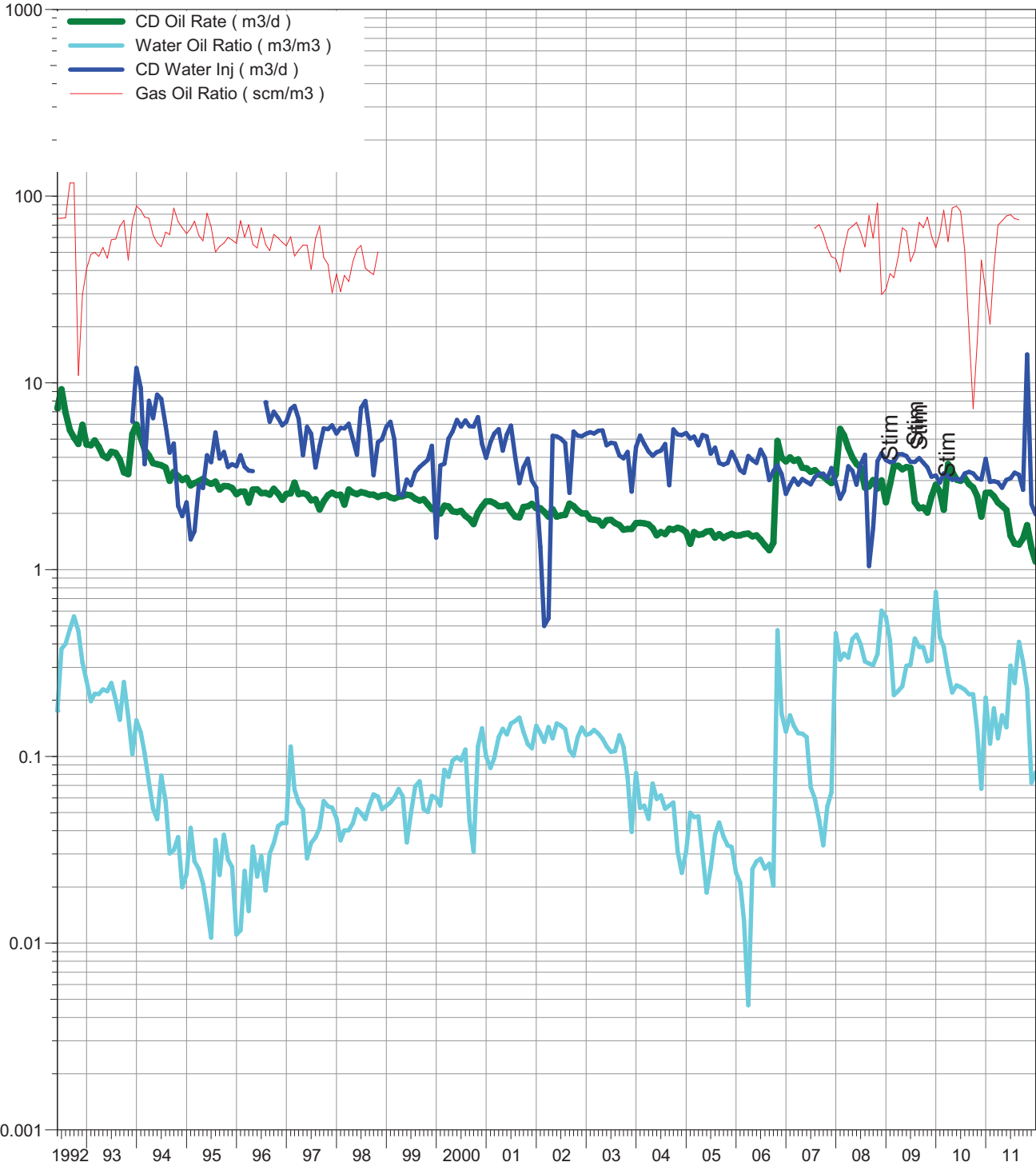
Calendar Day Production for Pattern: P-24 Set: PIERSON UNIT



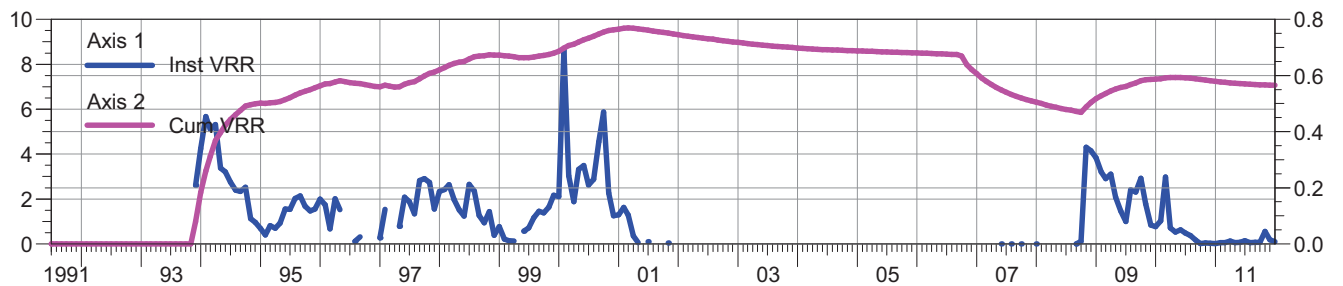
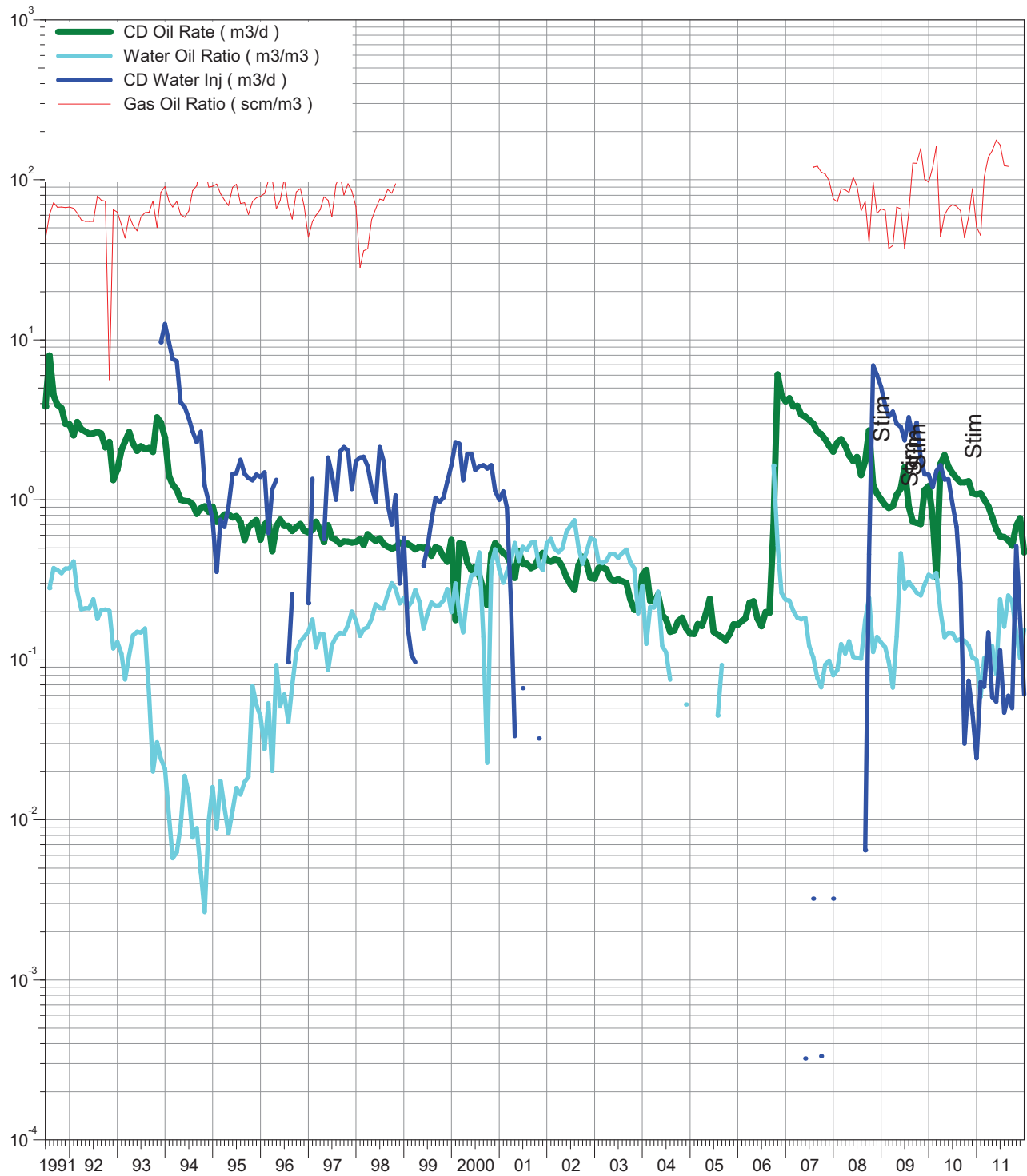
Calendar Day Production for Pattern: P-25 Set: PIERSON UNIT



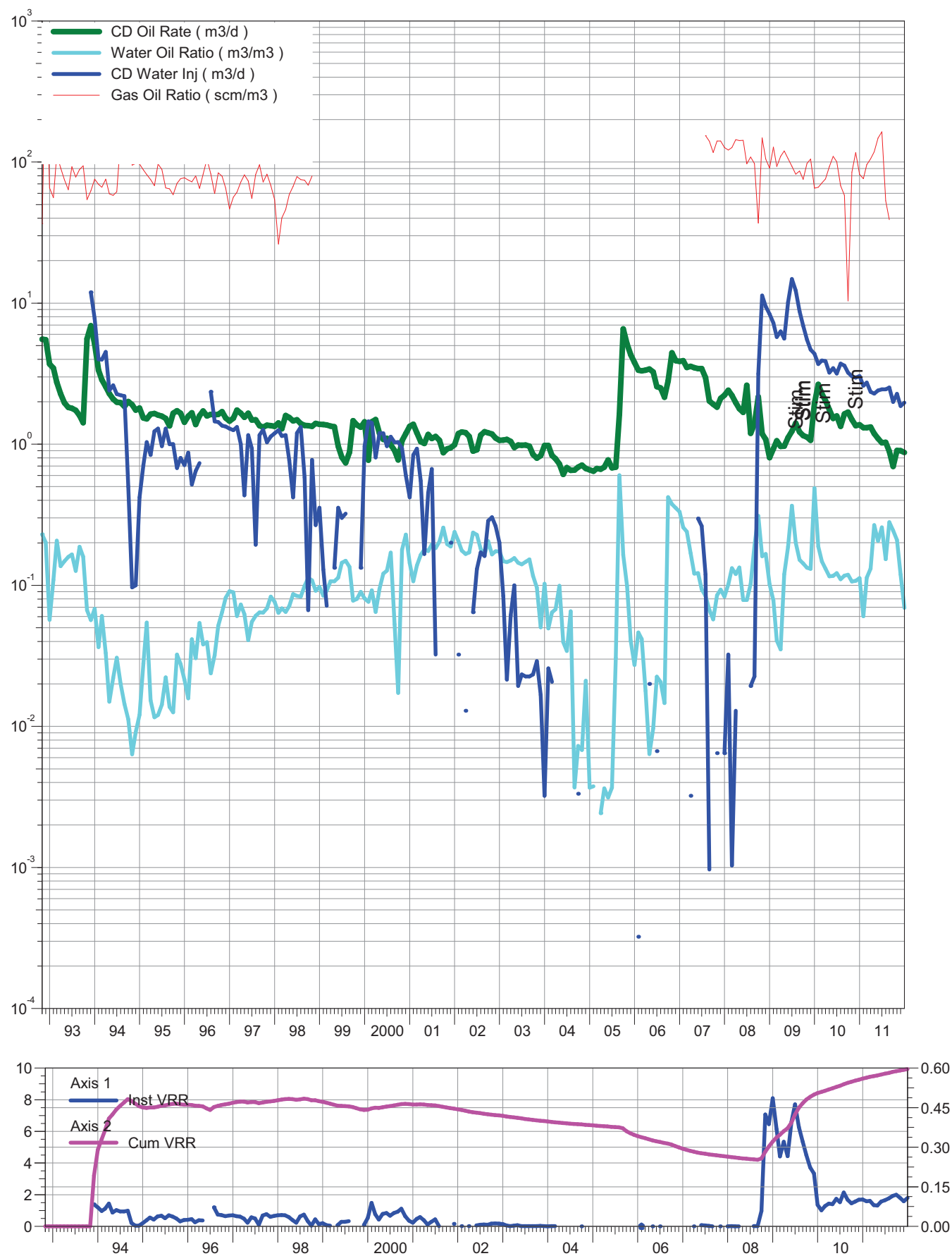
Calendar Day Production for Pattern: P-26 Set: PIERSON UNIT



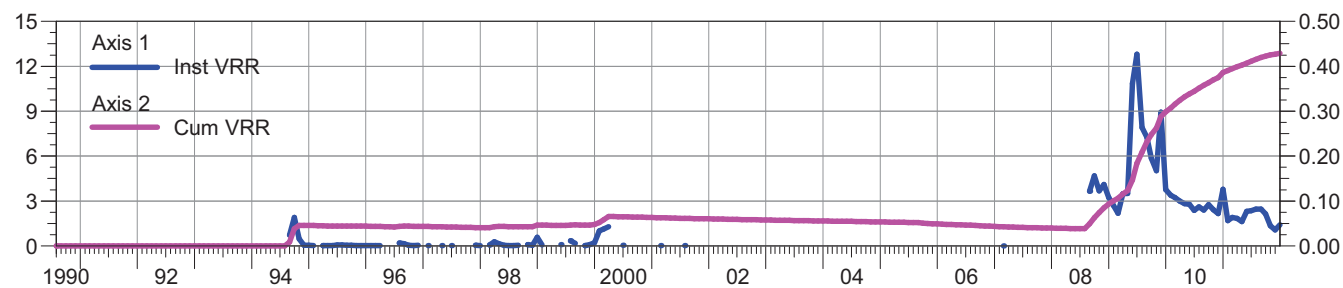
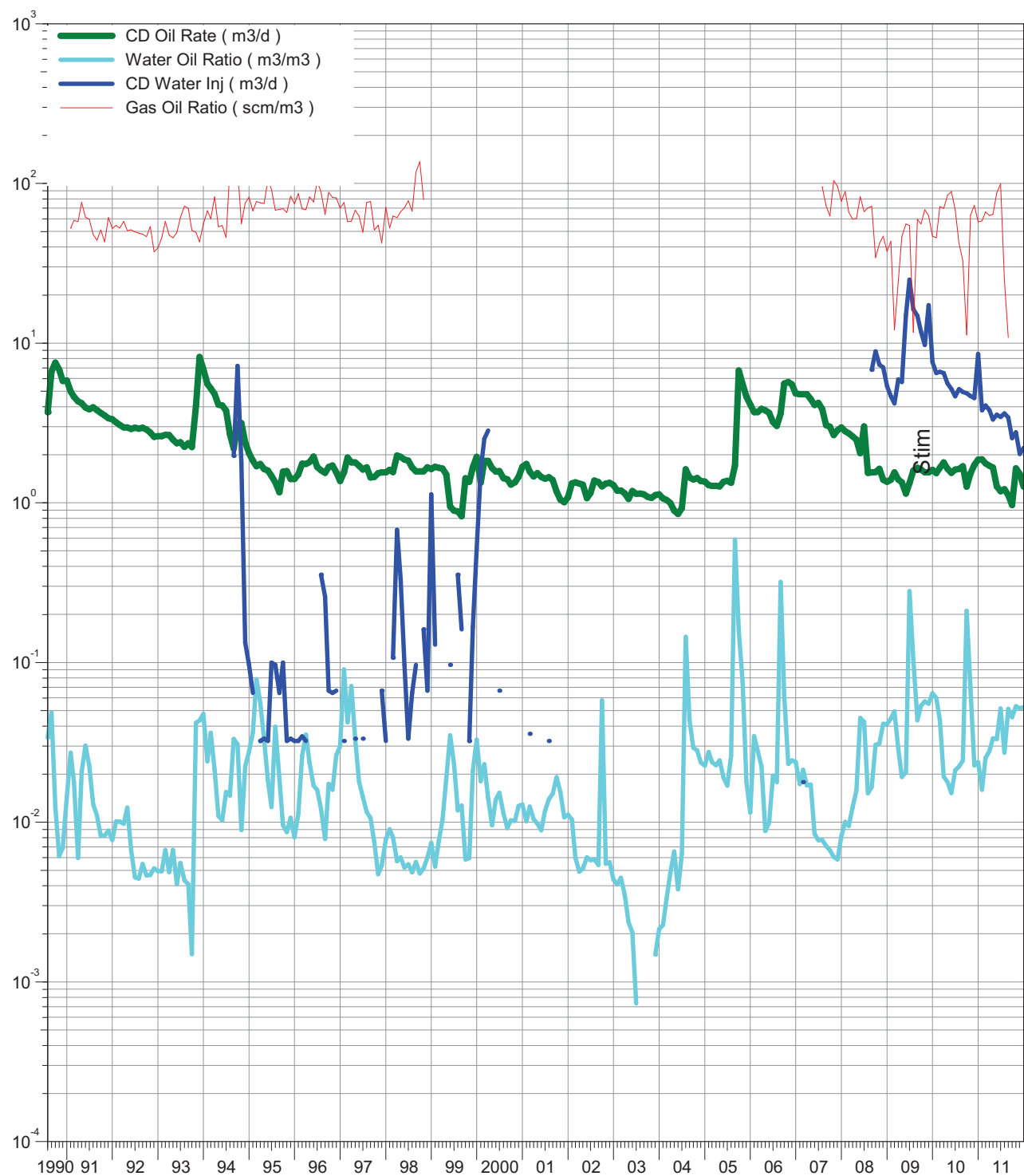
Calendar Day Production for Pattern: P-27 Set: PIERSON UNIT



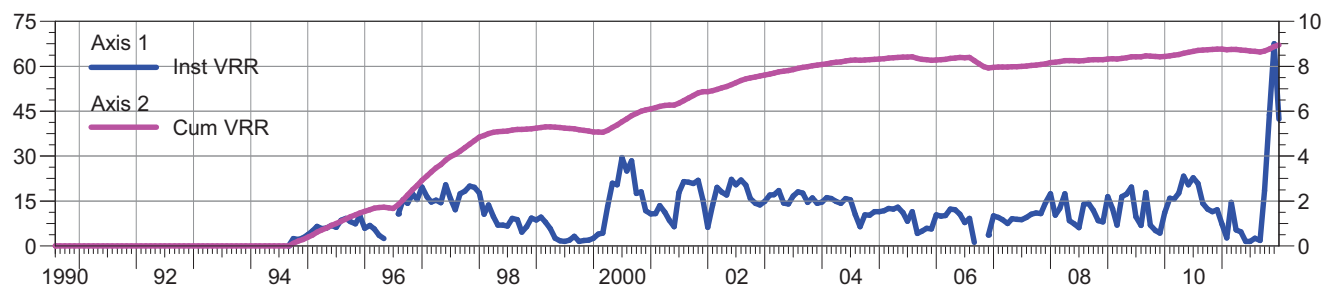
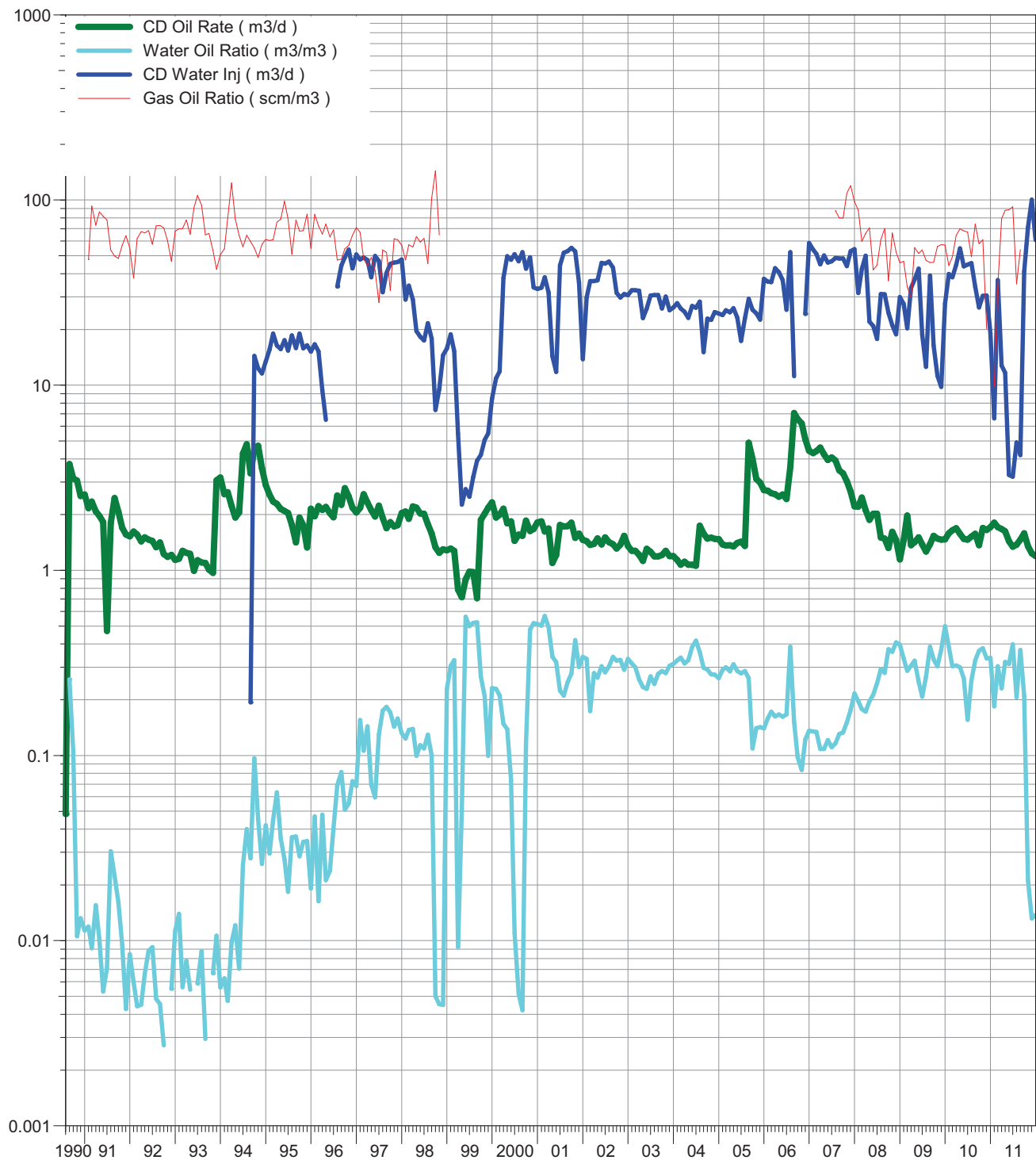
Calendar Day Production for Pattern: P-28 Set: PIERSON UNIT



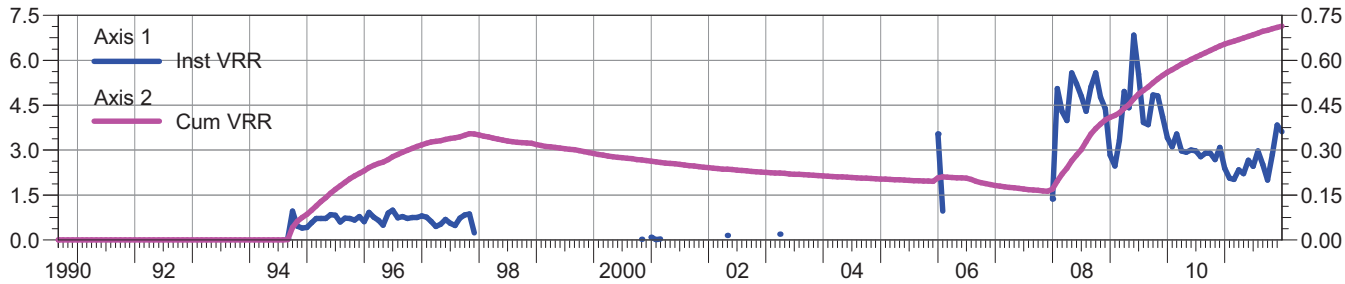
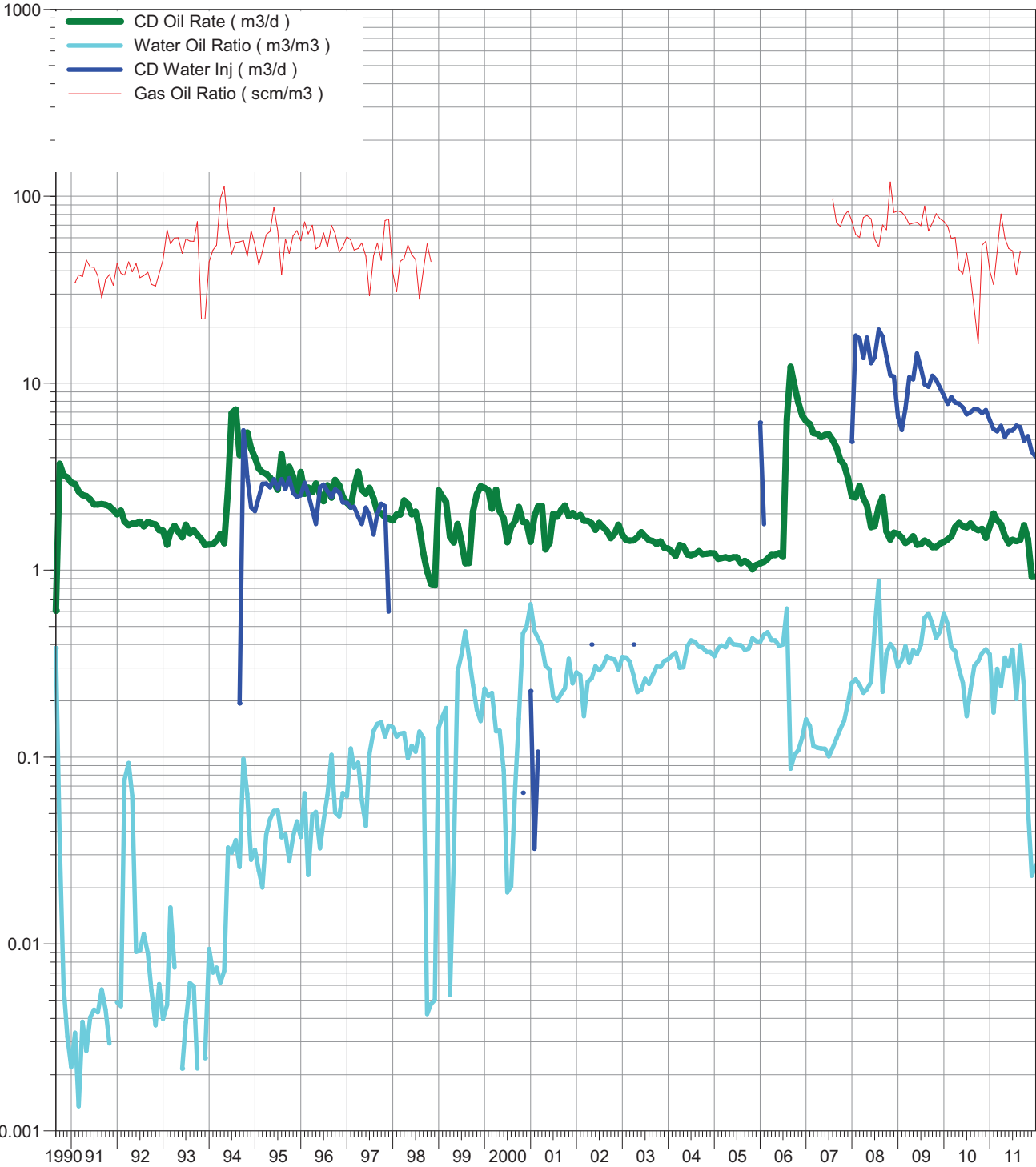
Calendar Day Production for Pattern: P-29 Set: PIERSON UNIT



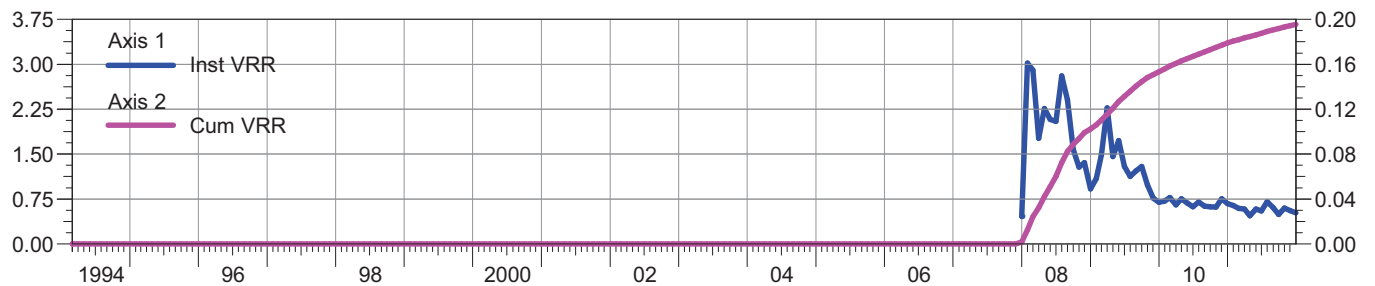
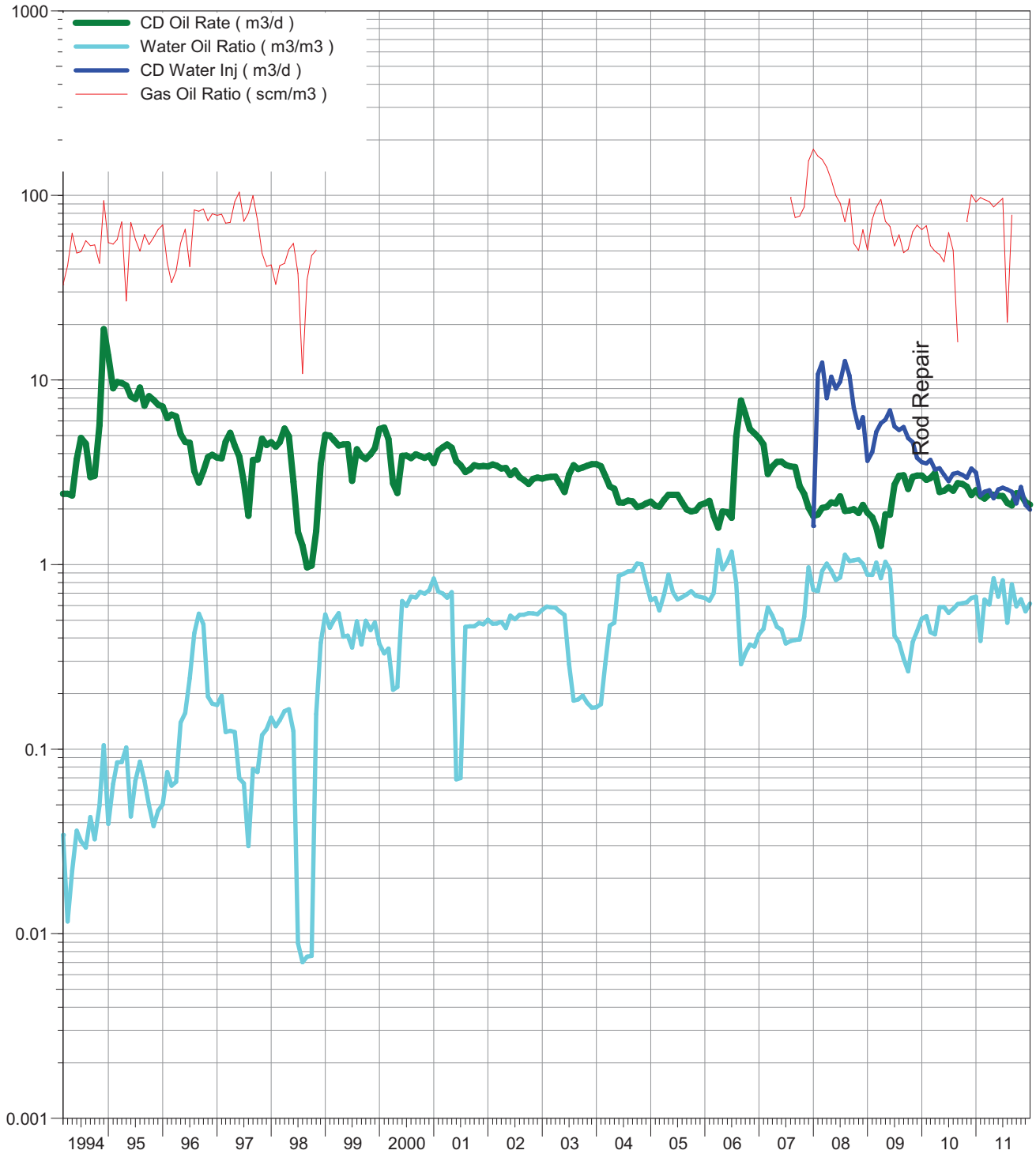
Calendar Day Production for Pattern: P-30 Set: PIERSON UNIT



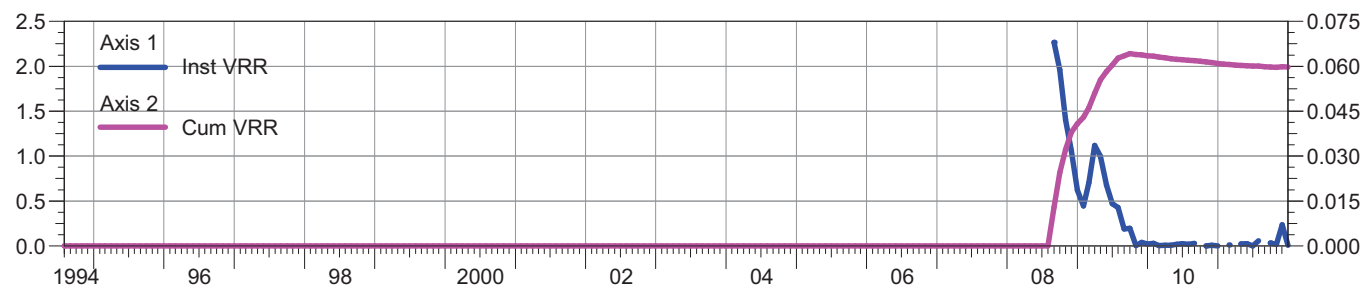
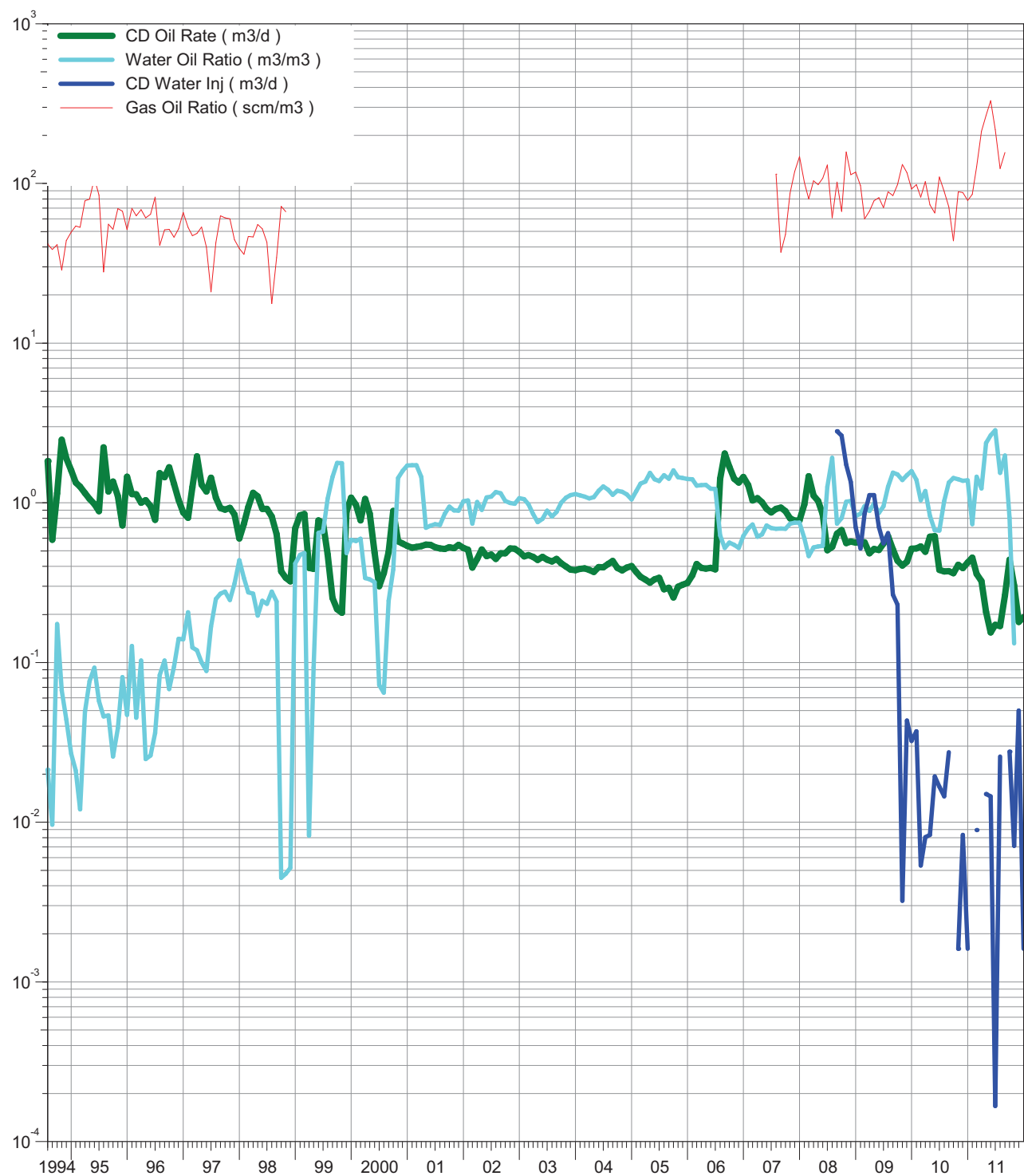
Calendar Day Production for Pattern: P-31 Set: PIERSON UNIT



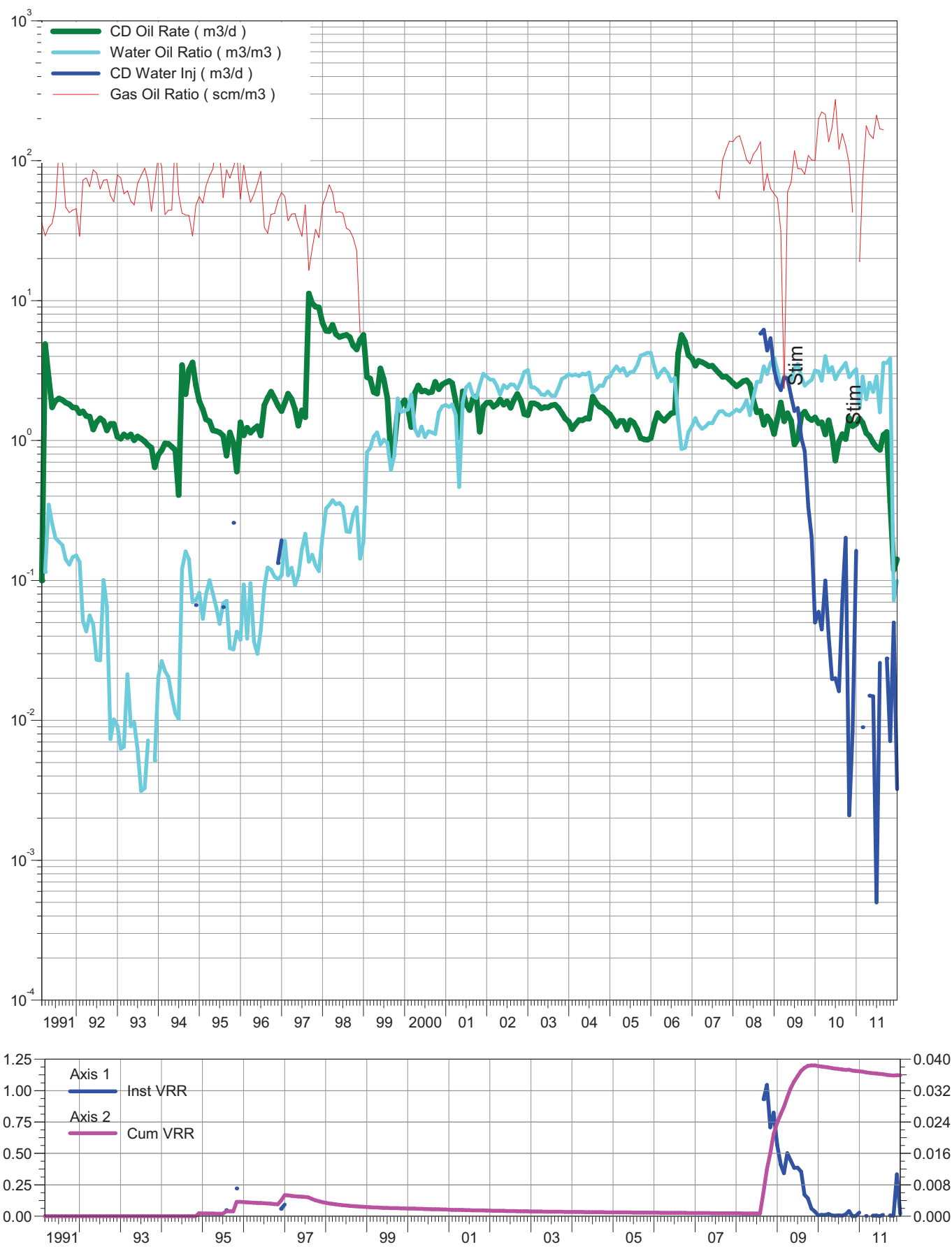
Calendar Day Production for Pattern: P-32 Set: PIERSON UNIT



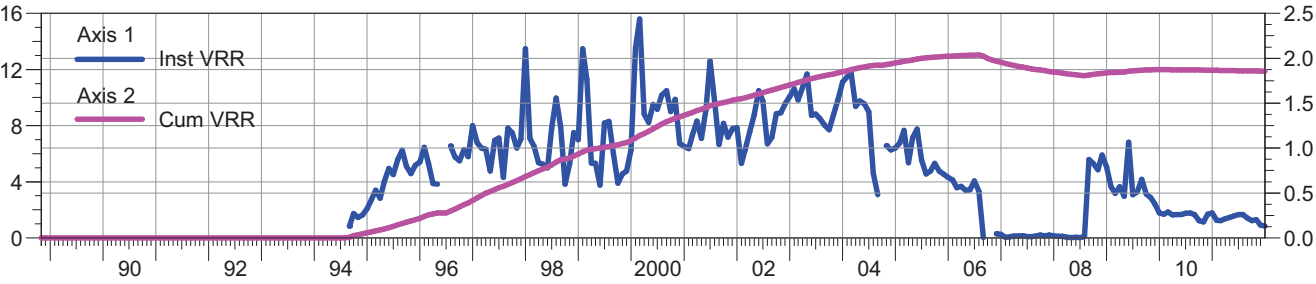
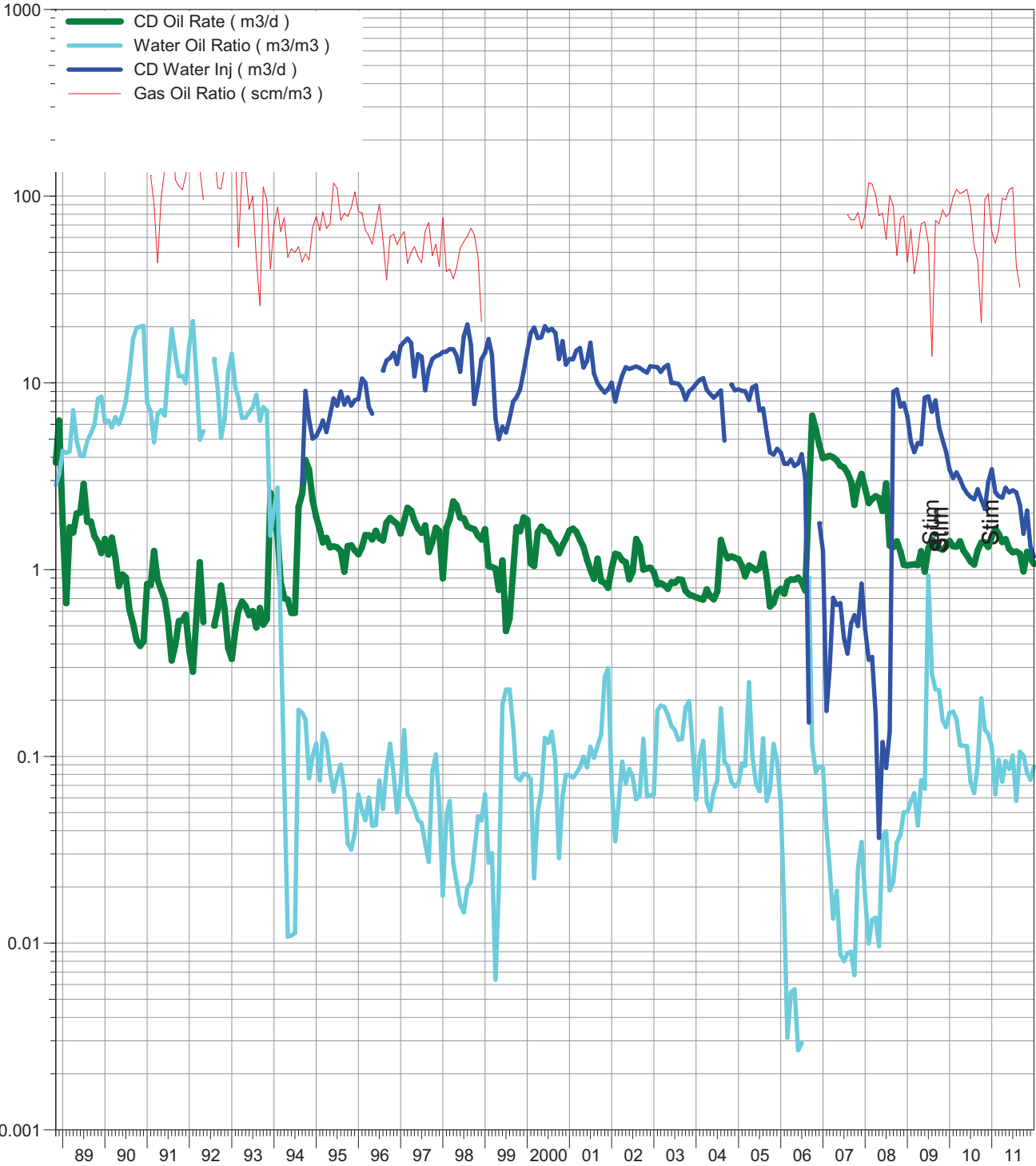
Calendar Day Production for Pattern: P-33 Set: PIERSON UNIT



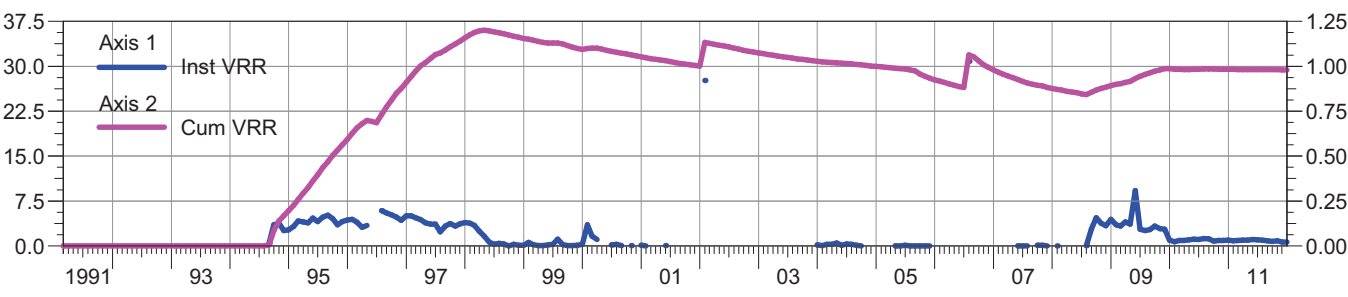
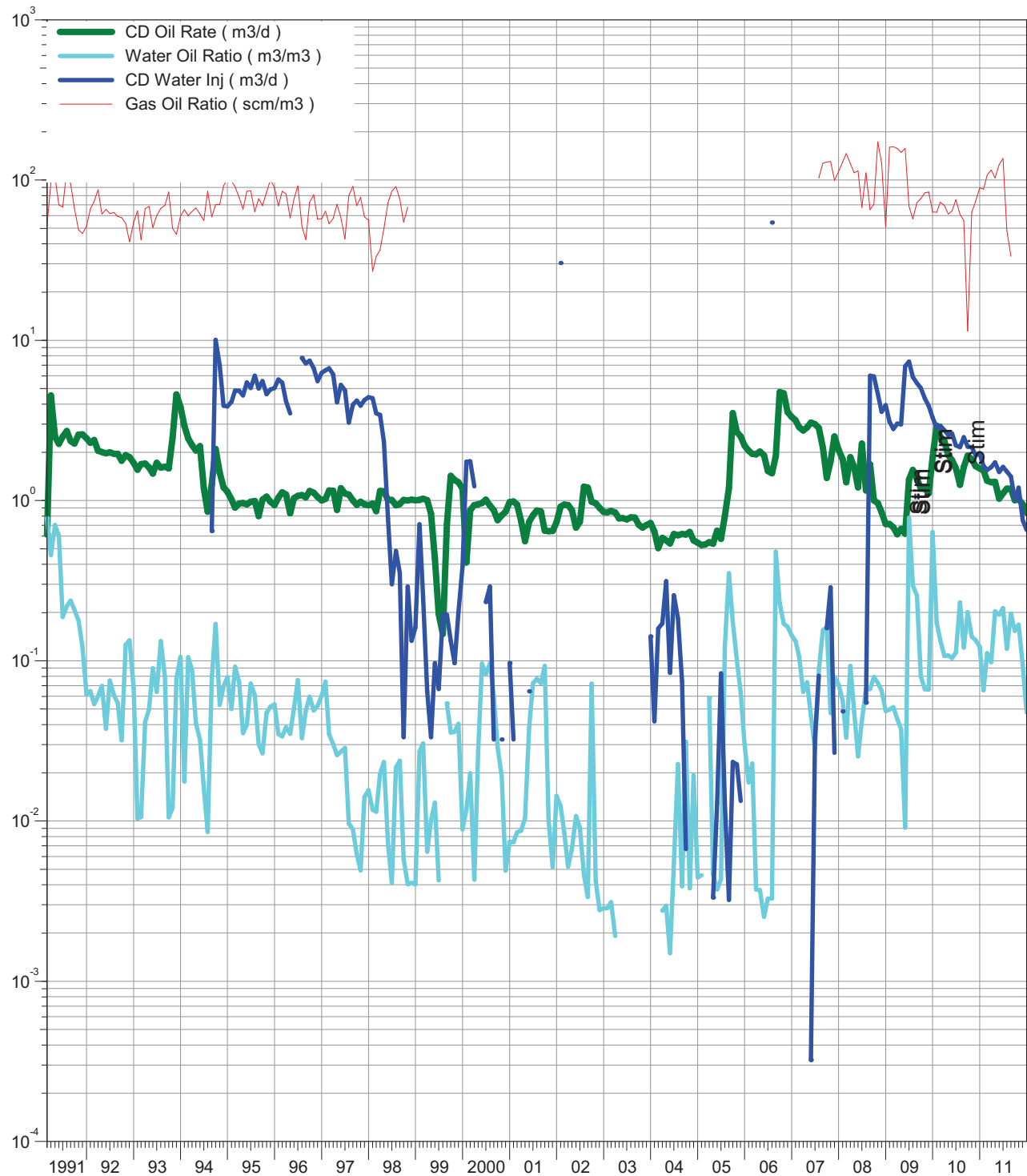
Calendar Day Production for Pattern: P-34 Set: PIERSON UNIT



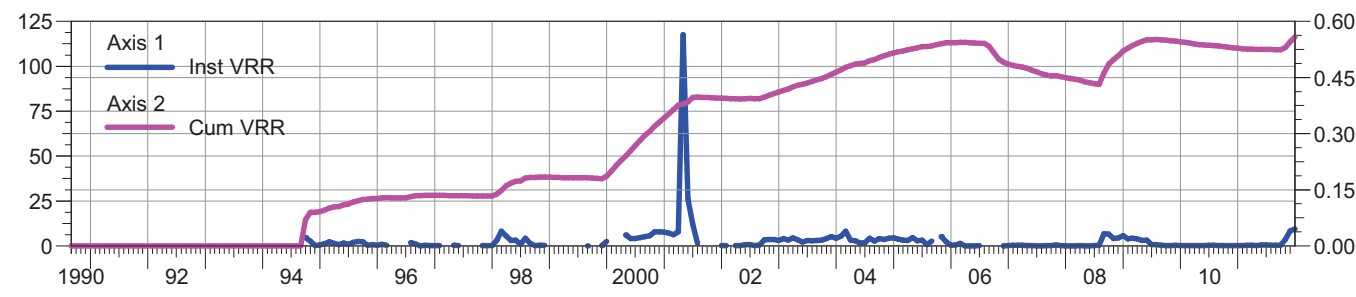
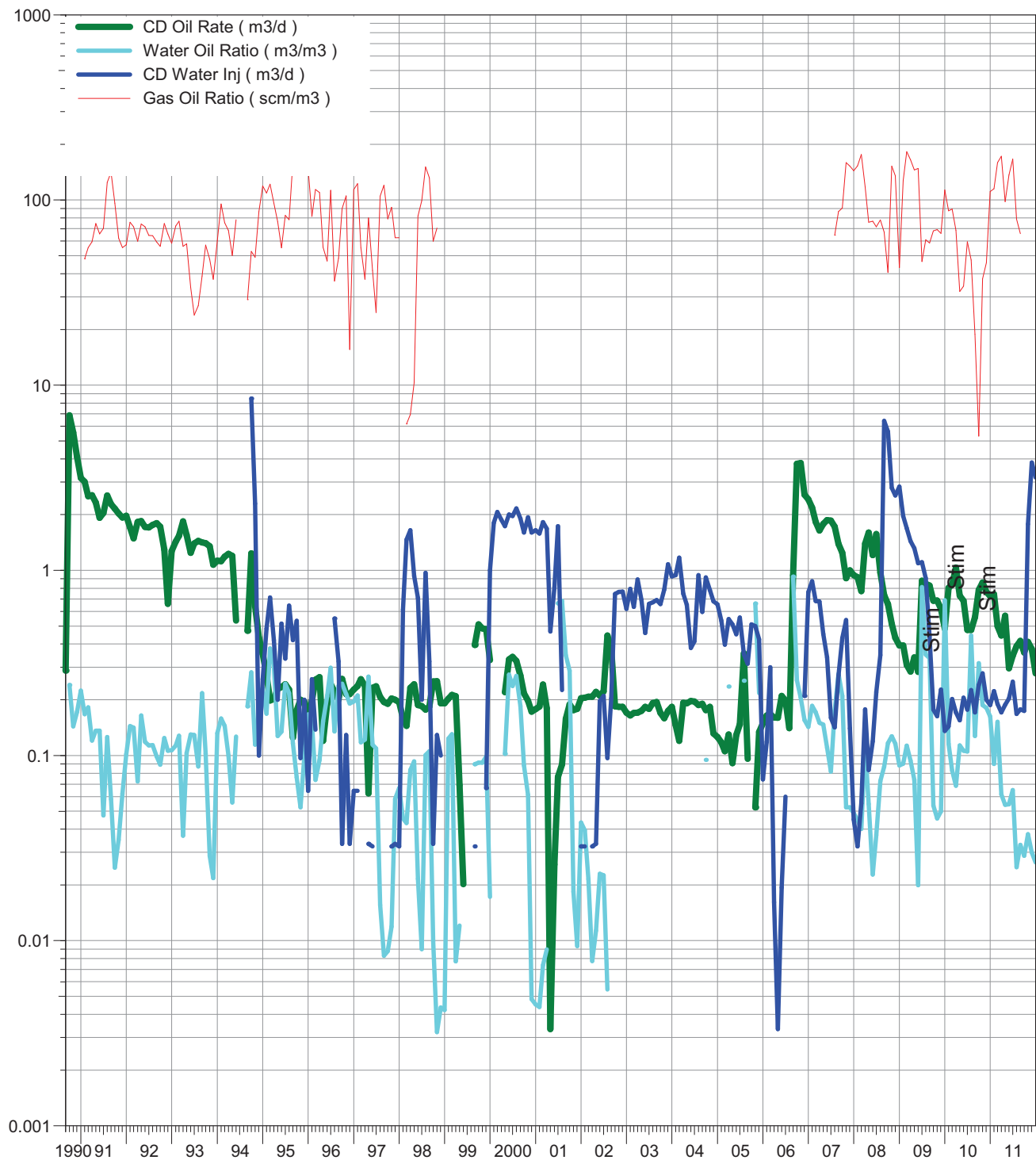
Calendar Day Production for Pattern: P-35 Set: PIERSON UNIT



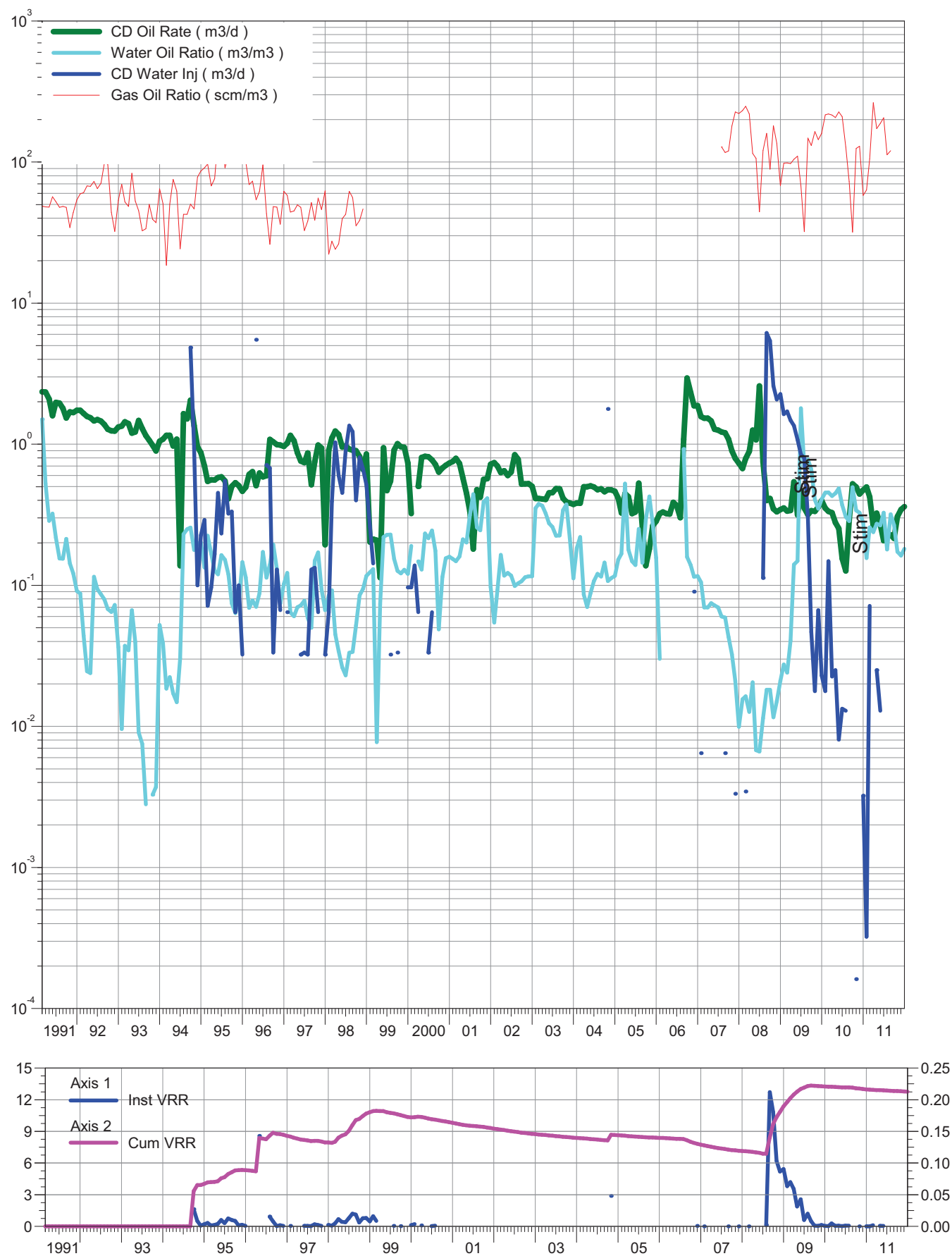
Calendar Day Production for Pattern: P-36 Set: PIERSON UNIT



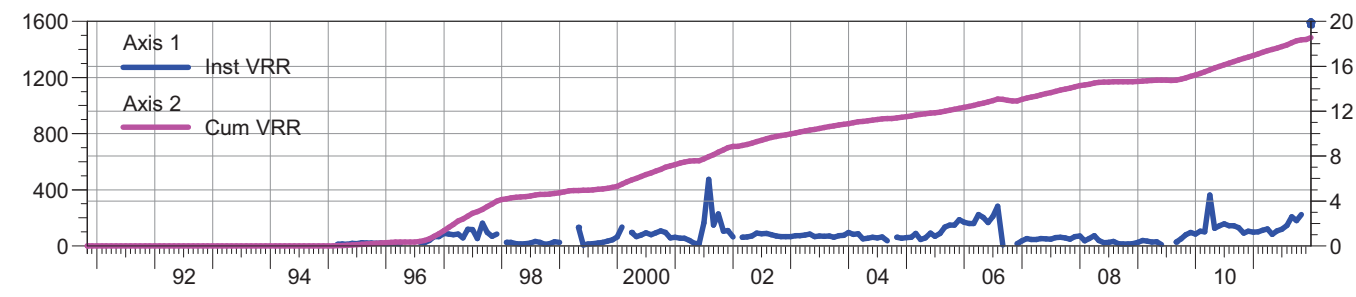
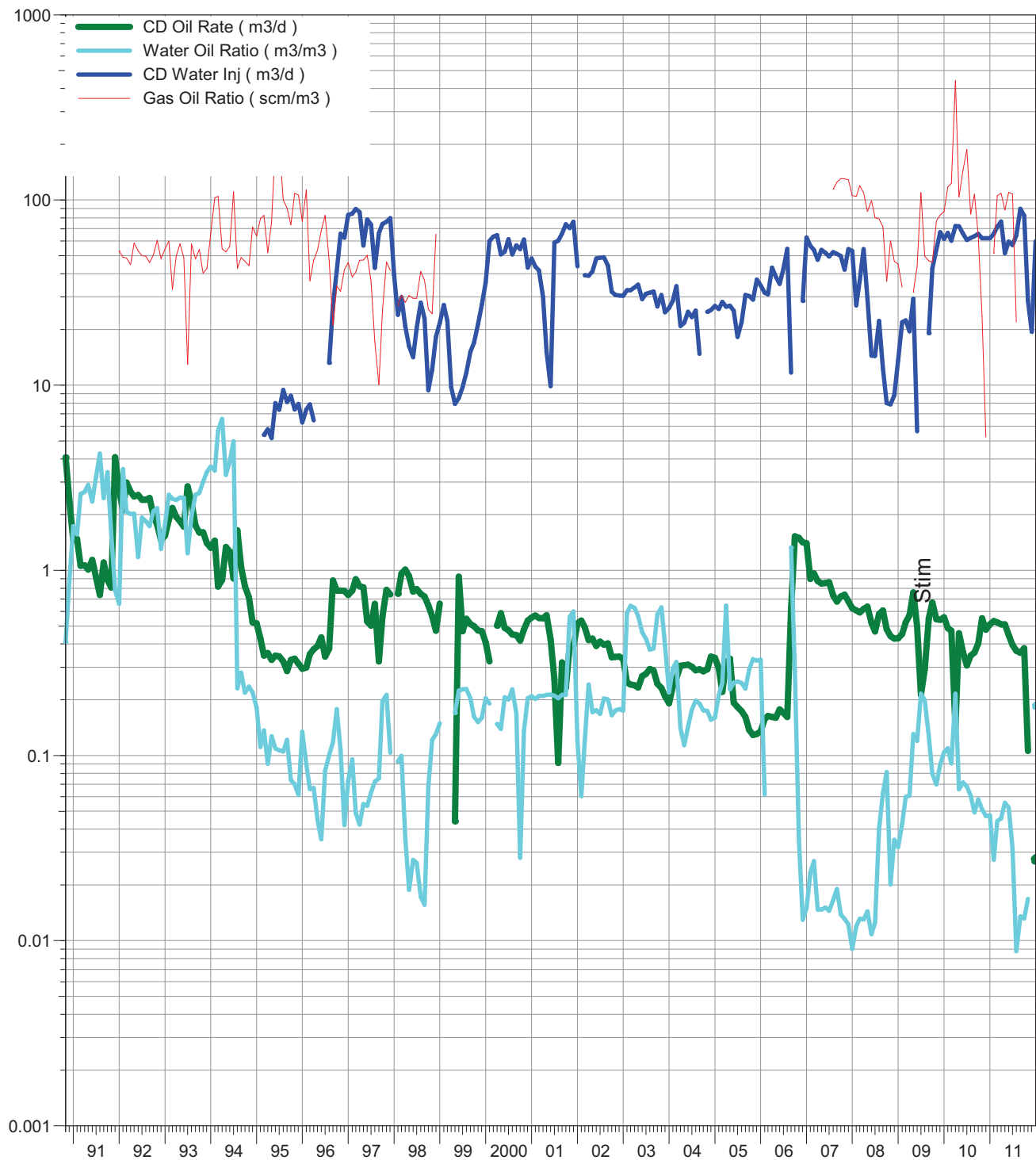
Calendar Day Production for Pattern: P-37 Set: PIERSON UNIT



Calendar Day Production for Pattern: P-38 Set: PIERSON UNIT



Calendar Day Production for Pattern: P-39 Set: PIERSON UNIT



Calendar Day Production for Pattern: P-43 Set: PIERSON UNIT

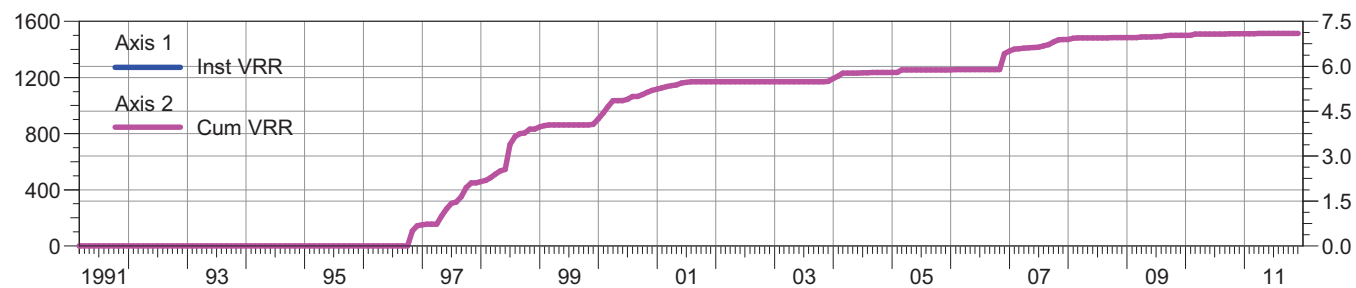
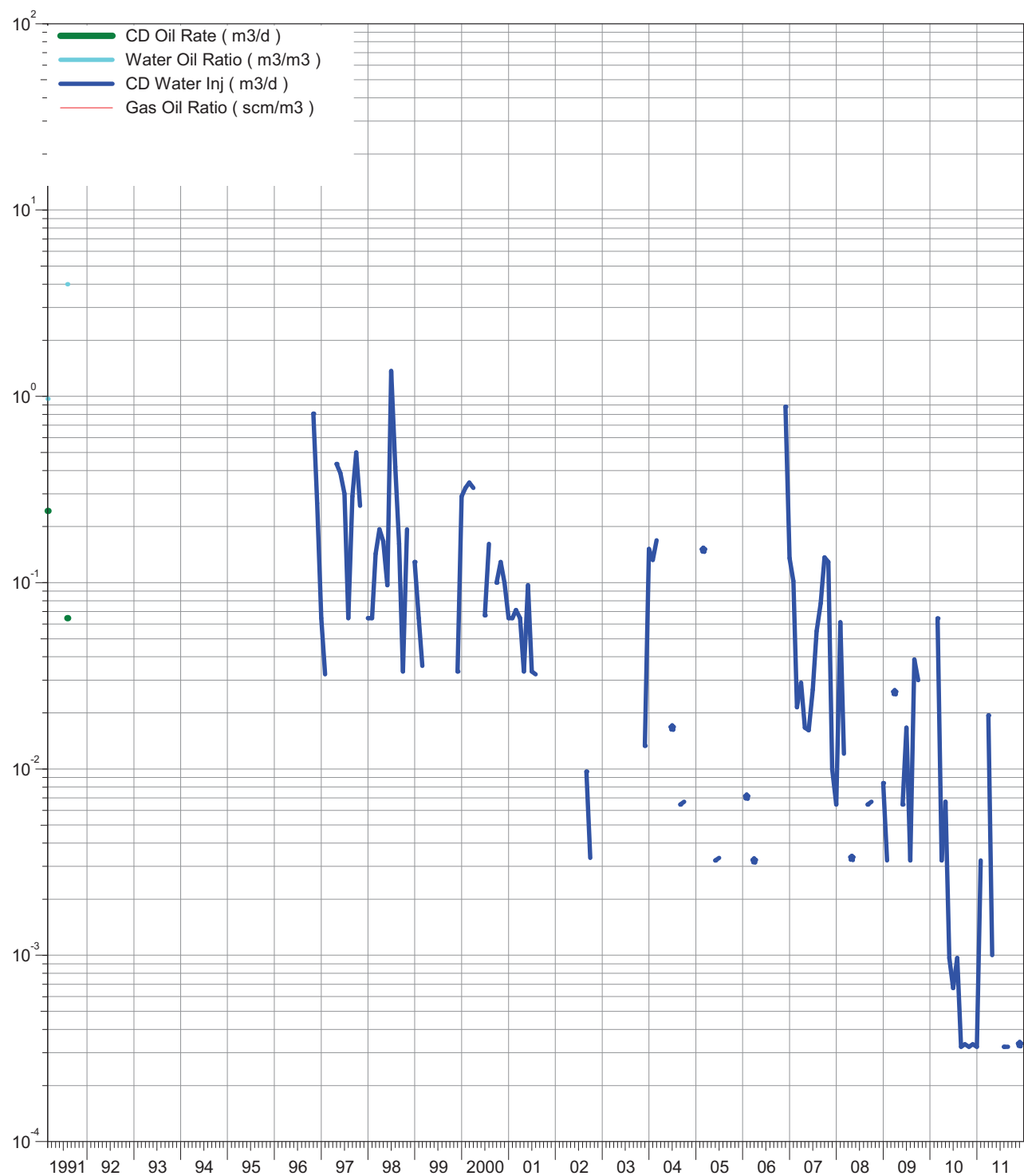


TABLE C.1: CUMULATIVE PRODUCTION AND INJECTION TO THE END OF 2011

	Cum Oil Prod (E ³ m ³)	Cum Gas Prod (E ⁶ m ³)	Cum Water Prod (E ³ m ³)	Cum Liquid Prod (E ³ m ³)	Cum Water Inj (E ³ m ³)
Overall Unit	773.36	27.23	473.45	1246.81	1810.62
PATTERN: P-02	6.98	0.31	1.18	8.16	5.49
PATTERN: P-05	2.77	0.24	1.32	4.09	4.33
PATTERN: P-06	21.31	0.76	3.26	24.57	18.24
PATTERN: P-07	20.68	0.65	42.49	63.17	18.99
PATTERN: P-08	18.59	0.57	56.33	74.92	226.66
PATTERN: P-09	31.14	0.97	3.09	34.22	37.75
PATTERN: P-10	40.54	1.13	3.58	44.12	61.92
PATTERN: P-11	30.04	0.83	43.69	73.72	172.98
PATTERN: P-12	30.39	0.94	45.33	75.72	69.13
PATTERN: P-13	27.6	1.35	18.99	46.59	93.25
PATTERN: P-14	20.75	0.61	13.56	34.3	37.25
PATTERN: P-15	20.13	0.7	0.67	20.8	13.05
PATTERN: P-16	39.53	1.63	26.44	65.97	81.67
PATTERN: P-17	36.6	1.22	8.67	45.27	38.8
PATTERN: P-18	43.81	1.38	100.62	144.43	99.61
PATTERN: P-19	32.59	1.16	6.93	39.52	90.01
PATTERN: P-20	18.54	0.7	1.27	19.81	5.96
PATTERN: P-21	16.85	0.63	0.82	17.67	34.71
PATTERN: P-22	28.82	0.91	6.81	35.63	27.57
PATTERN: P-23	37.59	1.14	11.65	49.24	68.39
PATTERN: P-24	31.42	0.85	7.4	38.82	22.61
PATTERN: P-25	22.44	0.88	2.22	24.66	9.02
PATTERN: P-26	20.59	0.86	4.15	24.74	28.2
PATTERN: P-27	9.52	0.56	2.66	12.18	6.39
PATTERN: P-28	11.93	0.66	1.37	13.3	9.28
PATTERN: P-29	17.73	0.64	0.47	18.2	9.26
PATTERN: P-30	15.39	0.53	2.45	17.84	185.96
PATTERN: P-31	17.44	0.56	2.91	20.34	16.9
PATTERN: P-32	23.95	0.85	9.09	33.04	7.19
PATTERN: P-33	4.51	0.18	2.58	7.1	0.48
PATTERN: P-34	15.71	0.58	19.39	35.1	1.37
PATTERN: P-35	11.89	0.45	13.36	25.25	51.03
PATTERN: P-36	10.58	0.5	1.03	11.61	13.34
PATTERN: P-37	6.18	0.28	1.11	7.3	4.08
PATTERN: P-38	5.97	0.28	0.92	6.88	1.7
PATTERN: P-39	5.48	0.2	5.7	11.18	226.55
PATTERN: P-43	0.16	0.02	0.1	0.25	0.35

Axis 1 Completions Selected (145)

Overall South Pierson Unit No. 1

Cumulative Oil Prod (Mm3)

Cumulative Oil Prod : 773.42 Mm3

Cumulative Liquid Prod (Mm3)

Cumulative Liquid Prod : 1246.81 Mm3

Cumulative Water Prod (Mm3)

Cumulative Water Prod : 473.39 Mm3

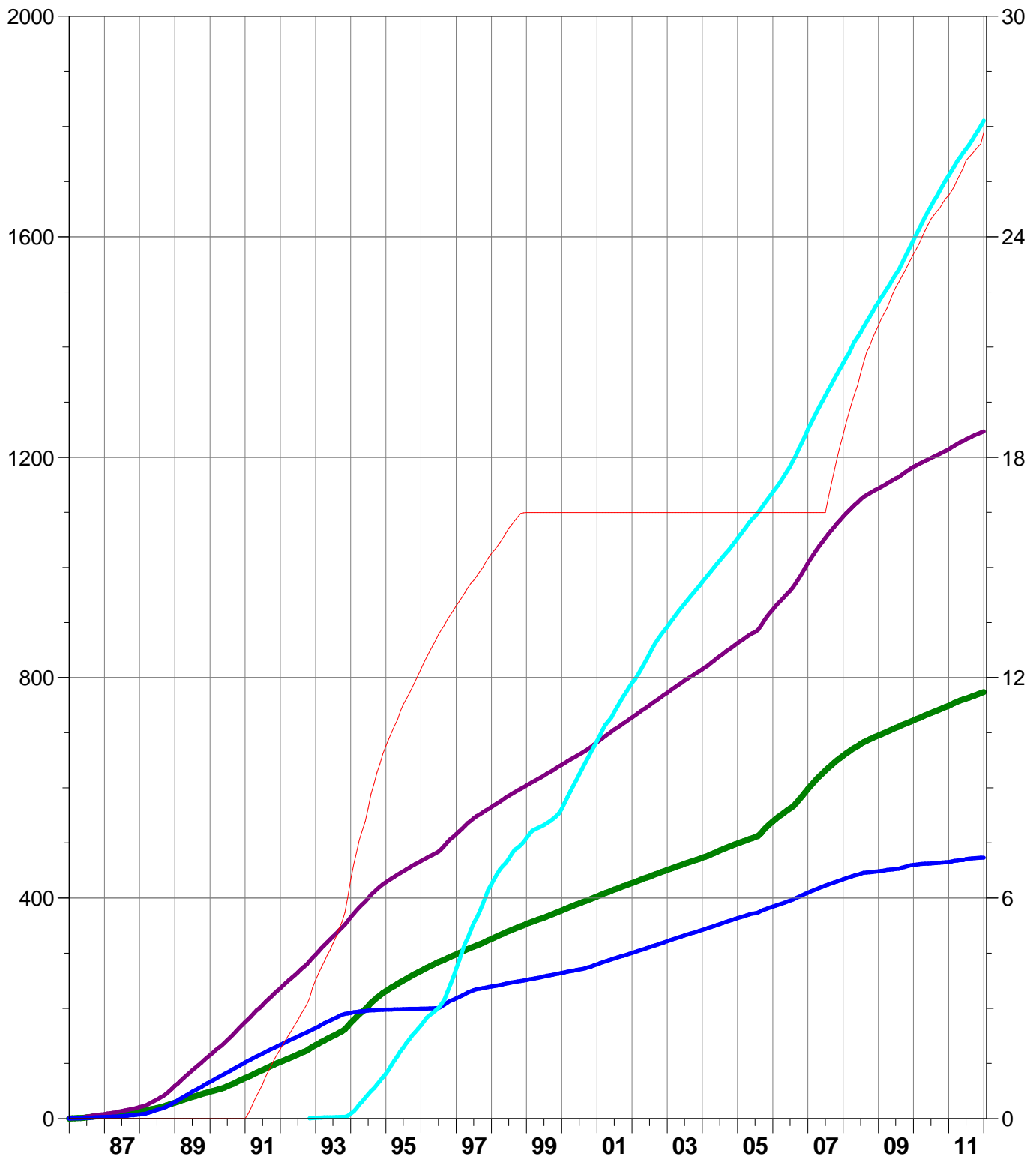
Cumulative Water Inj (Mm3)

Cumulative Water Inj : 1810.62 Mm3

Axis 2

Cumulative Gas Prod (MMscm)

Cumulative Gas Prod : 26.84 MMscm



Axis 1 P-01

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

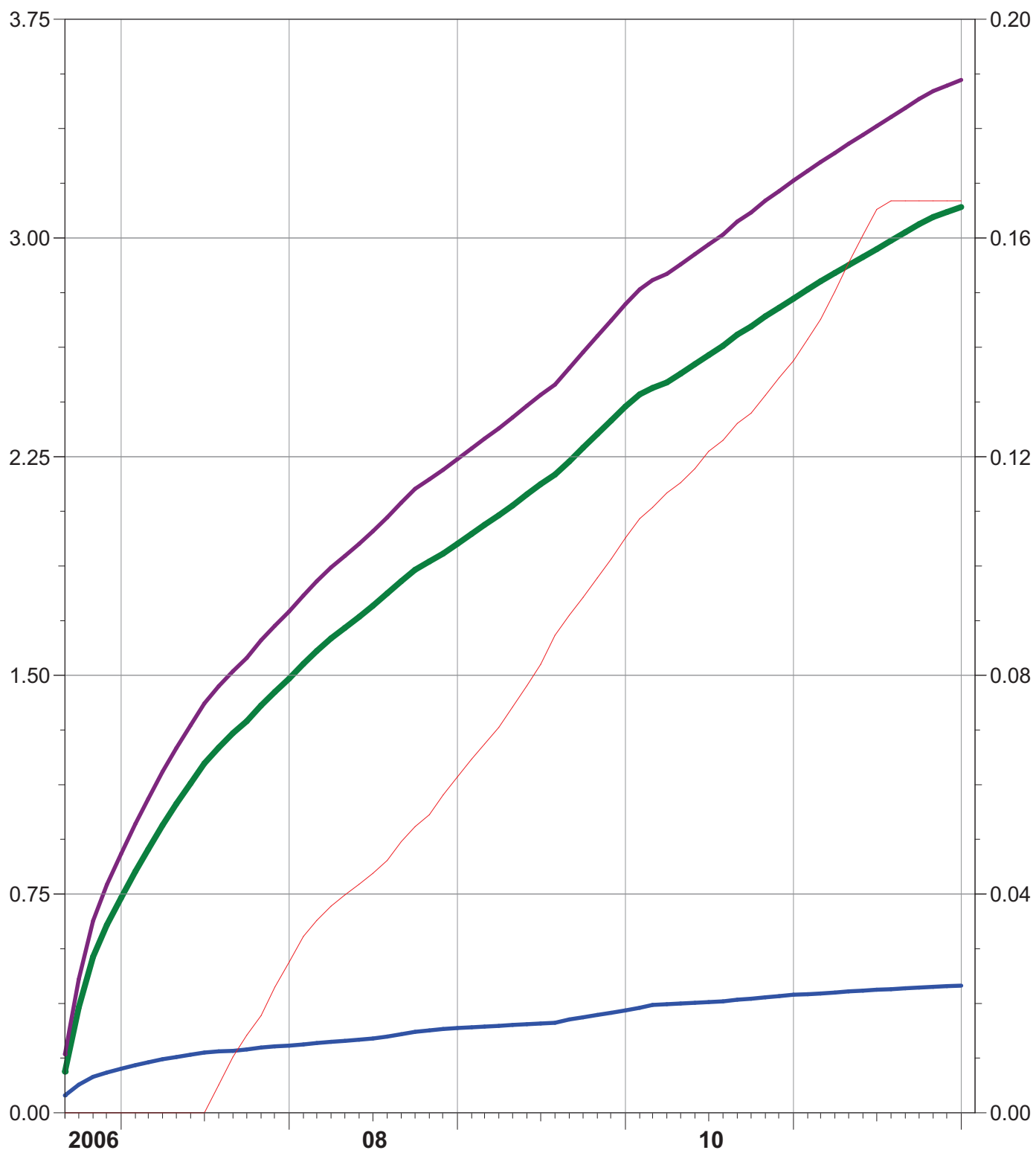
Cumulative Oil Prod : 3.11 Mm3

Cumulative Liquid Prod : 3.54 Mm3

Cumulative Water Prod : 0.44 Mm3

Cumulative Water Inj : * Mm3

Cumulative Gas Prod : 0.17 MMscm



Axis 1 P-02

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

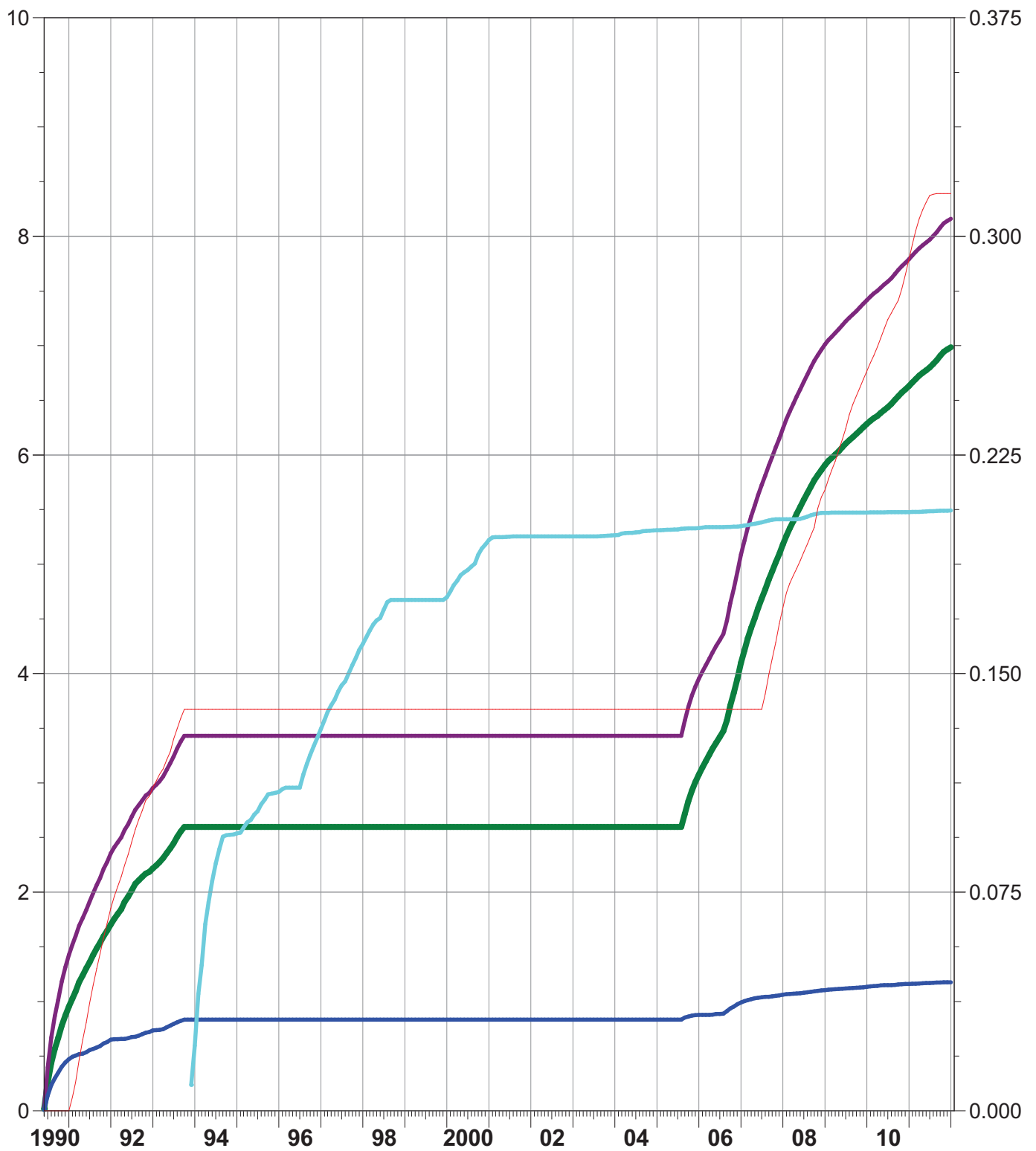
Cumulative Oil Prod : 6.98 Mm3

Cumulative Liquid Prod : 8.16 Mm3

Cumulative Water Prod : 1.18 Mm3

Cumulative Water Inj : 5.49 Mm3

Cumulative Gas Prod : 0.31 MMscm



Axis 1 P-03

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

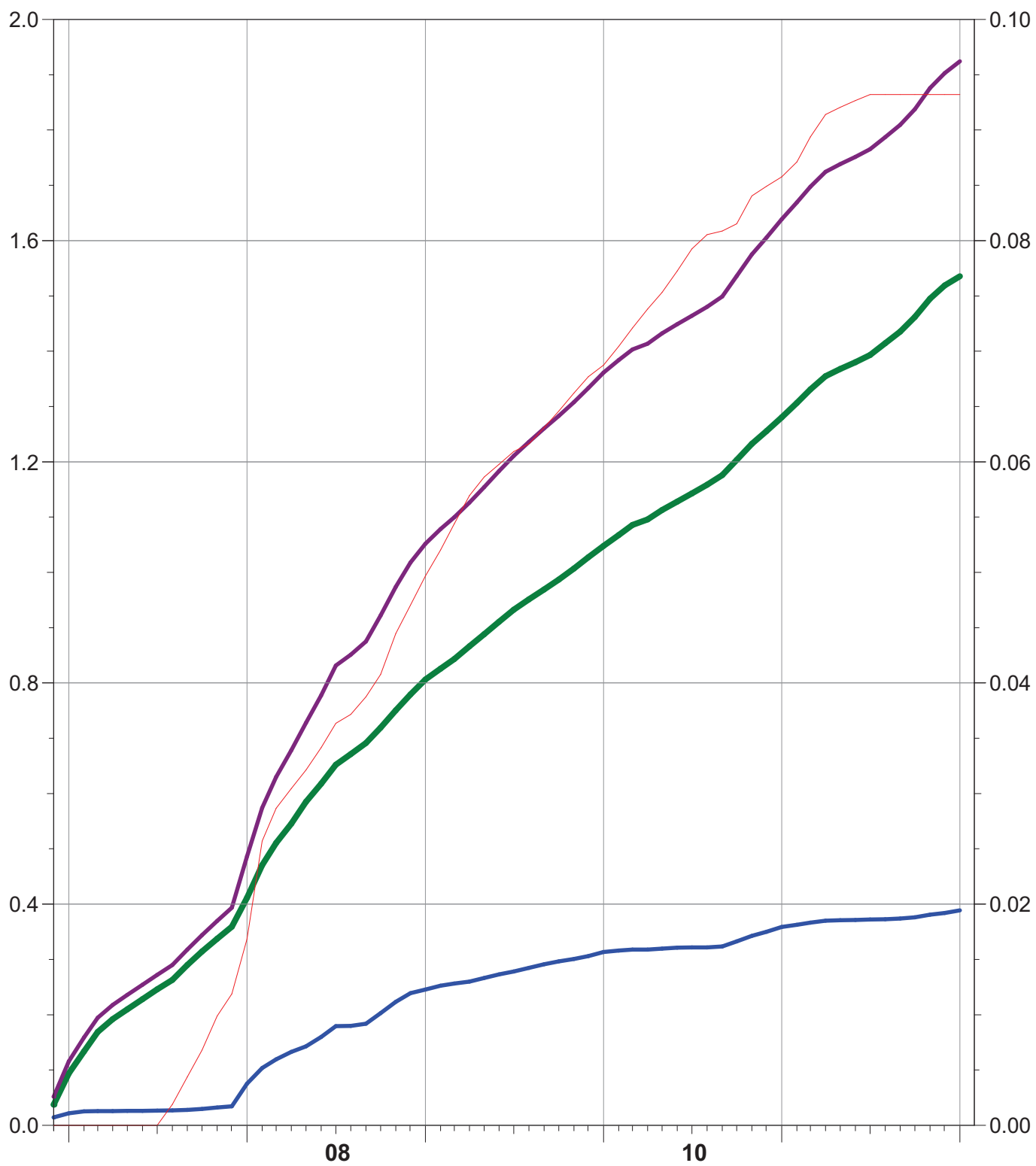
Cumulative Oil Prod : 1.54 Mm3

Cumulative Liquid Prod : 1.92 Mm3

Cumulative Water Prod : 0.39 Mm3

Cumulative Water Inj : * Mm3

Cumulative Gas Prod : 0.09 MMscm



Axis 1 P-04

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

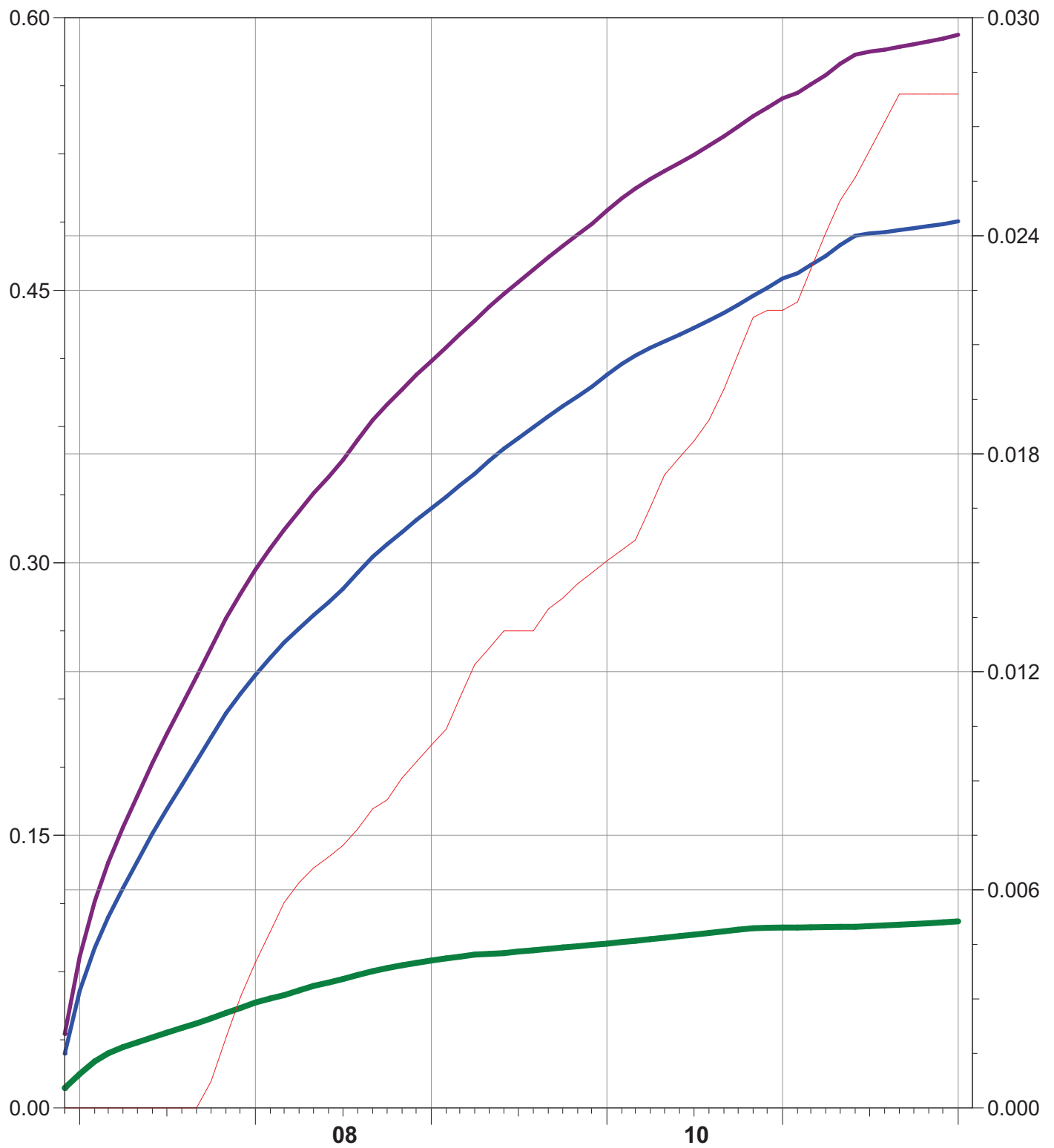
Cumulative Oil Prod : 0.10 Mm3

Cumulative Liquid Prod : 0.59 Mm3

Cumulative Water Prod : 0.49 Mm3

Cumulative Water Inj : * Mm3

Cumulative Gas Prod : 0.03 MMscm



Axis 1 P-05

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

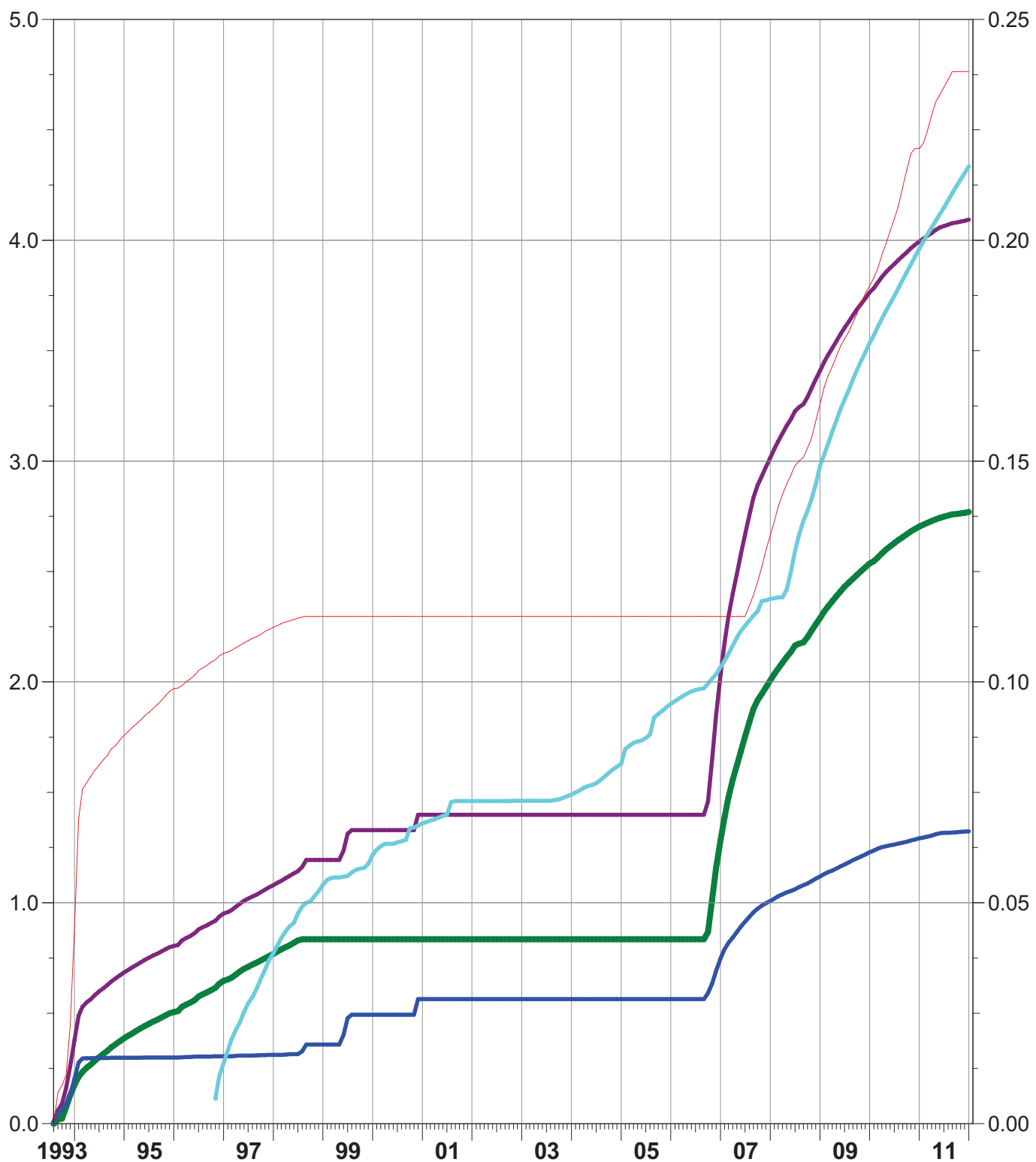
Cumulative Oil Prod : 2.77 Mm3

Cumulative Liquid Prod : 4.09 Mm3

Cumulative Water Prod : 1.32 Mm3

Cumulative Water Inj : 4.33 Mm3

Cumulative Gas Prod : 0.24 MMscm



Axis 1 P-06

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

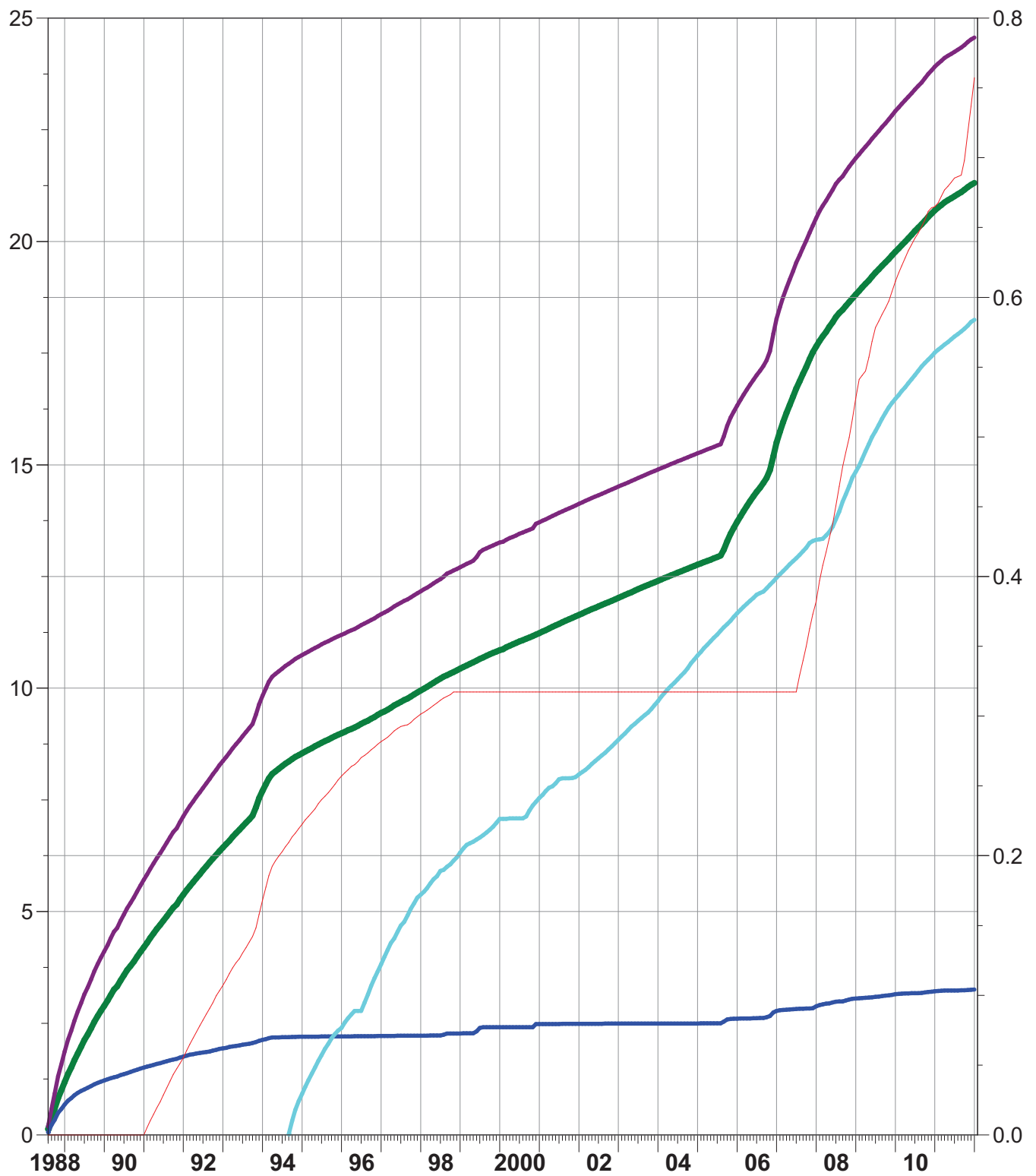
Cumulative Oil Prod : 21.31 Mm3

Cumulative Liquid Prod : 24.57 Mm3

Cumulative Water Prod : 3.26 Mm3

Cumulative Water Inj : 18.24 Mm3

Cumulative Gas Prod : 0.76 MMscm



Axis 1 P-07

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

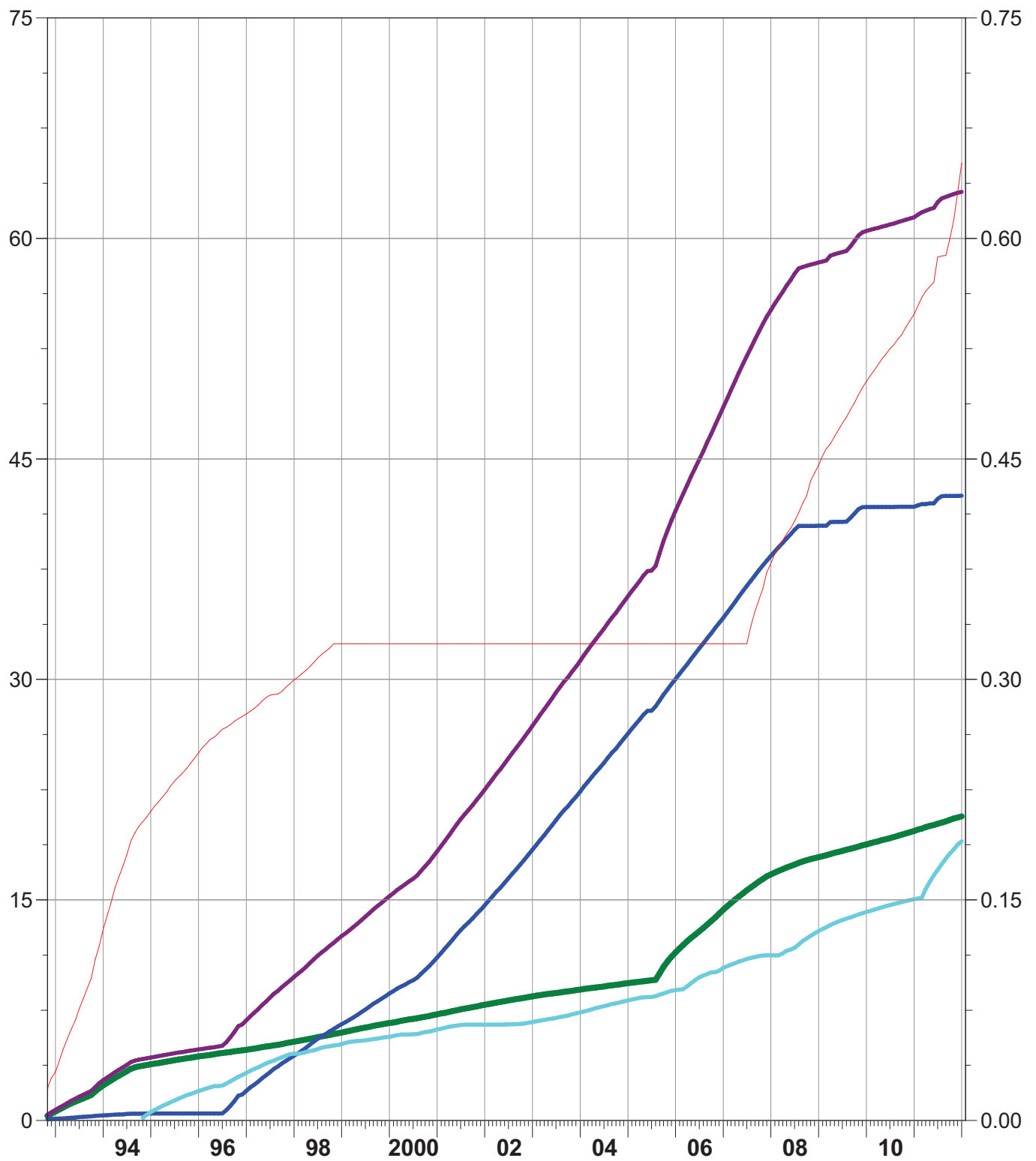
Cumulative Oil Prod : 20.68 Mm3

Cumulative Liquid Prod : 63.17 Mm3

Cumulative Water Prod : 42.49 Mm3

Cumulative Water Inj : 18.99 Mm3

Cumulative Gas Prod : 0.65 MMscm



Axis 1 P-08

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

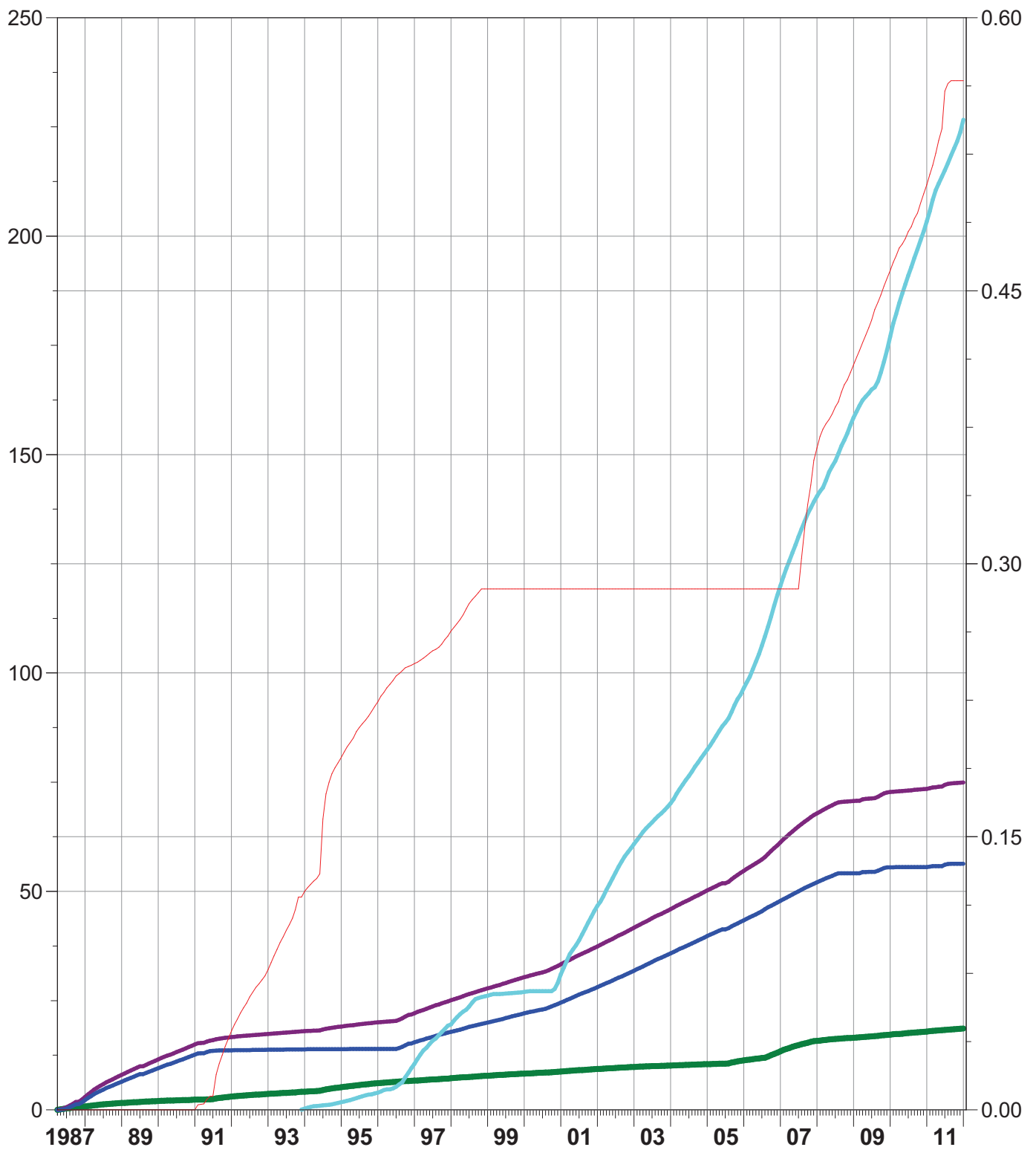
Cumulative Oil Prod : 18.59 Mm3

Cumulative Liquid Prod : 74.92 Mm3

Cumulative Water Prod : 56.33 Mm3

Cumulative Water Inj : 226.66 Mm3

Cumulative Gas Prod : 0.57 MMscm



Axis 1 P-09

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

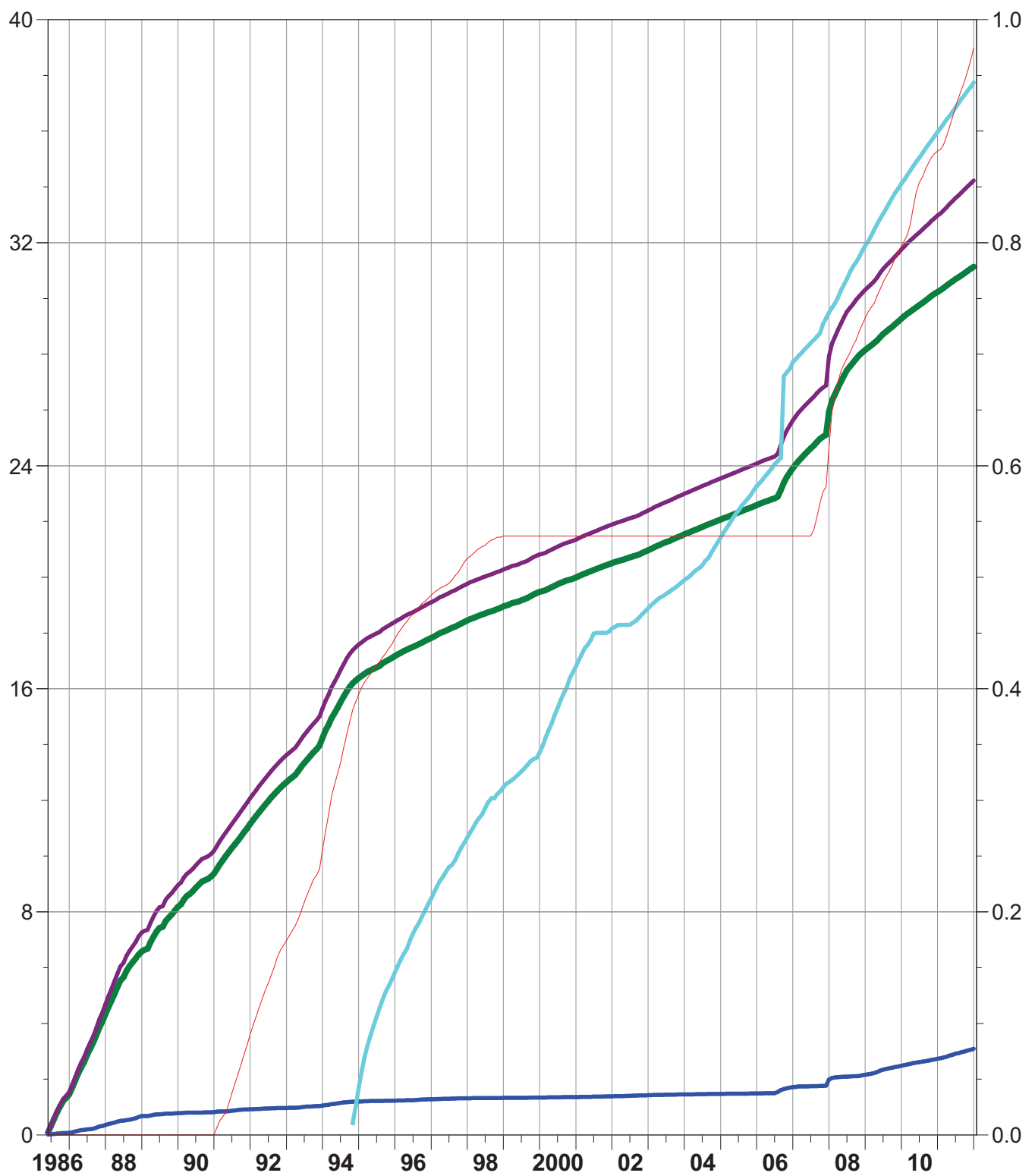
Cumulative Oil Prod : 31.14 Mm3

Cumulative Liquid Prod : 34.22 Mm3

Cumulative Water Prod : 3.09 Mm3

Cumulative Water Inj : 37.75 Mm3

Cumulative Gas Prod : 0.97 MMscm



Axis 1 P-10

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

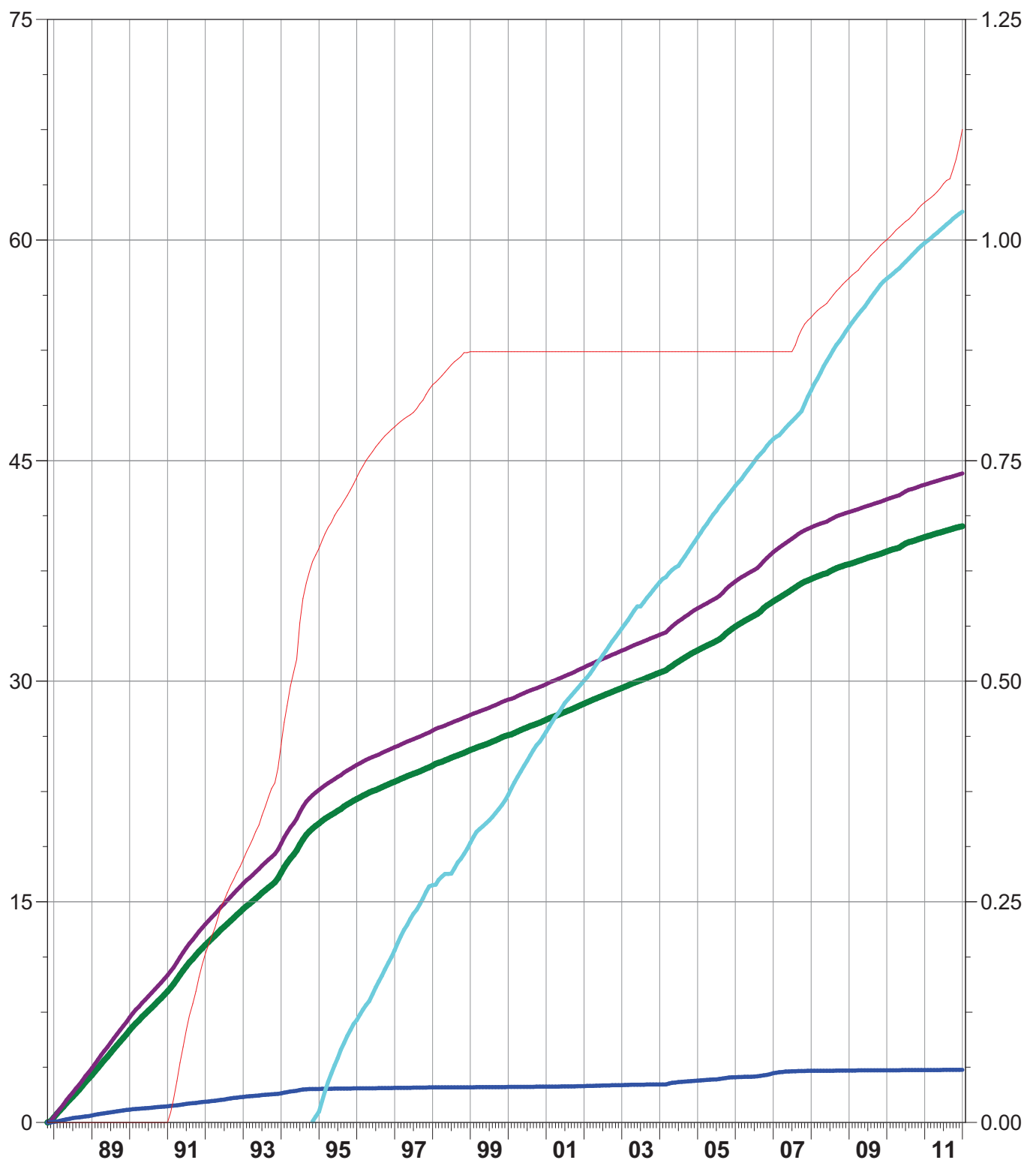
Cumulative Oil Prod : 40.54 Mm3

Cumulative Liquid Prod : 44.12 Mm3

Cumulative Water Prod : 3.58 Mm3

Cumulative Water Inj : 61.92 Mm3

Cumulative Gas Prod : 1.13 MMscm



Axis 1 P-11

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

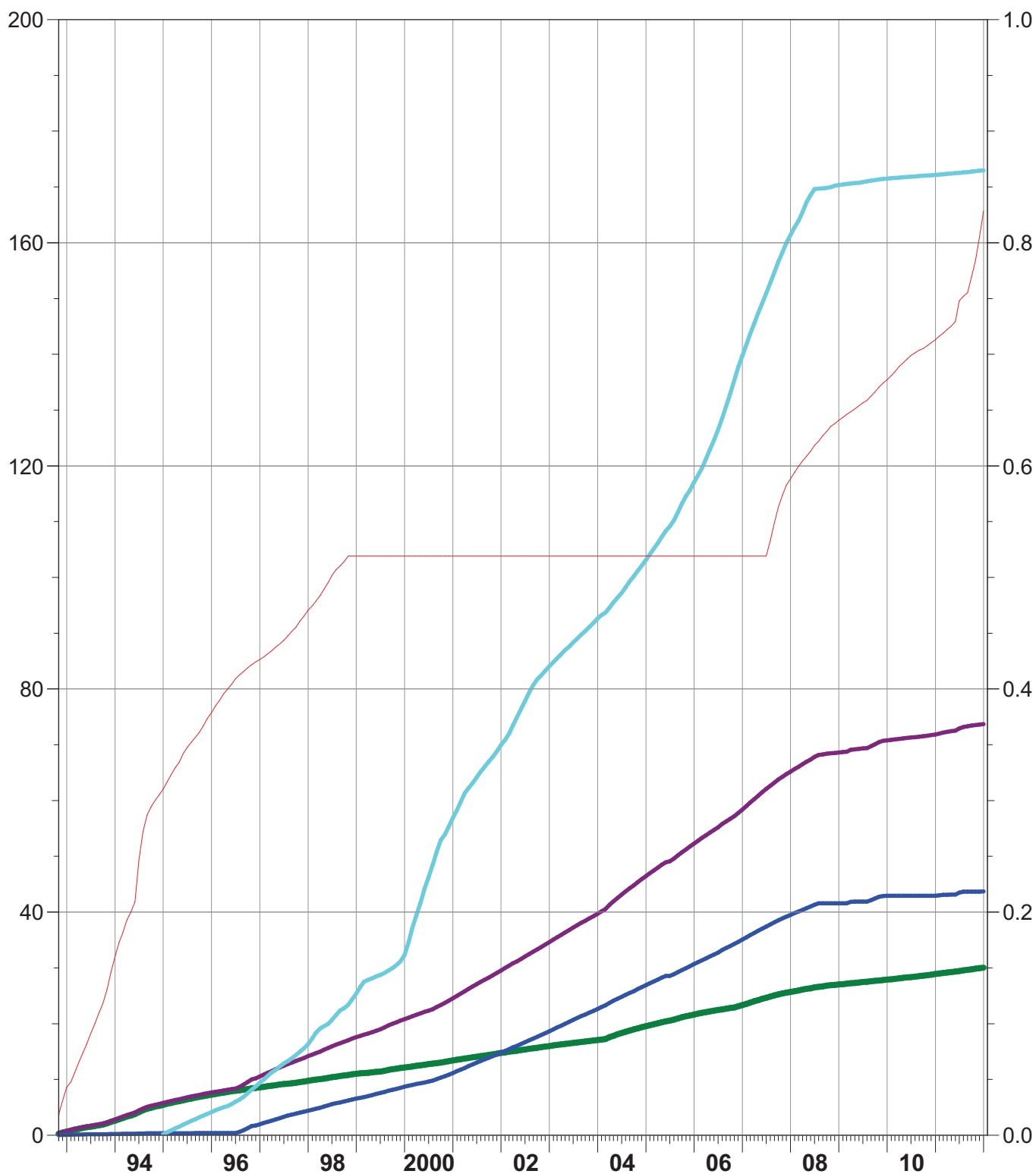
Cumulative Oil Prod : 30.04 Mm3

Cumulative Liquid Prod : 73.72 Mm3

Cumulative Water Prod : 43.69 Mm3

Cumulative Water Inj : 172.98 Mm3

Cumulative Gas Prod : 0.83 MMscm



Axis 1 P-12

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

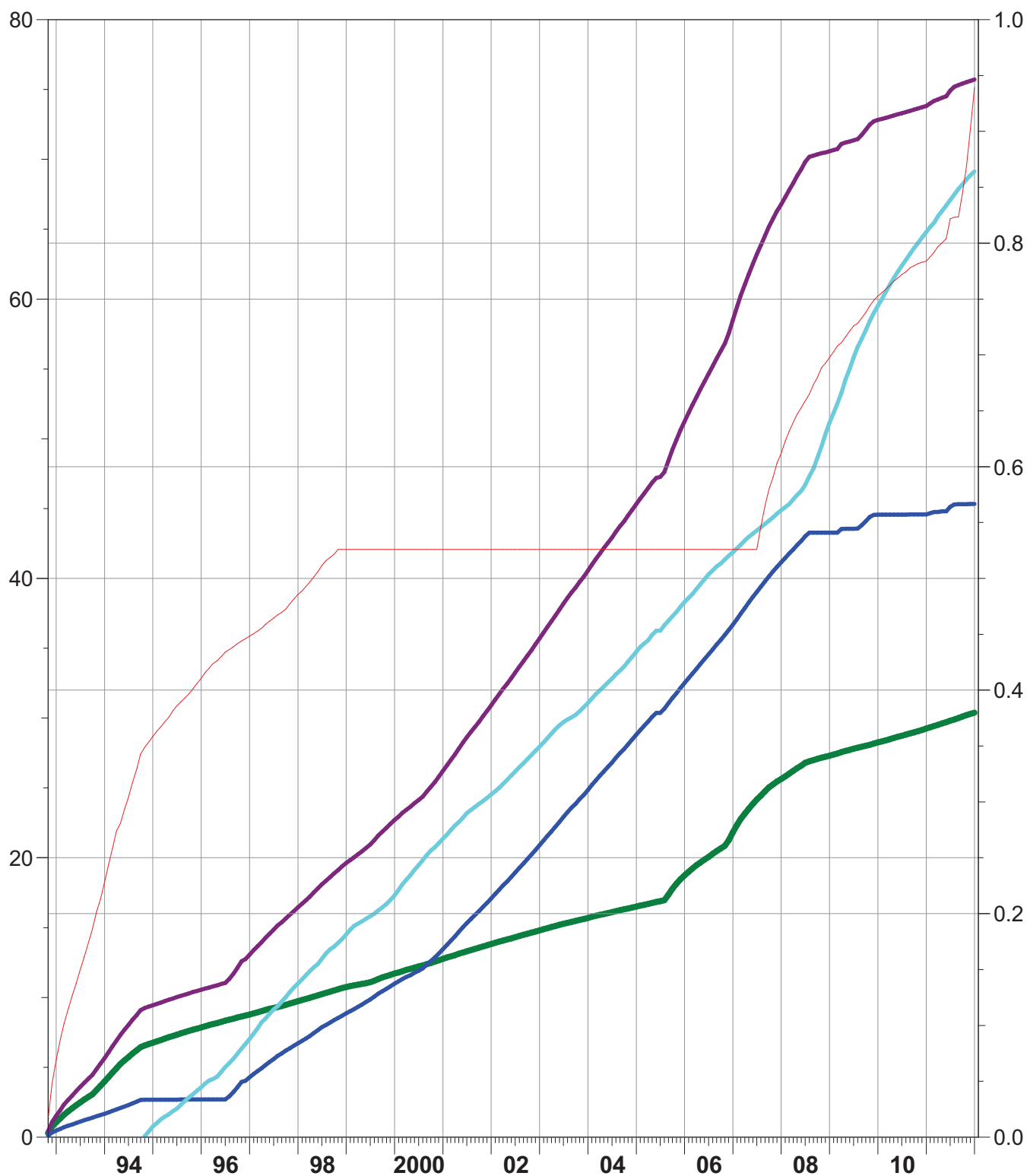
Cumulative Oil Prod : 30.39 Mm3

Cumulative Liquid Prod : 75.72 Mm3

Cumulative Water Prod : 45.33 Mm3

Cumulative Water Inj : 69.13 Mm3

Cumulative Gas Prod : 0.94 MMscm



Axis 1 P-13

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

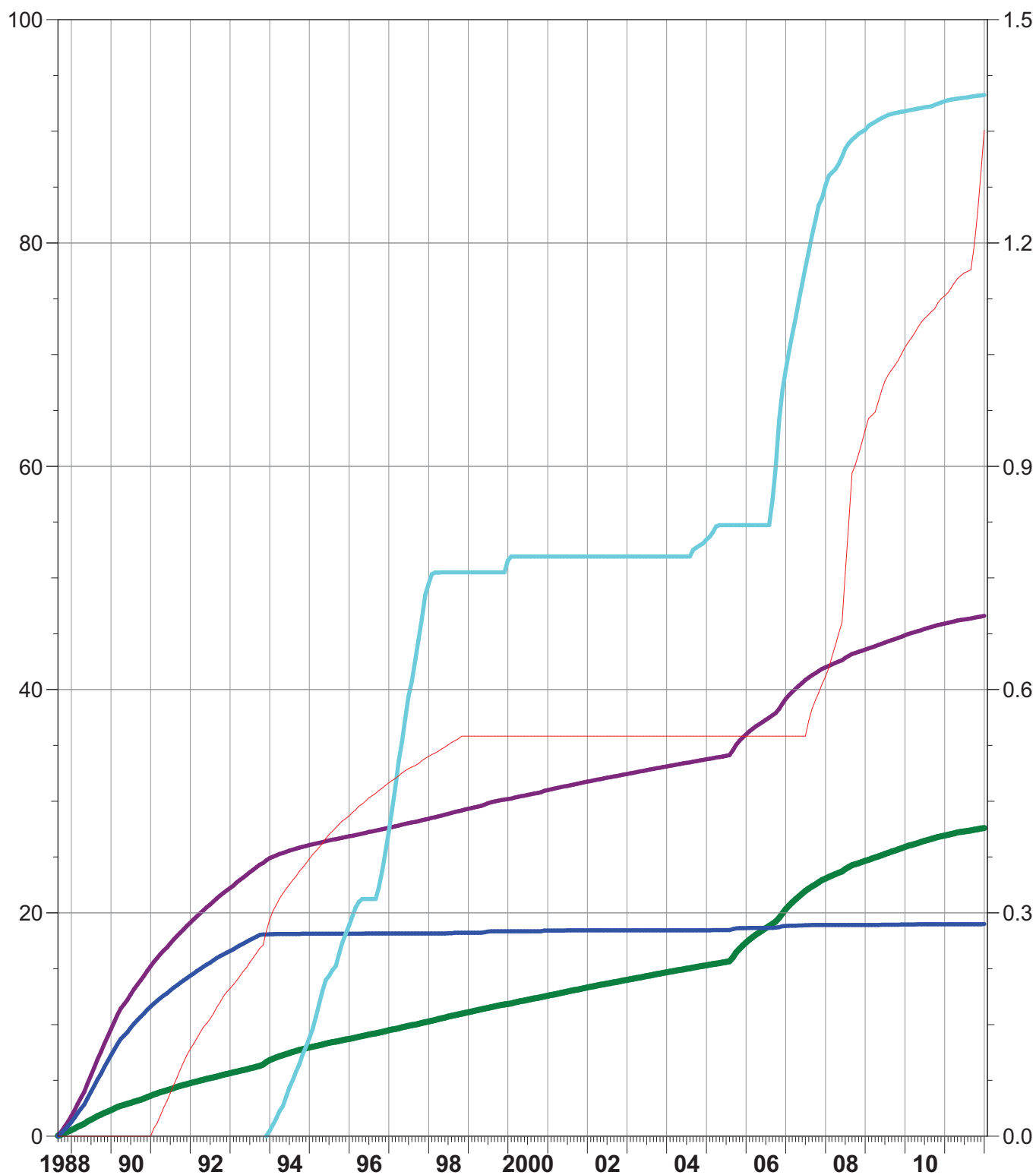
Cumulative Oil Prod : 27.60 Mm3

Cumulative Liquid Prod : 46.59 Mm3

Cumulative Water Prod : 18.99 Mm3

Cumulative Water Inj : 93.25 Mm3

Cumulative Gas Prod : 1.35 MMscm



Axis 1 P-14

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

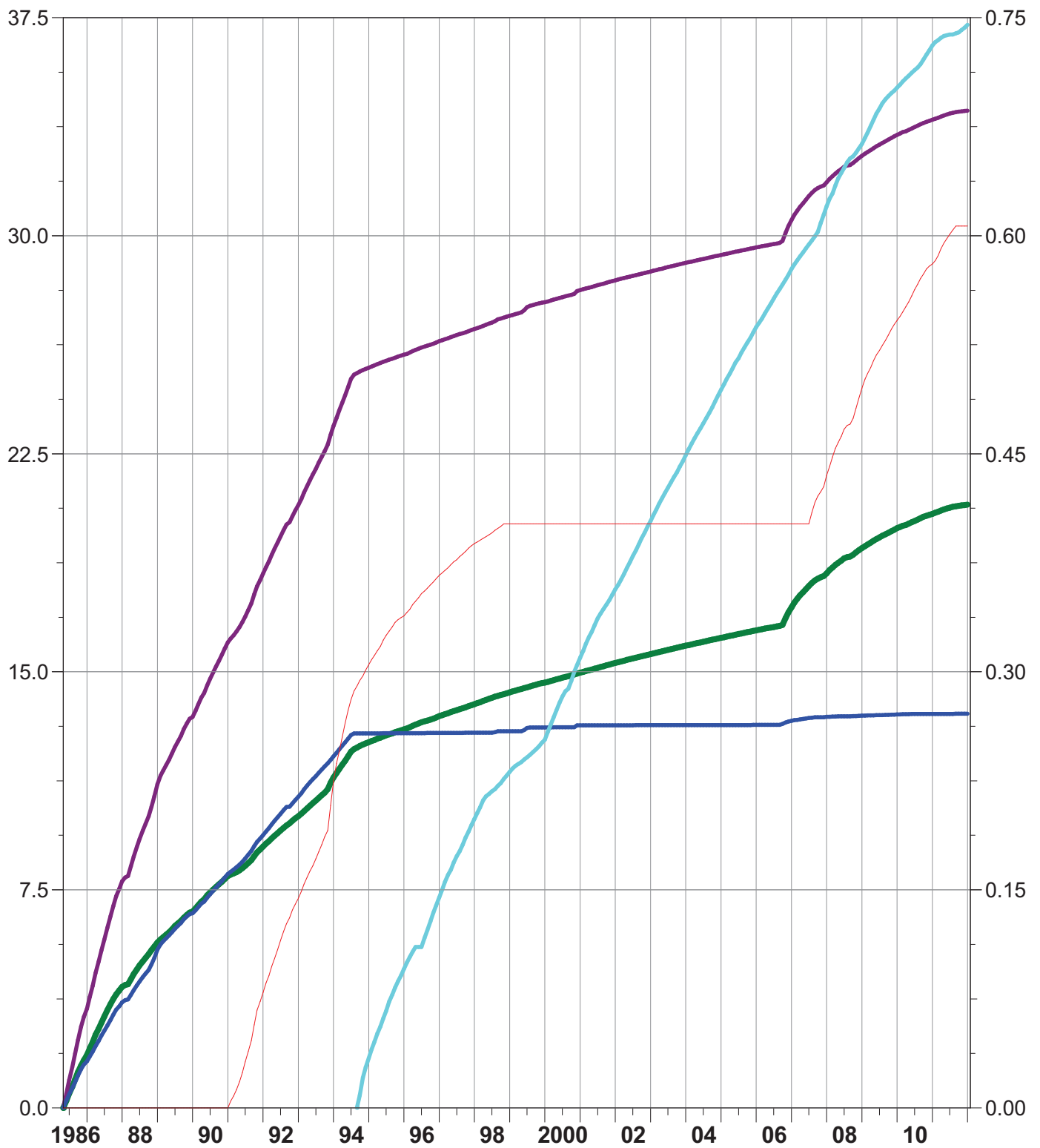
Cumulative Oil Prod : 20.75 Mm3

Cumulative Liquid Prod : 34.30 Mm3

Cumulative Water Prod : 13.56 Mm3

Cumulative Water Inj : 37.25 Mm3

Cumulative Gas Prod : 0.61 MMscm



Axis 1 P-15

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

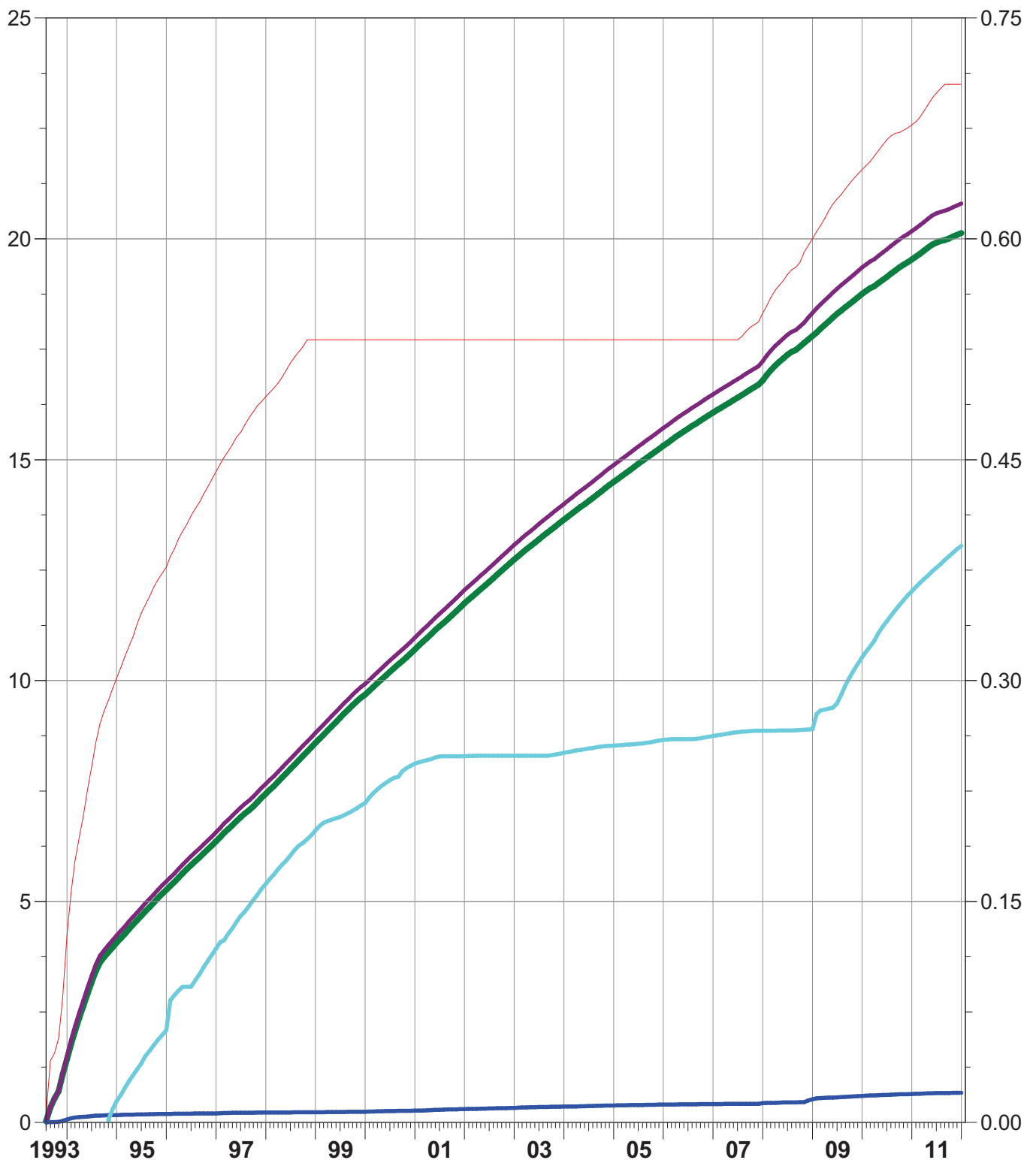
Cumulative Oil Prod : 20.13 Mm3

Cumulative Liquid Prod : 20.80 Mm3

Cumulative Water Prod : 0.67 Mm3

Cumulative Water Inj : 13.05 Mm3

Cumulative Gas Prod : 0.70 MMscm



Axis 1 P-16

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

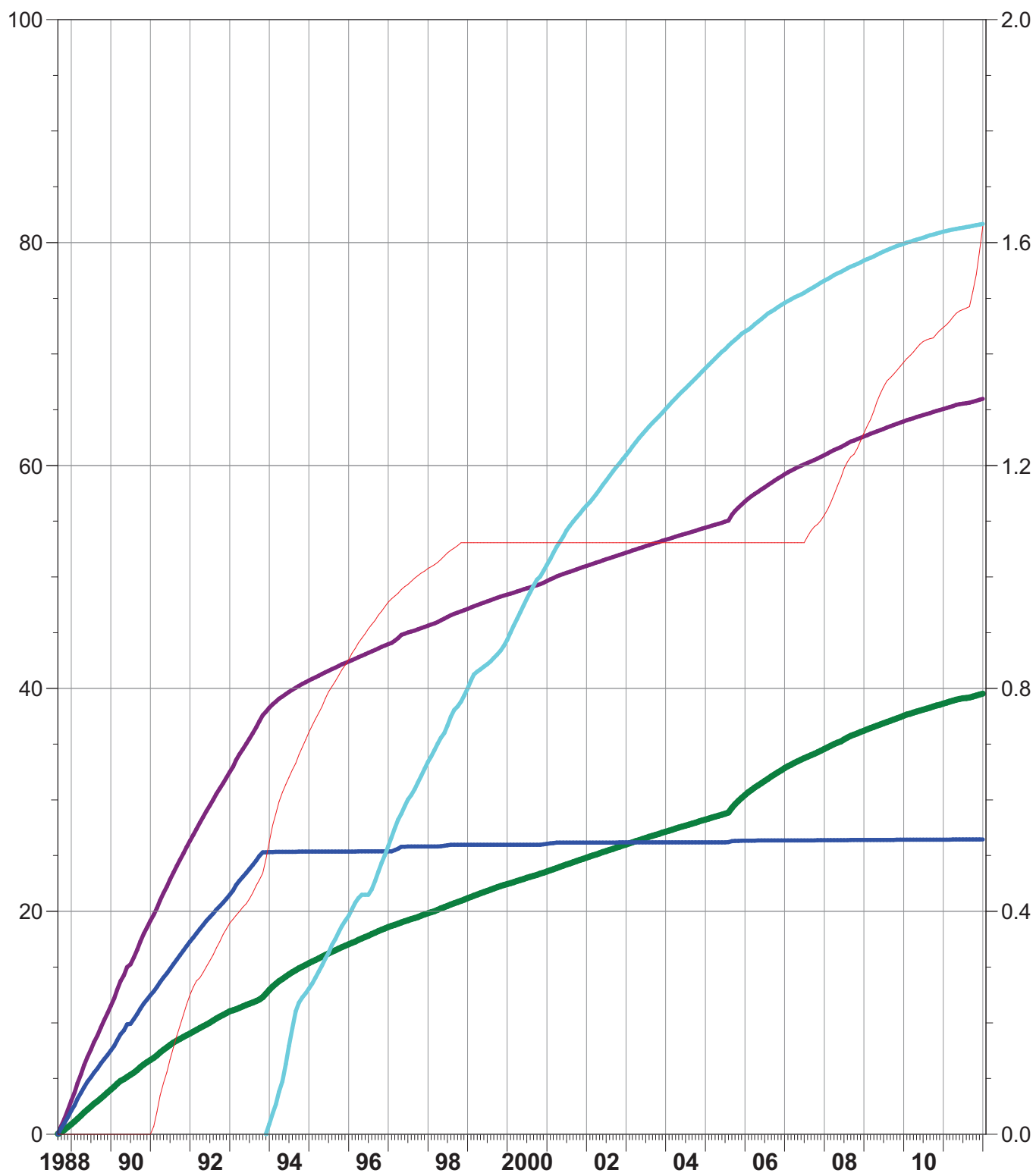
Cumulative Oil Prod : 39.53 Mm3

Cumulative Liquid Prod : 65.97 Mm3

Cumulative Water Prod : 26.44 Mm3

Cumulative Water Inj : 81.67 Mm3

Cumulative Gas Prod : 1.63 MMscm



Axis 1 P-17

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

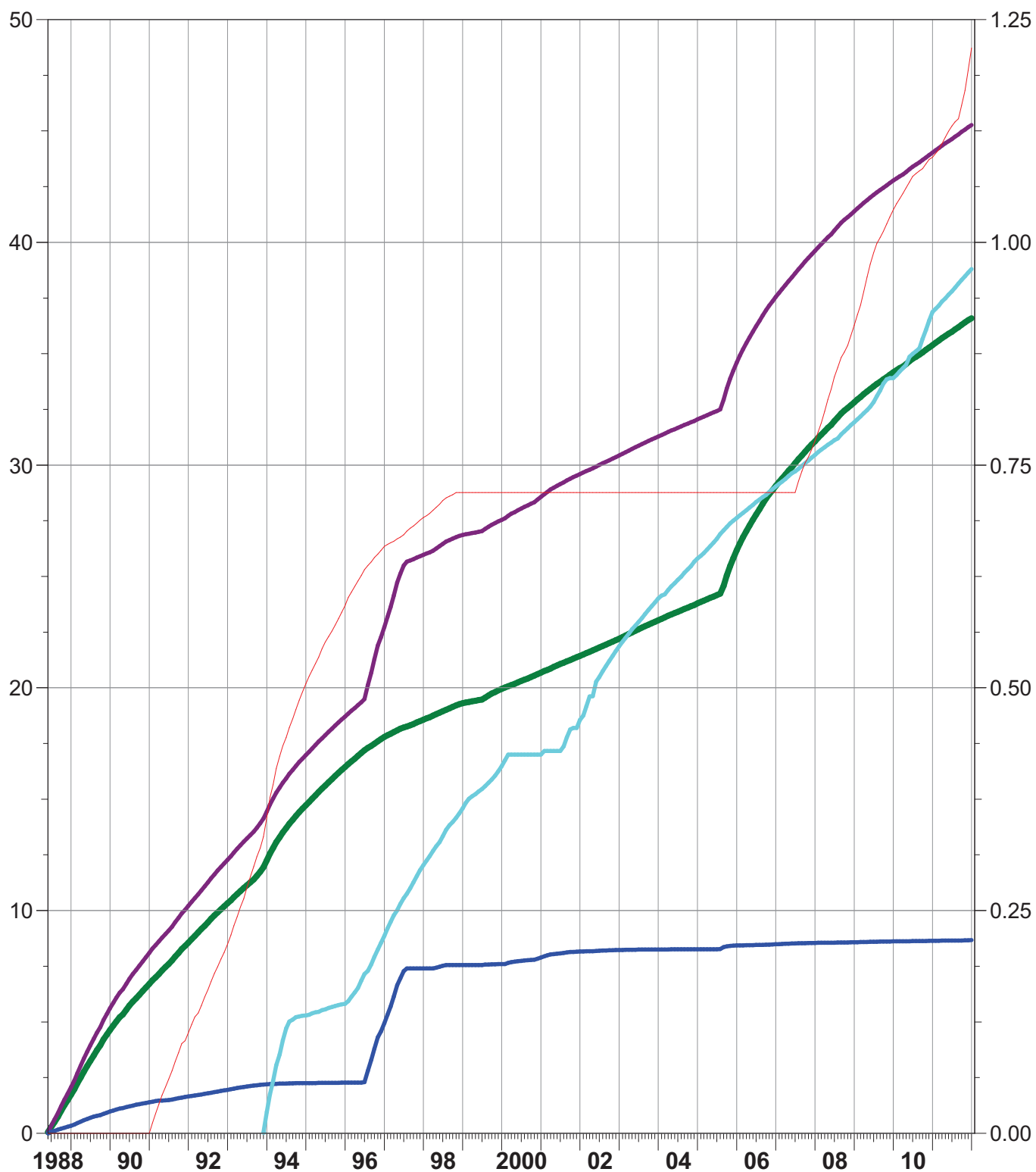
Cumulative Oil Prod : 36.60 Mm3

Cumulative Liquid Prod : 45.27 Mm3

Cumulative Water Prod : 8.67 Mm3

Cumulative Water Inj : 38.80 Mm3

Cumulative Gas Prod : 1.22 MMscm



Axis 1 P-18

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

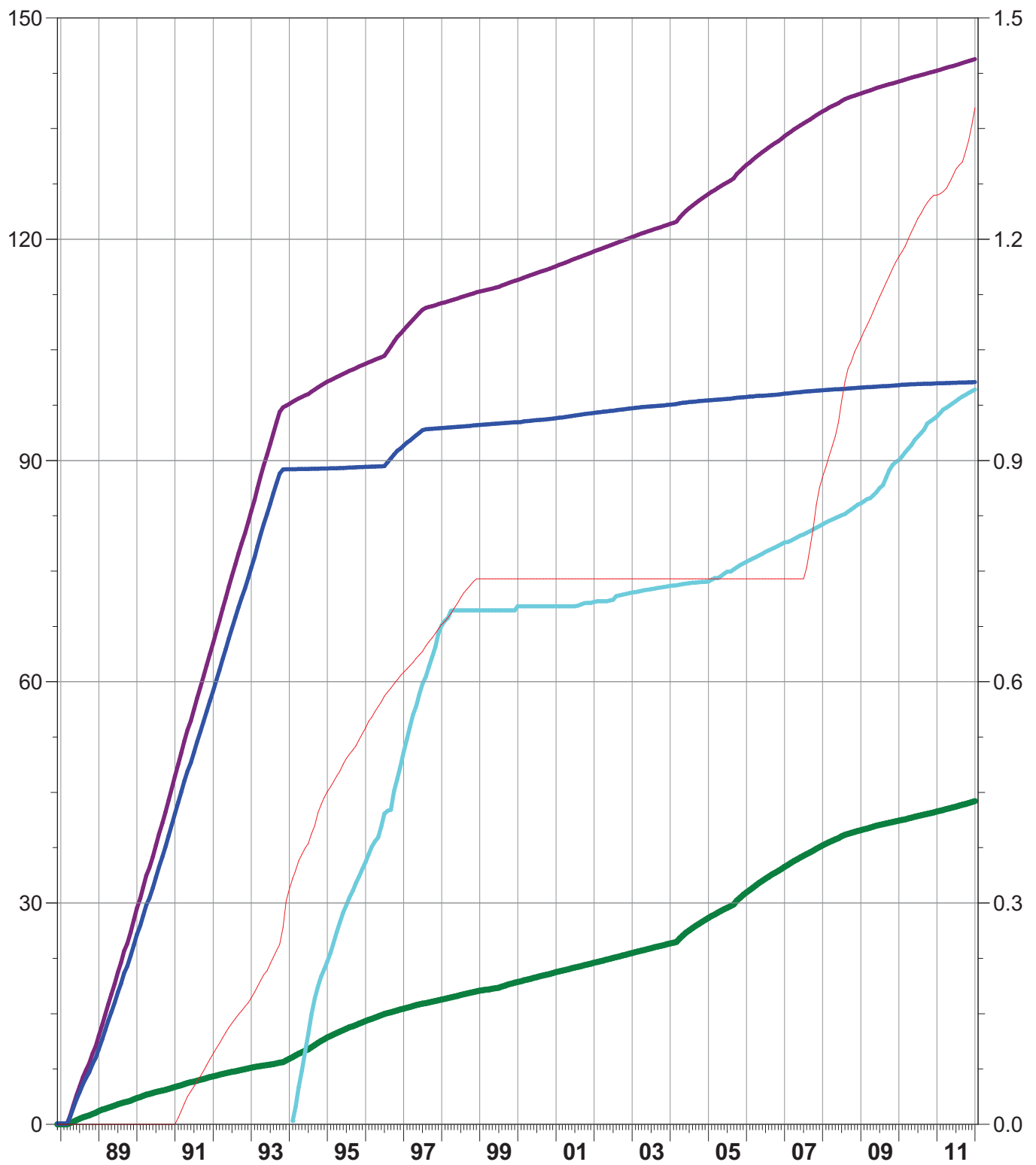
Cumulative Oil Prod : 43.81 Mm3

Cumulative Liquid Prod : 144.43 Mm3

Cumulative Water Prod : 100.62 Mm3

Cumulative Water Inj : 99.61 Mm3

Cumulative Gas Prod : 1.38 MMscm



Axis 1 P-19

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

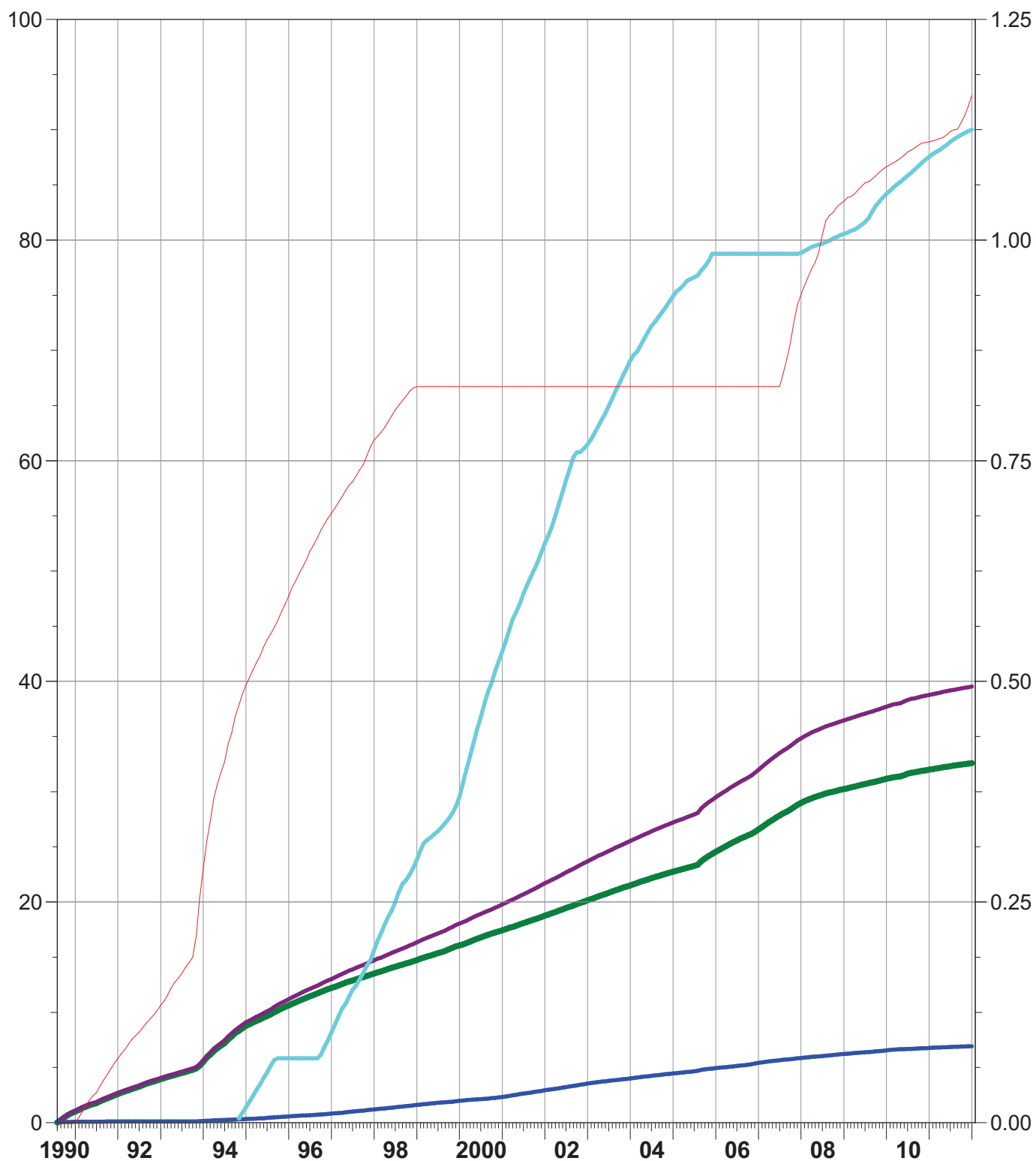
Cumulative Oil Prod : 32.59 Mm3

Cumulative Liquid Prod : 39.52 Mm3

Cumulative Water Prod : 6.93 Mm3

Cumulative Water Inj : 90.01 Mm3

Cumulative Gas Prod : 1.16 MMscm



Axis 1 P-20

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

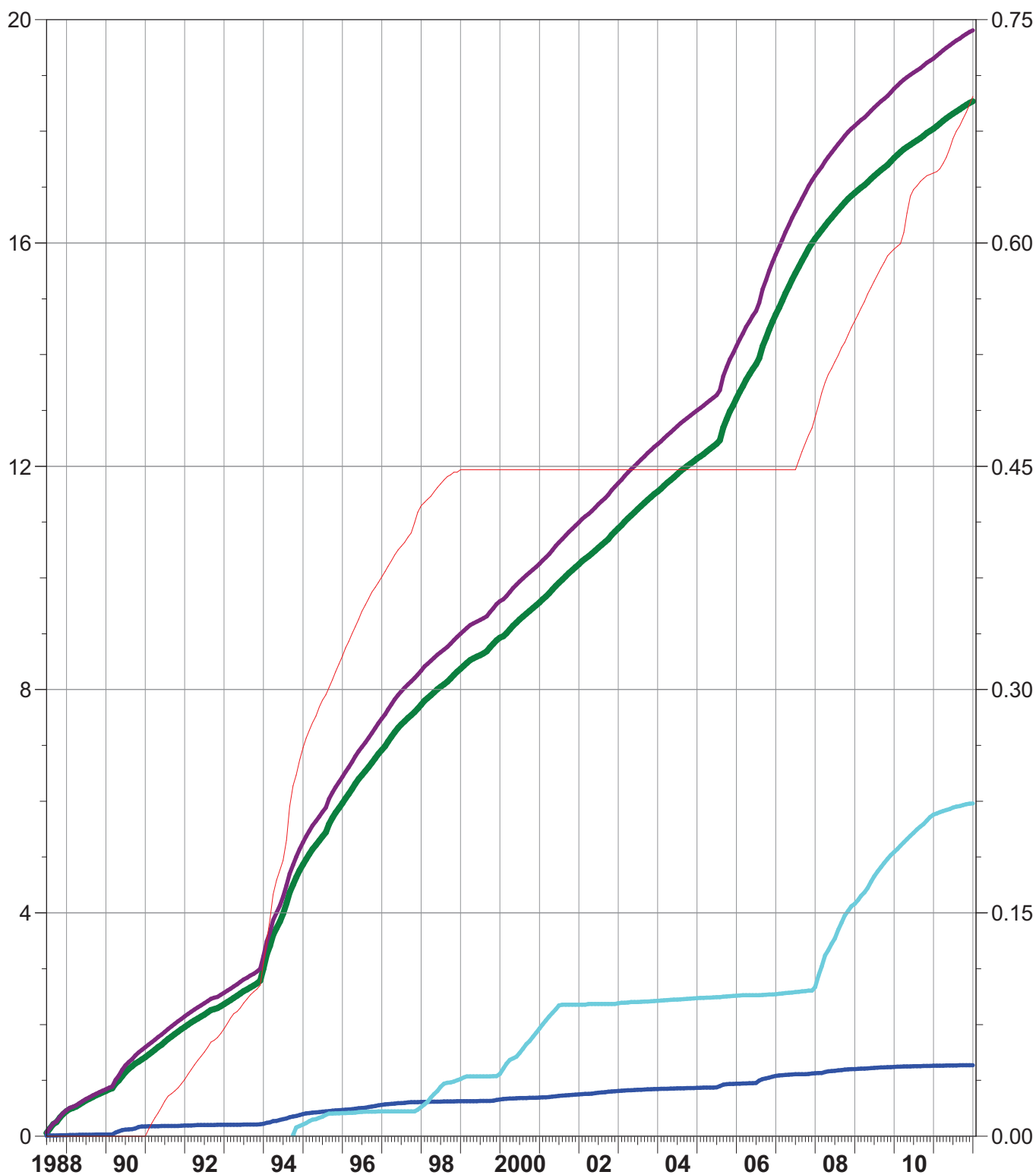
Cumulative Oil Prod : 18.54 Mm3

Cumulative Liquid Prod : 19.81 Mm3

Cumulative Water Prod : 1.27 Mm3

Cumulative Water Inj : 5.96 Mm3

Cumulative Gas Prod : 0.70 MMscm



Axis 1 P-21

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

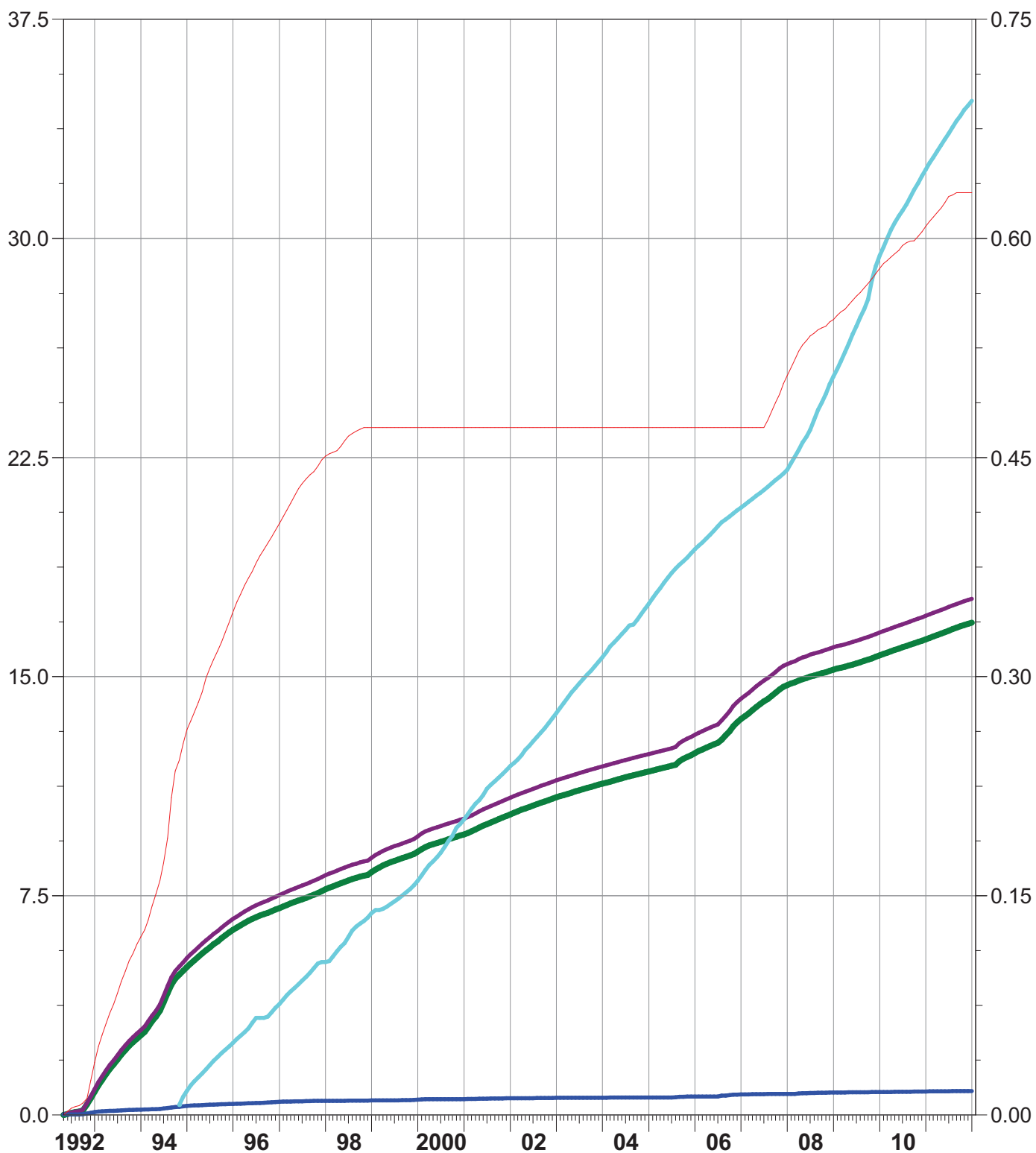
Cumulative Oil Prod : 16.85 Mm3

Cumulative Liquid Prod : 17.67 Mm3

Cumulative Water Prod : 0.82 Mm3

Cumulative Water Inj : 34.71 Mm3

Cumulative Gas Prod : 0.63 MMscm



Axis 1 P-22

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

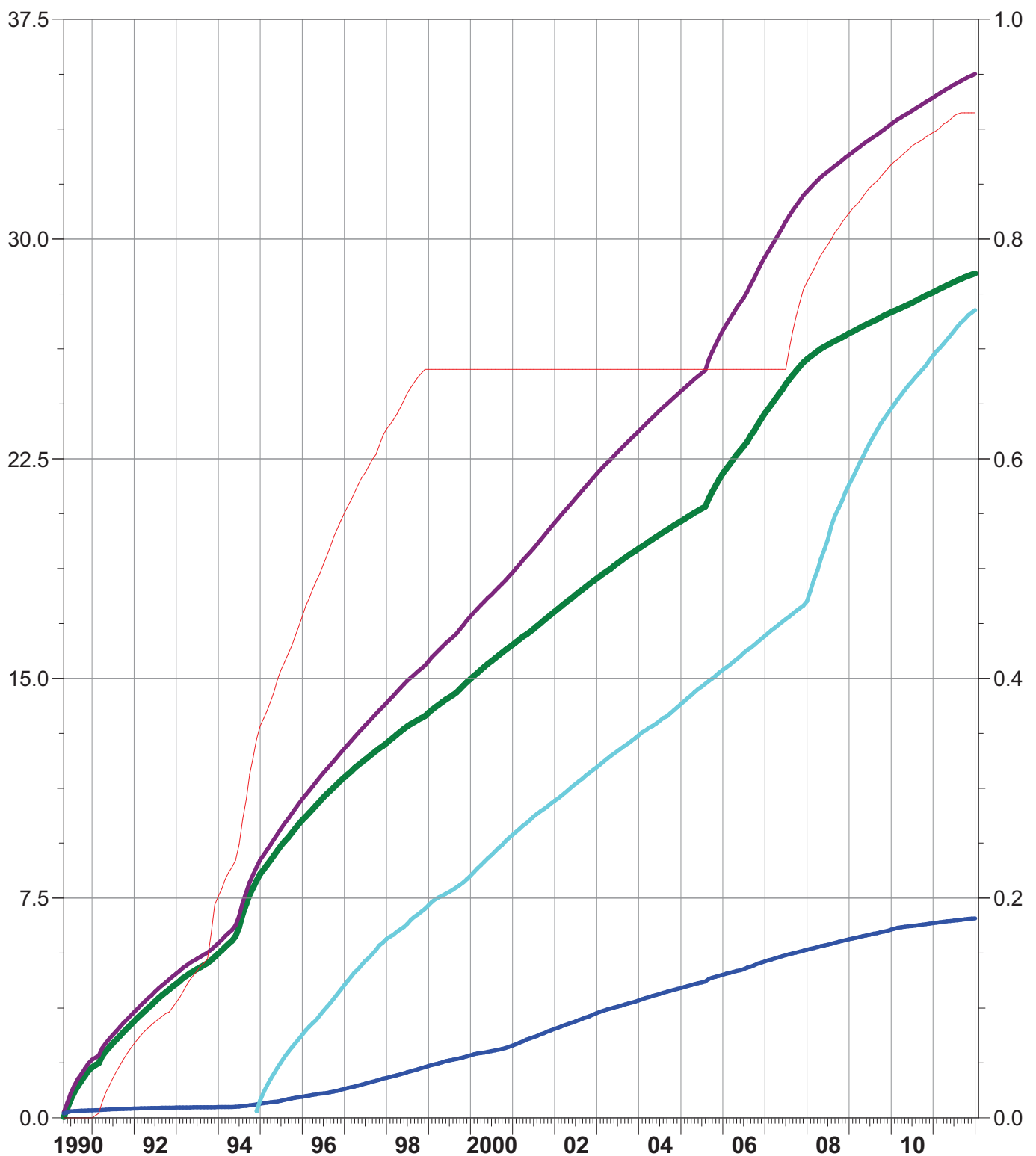
Cumulative Oil Prod : 28.82 Mm3

Cumulative Liquid Prod : 35.63 Mm3

Cumulative Water Prod : 6.81 Mm3

Cumulative Water Inj : 27.57 Mm3

Cumulative Gas Prod : 0.91 MMscm



Axis 1 P-23

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

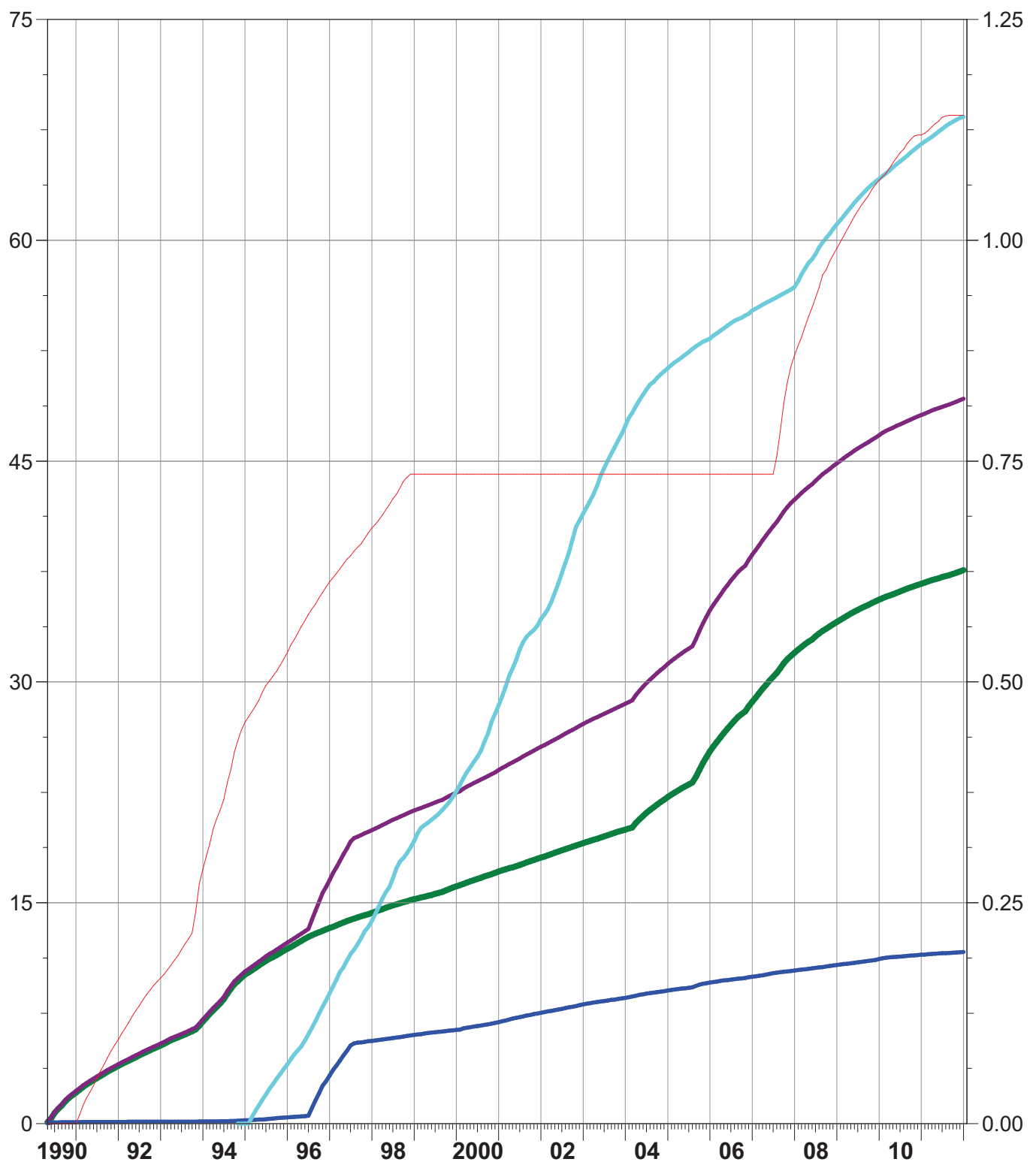
Cumulative Oil Prod : 37.59 Mm3

Cumulative Liquid Prod : 49.24 Mm3

Cumulative Water Prod : 11.65 Mm3

Cumulative Water Inj : 68.39 Mm3

Cumulative Gas Prod : 1.14 MMscm



Axis 1 P-24

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

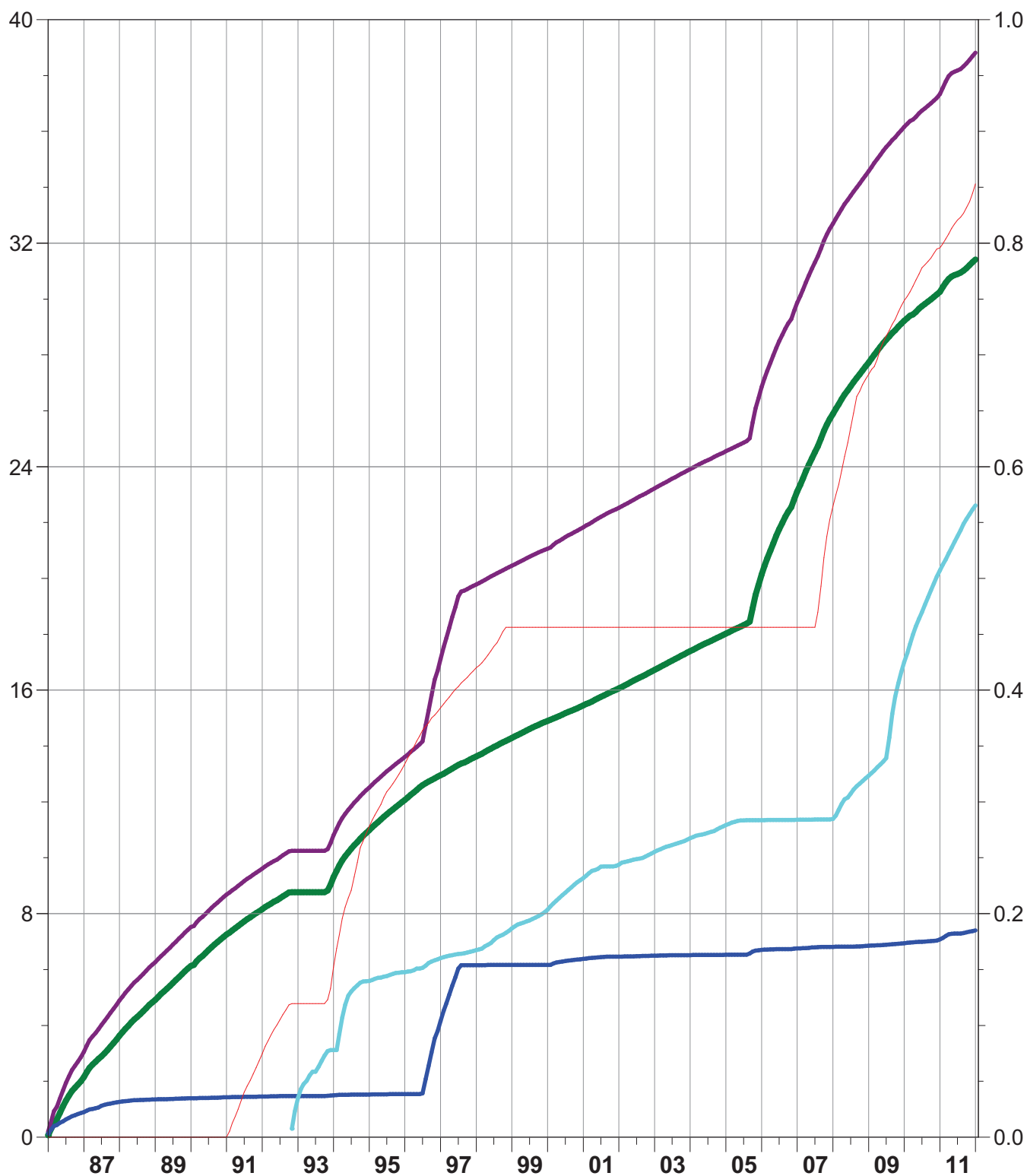
Cumulative Oil Prod : 31.42 Mm3

Cumulative Liquid Prod : 38.82 Mm3

Cumulative Water Prod : 7.40 Mm3

Cumulative Water Inj : 22.61 Mm3

Cumulative Gas Prod : 0.85 MMscm



Axis 1 P-25

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

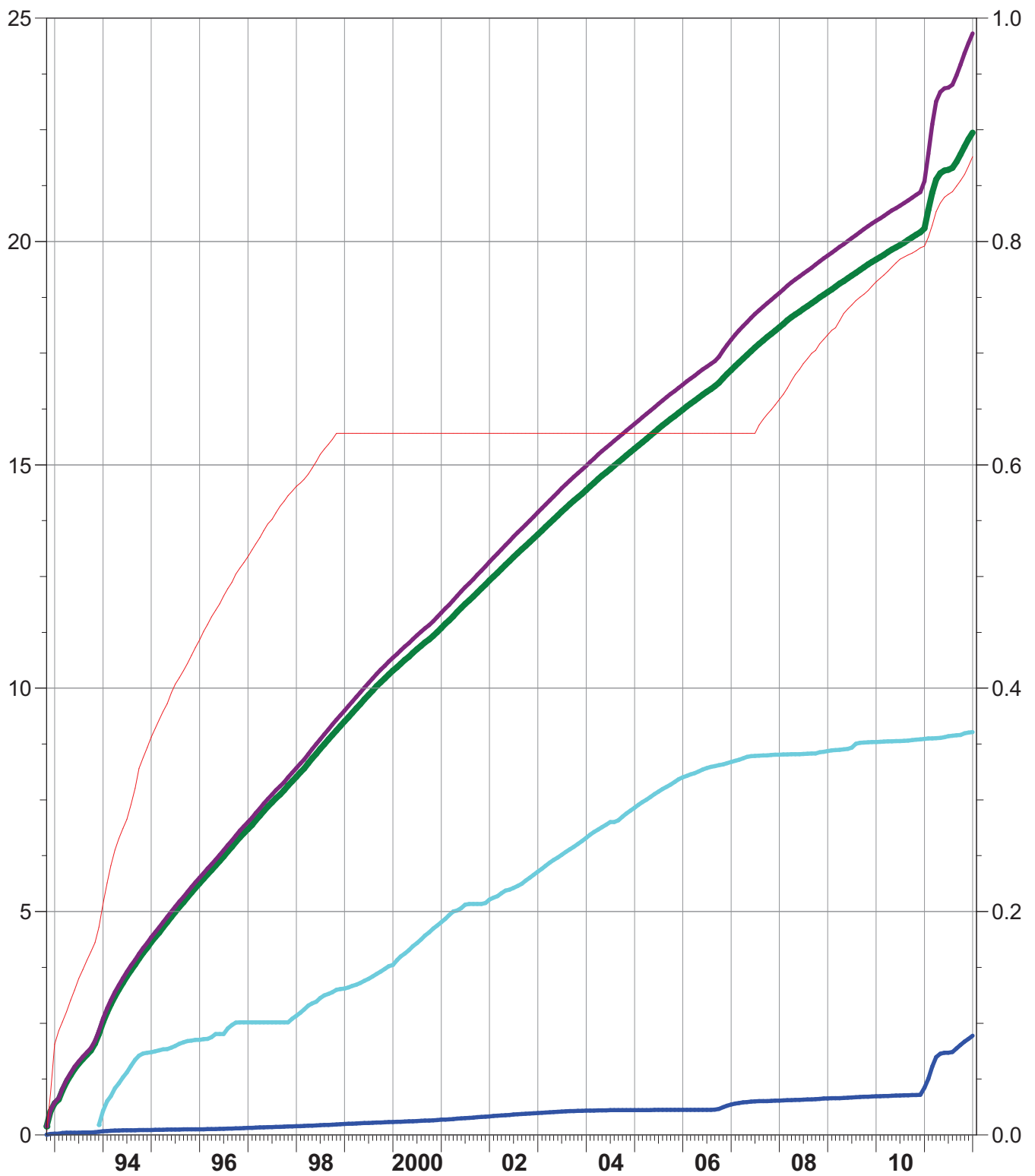
Cumulative Oil Prod : 22.44 Mm3

Cumulative Liquid Prod : 24.66 Mm3

Cumulative Water Prod : 2.22 Mm3

Cumulative Water Inj : 9.02 Mm3

Cumulative Gas Prod : 0.88 MMscm



Axis 1 P-26

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

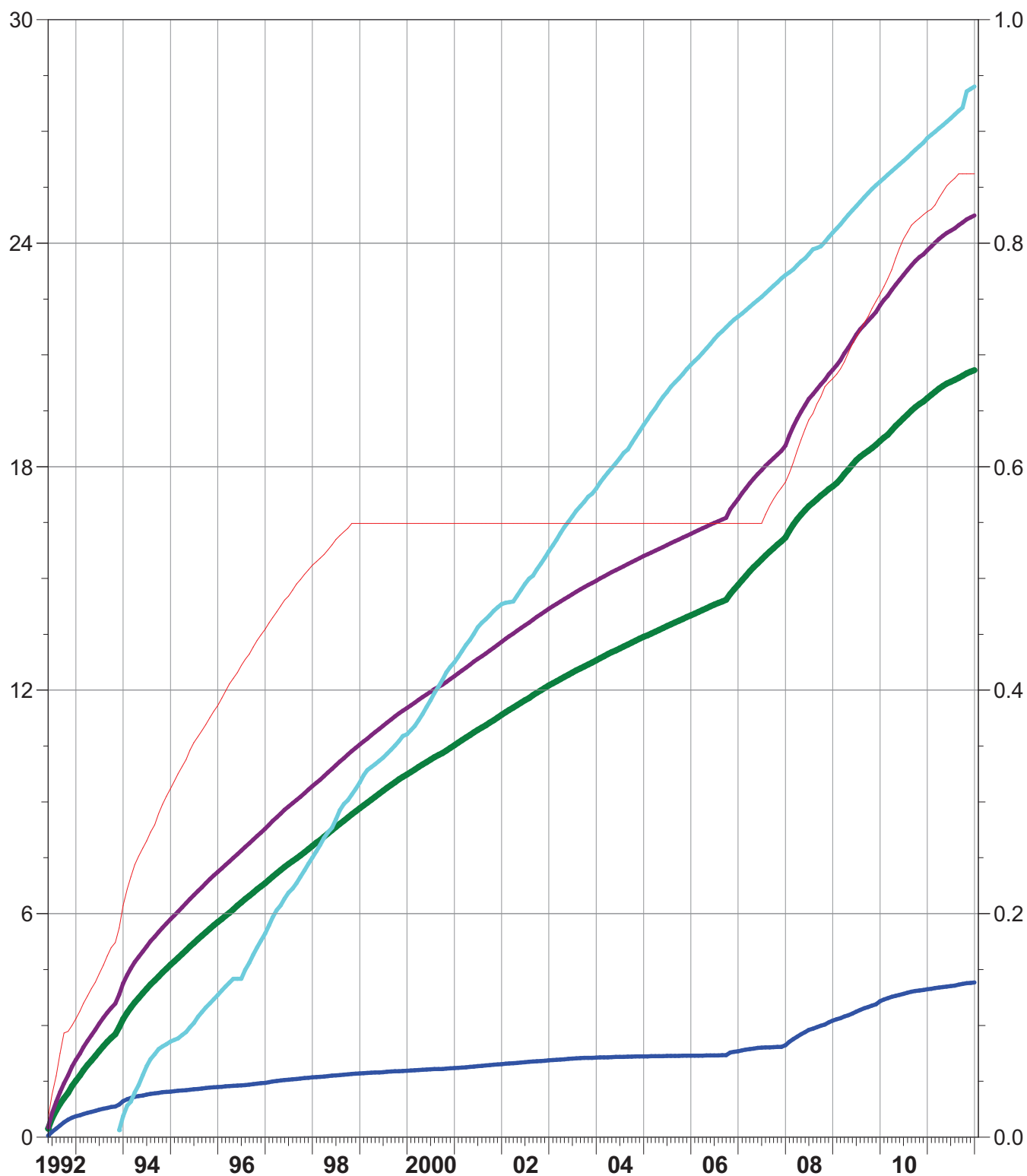
Cumulative Oil Prod : 20.59 Mm3

Cumulative Liquid Prod : 24.74 Mm3

Cumulative Water Prod : 4.15 Mm3

Cumulative Water Inj : 28.20 Mm3

Cumulative Gas Prod : 0.86 MMscm



Axis 1 P-27

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

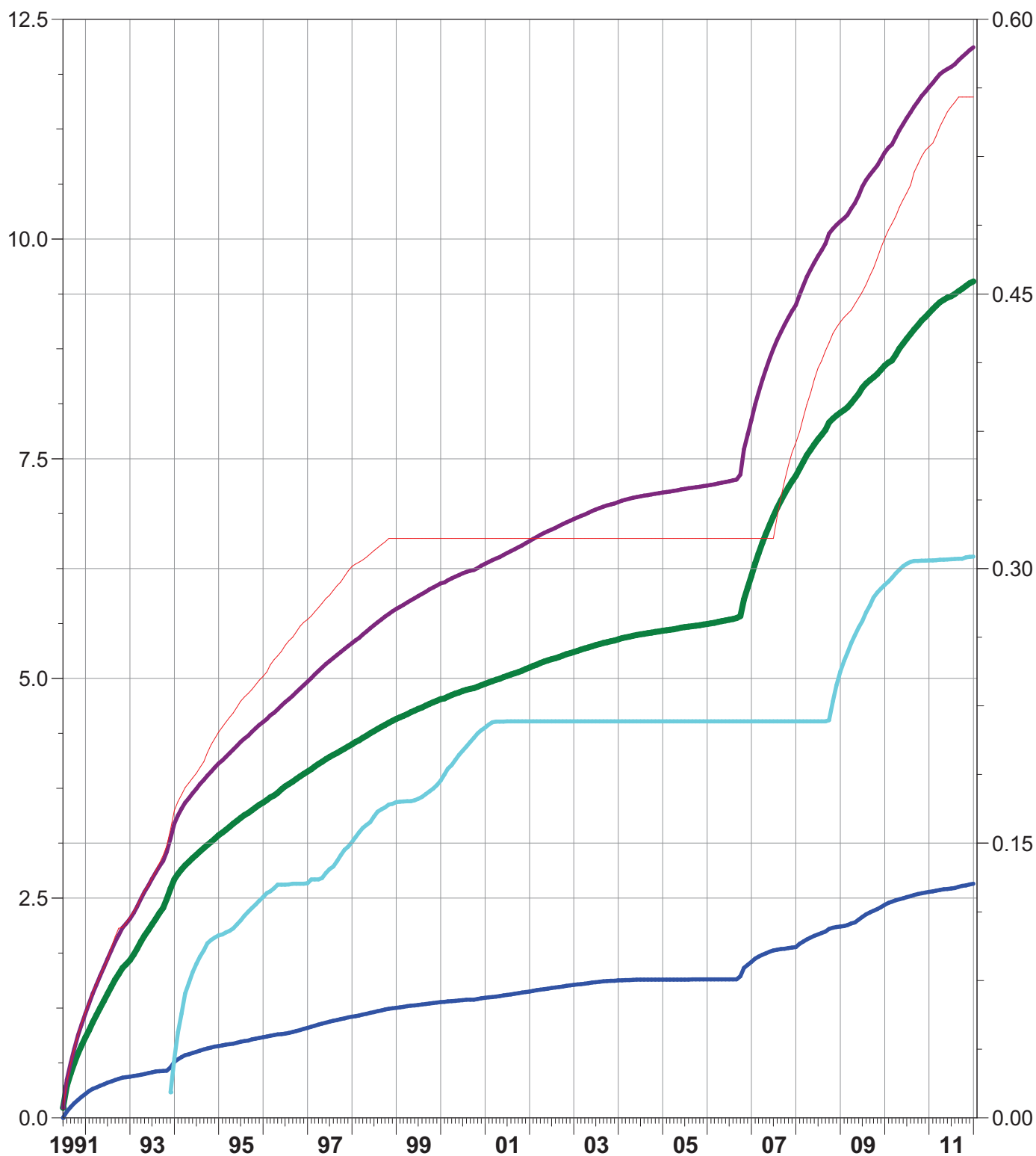
Cumulative Oil Prod : 9.52 Mm3

Cumulative Liquid Prod : 12.18 Mm3

Cumulative Water Prod : 2.66 Mm3

Cumulative Water Inj : 6.39 Mm3

Cumulative Gas Prod : 0.56 MMscm



Axis 1 P-28

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

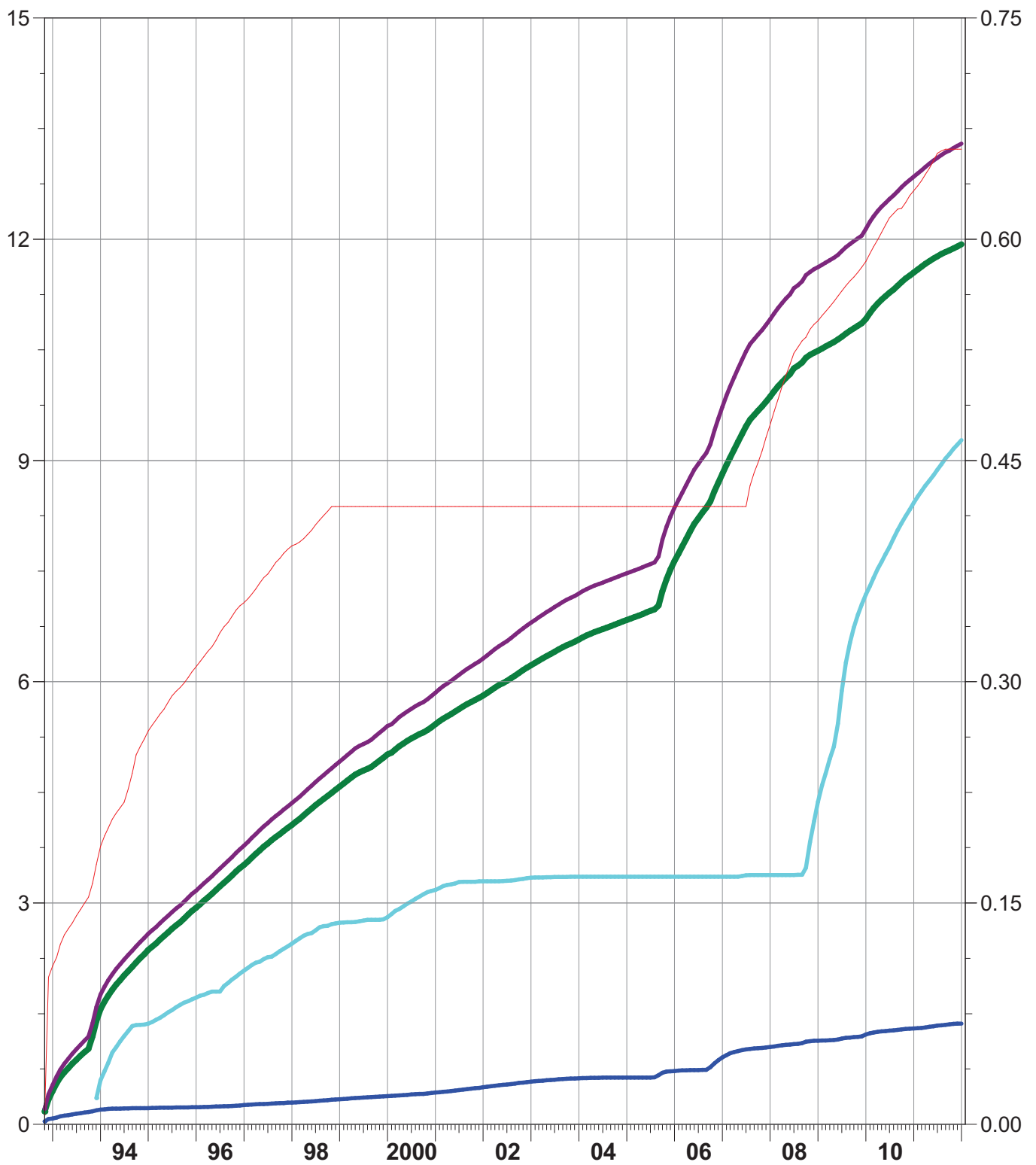
Cumulative Oil Prod : 11.93 Mm3

Cumulative Liquid Prod : 13.30 Mm3

Cumulative Water Prod : 1.37 Mm3

Cumulative Water Inj : 9.28 Mm3

Cumulative Gas Prod : 0.66 MMscm



Axis 1 P-29

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

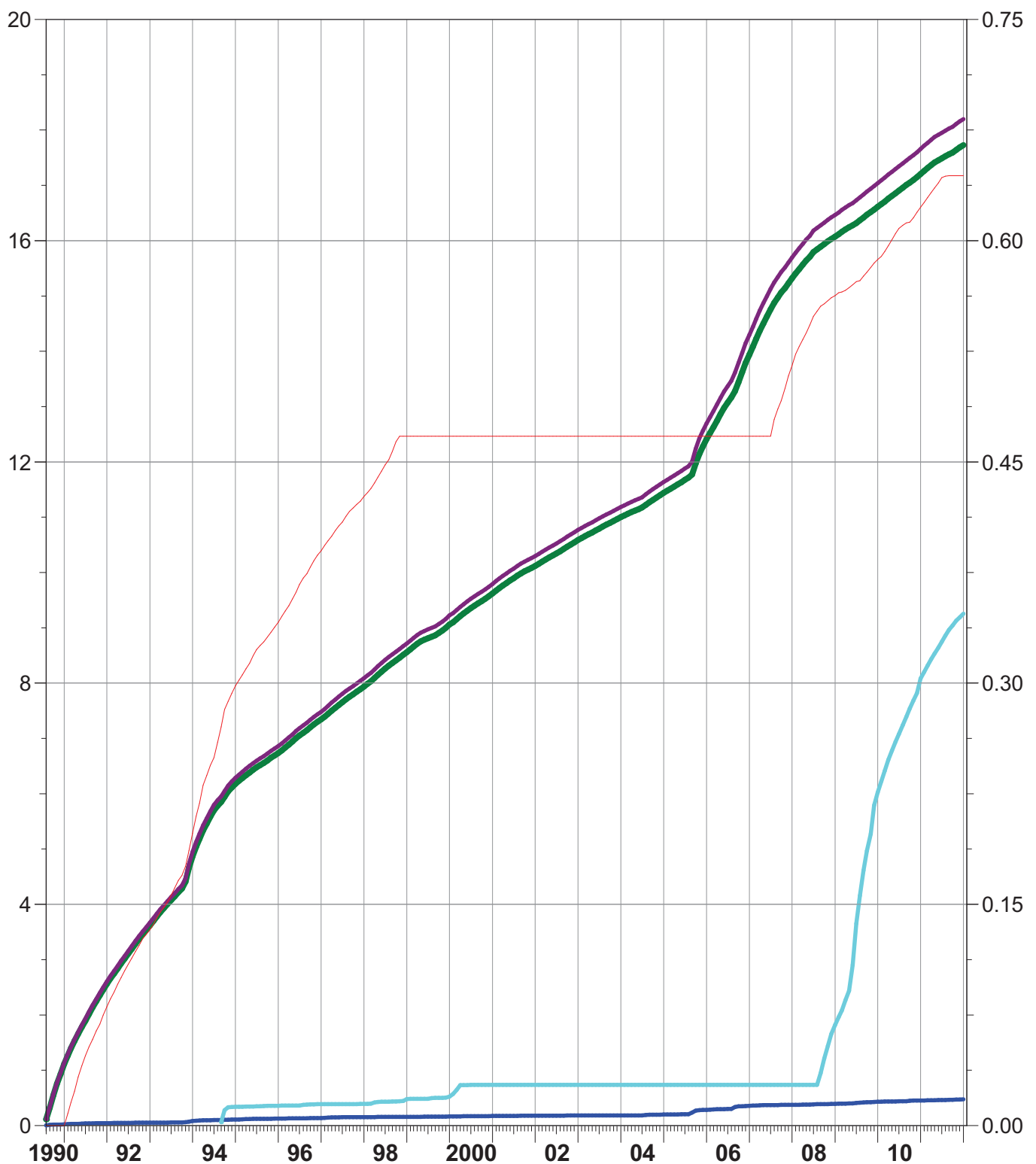
Cumulative Oil Prod : 17.73 Mm3

Cumulative Liquid Prod : 18.20 Mm3

Cumulative Water Prod : 0.47 Mm3

Cumulative Water Inj : 9.26 Mm3

Cumulative Gas Prod : 0.64 MMscm



Axis 1 P-30

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

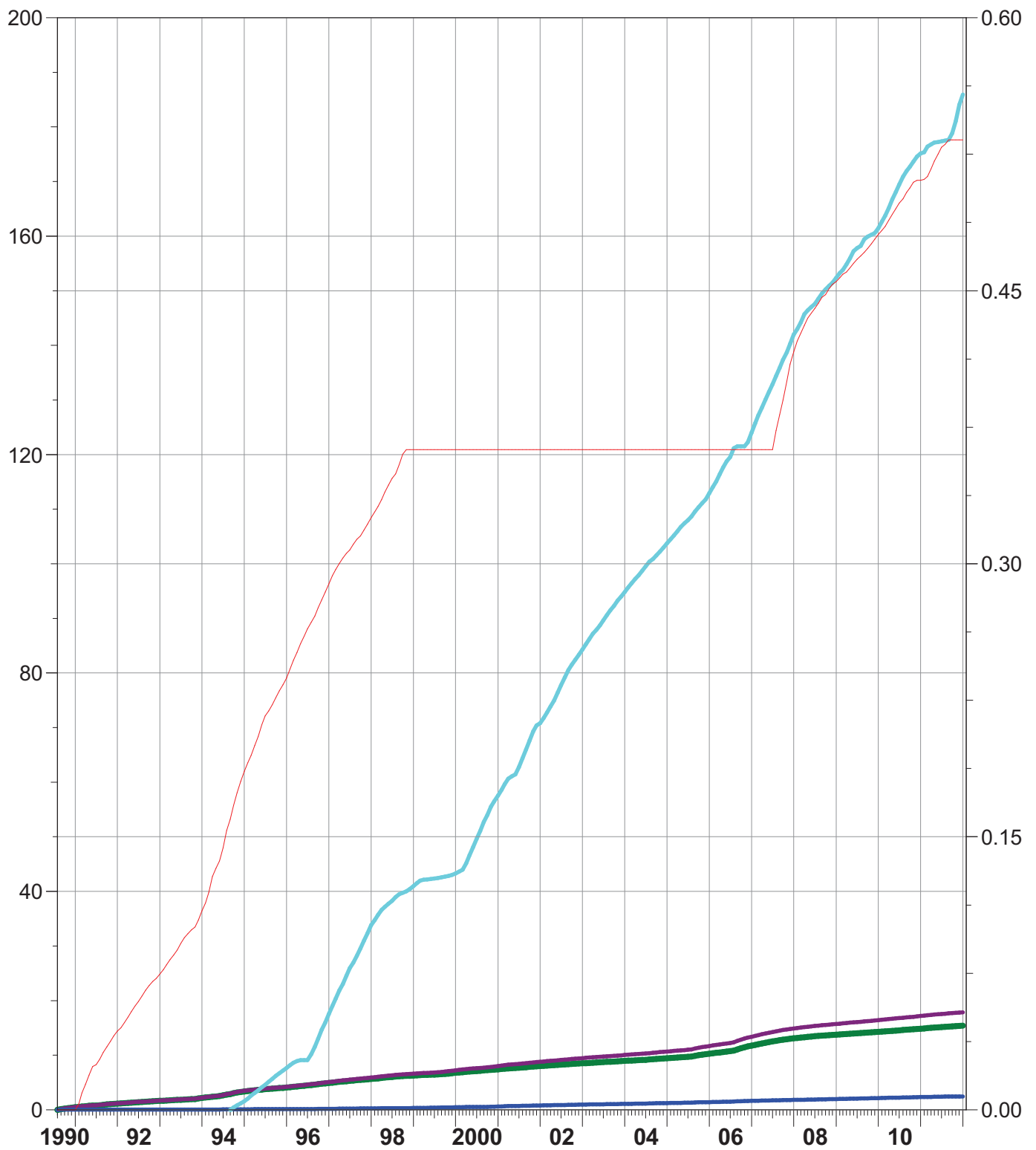
Cumulative Oil Prod : 15.39 Mm3

Cumulative Liquid Prod : 17.84 Mm3

Cumulative Water Prod : 2.45 Mm3

Cumulative Water Inj : 185.96 Mm3

Cumulative Gas Prod : 0.53 MMscm



Axis 1 P-31

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

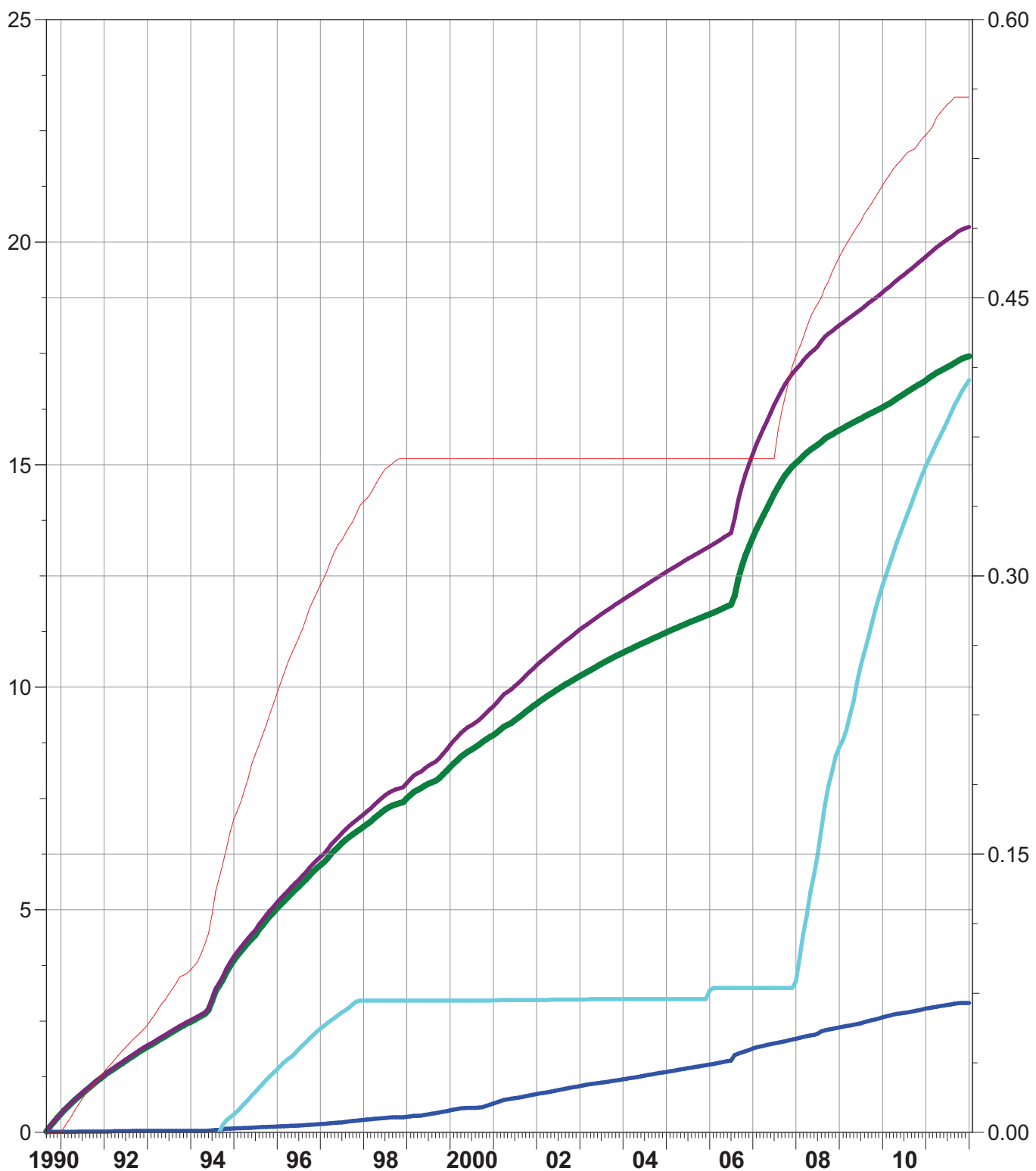
Cumulative Oil Prod : 17.44 Mm3

Cumulative Liquid Prod : 20.34 Mm3

Cumulative Water Prod : 2.91 Mm3

Cumulative Water Inj : 16.90 Mm3

Cumulative Gas Prod : 0.56 MMscm



Axis 1 P-32

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

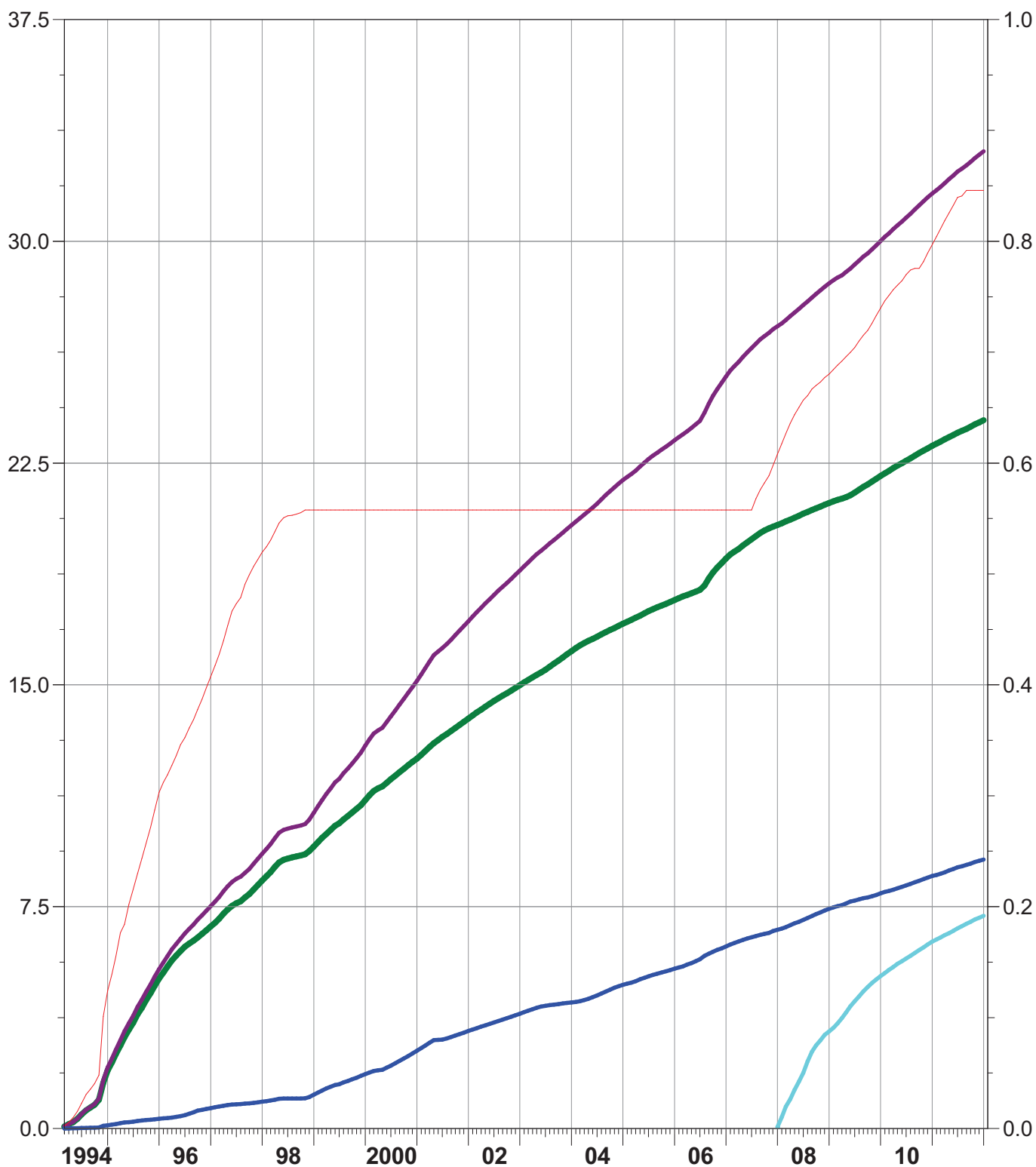
Cumulative Oil Prod : 23.95 Mm3

Cumulative Liquid Prod : 33.04 Mm3

Cumulative Water Prod : 9.09 Mm3

Cumulative Water Inj : 7.19 Mm3

Cumulative Gas Prod : 0.85 MMscm



Axis 1 P-33

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

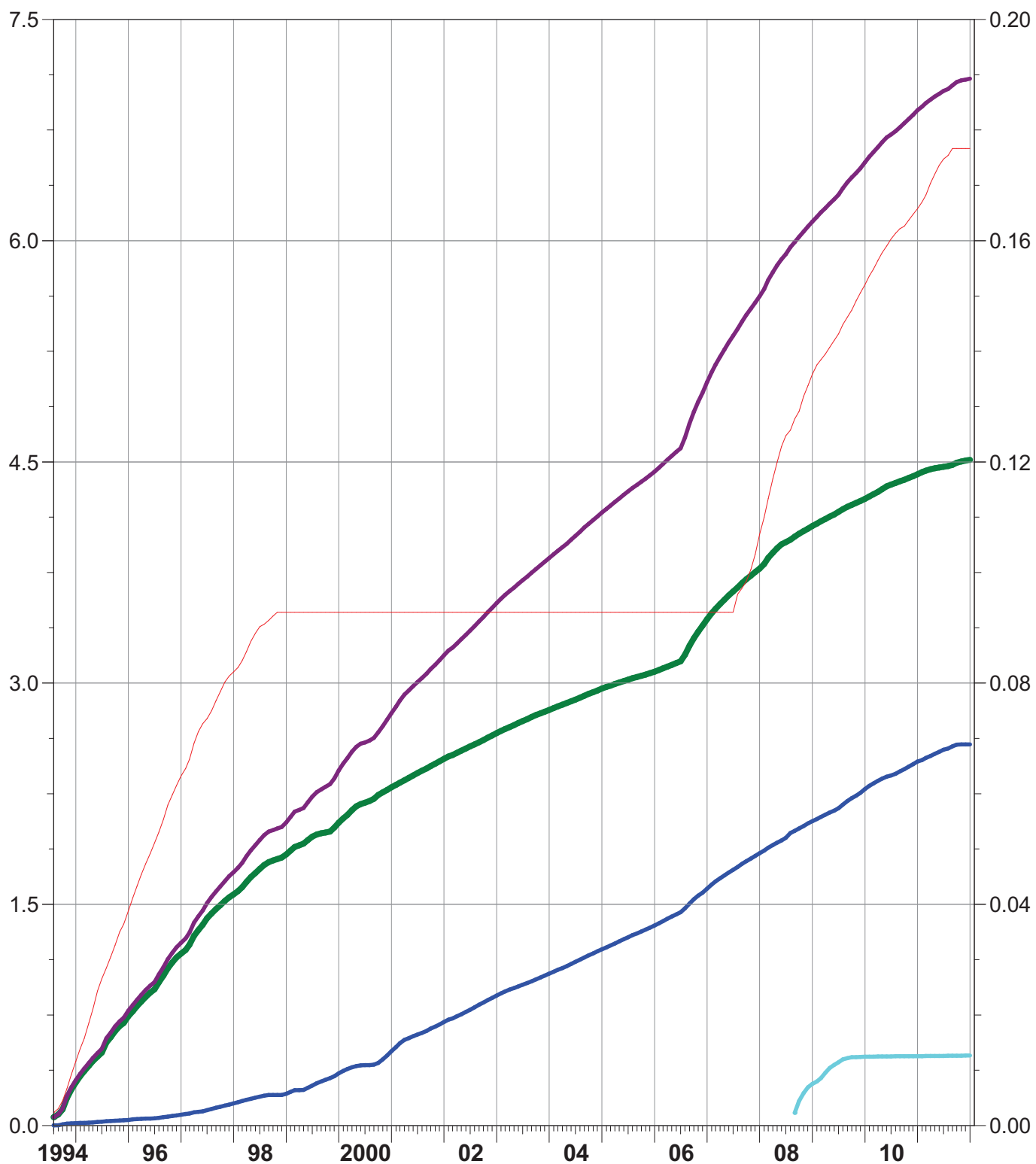
Cumulative Oil Prod : 4.51 Mm3

Cumulative Liquid Prod : 7.10 Mm3

Cumulative Water Prod : 2.58 Mm3

Cumulative Water Inj : 0.48 Mm3

Cumulative Gas Prod : 0.18 MMscm



Axis 1 P-34

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

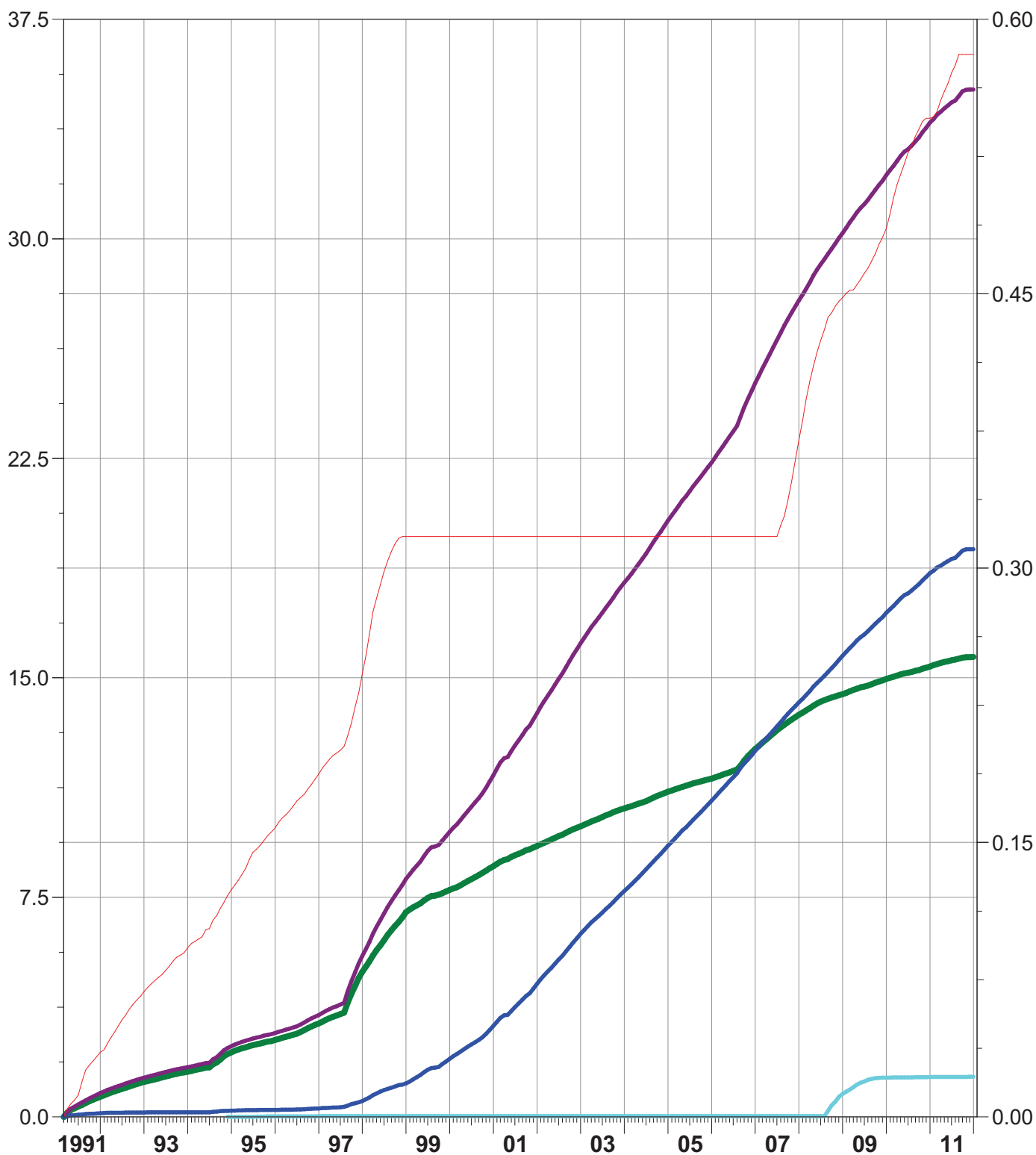
Cumulative Oil Prod : 15.71 Mm3

Cumulative Liquid Prod : 35.10 Mm3

Cumulative Water Prod : 19.39 Mm3

Cumulative Water Inj : 1.37 Mm3

Cumulative Gas Prod : 0.58 MMscm



Axis 1 P-35

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

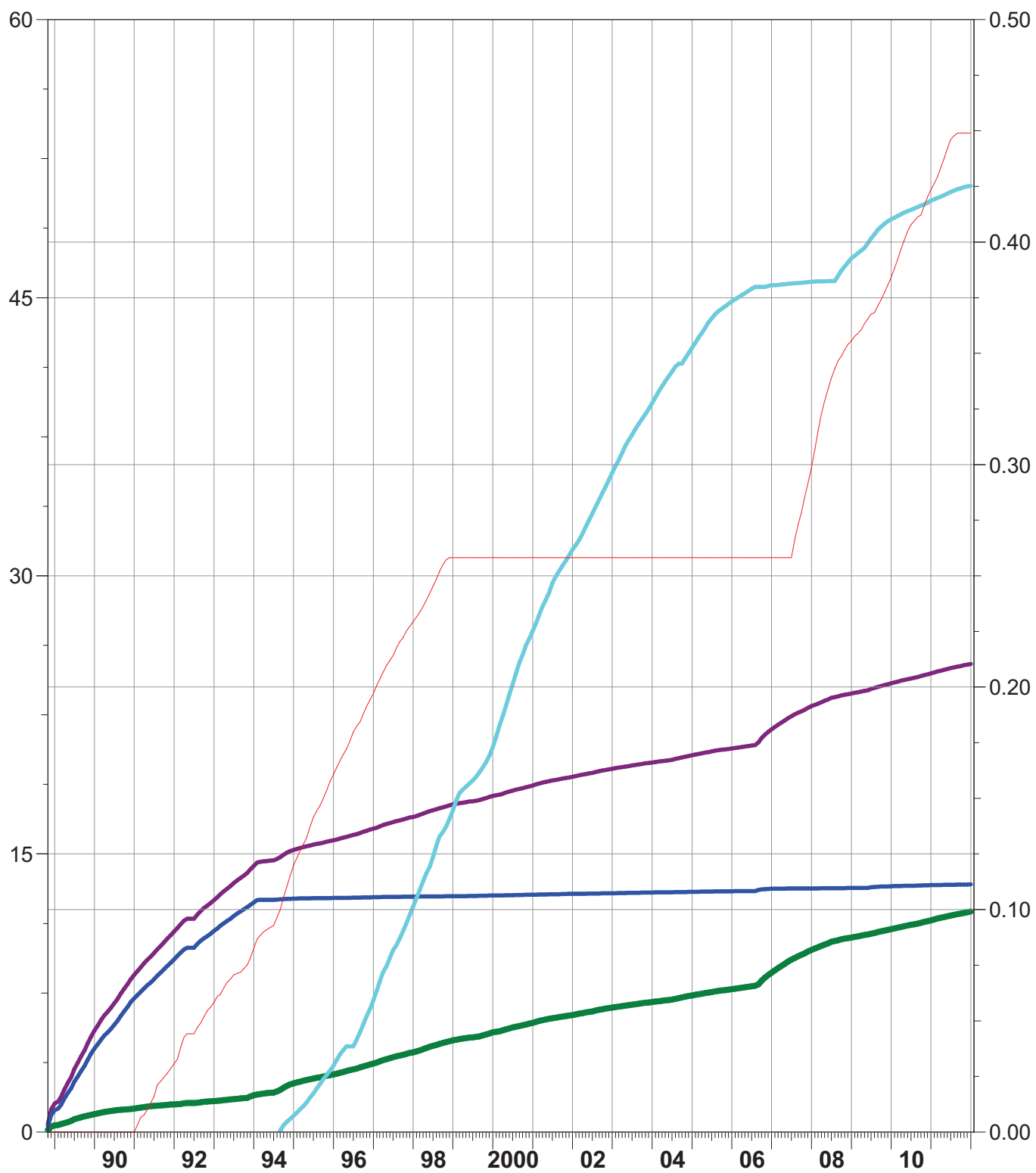
Cumulative Oil Prod : 11.89 Mm3

Cumulative Liquid Prod : 25.25 Mm3

Cumulative Water Prod : 13.36 Mm3

Cumulative Water Inj : 51.03 Mm3

Cumulative Gas Prod : 0.45 MMscm



Axis 1 P-36

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

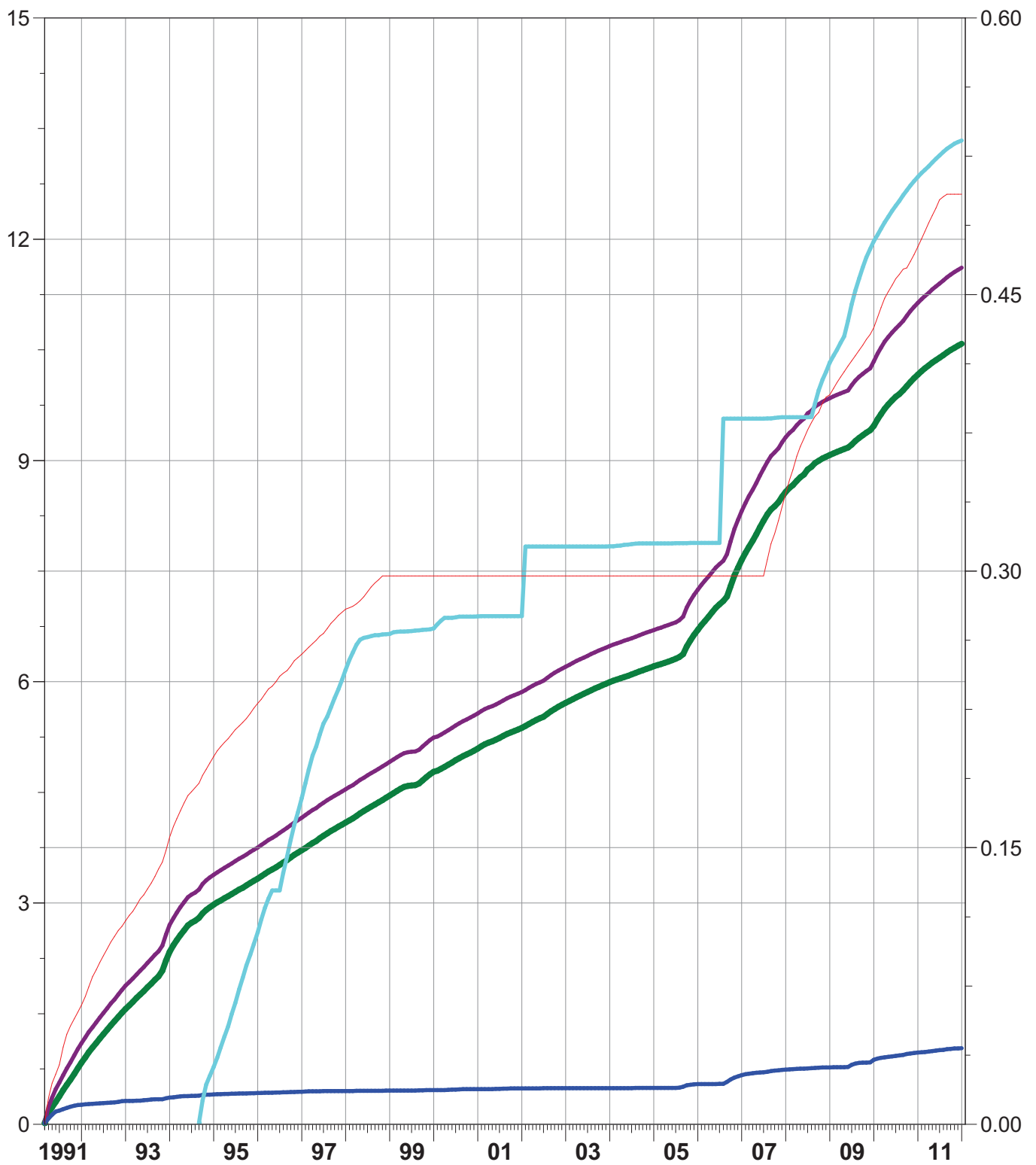
Cumulative Oil Prod : 10.58 Mm3

Cumulative Liquid Prod : 11.61 Mm3

Cumulative Water Prod : 1.03 Mm3

Cumulative Water Inj : 13.34 Mm3

Cumulative Gas Prod : 0.50 MMscm



Axis 1 P-37

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

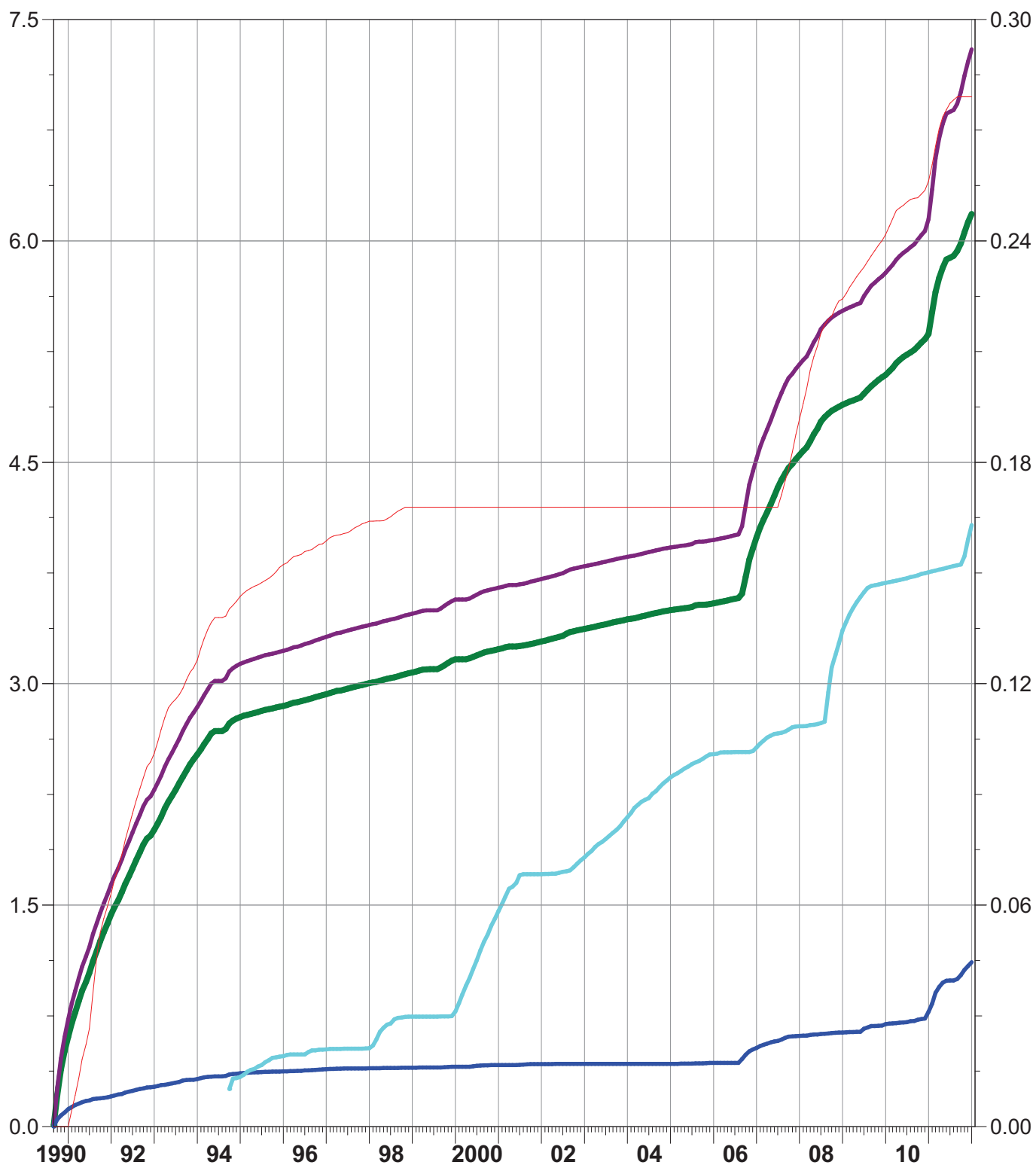
Cumulative Oil Prod : 6.18 Mm3

Cumulative Liquid Prod : 7.30 Mm3

Cumulative Water Prod : 1.11 Mm3

Cumulative Water Inj : 4.08 Mm3

Cumulative Gas Prod : 0.28 MMscm



Axis 1 P-38

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

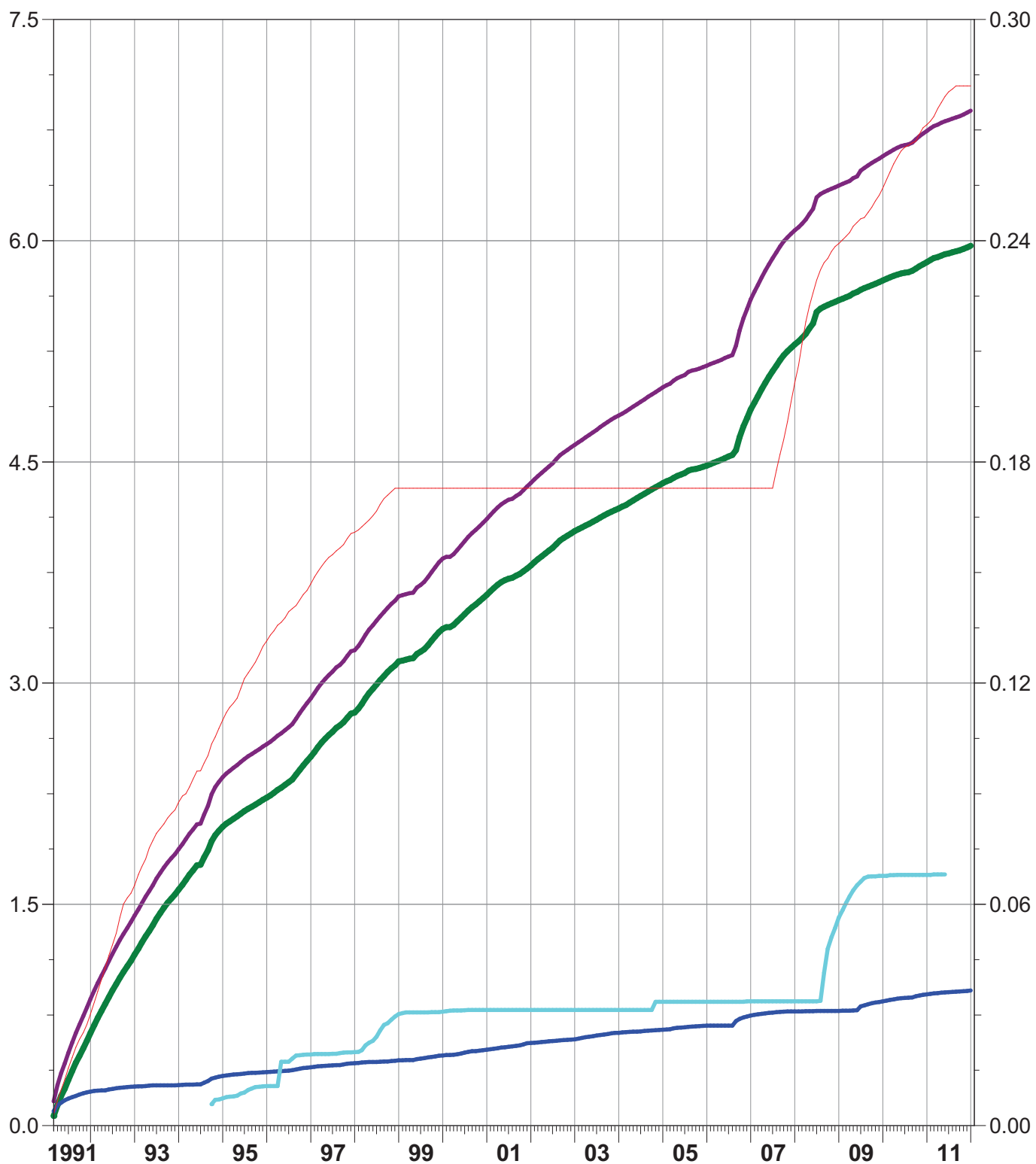
Cumulative Oil Prod : 5.97 Mm3

Cumulative Liquid Prod : 6.88 Mm3

Cumulative Water Prod : 0.92 Mm3

Cumulative Water Inj : 1.70 Mm3

Cumulative Gas Prod : 0.28 MMscm



Axis 1 P-39

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

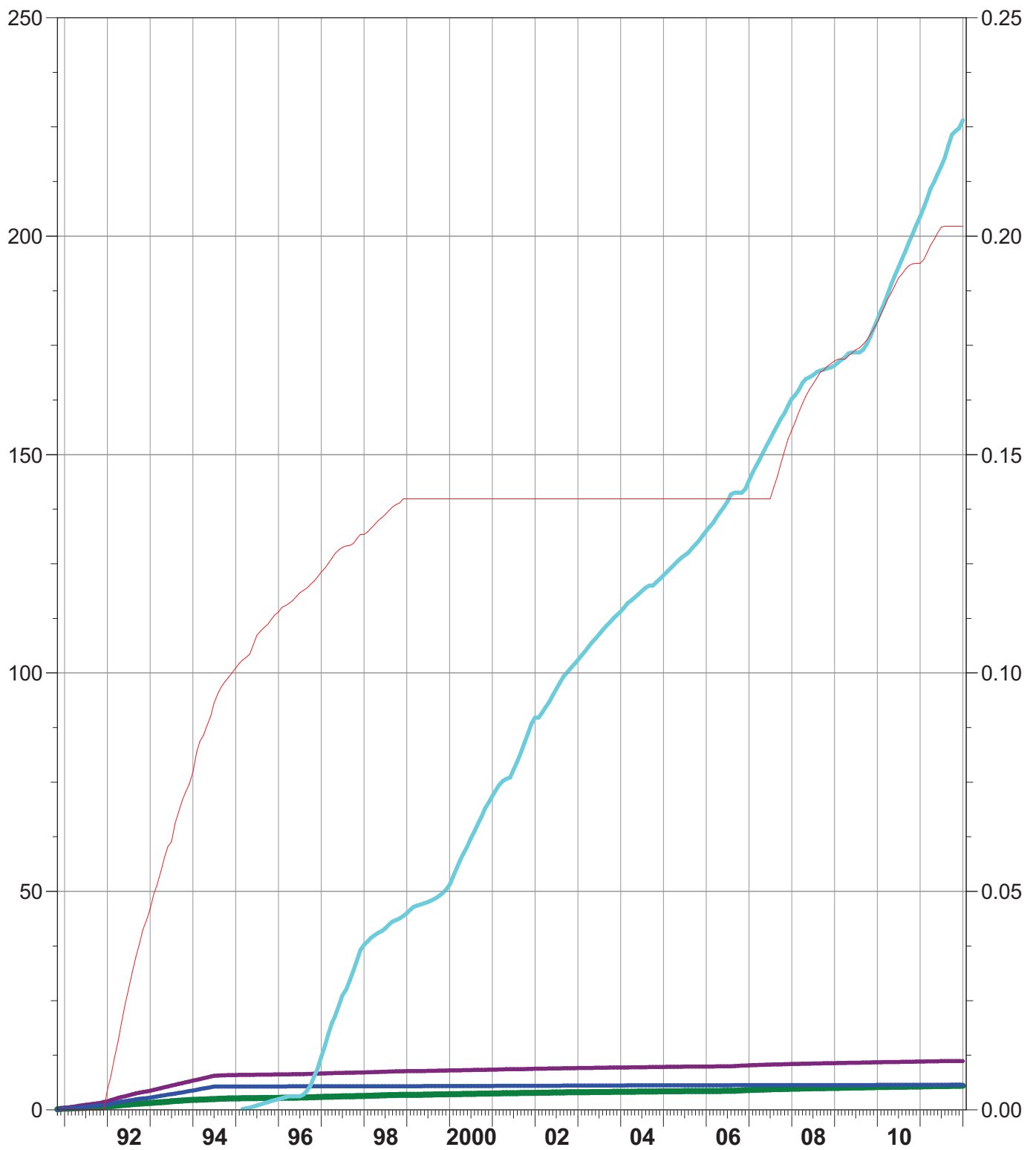
Cumulative Oil Prod : 5.48 Mm3

Cumulative Liquid Prod : 11.18 Mm3

Cumulative Water Prod : 5.70 Mm3

Cumulative Water Inj : 226.55 Mm3

Cumulative Gas Prod : 0.20 MMscm



Axis 1 P-42

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

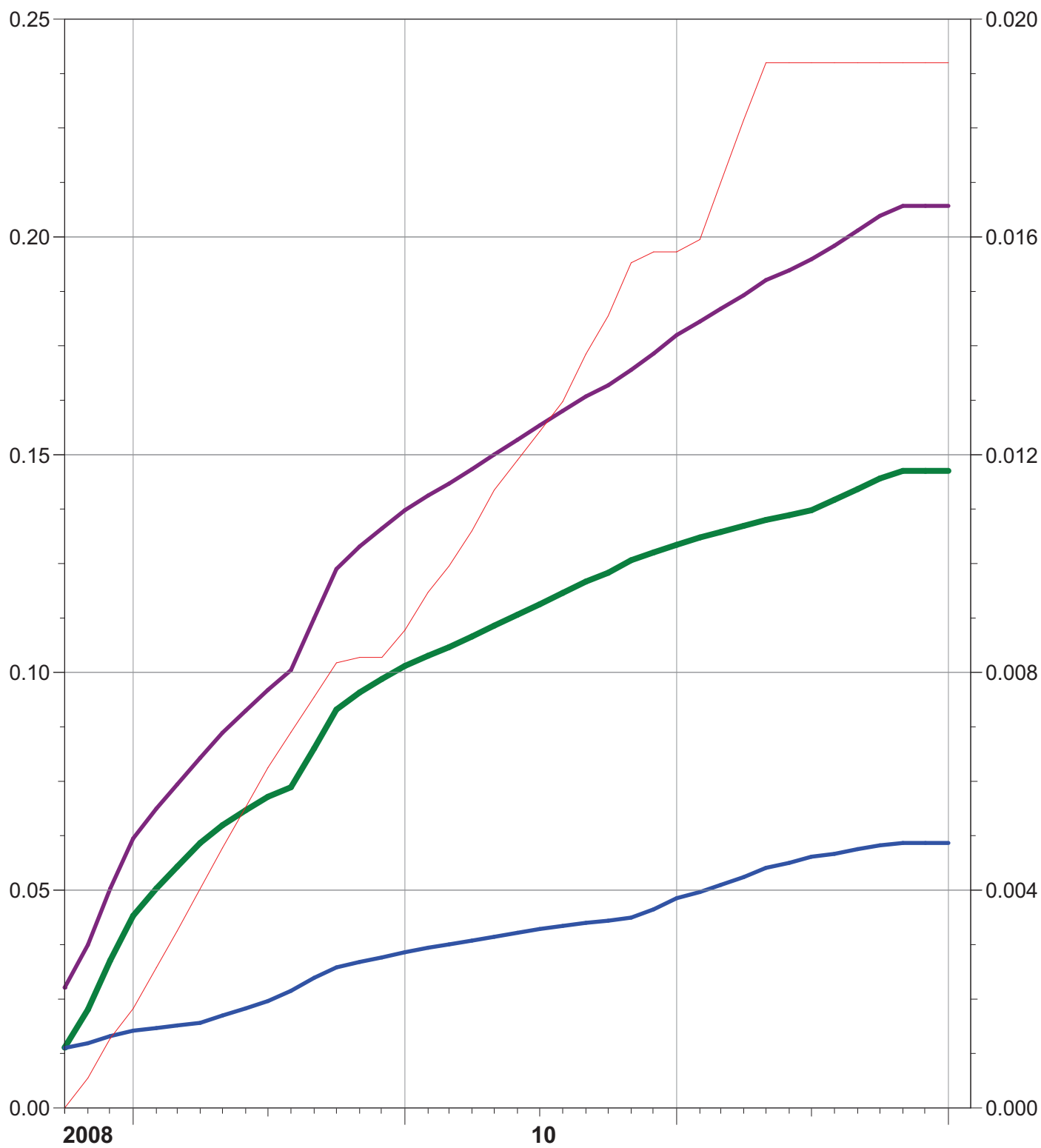
Cumulative Oil Prod : 0.15 Mm3

Cumulative Liquid Prod : 0.21 Mm3

Cumulative Water Prod : 0.06 Mm3

Cumulative Water Inj : * Mm3

Cumulative Gas Prod : 0.02 MMscm



Axis 1 P-43

Cumulative Oil Prod (Mm3)

Cumulative Liquid Prod (Mm3)

Cumulative Water Prod (Mm3)

Cumulative Water Inj (Mm3)

Axis 2

Cumulative Gas Prod (MMscm)

Cumulative Oil Prod : 0.16 Mm3

Cumulative Liquid Prod : 0.25 Mm3

Cumulative Water Prod : 0.10 Mm3

Cumulative Water Inj : 0.35 Mm3

Cumulative Gas Prod : 0.02 MMscm

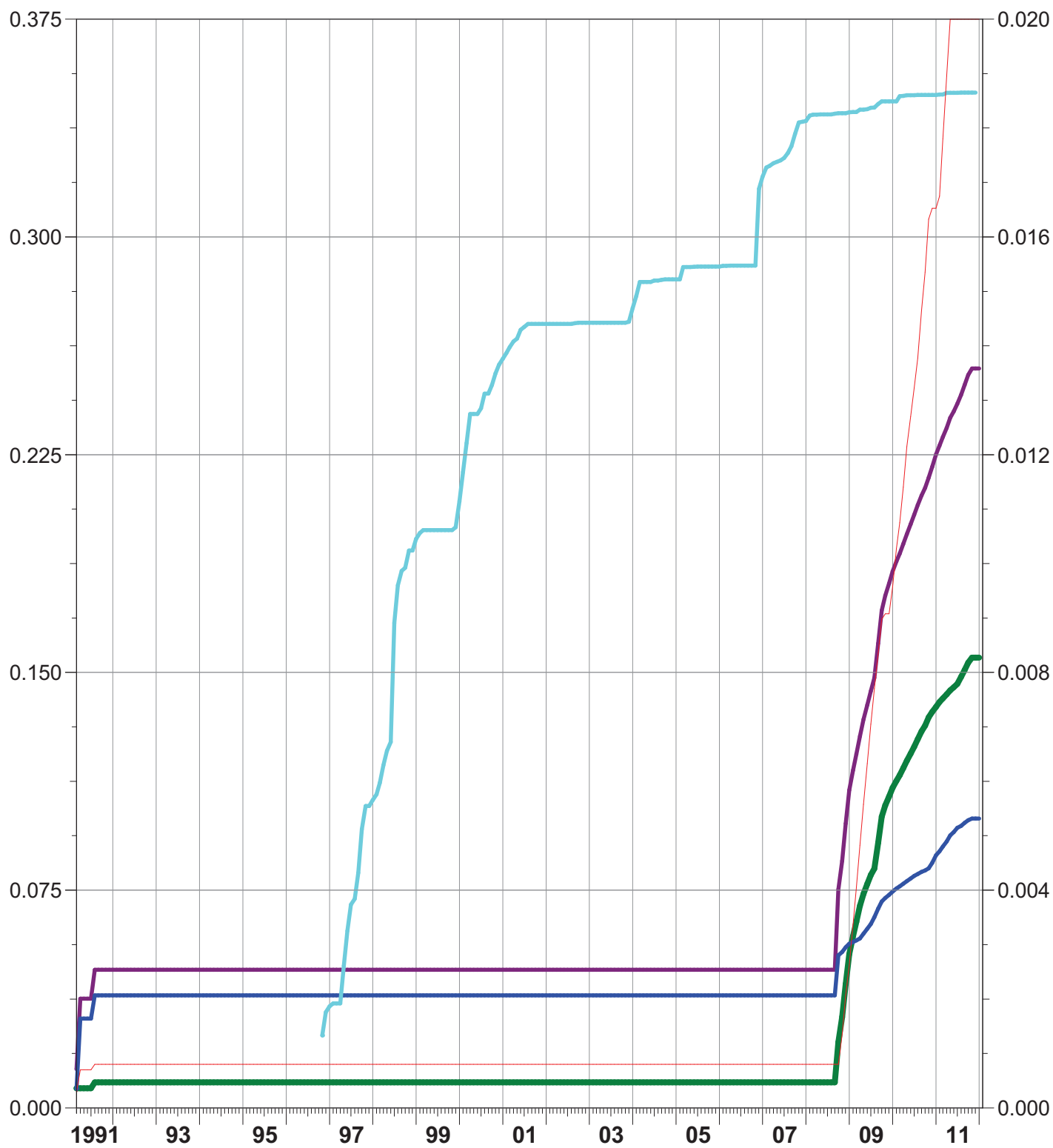


TABLE D.1: 2011 AVERAGE DAILY INJECTION RATE AND AVERAGE INJECTION PRESSURE

Injector UWI	January		February		March		April	
	Avg Inj Pressure (kPa)	Avg Daily Inj Rate (m3/d)	Avg Inj Pressure (kPa)	Avg Daily Inj Rate (m3/d)	Avg Inj Pressure (kPa)	Avg Daily Inj Rate (m3/d)	Avg Inj Pressure (kPa)	Avg Daily Inj Rate (m3/d)
00/02-08-002-29W1/0	5300	3.1	5300	3.0	5350	3.1	5375	2.7
00/02-09-002-29W1/0	5450	0.0	5400	0.0	5193	17.3	5110	14.8
00/02-17-002-29W1/0	5420	0.1	0	0.0	0	0.0	0	0.0
00/04-15-002-29W1/0	5400	2.9	5400	3.3	5400	3.4	5400	2.7
00/04-16-002-29W1/0	5400	2.4	5400	2.4	5400	2.5	5400	2.7
00/04-17-002-29W1/0	5400	0.1	0	0.0	0	0.0	0	0.0
00/06-08-002-29W1/0	5400	3.0	5400	3.0	5400	2.9	5400	2.7
00/06-09-002-29W1/0	5500	5.3	5500	5.1	5450	7.3	5300	6.3
00/06-16-002-29W1/0	5400	2.1	5400	1.9	5400	2.2	5400	2.0
00/06-17-002-29W1/0	5480	0.9	5480	0.9	5480	0.8	5480	1.0
00/08-08-002-29W1/0	5400	2.7	5400	2.2	5400	2.2	5375	1.9
00/08-09-002-29W1/0	3650	72.8	3700	86.3	3650	67.6	3075	44.3
00/08-16-002-29W1/0	5390	0.3	5390	0.5	5390	0.3	5390	0.5
00/08-17-002-29W1/0	2600	10.9	3300	37.6	878	24.3	2000	28.8
00/08-18-002-29W1/0	5490	0.3	5490	0.1	5490	0.2	5490	0.2
00/10-08-002-29W1/0	5450	0.3	5450	0.2	5450	0.2	5450	0.2
00/10-16-002-29W1/0	5400	2.7	5400	2.2	5400	2.6	5400	2.5
00/12-04-002-29W1/0	5300	0.0	5400	0.0	5300	0.0	5350	0.0
00/12-08-002-29W1/0	5500	0.0	5500	0.0	5500	0.1	5500	0.1
00/12-17-002-29W1/0	0	0.0	0	0.0	0	0.0	5410	0.0
00/14-04-002-29W1/0	5300	0.6	5400	0.5	5350	0.4	5200	0.5
00/14-08-002-29W1/0	5450	0.7	5450	0.6	5450	0.5	5450	0.6
00/14-17-002-29W1/0	3000	65.7	3000	71.7	3000	76.6	3000	51.5
00/16-04-002-29W1/0	5350	0.0	5400	0.0	5400	0.0	5250	0.1
00/16-05-002-29W1/0	5350	1.5	5300	1.6	5300	2.2	5325	2.6
00/16-08-002-29W1/0	5465	5.3	5465	5.5	5465	5.5	5465	4.9
00/16-09-002-29W1/0	5400	2.4	5400	2.2	5300	3.0	5200	2.6
00/16-18-002-29W1/0	5500	0.0	0	0.0	5500	0.1	5500	0.0
02/08-09-002-29W1/0	5300	0.0	5300	0.0	5157	2.4	5080	2.3
02/10-16-002-29W1/0	5400	7.6	5400	7.0	5400	7.6	5400	6.2
02/12-09-002-29W1/0	4000	6.7	4000	7.4	4000	8.2	4000	6.9
02/12-16-002-29W1/0	5400	2.6	5400	2.5	5400	2.7	5400	2.3
02/16-09-002-29W1/0	5400	3.1	5400	3.0	5300	3.3	5200	2.9
03/15-16-002-29W1/0	5400	2.0	5400	1.9	5400	1.6	5400	1.6
03/16-09-002-29W1/0	5400	3.3	5400	3.2	5300	3.7	5200	3.1
B0/02-17-002-29W1/0	5480	3.8	5480	4.3	5480	3.7	5480	3.5
B0/04-16-002-29W1/0	5400	3.0	5400	2.4	5400	2.7	5400	3.4
B0/06-09-002-29W1/0	5500	5.2	5500	4.9	5450	5.4	5300	4.8
B0/06-16-002-29W1/0	5400	3.6	5400	3.1	5400	3.4	5400	3.4
B0/08-09-002-29W1/0	5350	3.3	5300	3.3	5300	3.5	5350	3.1
B0/08-16-002-29W1/0	5390	1.1	5390	1.3	5390	1.2	5390	0.5
B0/12-17-002-29W1/0	5400	0.0	5400	1.0	0	0.0	5400	1.5
B0/14-04-002-29W1/0	5300	2.1	5400	2.1	5400	2.1	5375	1.9
B0/14-08-002-29W1/0	5425	0.2	5425	0.1	5425	0.1	5425	0.0
B0/16-17-002-29W1/0	0	0.0	5480	0.1	0	0.0	5480	0.9
C0/05-16-002-29W1/0	5395	3.2	5395	3.0	5395	2.9	5395	2.7
C0/11-16-002-29W1/0	5390	3.2	5390	3.1	5390	3.5	5390	3.0
C0/15-04-002-29W1/0	5350	1.0	5300	0.9	5300	1.0	5300	1.0
C2/07-16-002-29W1/0	5400	2.3	5400	1.5	5400	1.2	5400	2.1
D0/02-09-002-29W1/0	5450	2.2	5400	2.2	5350	2.3	5350	2.1
D0/02-17-002-29W1/0	5400	3.8	5400	3.8	5400	3.9	5400	3.3
D0/04-09-002-29W1/0	5400	1.9	5400	1.9	5400	1.8	5350	1.3
D0/04-17-002-29W1/0	5480	3.3	5480	3.1	5480	3.2	5480	3.5
D0/06-09-002-29W1/0	5500	0.1	5500	0.0	4310	3.4	4880	1.7
D0/06-17-002-29W1/0	0	0.0	0	0.0	0	0.0	0	0.0
D0/14-09-002-29W1/0	4800	14.1	4800	12.8	4800	11.5	4800	15.2
D0/16-05-002-29W1/0	5350	4.6	5300	1.6	5300	1.1	5300	2.7

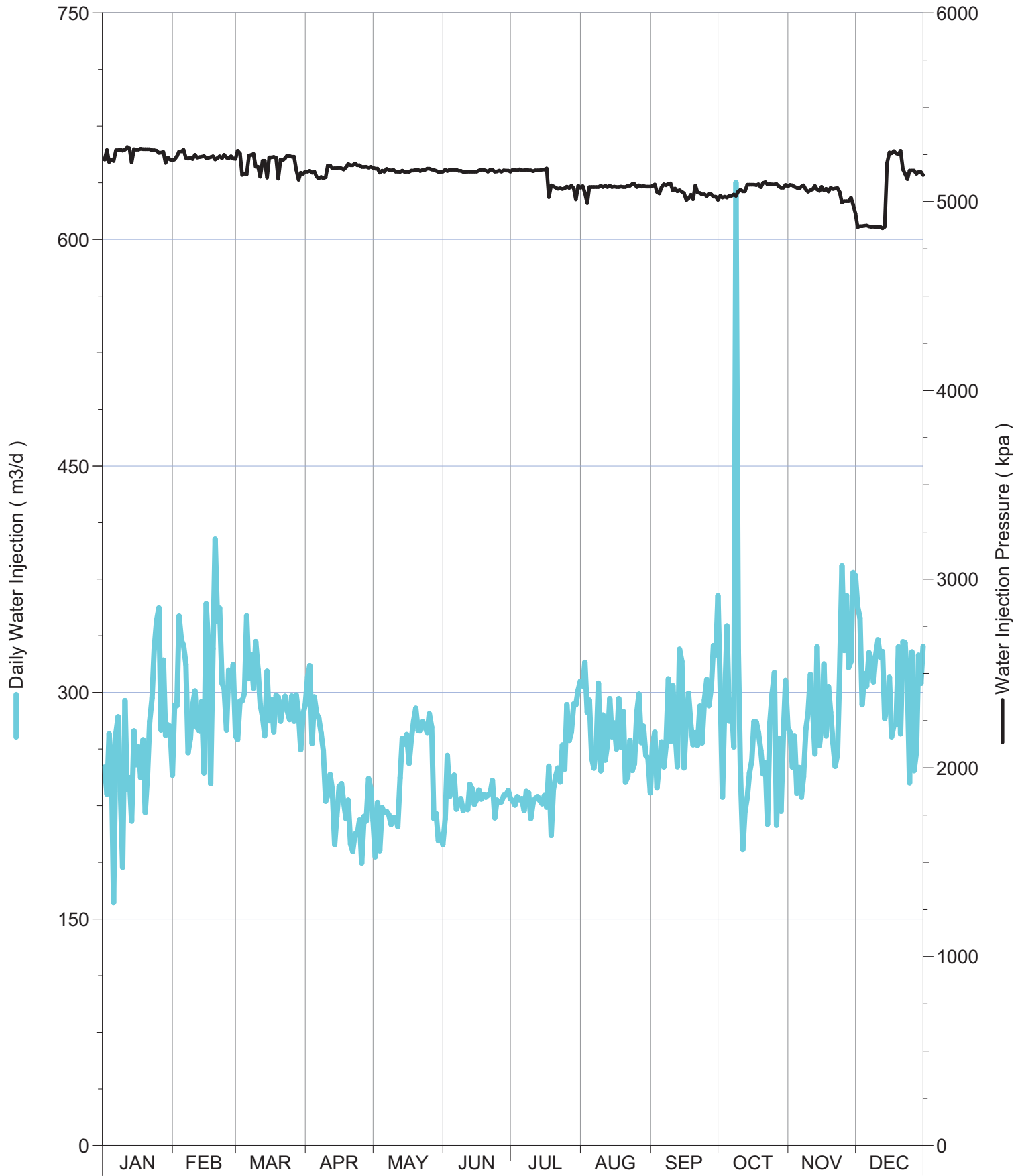
TABLE D.1: 2011 AVERAGE DAILY INJECTION RATE AND AVERAGE INJECTION PRESSURE

Injector UWI	May		June		July		August	
	Avg Inj Pressure (kPa)	Avg Daily Inj Rate (m3/d)	Avg Inj Pressure (kPa)	Avg Daily Inj Rate (m3/d)	Avg Inj Pressure (kPa)	Avg Daily Inj Rate (m3/d)	Avg Inj Pressure (kPa)	Avg Daily Inj Rate (m3/d)
00/02-08-002-29W1/0	5300	2.9	5250	2.9	5250	3.0	5250	2.9
00/02-09-002-29W1/0	5025	12.6	5050	10.8	5050	11.1	5050	10.9
00/02-17-002-29W1/0	0	0.0	0	0.0	0	0.0	0	0.0
00/04-15-002-29W1/0	5400	3.4	5400	3.2	5400	3.6	5400	3.4
00/04-16-002-29W1/0	5400	2.3	5400	2.2	5394	2.3	5387	2.3
00/04-17-002-29W1/0	0	0.0	0	0.0	0	0.0	0	0.0
00/06-08-002-29W1/0	5400	3.0	5400	3.1	5389	3.3	5378	3.2
00/06-09-002-29W1/0	5250	6.6	5300	6.4	5300	7.0	5300	7.4
00/06-16-002-29W1/0	5400	2.1	5400	2.0	5400	2.1	5400	2.0
00/06-17-002-29W1/0	5480	1.1	5480	1.0	5440	1.1	5400	0.8
00/08-08-002-29W1/0	5300	1.7	5250	1.7	5250	1.7	5250	1.8
00/08-09-002-29W1/0	2475	47.1	2400	41.7	2400	46.4	2400	50.5
00/08-16-002-29W1/0	5390	0.6	5390	0.8	5390	0.5	5390	0.4
00/08-17-002-29W1/0	0	0.0	0	0.0	2000	25.4	2000	40.0
00/08-18-002-29W1/0	5490	0.2	5490	0.3	5445	0.2	5400	0.2
00/10-08-002-29W1/0	5450	0.5	5450	0.6	5425	0.5	5400	0.3
00/10-16-002-29W1/0	5400	2.7	5400	2.6	5400	2.9	5400	2.8
00/12-04-002-29W1/0	5300	0.0	5200	0.0	5200	0.0	5200	0.0
00/12-08-002-29W1/0	5500	0.0	5500	0.0	5445	0.0	5390	0.0
00/12-17-002-29W1/0	0	0.0	0	0.0	0	0.0	0	0.0
00/14-04-002-29W1/0	5100	0.6	5100	0.4	5100	0.3	5100	0.3
00/14-08-002-29W1/0	5450	0.6	5450	0.6	5425	0.5	5400	0.6
00/14-17-002-29W1/0	3000	59.7	3000	57.1	3167	64.4	3400	89.6
00/16-04-002-29W1/0	5100	0.1	5100	0.1	5100	0.0	5100	0.0
00/16-05-002-29W1/0	0	0.0	0	0.0	0	0.0	0	0.0
00/16-08-002-29W1/0	5465	5.0	5465	4.8	5433	5.3	5400	5.5
00/16-09-002-29W1/0	5200	3.1	5200	3.3	5200	2.7	5200	2.4
00/16-18-002-29W1/0	0	0.0	0	0.0	5400	0.0	5400	0.0
02/08-09-002-29W1/0	5050	2.4	5100	2.3	5100	2.3	5100	2.1
02/10-16-002-29W1/0	5400	6.2	5400	5.9	5400	6.2	5400	6.7
02/12-09-002-29W1/0	4000	7.4	4000	7.3	2250	7.8	500	8.4
02/12-16-002-29W1/0	5400	2.4	5400	2.4	5400	2.7	5400	2.7
02/16-09-002-29W1/0	5200	3.1	5200	3.1	5200	3.2	5200	3.2
03/15-16-002-29W1/0	5400	1.8	5400	1.9	5400	1.9	5400	1.6
03/16-09-002-29W1/0	5200	3.3	5200	3.3	5200	3.3	5200	3.5
B0/02-17-002-29W1/0	5480	3.5	5480	3.5	5440	3.8	5400	3.8
B0/04-16-002-29W1/0	5400	3.7	5400	3.7	5394	3.6	5387	3.5
B0/06-09-002-29W1/0	5250	5.0	5300	5.0	5300	4.9	5300	4.6
B0/06-16-002-29W1/0	5400	3.6	5400	3.5	5400	3.7	5400	3.4
B0/08-09-002-29W1/0	5350	3.3	5300	3.2	5300	3.4	5300	3.6
B0/08-16-002-29W1/0	5390	0.3	5390	0.2	5390	0.3	5390	0.1
B0/12-17-002-29W1/0	5400	0.1	0	0.0	0	0.0	0	0.0
B0/14-04-002-29W1/0	5275	2.0	5200	1.9	5200	2.1	5200	2.1
B0/14-08-002-29W1/0	5425	0.1	5425	0.4	5412	0.1	5399	0.5
B0/16-17-002-29W1/0	5480	0.2	5480	0.0	5440	0.1	0	0.0
C0/05-16-002-29W1/0	5395	3.0	5395	3.0	5395	3.0	5395	2.8
C0/11-16-002-29W1/0	5390	3.3	5390	3.3	5390	3.4	5390	3.4
C0/15-04-002-29W1/0	5250	1.1	5200	1.0	5200	1.0	5200	0.9
C2/07-16-002-29W1/0	5400	1.7	5400	1.8	5400	2.1	5400	1.9
D0/02-09-002-29W1/0	5300	2.2	5200	2.2	5200	2.3	5200	2.3
D0/02-17-002-29W1/0	5400	3.6	5400	3.4	5400	3.5	5400	3.0
D0/04-09-002-29W1/0	5250	1.4	5200	1.4	5200	1.4	5200	1.4
D0/04-17-002-29W1/0	5480	3.0	5480	3.2	5435	3.0	5390	2.8
D0/06-09-002-29W1/0	4800	1.3	4800	0.9	4800	0.8	4800	0.2
D0/06-17-002-29W1/0	5300	0.0	0	0.0	0	0.0	0	0.0
D0/14-09-002-29W1/0	4800	15.8	4800	16.4	4850	15.4	4900	13.2
D0/16-05-002-29W1/0	5250	2.3	5200	1.6	5200	0.5	5200	3.6

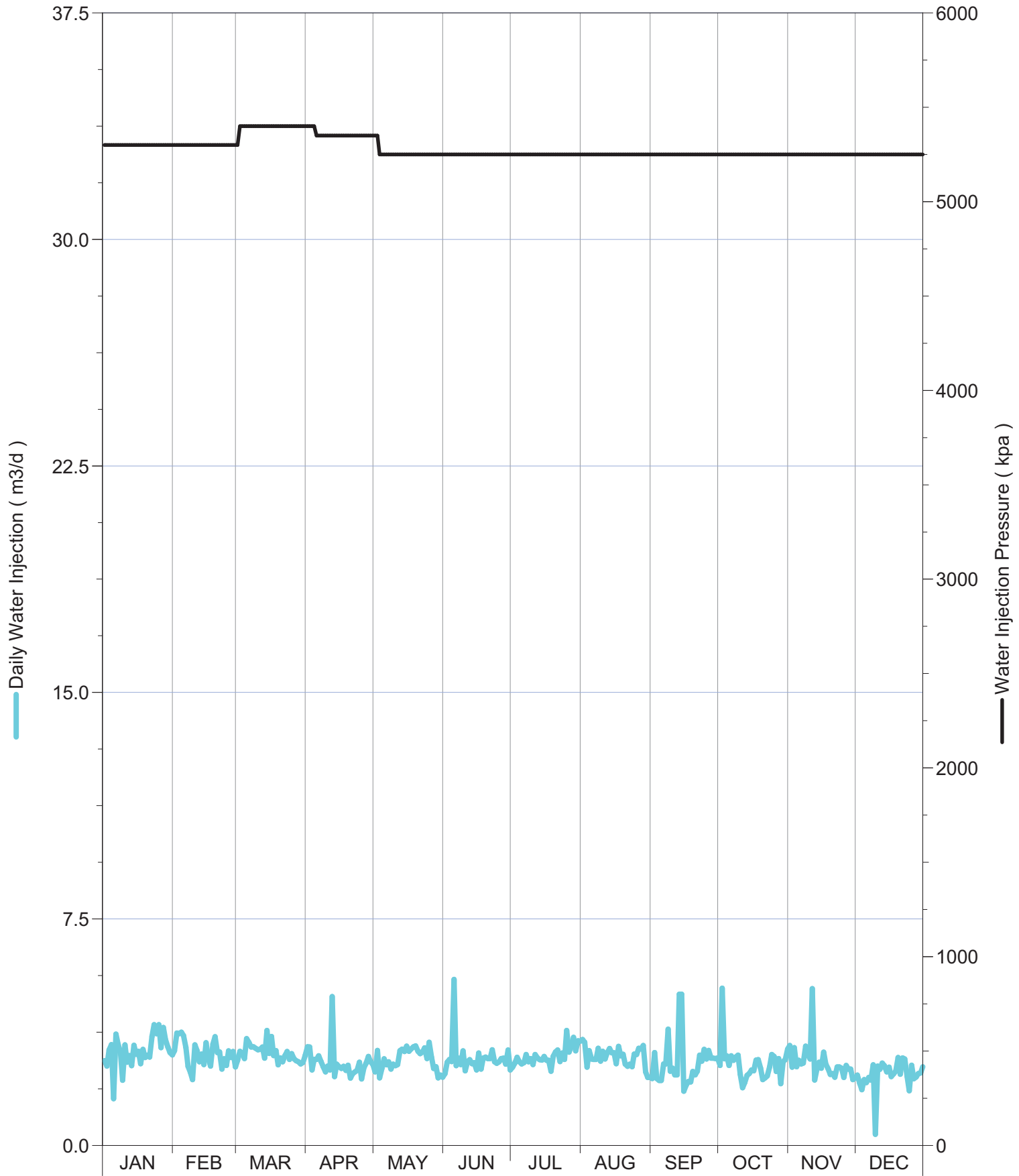
TABLE D.1: 2011 AVERAGE DAILY INJECTION RATE AND AVERAGE INJECTION PRESSURE

Injector UWI	September		October		November		December	
	Avg Inj Pressure (kPa)	Avg Daily Inj Rate (m3/d)	Avg Inj Pressure (kPa)	Avg Daily Inj Rate (m3/d)	Avg Inj Pressure (kPa)	Avg Daily Inj Rate (m3/d)	Avg Inj Pressure (kPa)	Avg Daily Inj Rate (m3/d)
00/02-08-002-29W1/0	5250	2.8	5250	2.7	5250	2.7	5250	2.3
00/02-09-002-29W1/0	5050	8.7	5050	8.3	5050	8.1	5050	6.4
00/02-17-002-29W1/0	0	0.0	0	0.0	0	0.0	0	0.0
00/04-15-002-29W1/0	5400	3.0	5400	3.1	5400	3.1	5173	3.4
00/04-16-002-29W1/0	5387	2.1	5387	2.4	5387	1.8	5185	1.7
00/04-17-002-29W1/0	0	0.0	0	0.0	0	0.0	5057	0.2
00/06-08-002-29W1/0	5378	2.8	5378	14.2	5378	2.2	5173	2.0
00/06-09-002-29W1/0	5300	6.3	5300	6.3	5300	6.4	5300	5.1
00/06-16-002-29W1/0	5400	1.6	5400	1.7	5400	1.7	5185	1.4
00/06-17-002-29W1/0	5400	0.5	5400	0.9	5400	0.6	5172	0.6
00/08-08-002-29W1/0	5250	2.0	5250	2.0	5250	1.9	5250	1.9
00/08-09-002-29W1/0	2400	48.4	2400	48.5	2400	63.3	2400	88.9
00/08-16-002-29W1/0	5390	0.5	5390	0.6	5390	0.4	5173	0.2
00/08-17-002-29W1/0	4075	46.6	3433	68.8	4000	98.8	2637	74.4
00/08-18-002-29W1/0	5400	0.2	5400	2.4	5400	5.2	5178	3.1
00/10-08-002-29W1/0	5400	0.2	5400	1.3	5400	0.9	5160	0.6
00/10-16-002-29W1/0	5400	2.3	5400	2.4	5400	2.2	5175	2.3
00/12-04-002-29W1/0	5200	0.0	5200	0.0	5200	0.0	5200	0.0
00/12-08-002-29W1/0	5390	0.0	5390	0.5	5390	0.0	5173	0.1
00/12-17-002-29W1/0	0	0.0	0	0.0	0	0.0	0	0.0
00/14-04-002-29W1/0	5100	0.5	5100	0.6	5100	0.1	5100	0.1
00/14-08-002-29W1/0	5400	0.6	5400	0.6	5400	0.5	5171	0.6
00/14-17-002-29W1/0	3400	82.4	3400	73.6	2800	72.9	3100	60.2
00/16-04-002-29W1/0	5100	0.0	5100	0.0	5100	0.0	5100	0.0
00/16-05-002-29W1/0	5200	0.5	5200	4.6	5200	3.0	5200	1.9
00/16-08-002-29W1/0	5400	5.1	5400	4.8	5400	4.9	5165	4.5
00/16-09-002-29W1/0	5200	2.5	5200	2.2	5200	2.2	5200	2.0
00/16-18-002-29W1/0	0	0.0	0	0.0	5400	0.0	0	0.0
02/08-09-002-29W1/0	5100	1.8	5100	1.9	5100	1.4	5100	1.1
02/10-16-002-29W1/0	5400	5.6	5400	6.0	5400	5.2	5178	4.8
02/12-09-002-29W1/0	500	7.6	500	7.5	500	7.9	5150	7.6
02/12-16-002-29W1/0	5400	2.3	5400	2.3	5400	2.3	5174	2.1
02/16-09-002-29W1/0	5200	6.2	5200	3.0	5200	2.9	5200	2.7
03/15-16-002-29W1/0	5400	1.6	5350	2.7	5300	2.1	5173	1.9
03/16-09-002-29W1/0	5200	3.1	5200	3.3	5200	3.2	5200	3.1
B0/02-17-002-29W1/0	5400	3.6	5400	3.4	5400	2.8	5173	3.2
B0/04-16-002-29W1/0	5387	1.7	5387	1.8	5387	1.3	5185	0.5
B0/06-09-002-29W1/0	5300	3.9	5300	4.1	5300	4.7	5300	4.2
B0/06-16-002-29W1/0	5400	2.6	5400	3.2	5400	2.7	5185	2.2
B0/08-09-002-29W1/0	5300	3.3	5300	3.2	5300	3.2	5300	2.9
B0/08-16-002-29W1/0	5390	0.2	5390	0.4	5390	0.2	5174	0.2
B0/12-17-002-29W1/0	0	0.0	0	0.0	0	0.0	0	0.0
B0/14-04-002-29W1/0	5200	2.0	5200	2.1	5200	2.1	5200	1.9
B0/14-08-002-29W1/0	5399	0.2	5399	0.1	5399	0.7	5173	0.1
B0/16-17-002-29W1/0	5400	0.3	5400	0.1	5400	0.7	5173	0.0
C0/05-16-002-29W1/0	5395	2.2	5395	2.8	5395	1.7	5183	2.6
C0/11-16-002-29W1/0	5390	3.0	5390	3.0	5390	2.8	5176	2.8
C0/15-04-002-29W1/0	5200	1.3	5200	0.9	5200	3.5	5200	0.8
C2/07-16-002-29W1/0	5400	1.5	5400	2.0	5400	1.1	5175	1.5
D0/02-09-002-29W1/0	5200	2.0	5200	2.1	5200	1.6	5200	1.8
D0/02-17-002-29W1/0	5400	2.5	5400	2.3	5400	1.8	5173	1.8
D0/04-09-002-29W1/0	5200	1.0	5200	0.9	5200	0.8	5200	0.8
D0/04-17-002-29W1/0	5390	2.0	5390	2.4	5390	1.7	5185	1.8
D0/06-09-002-29W1/0	0	0.0	4800	2.2	4800	3.1	4800	2.1
D0/06-17-002-29W1/0	0	0.0	0	0.0	0	0.0	5520	0.1
D0/14-09-002-29W1/0	4900	12.3	4900	12.1	4900	10.5	5185	8.9
D0/16-05-002-29W1/0	5200	2.6	5200	2.1	5200	2.0	5200	3.0

South Pierson Unit No. 1 Overall Injection

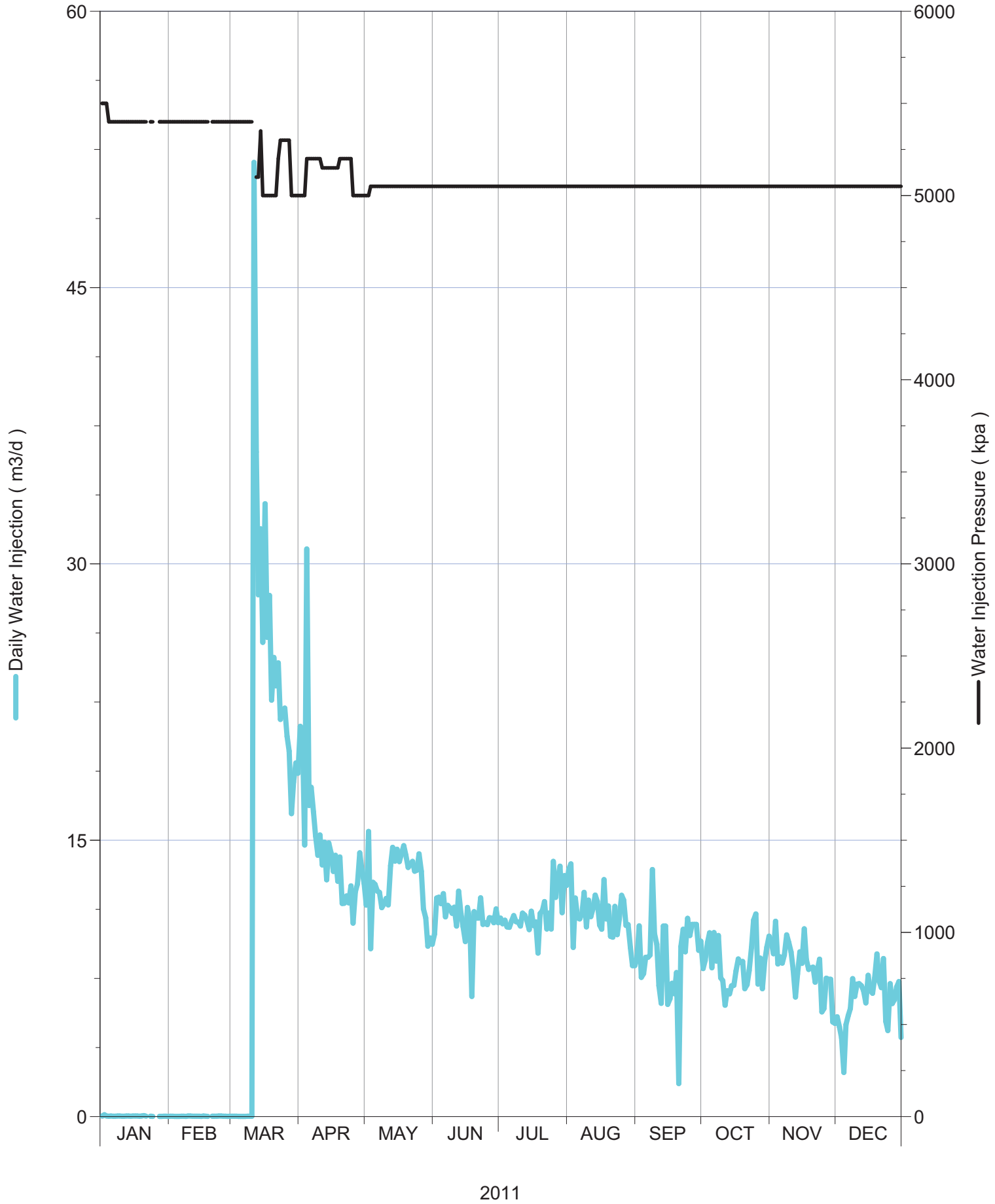


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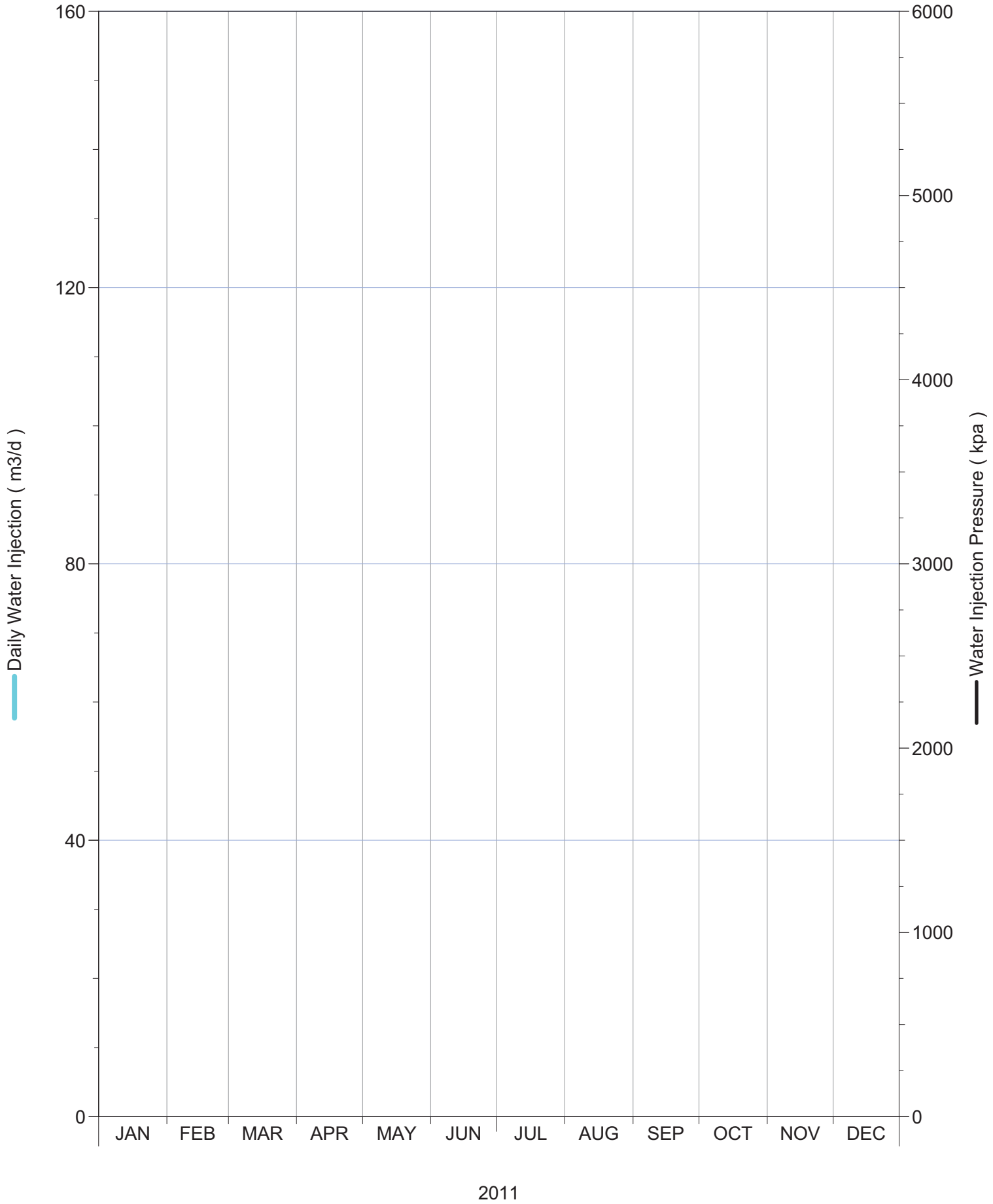


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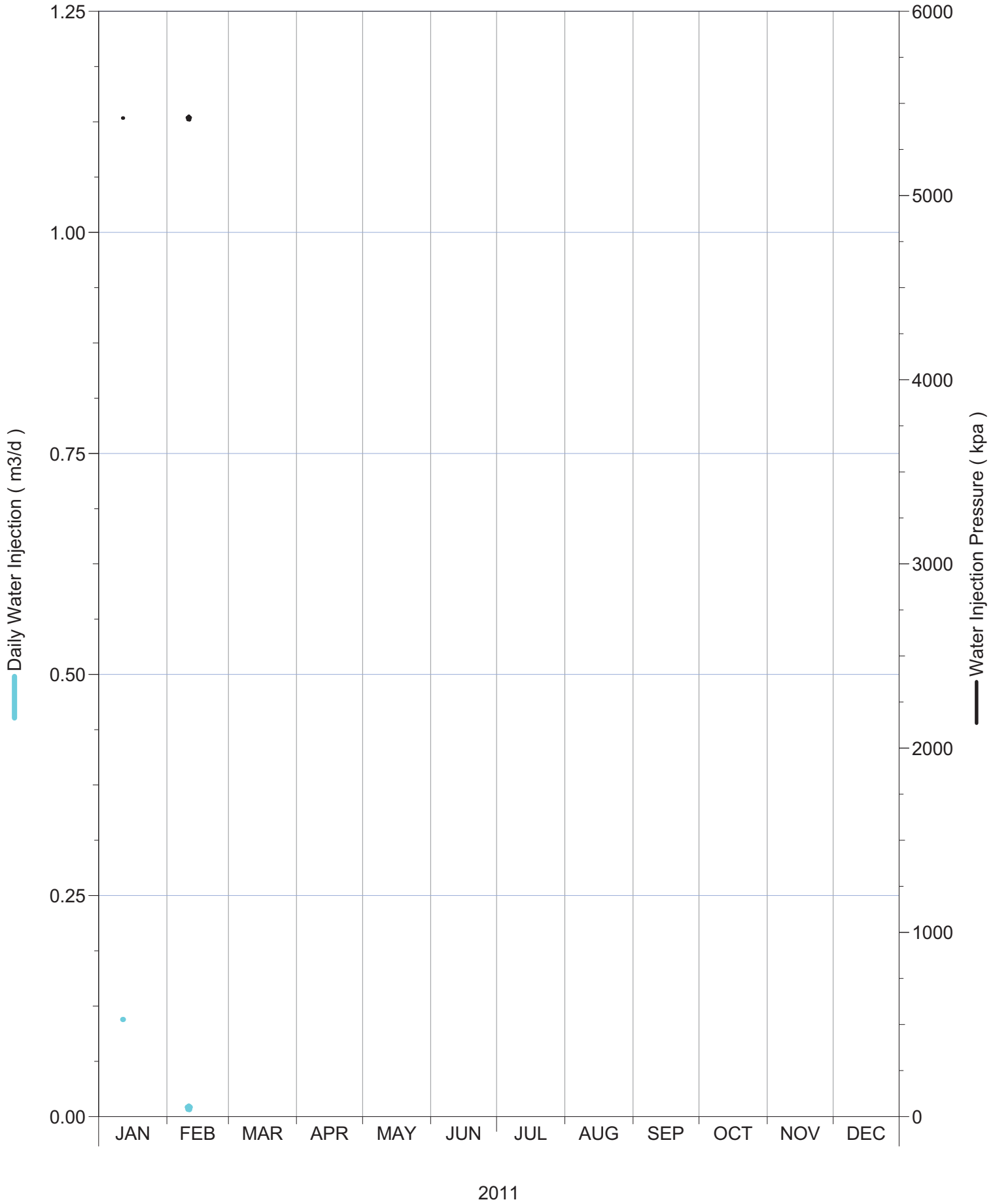
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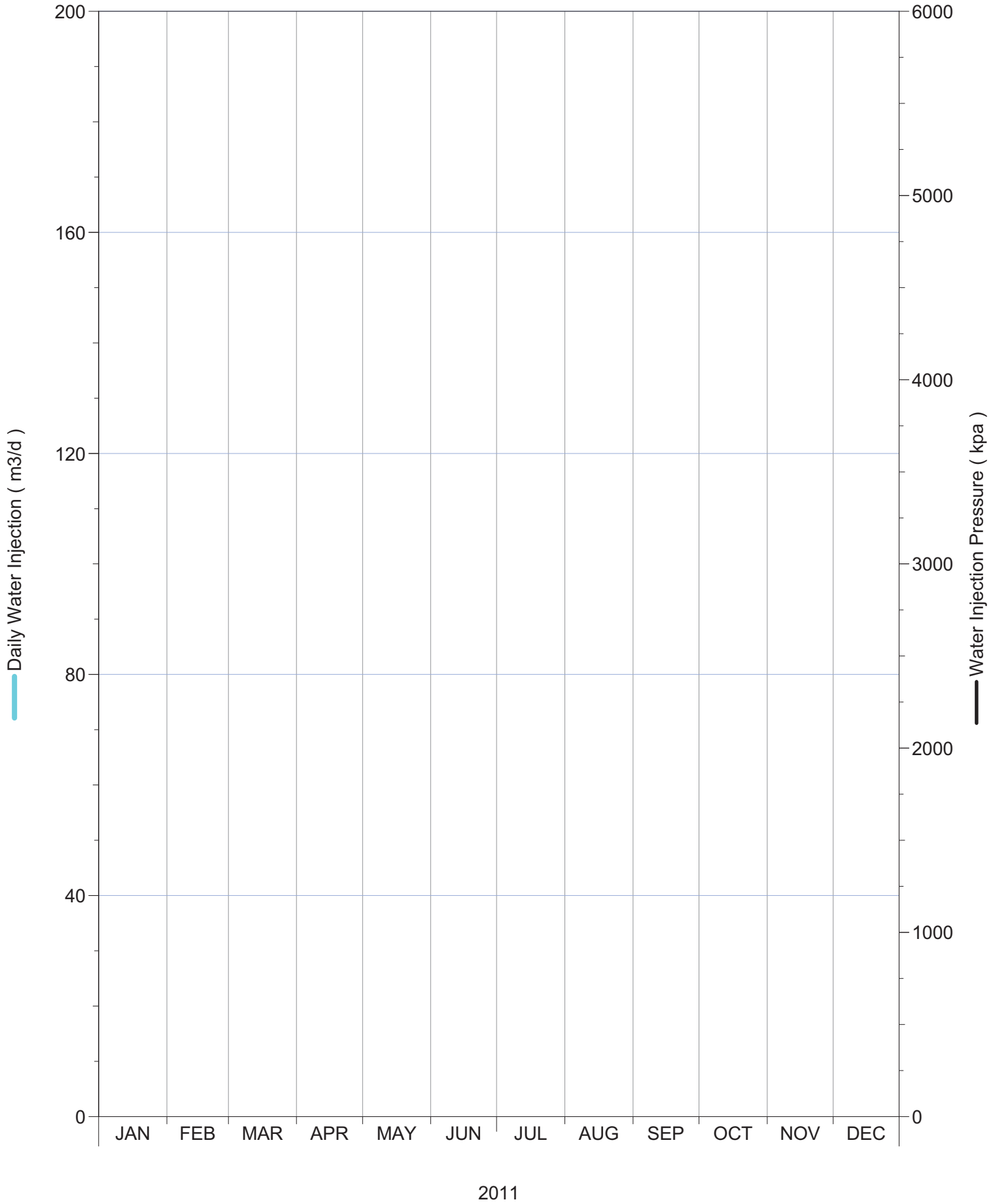
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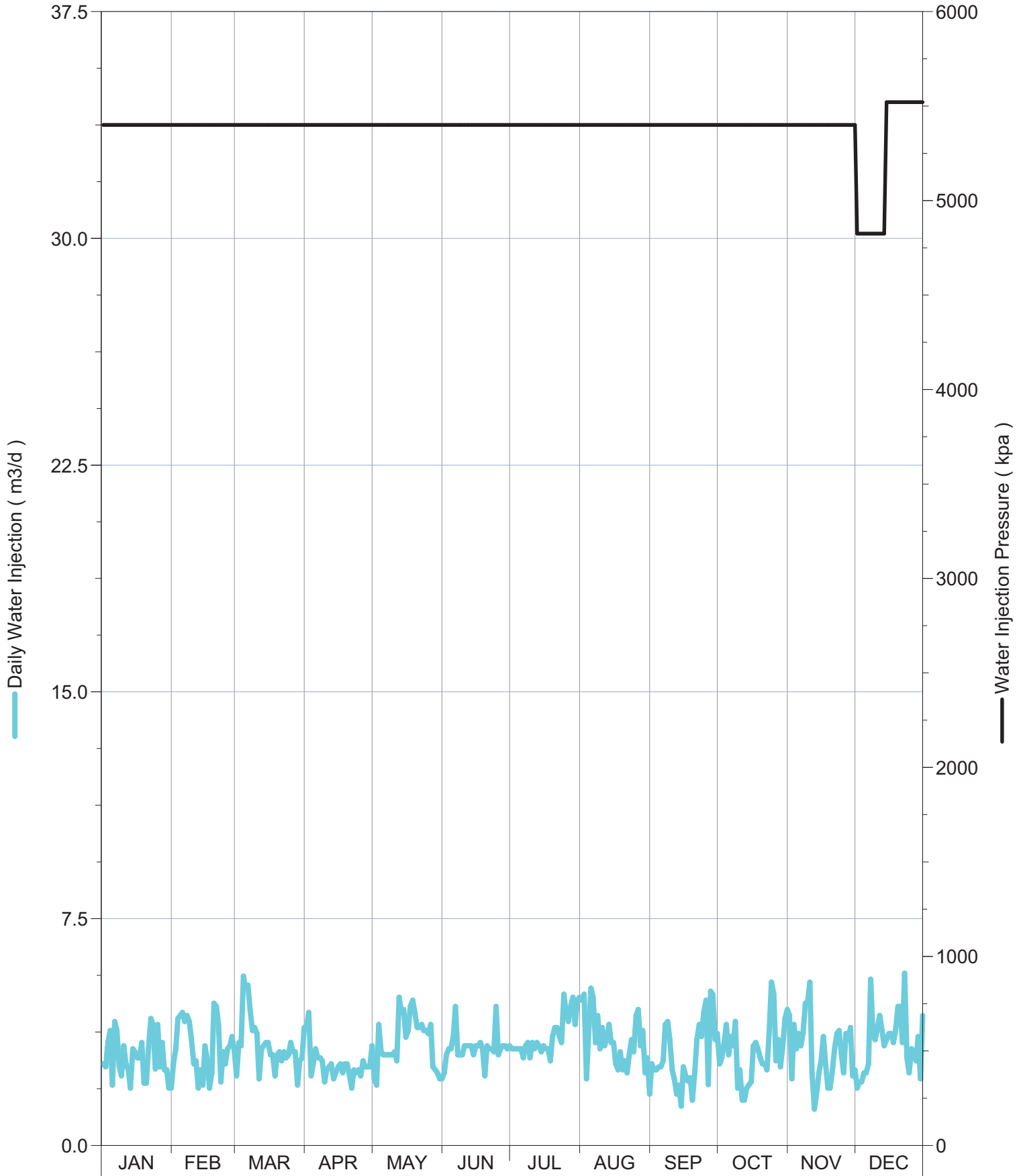
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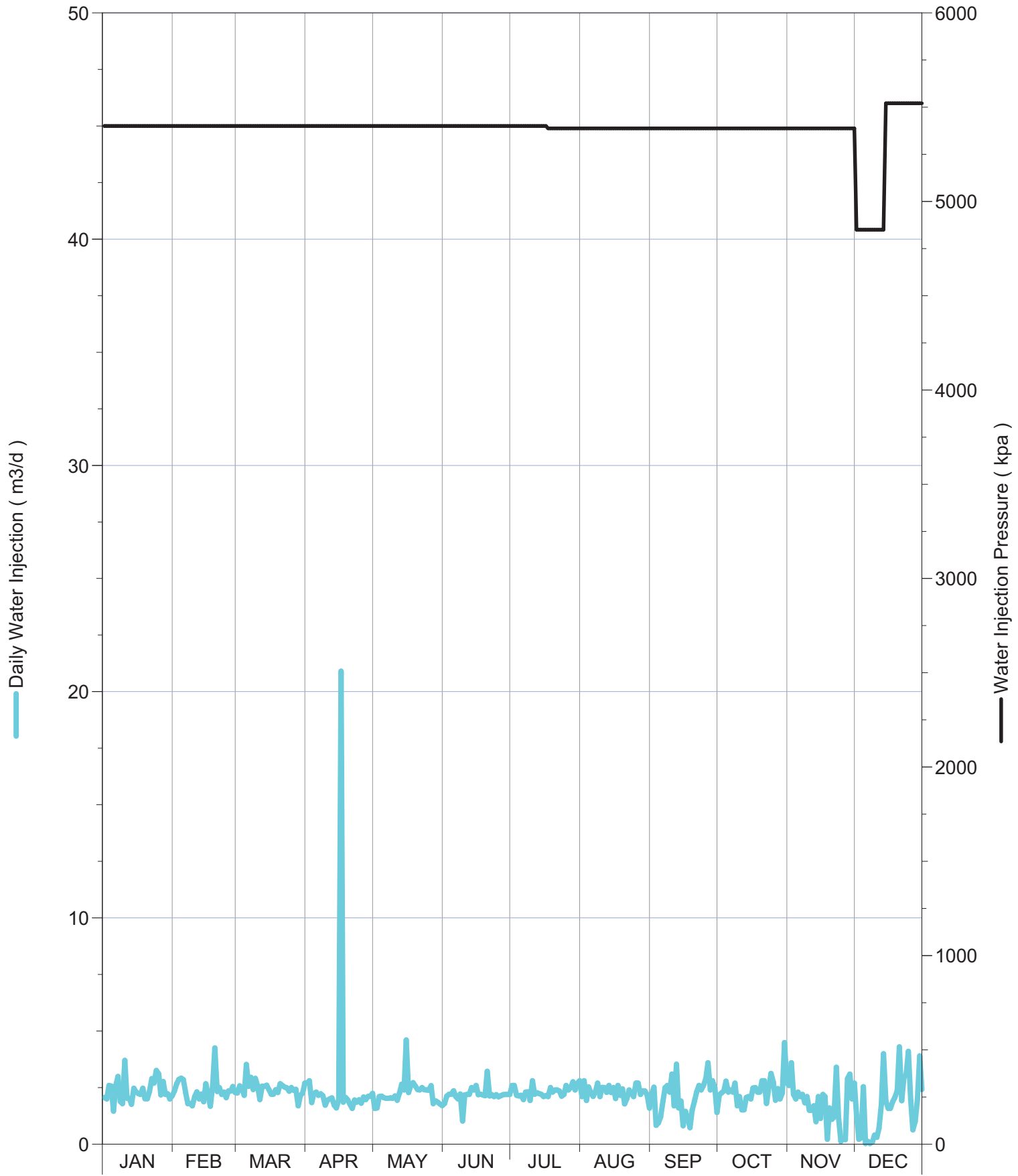


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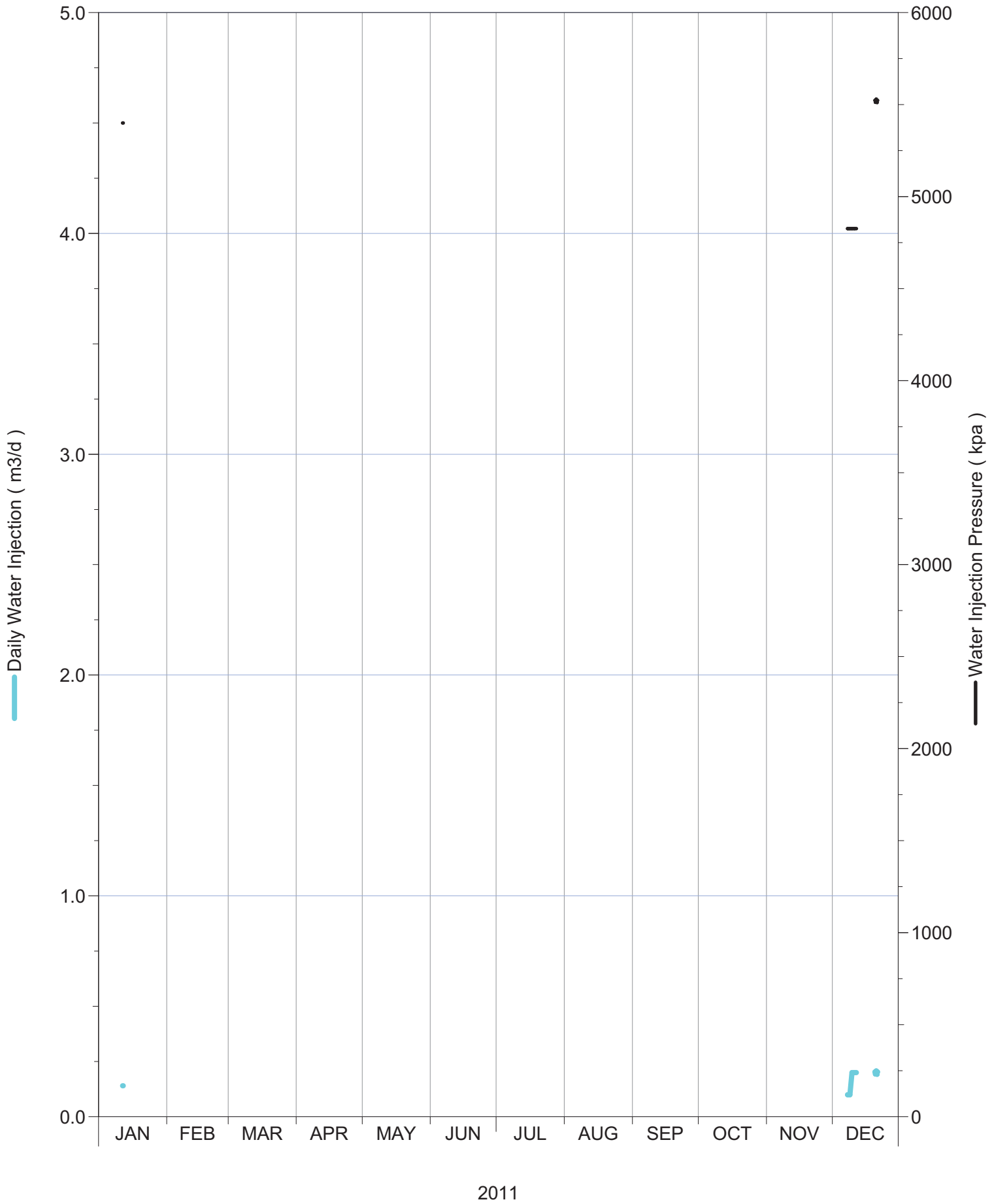
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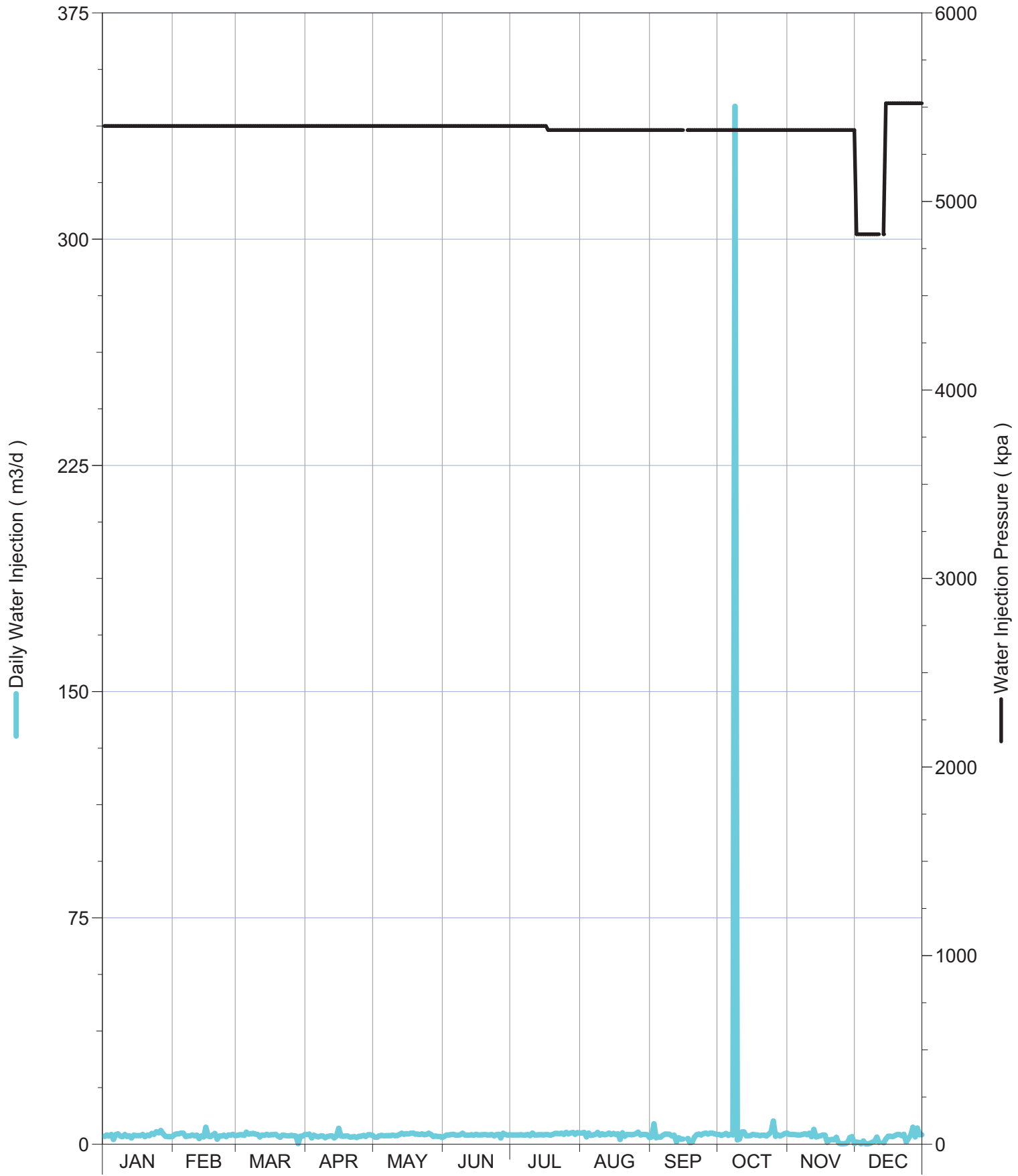


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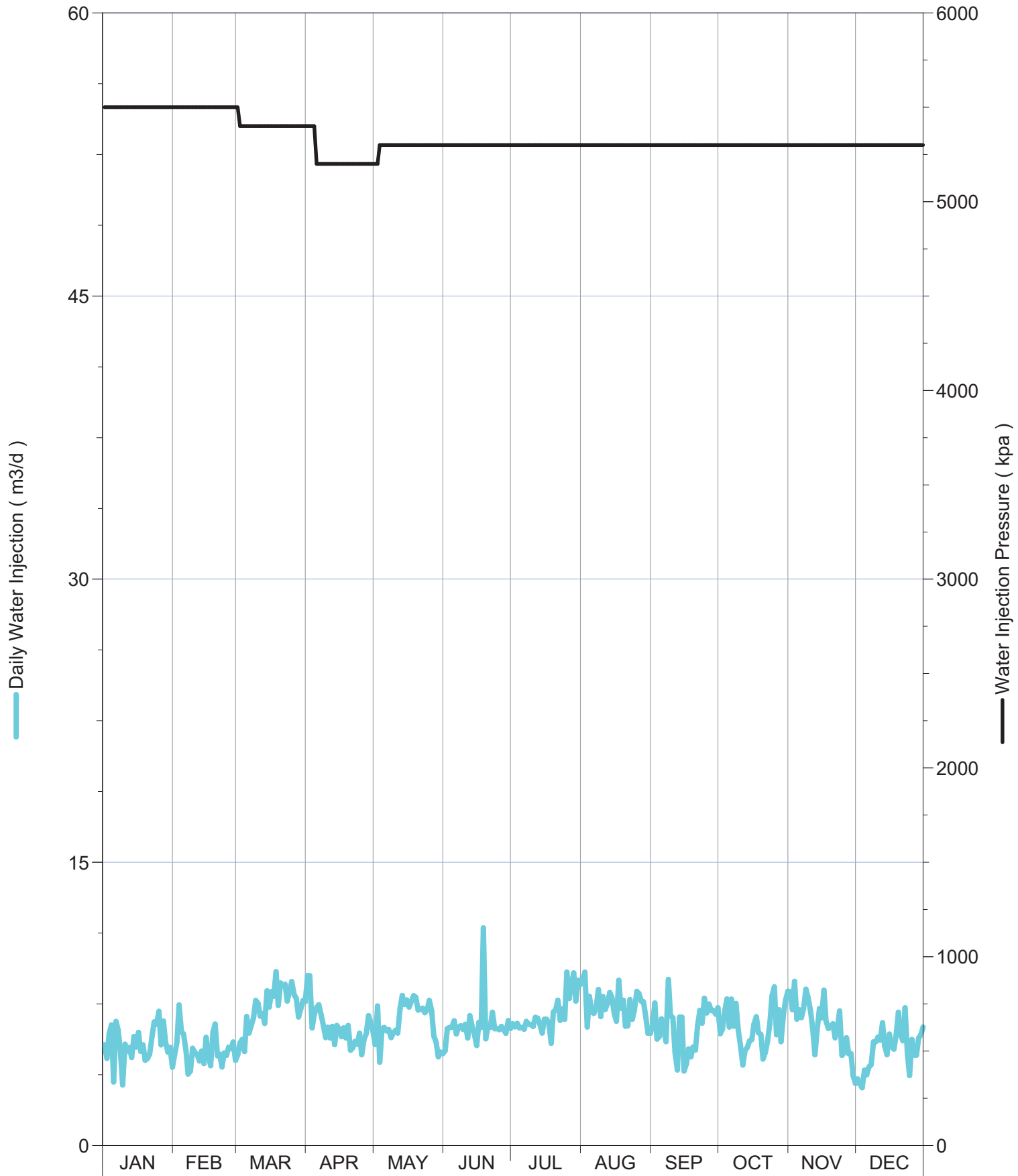


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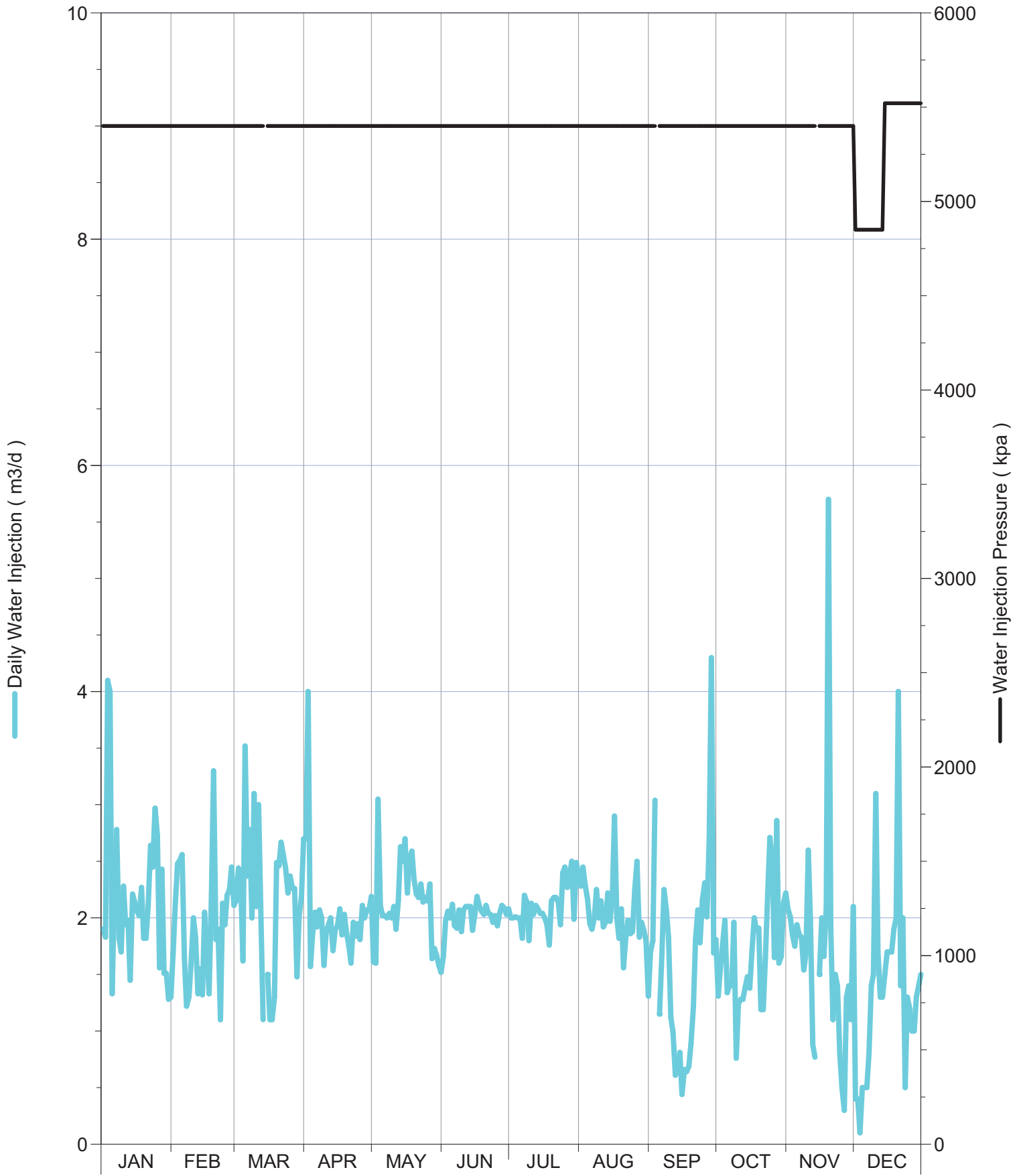
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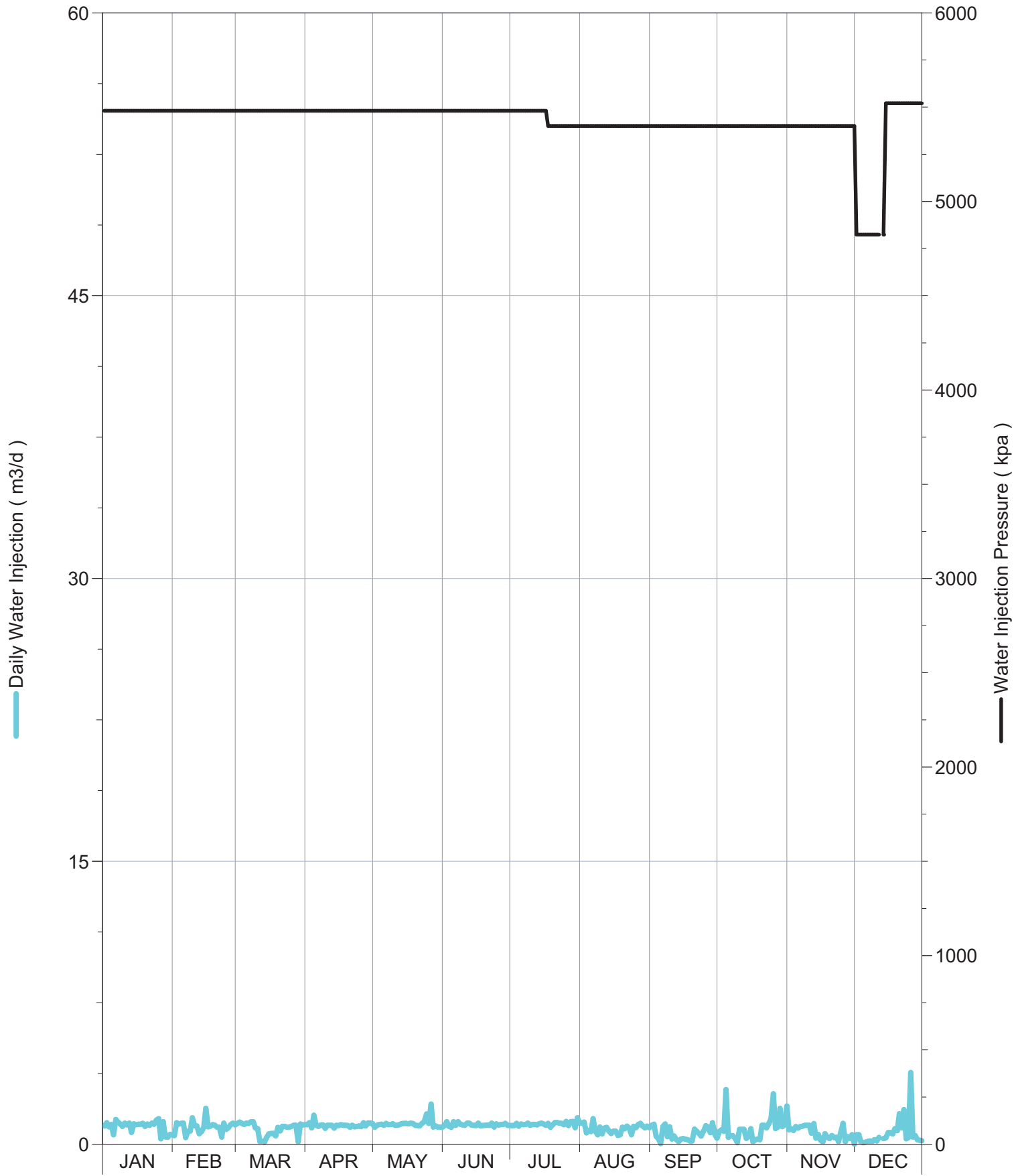
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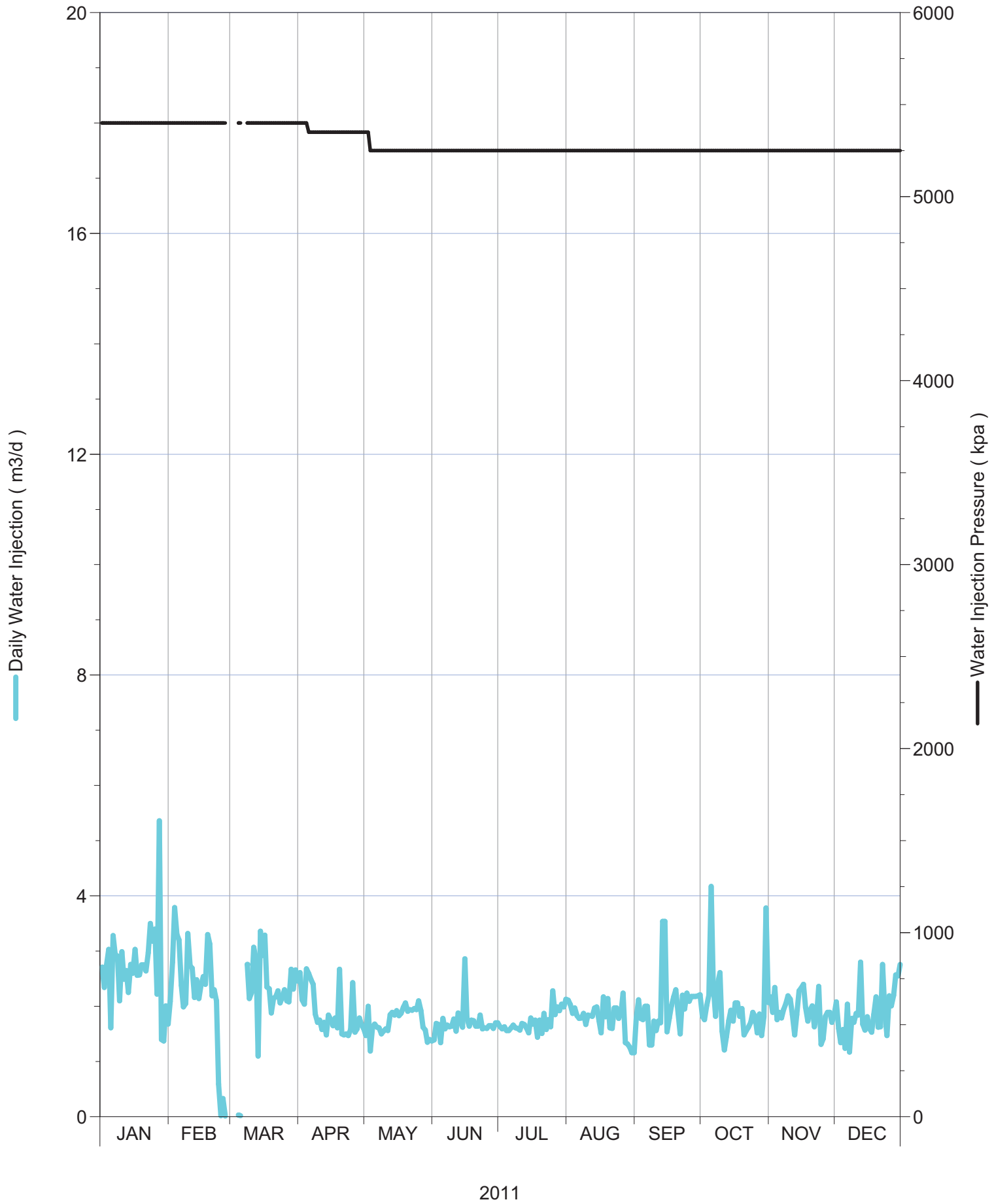
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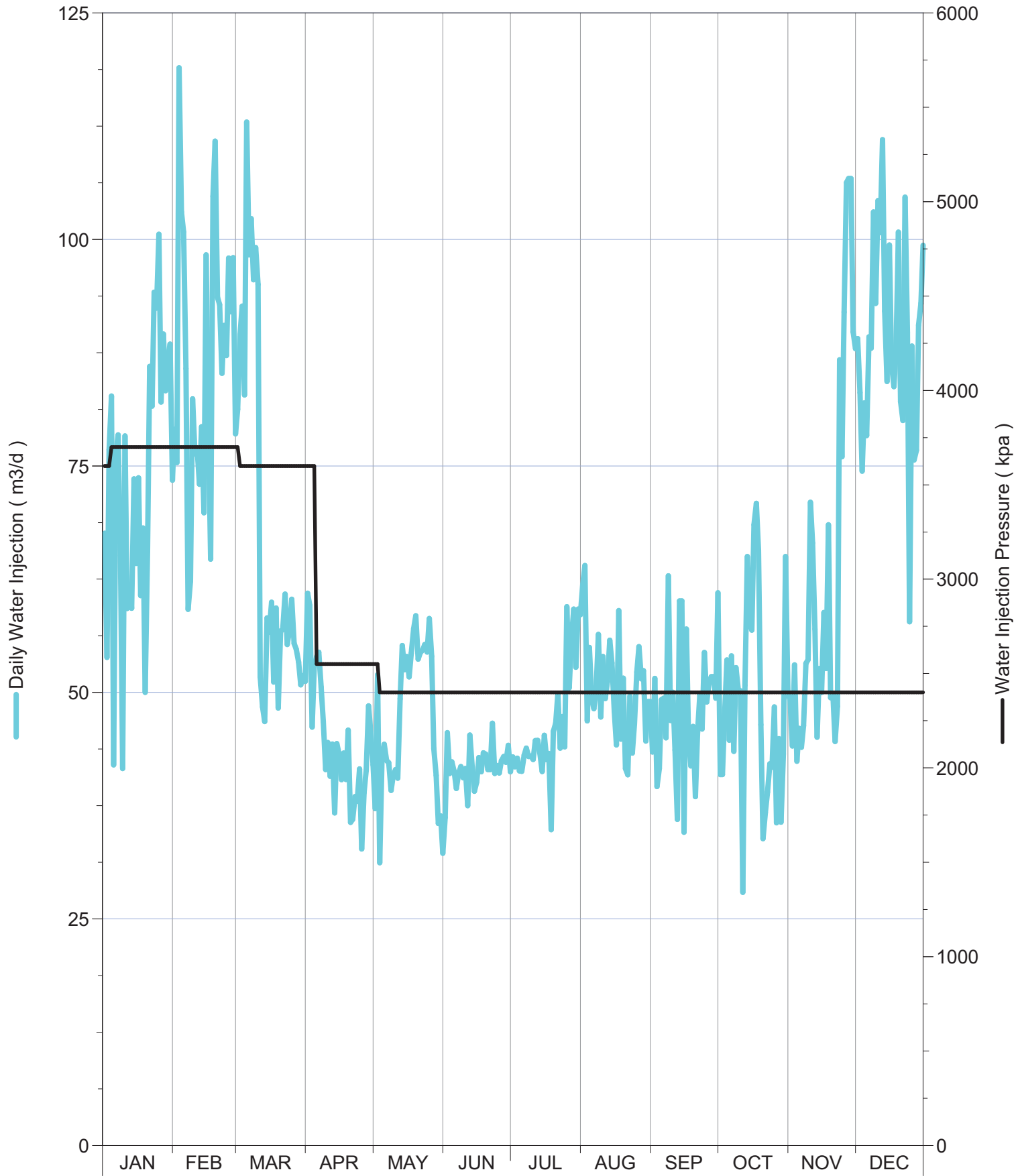


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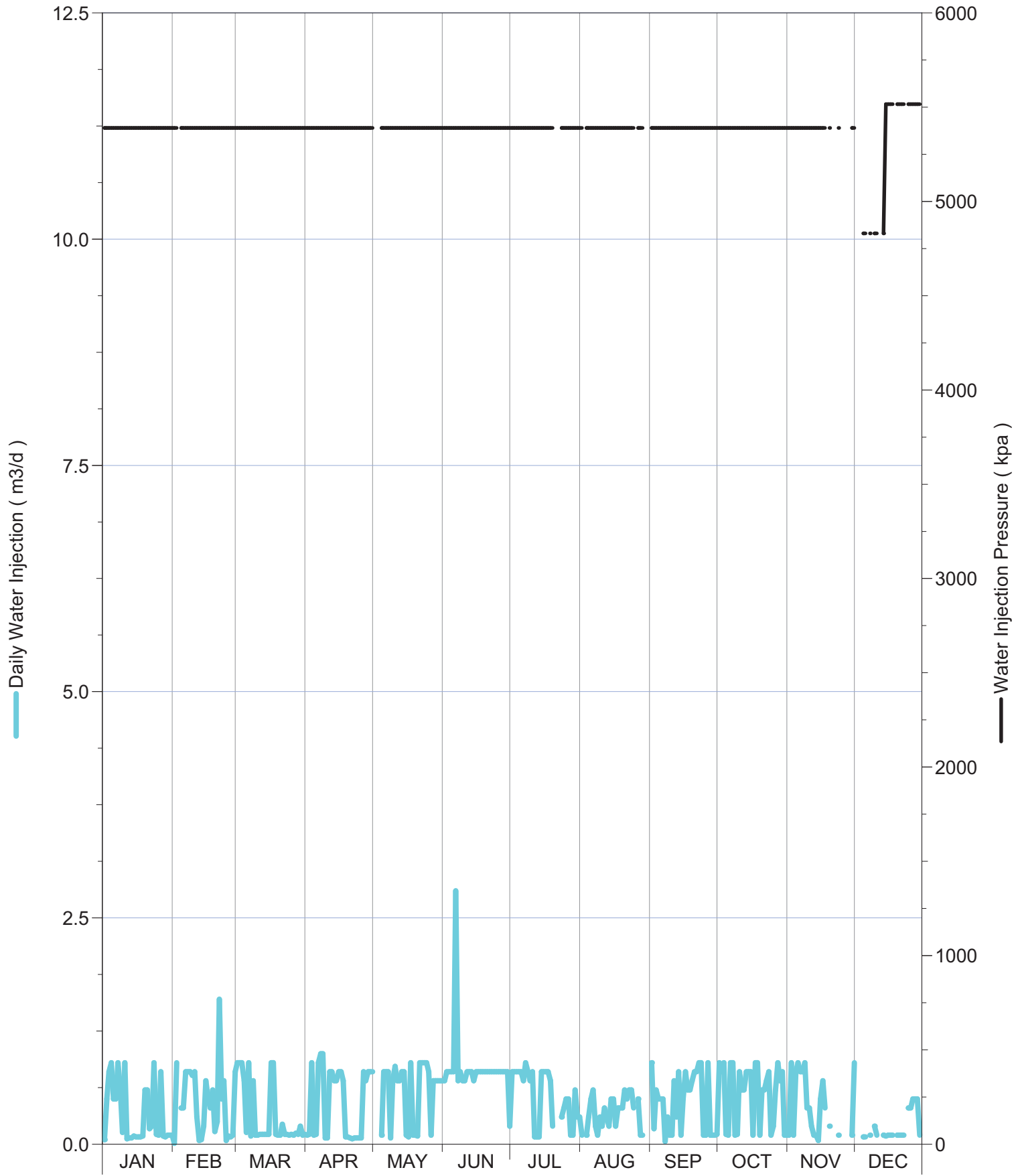
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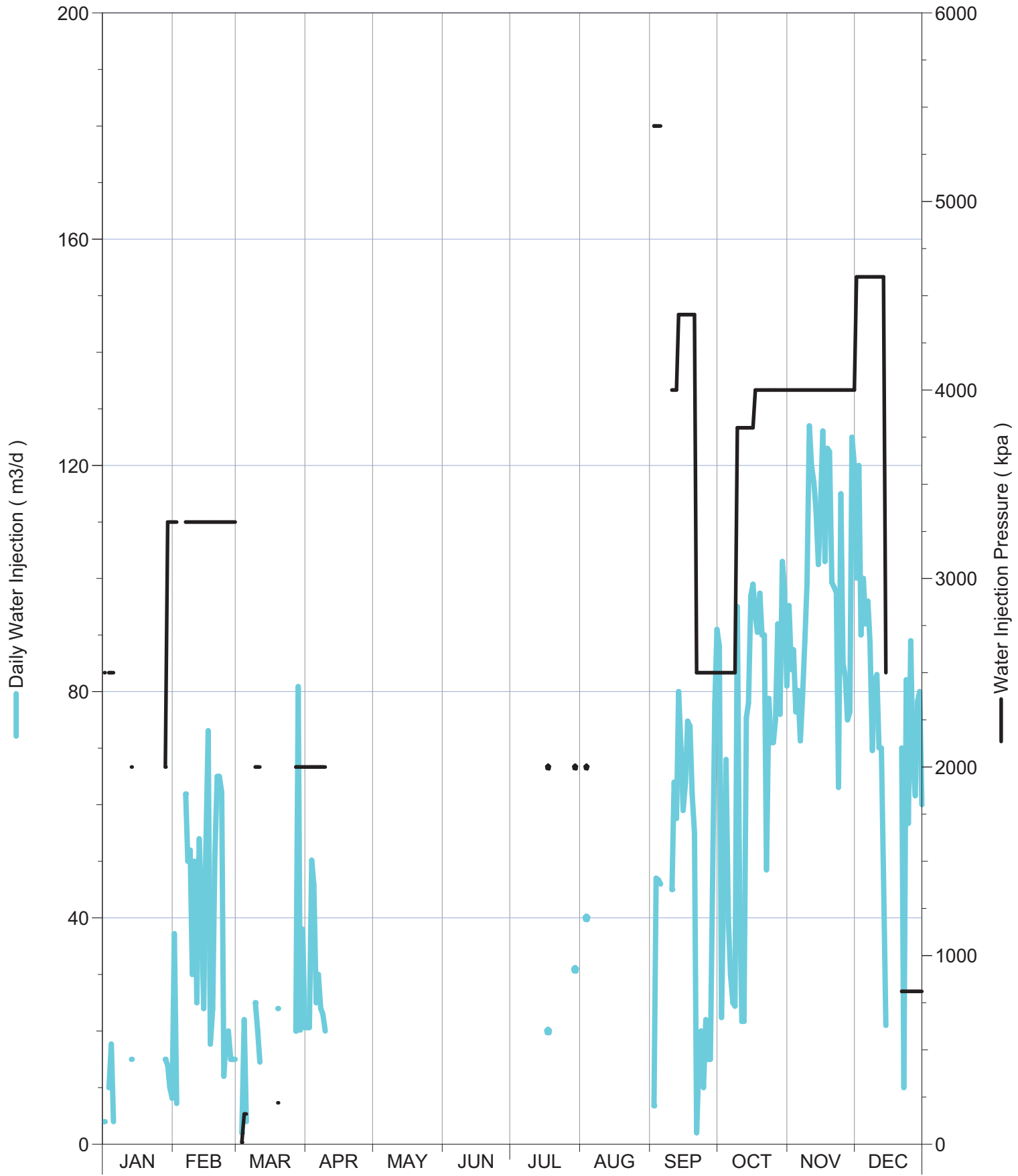


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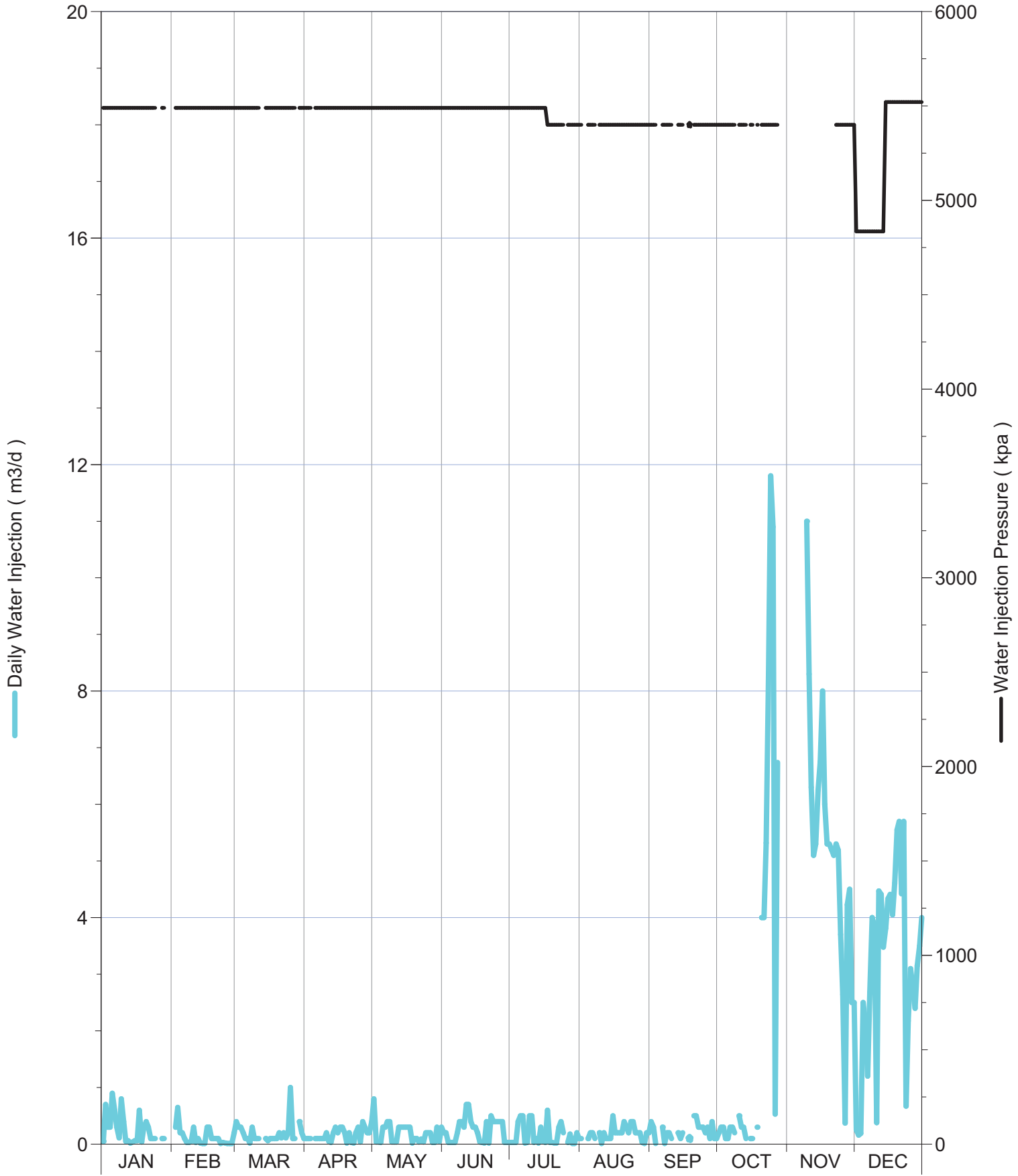


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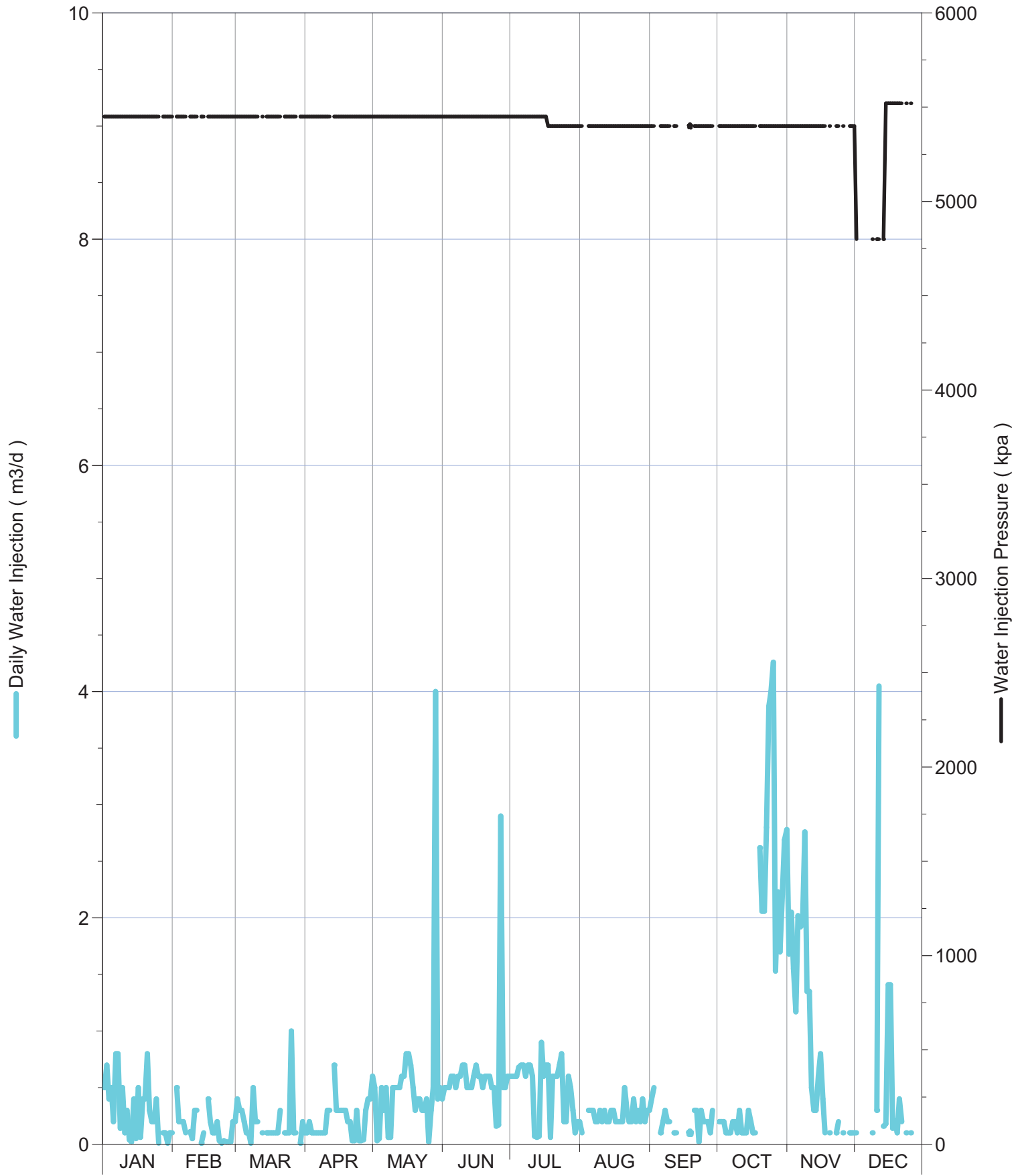
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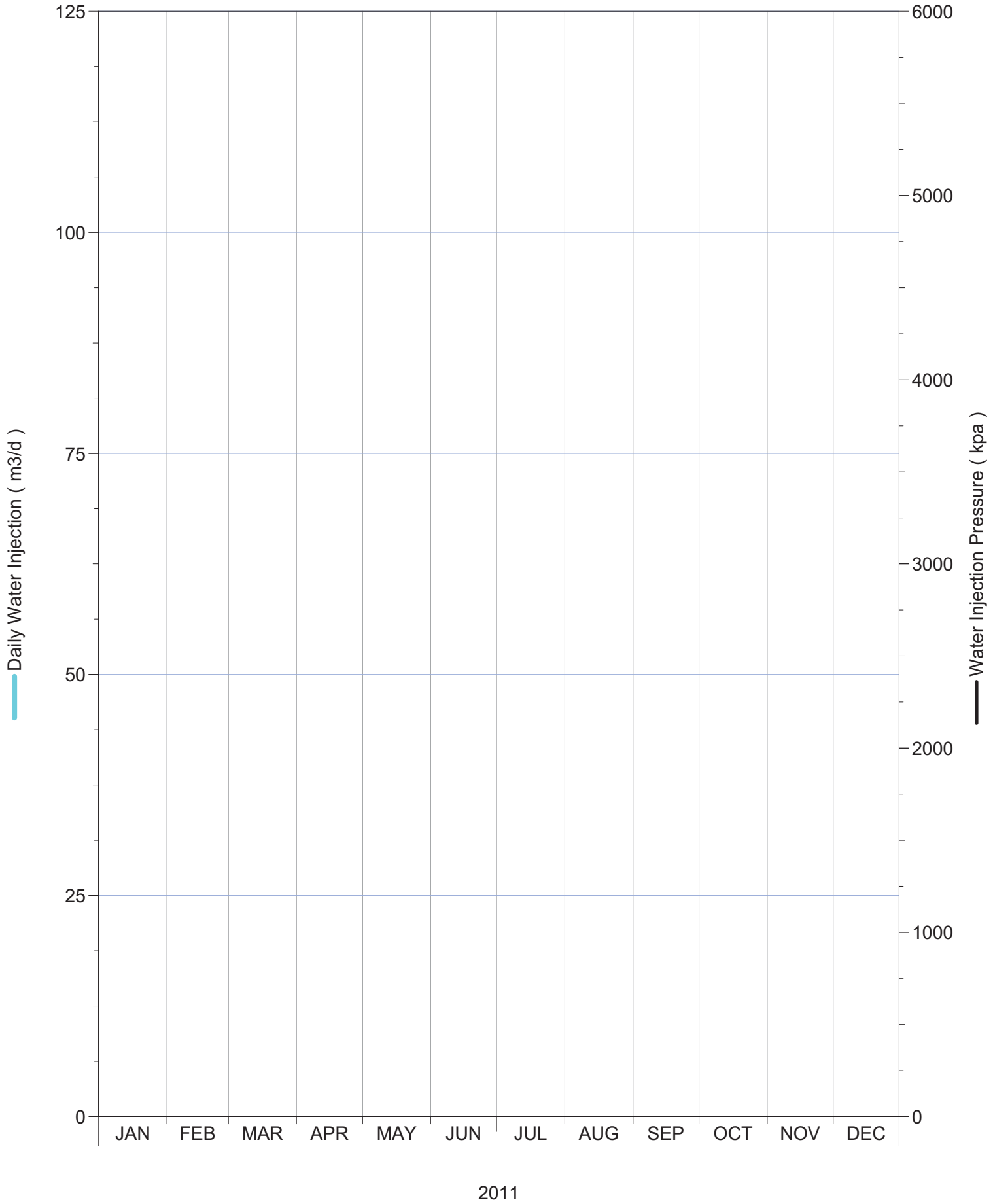
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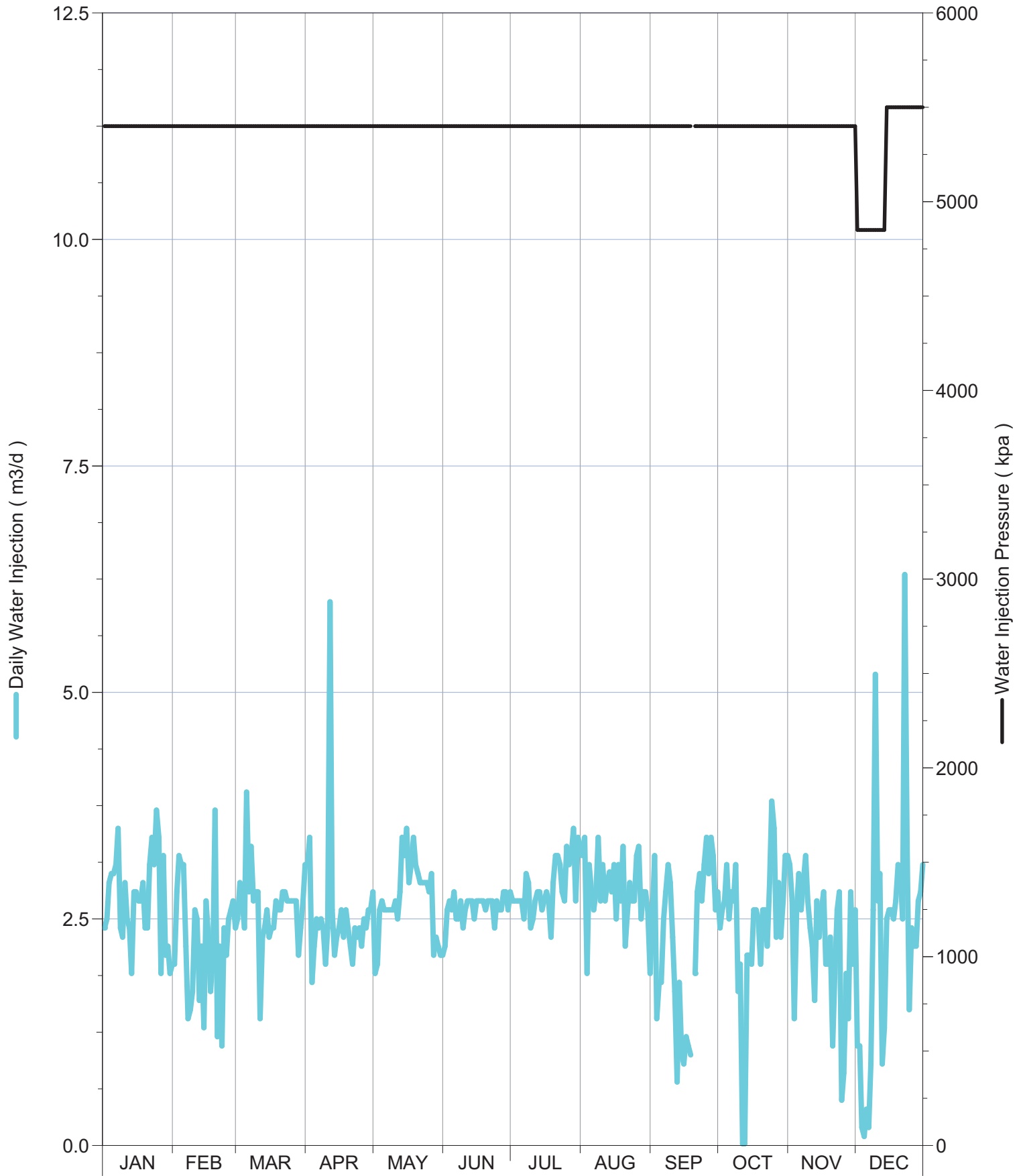
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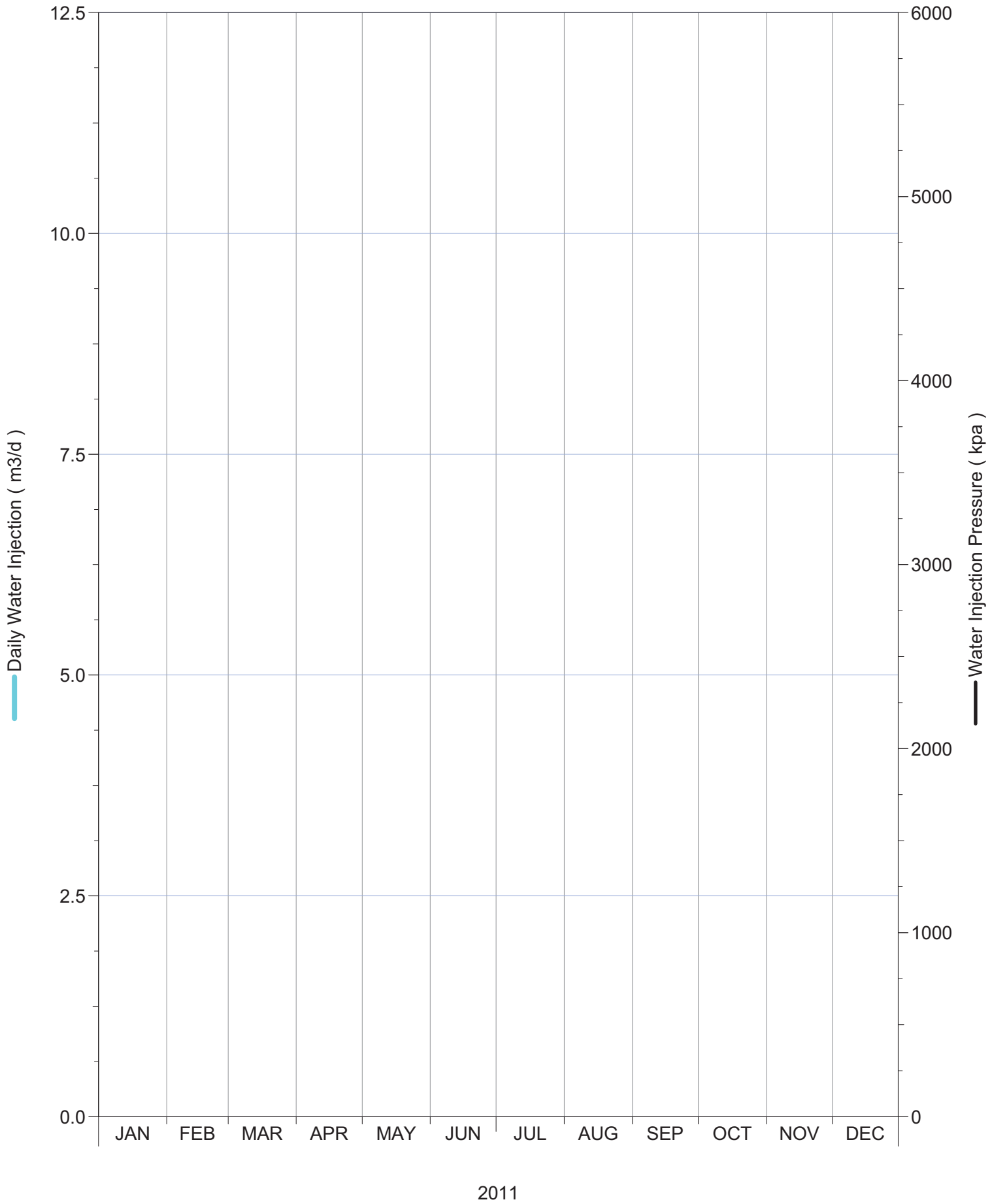


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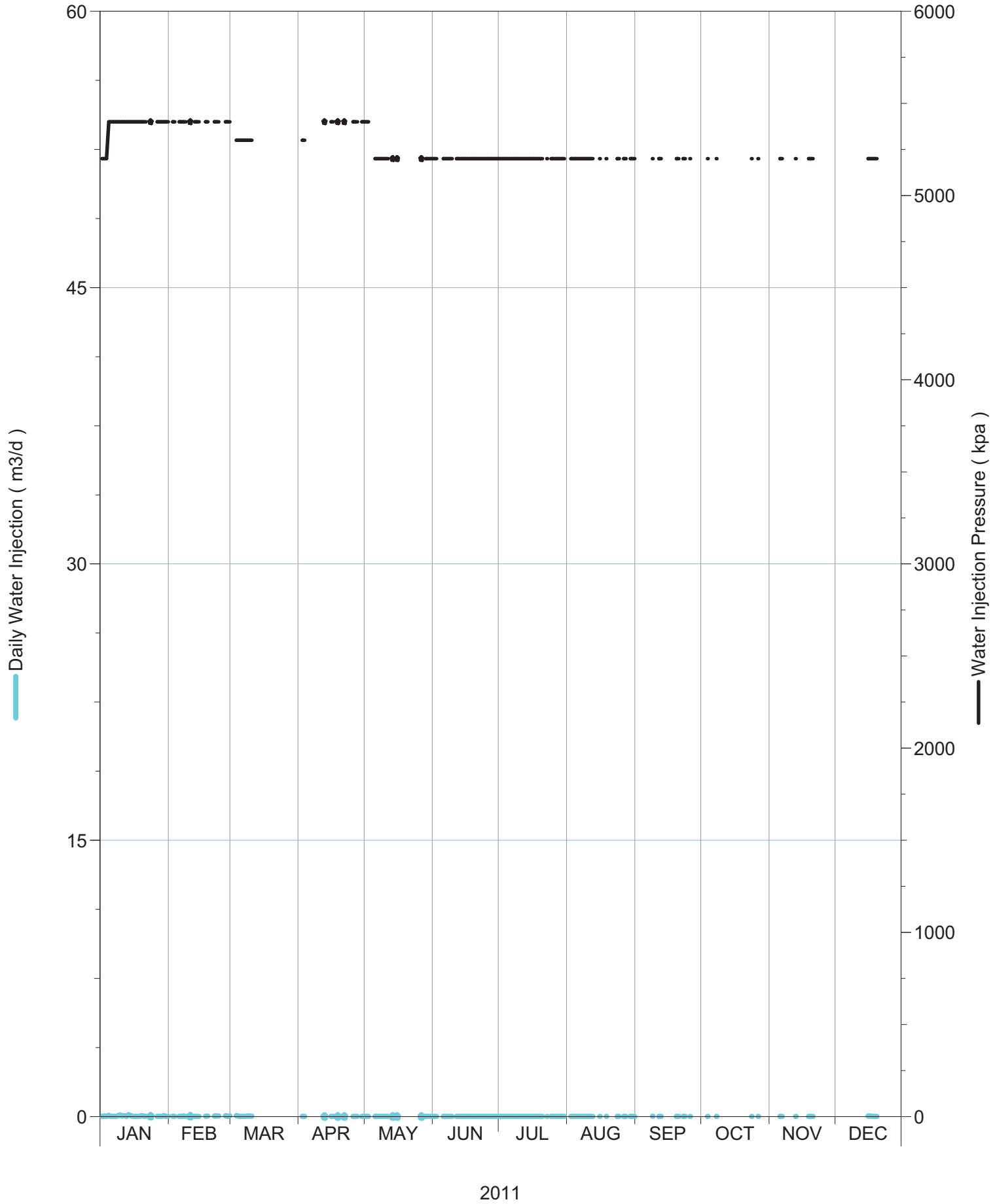


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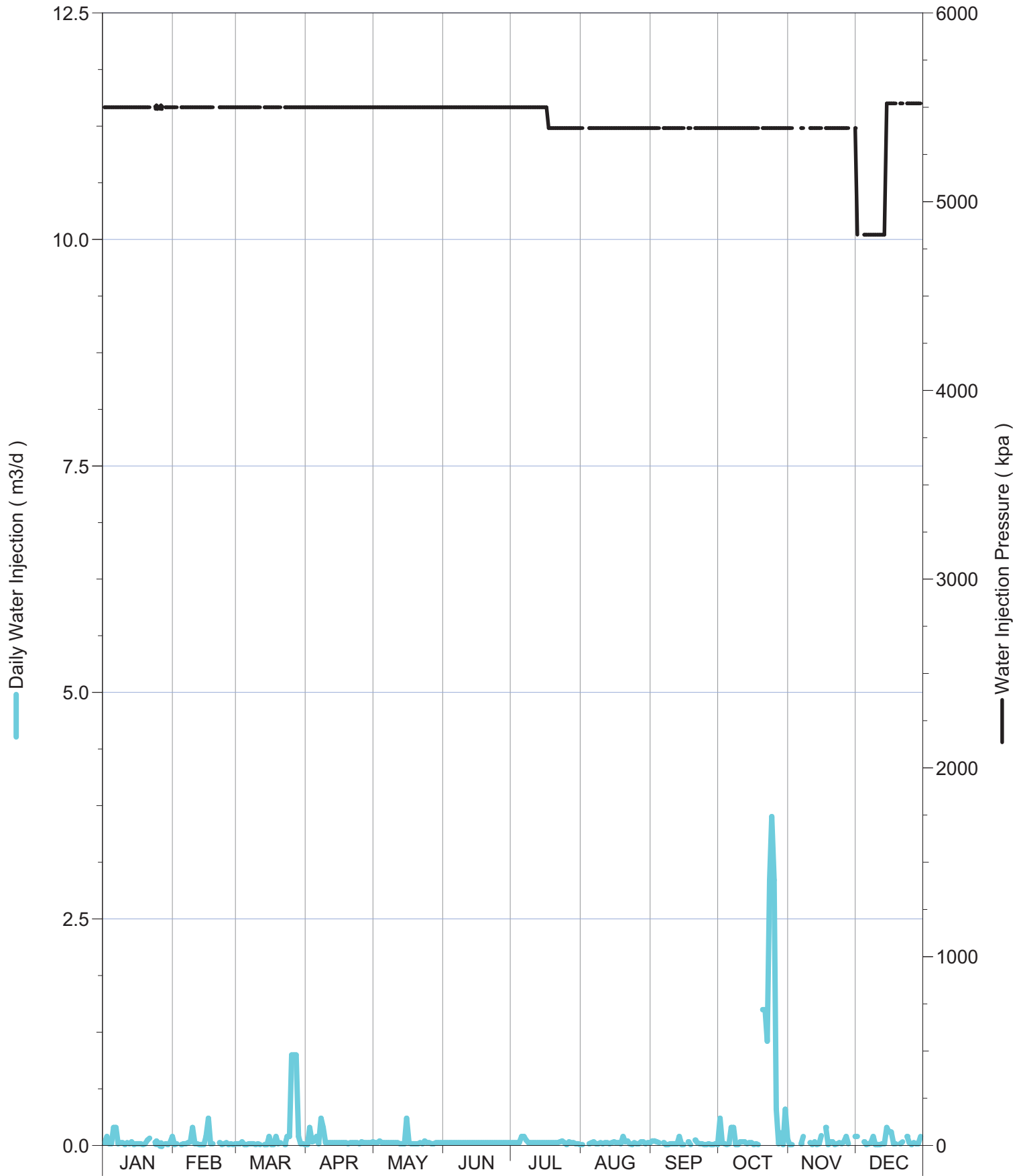
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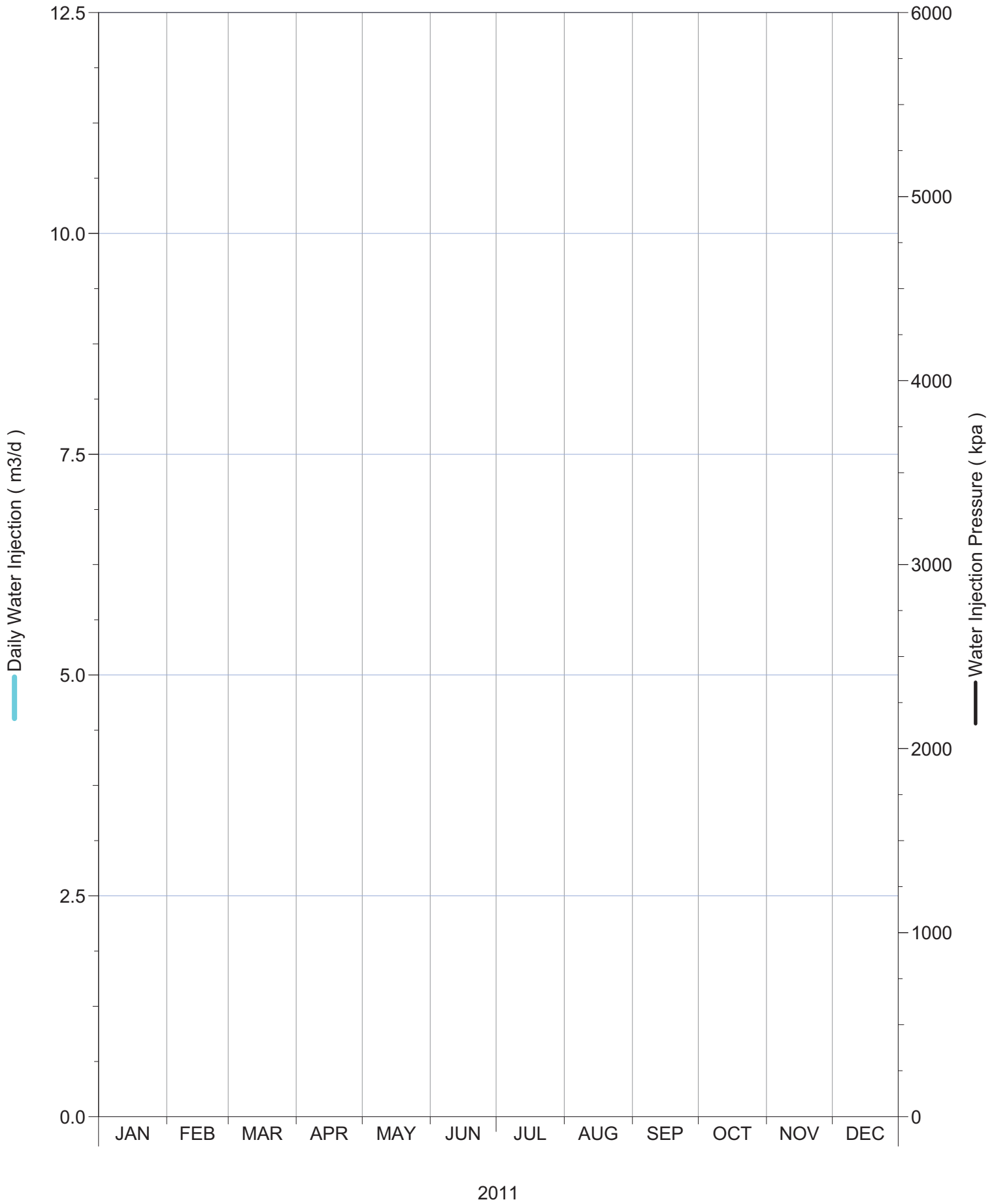


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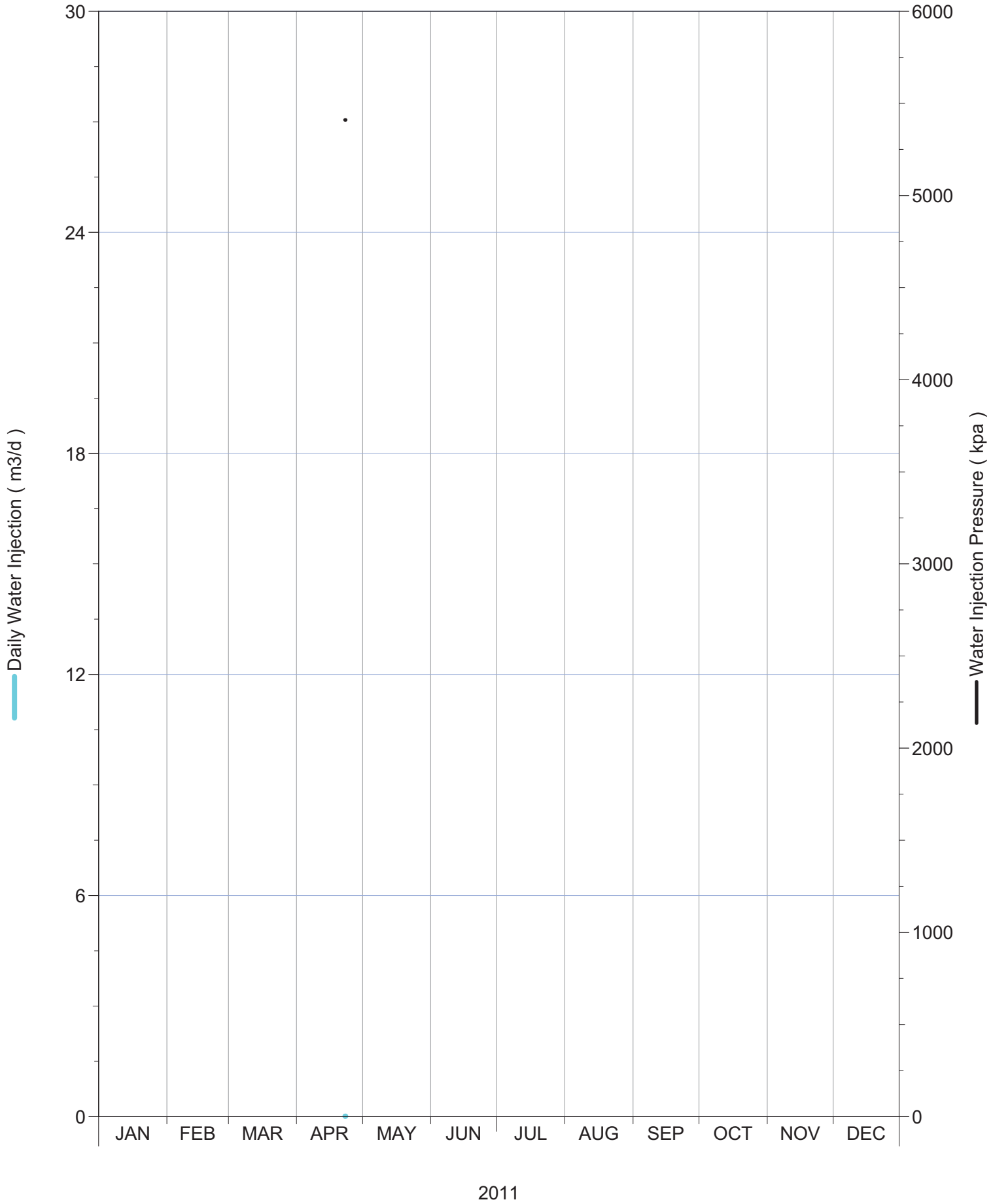


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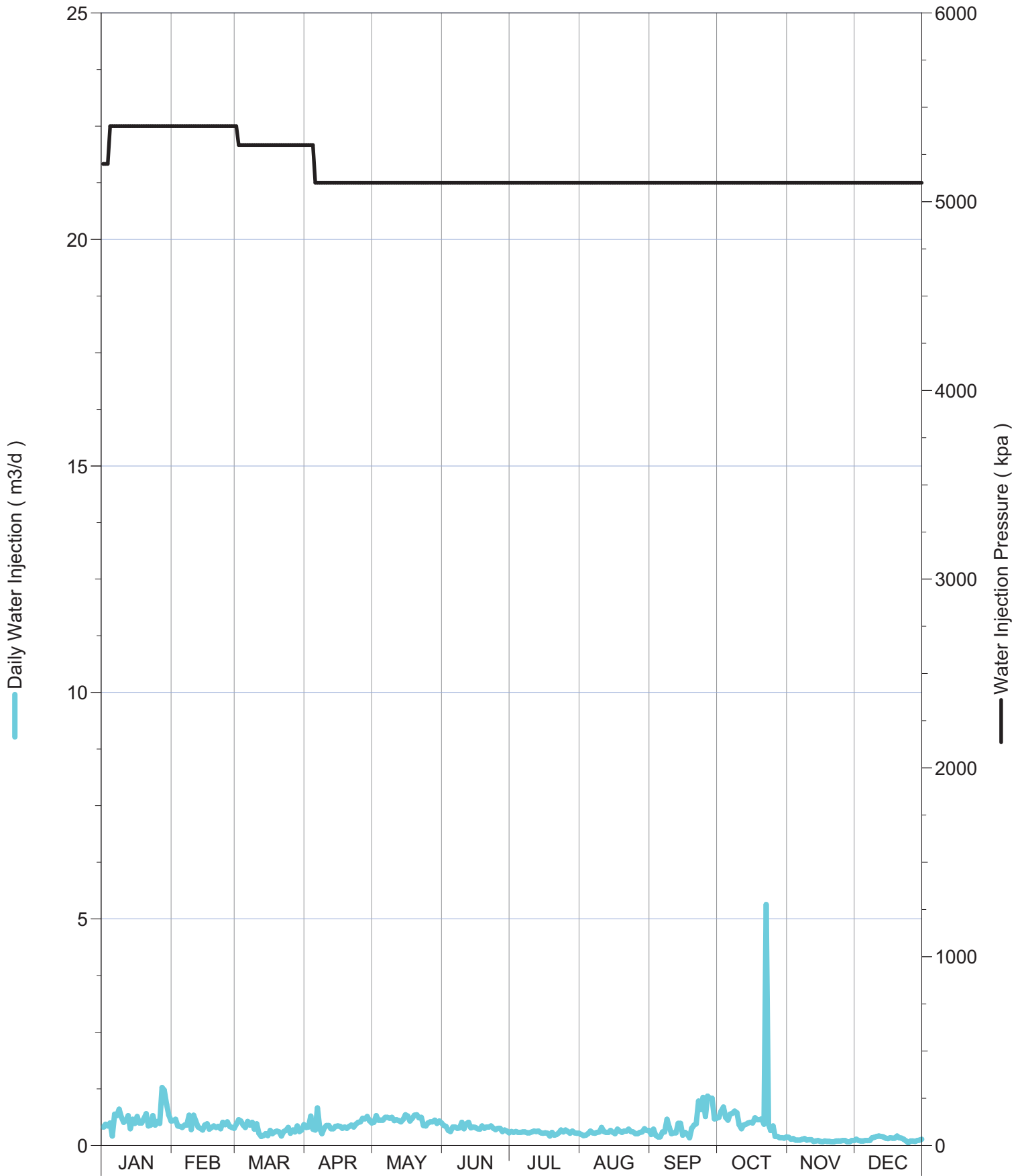
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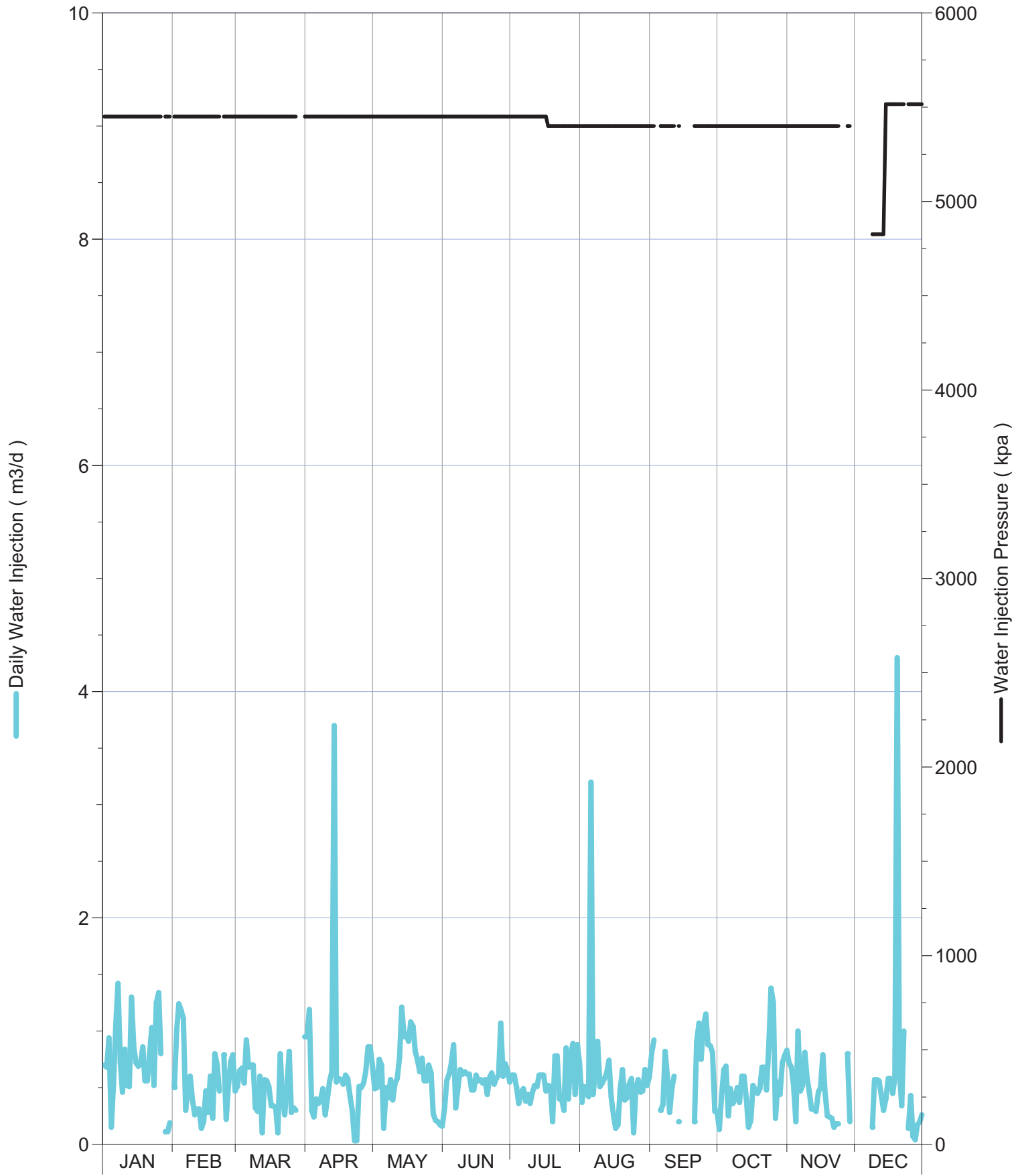


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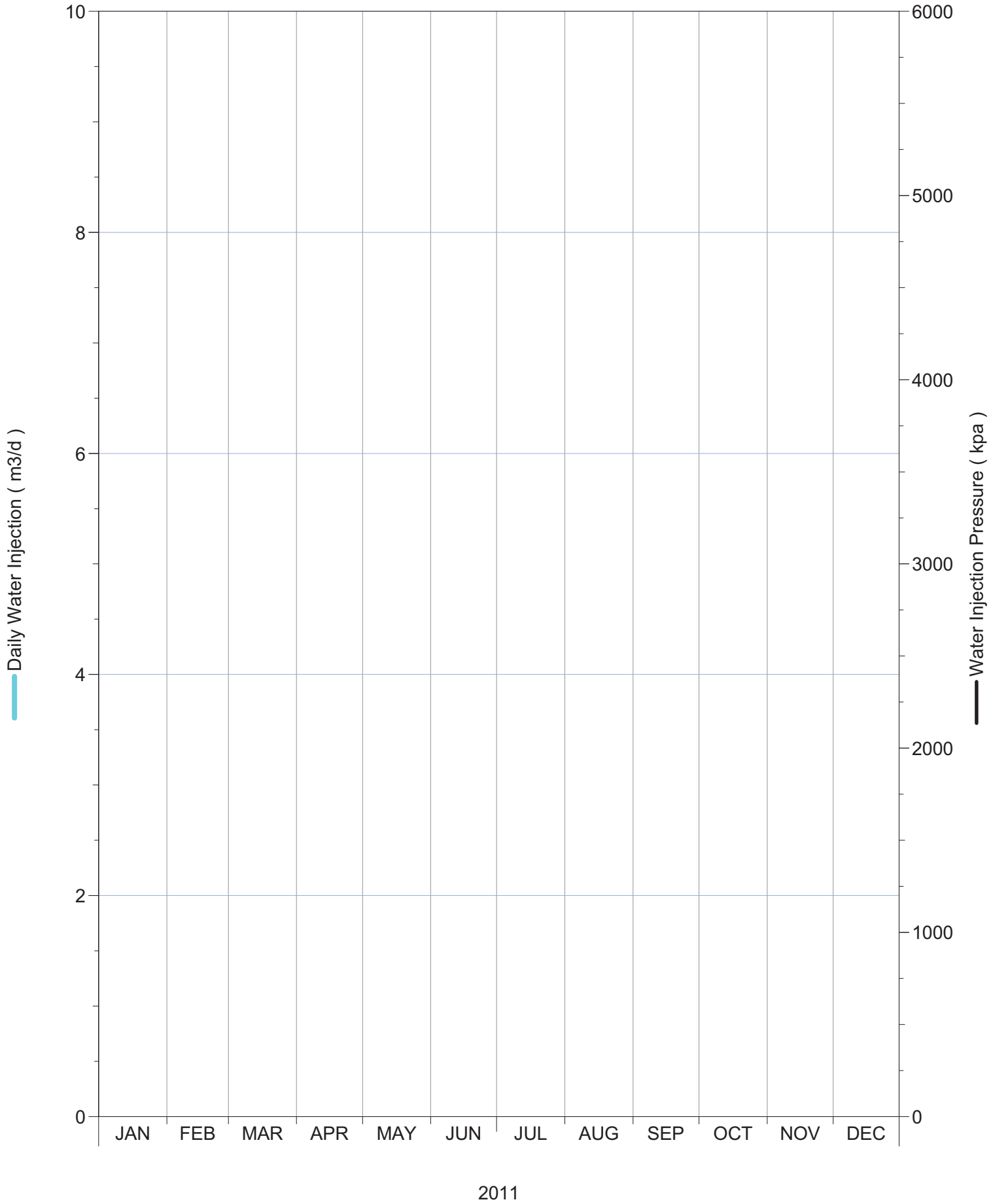
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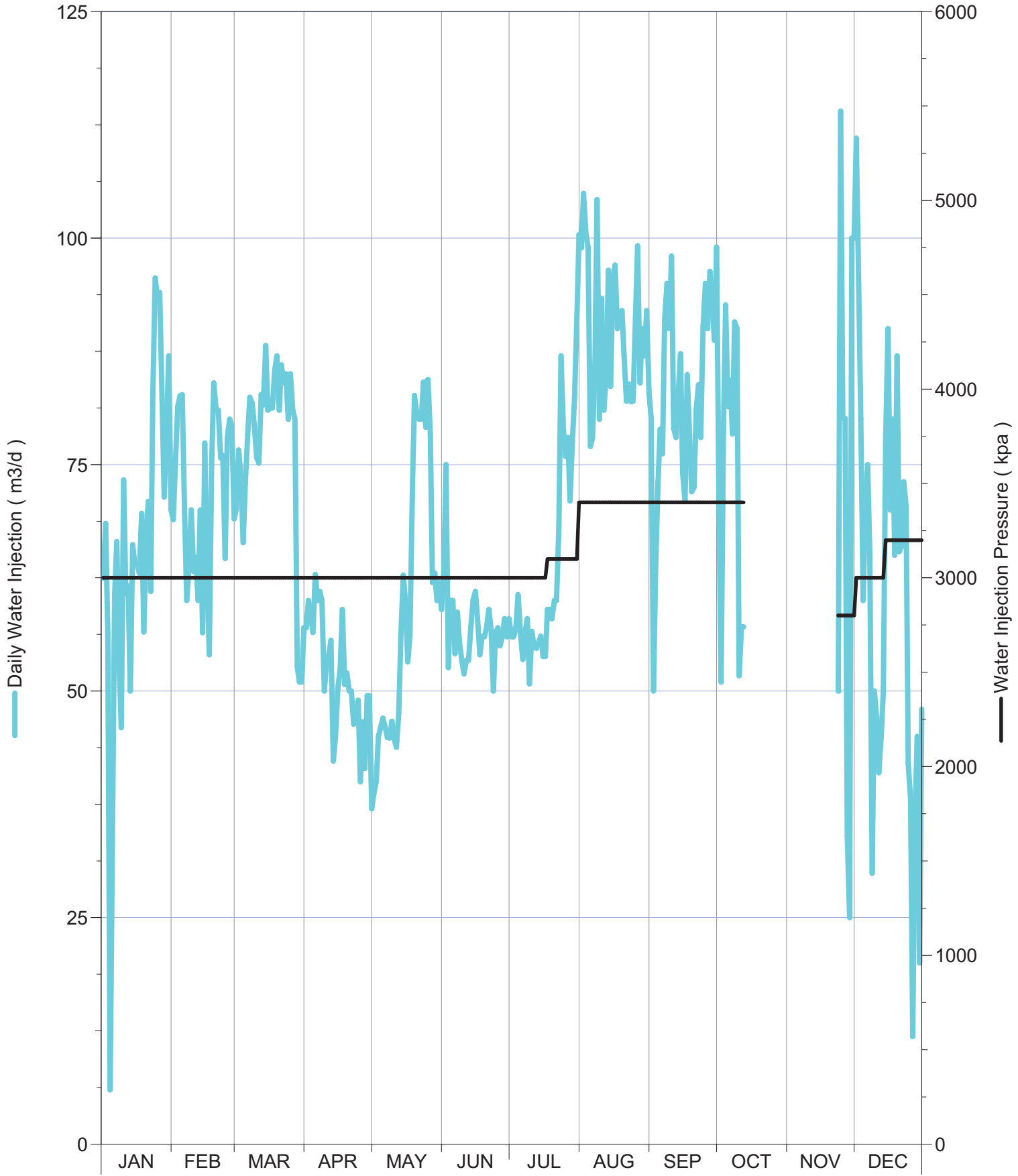


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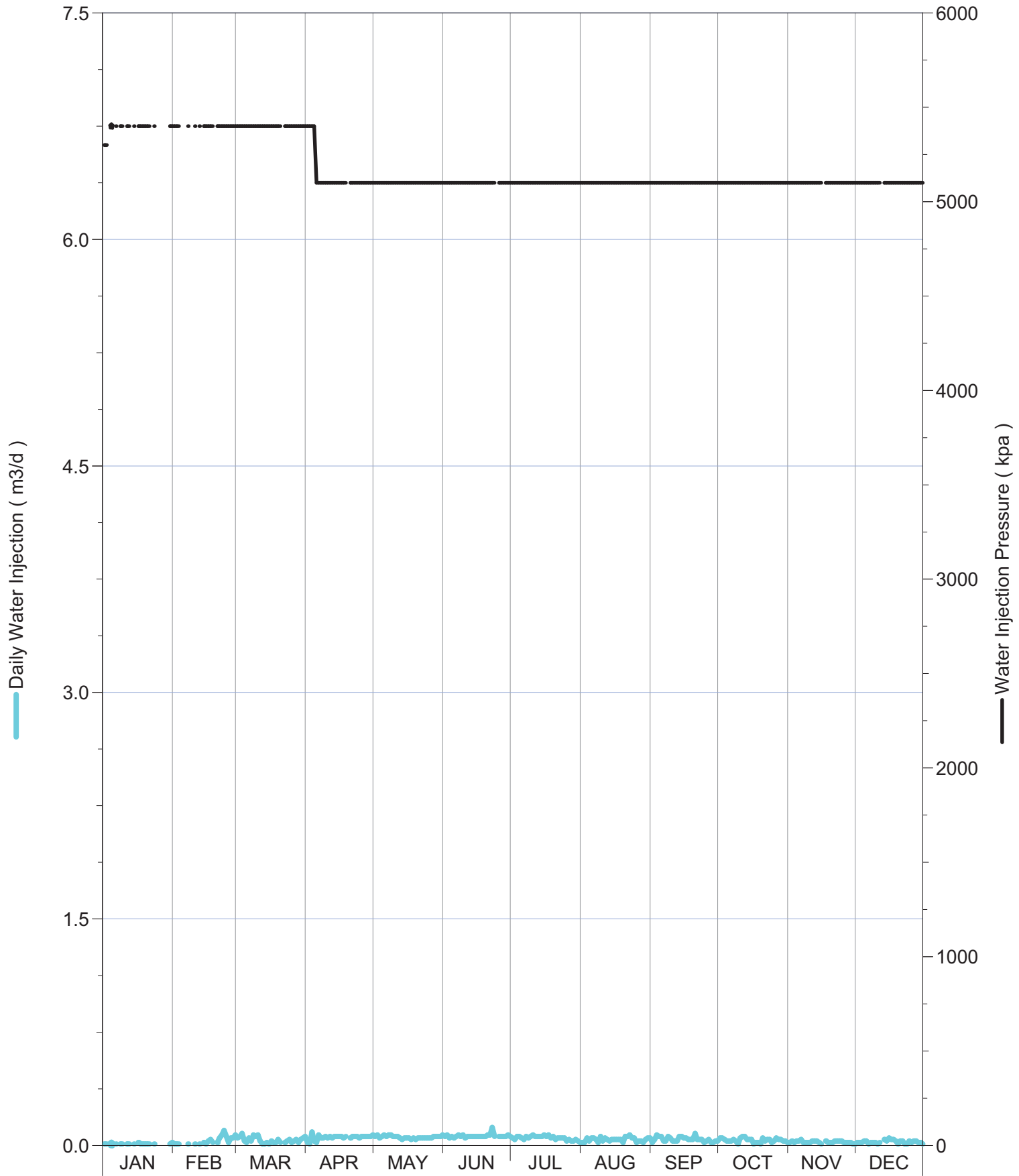


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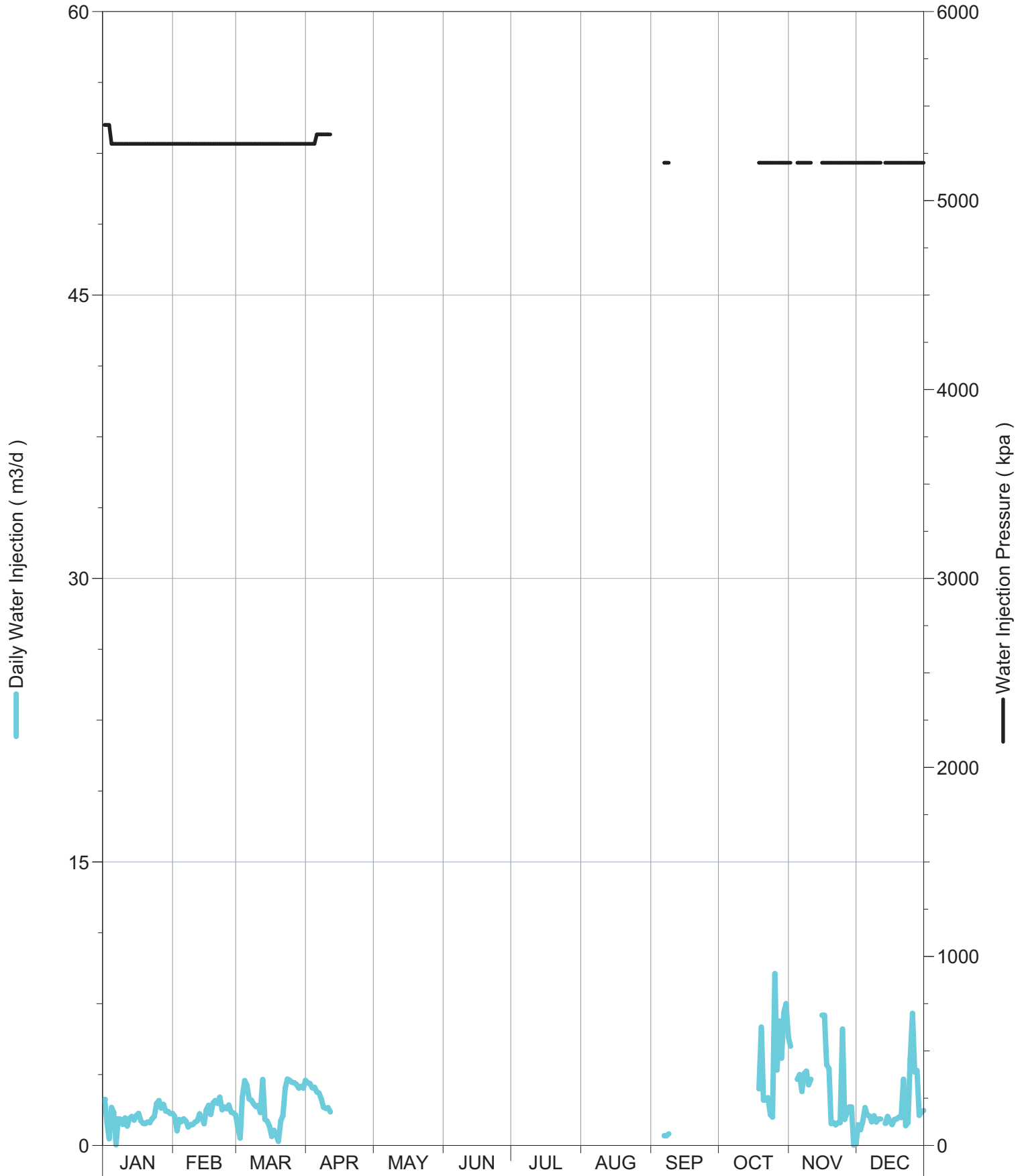
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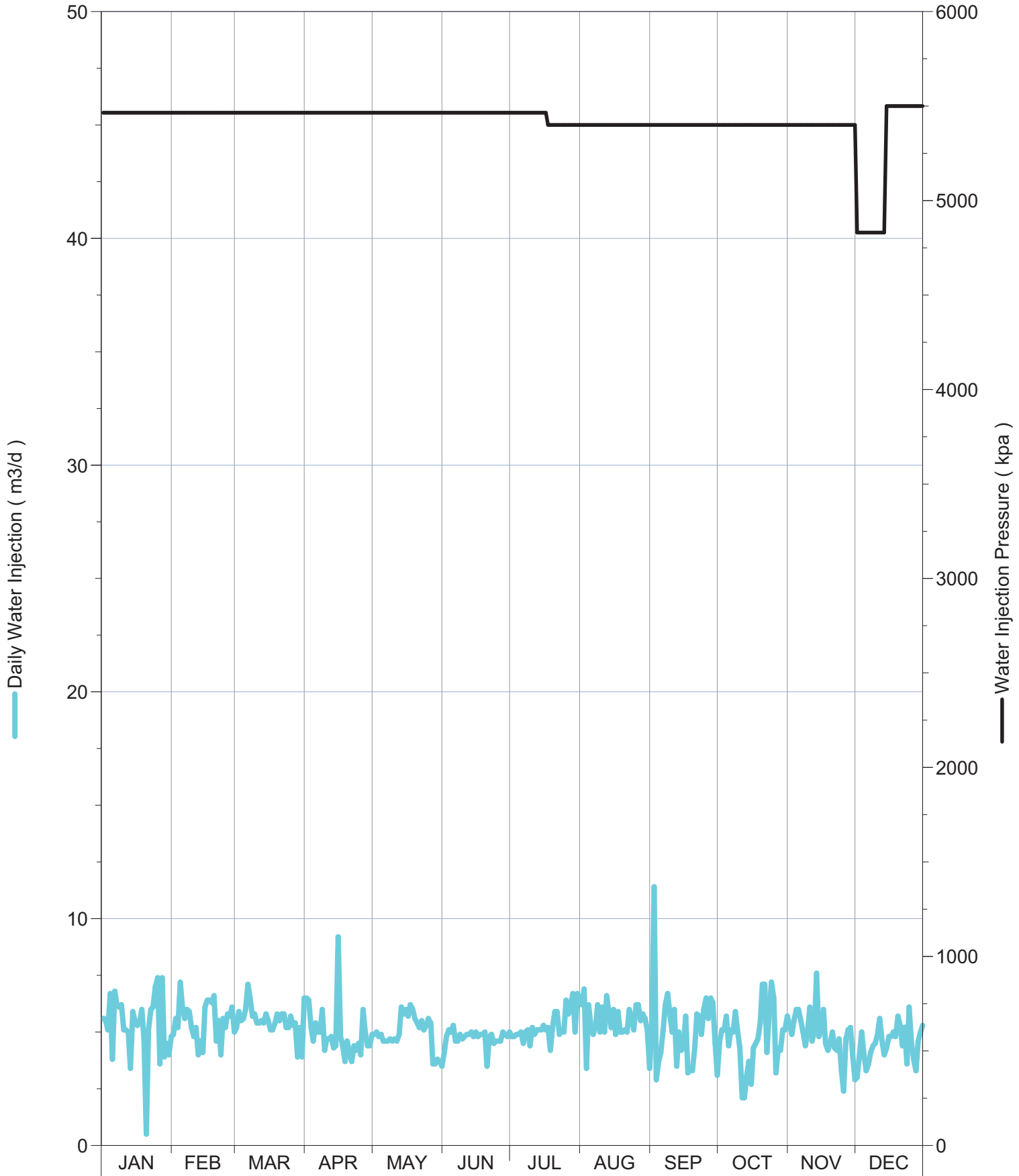
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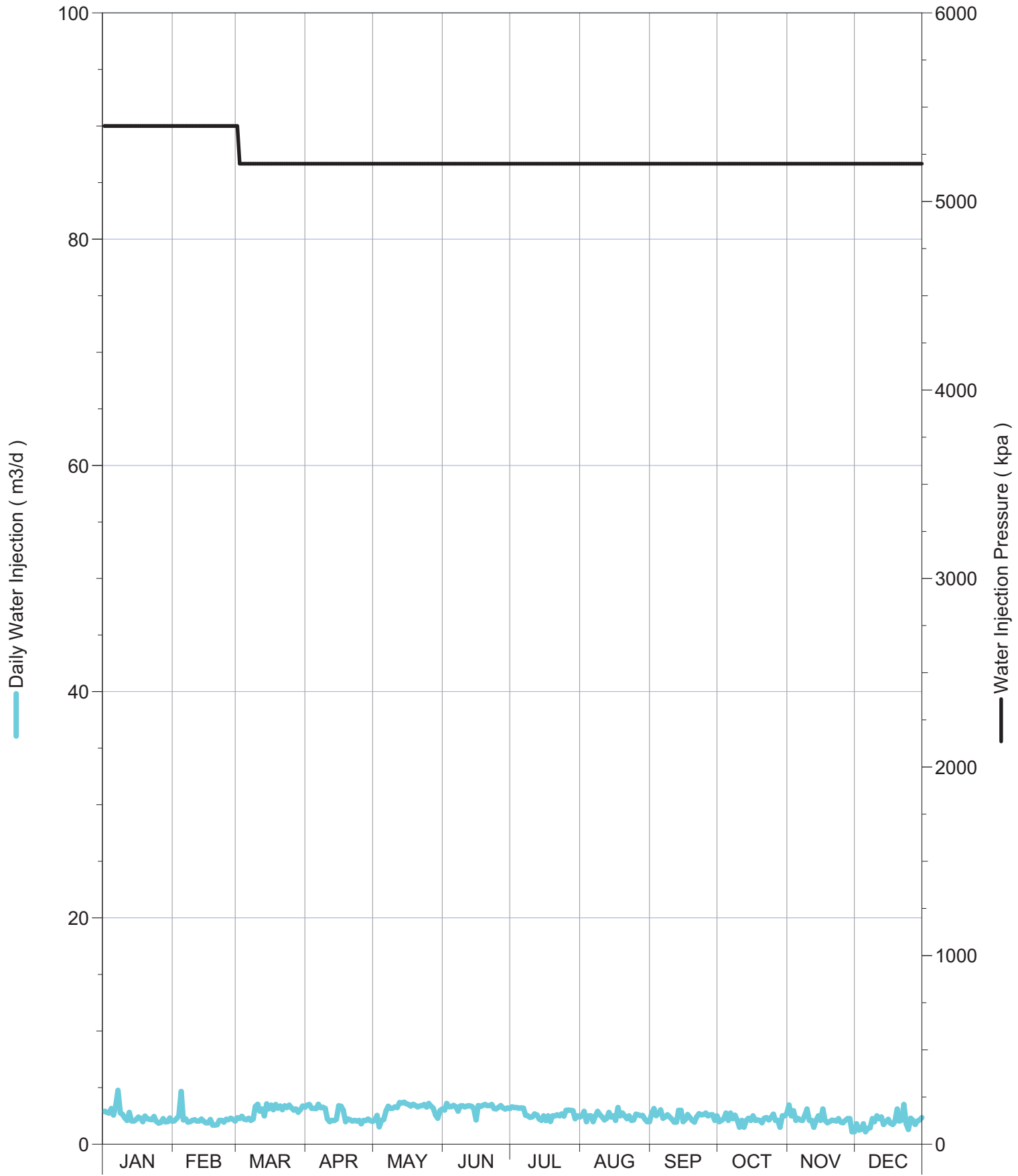
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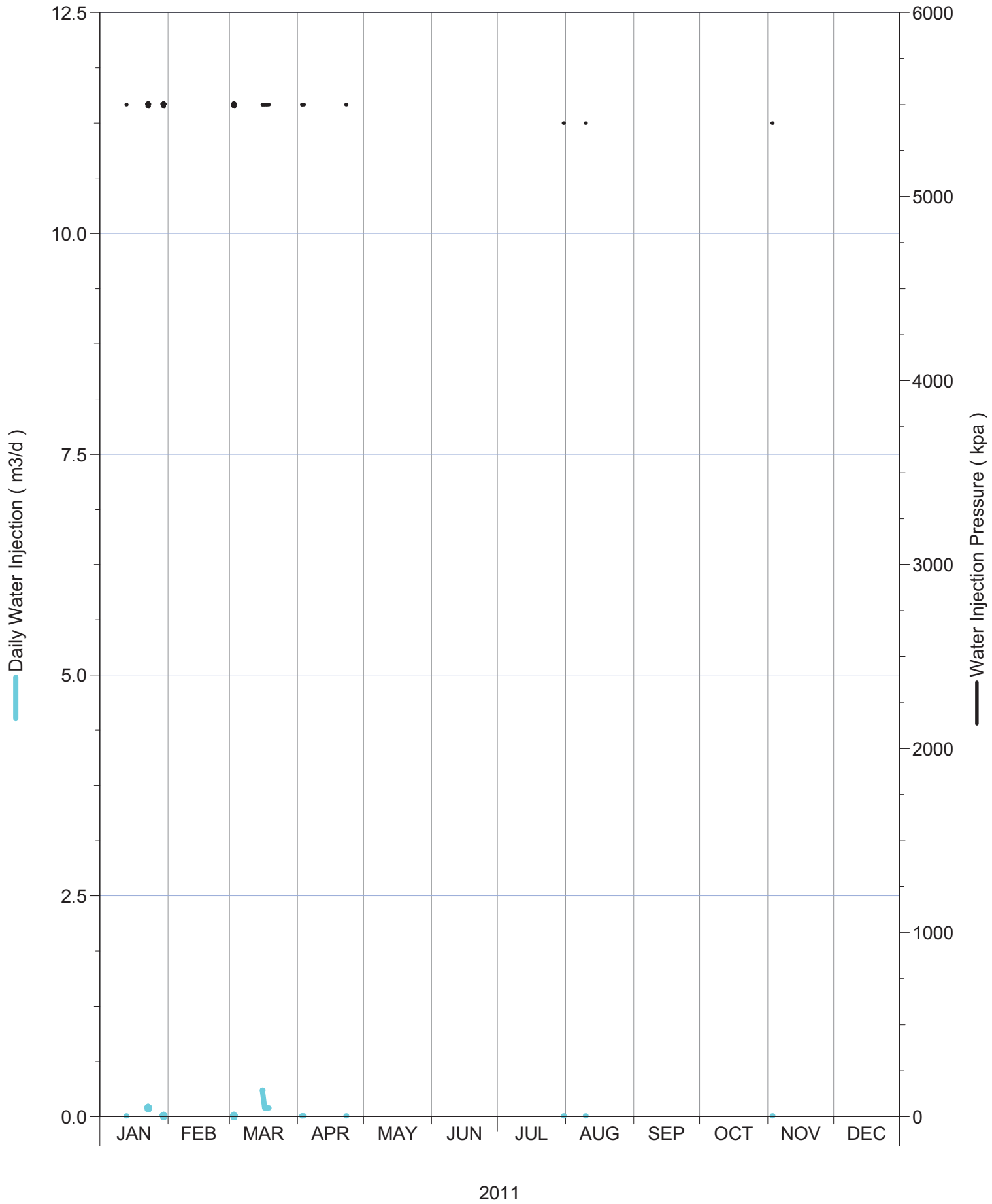
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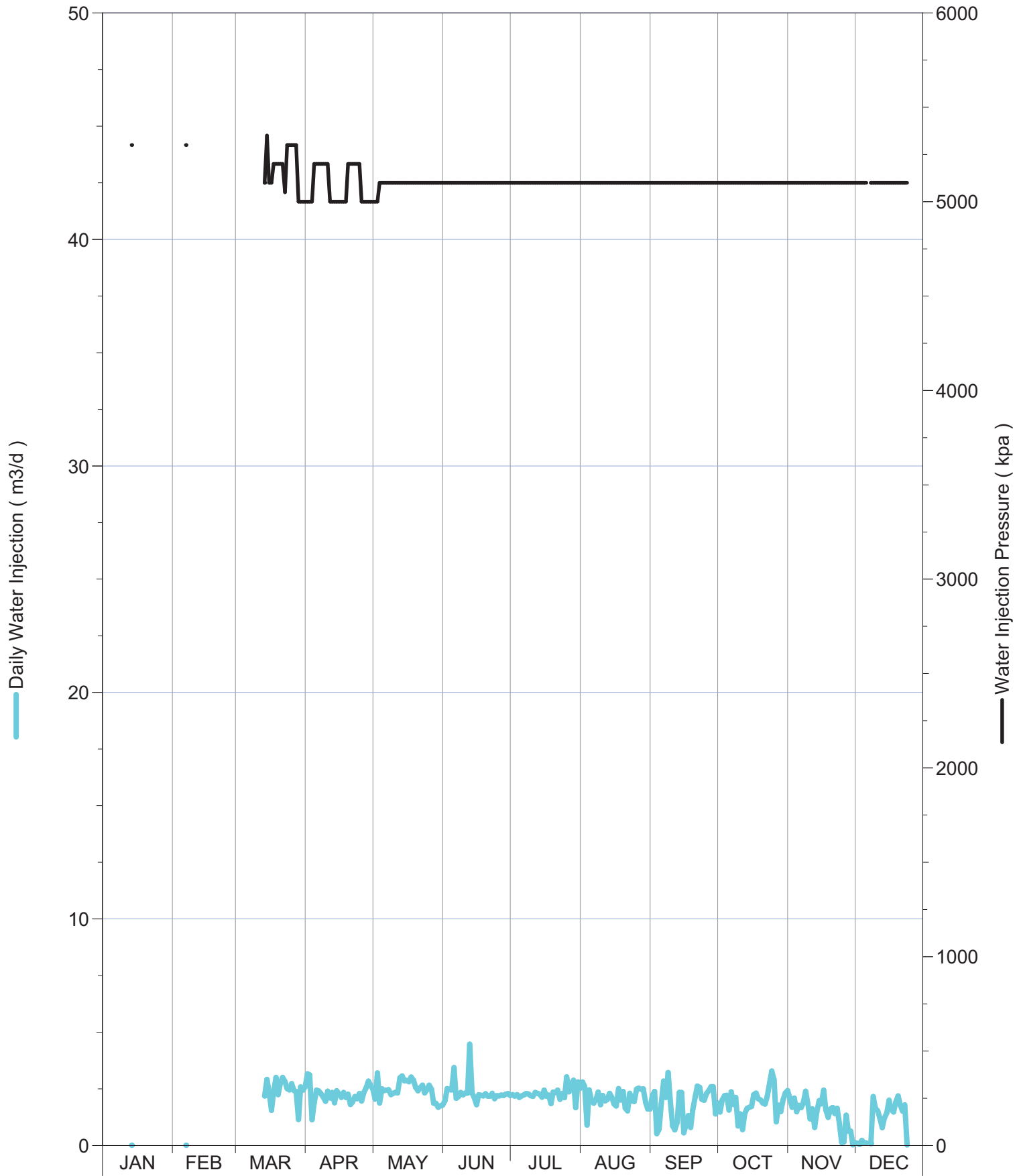


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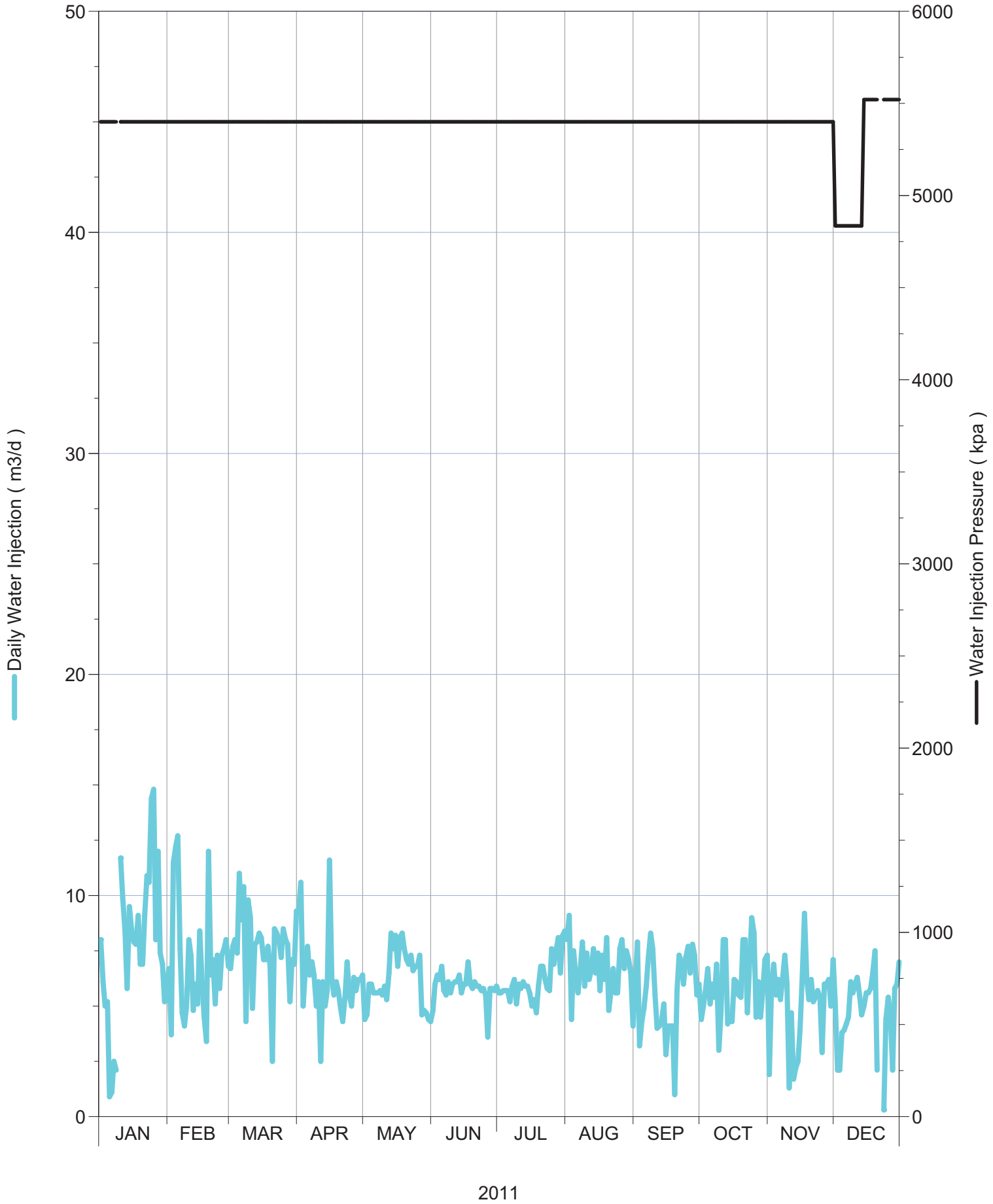
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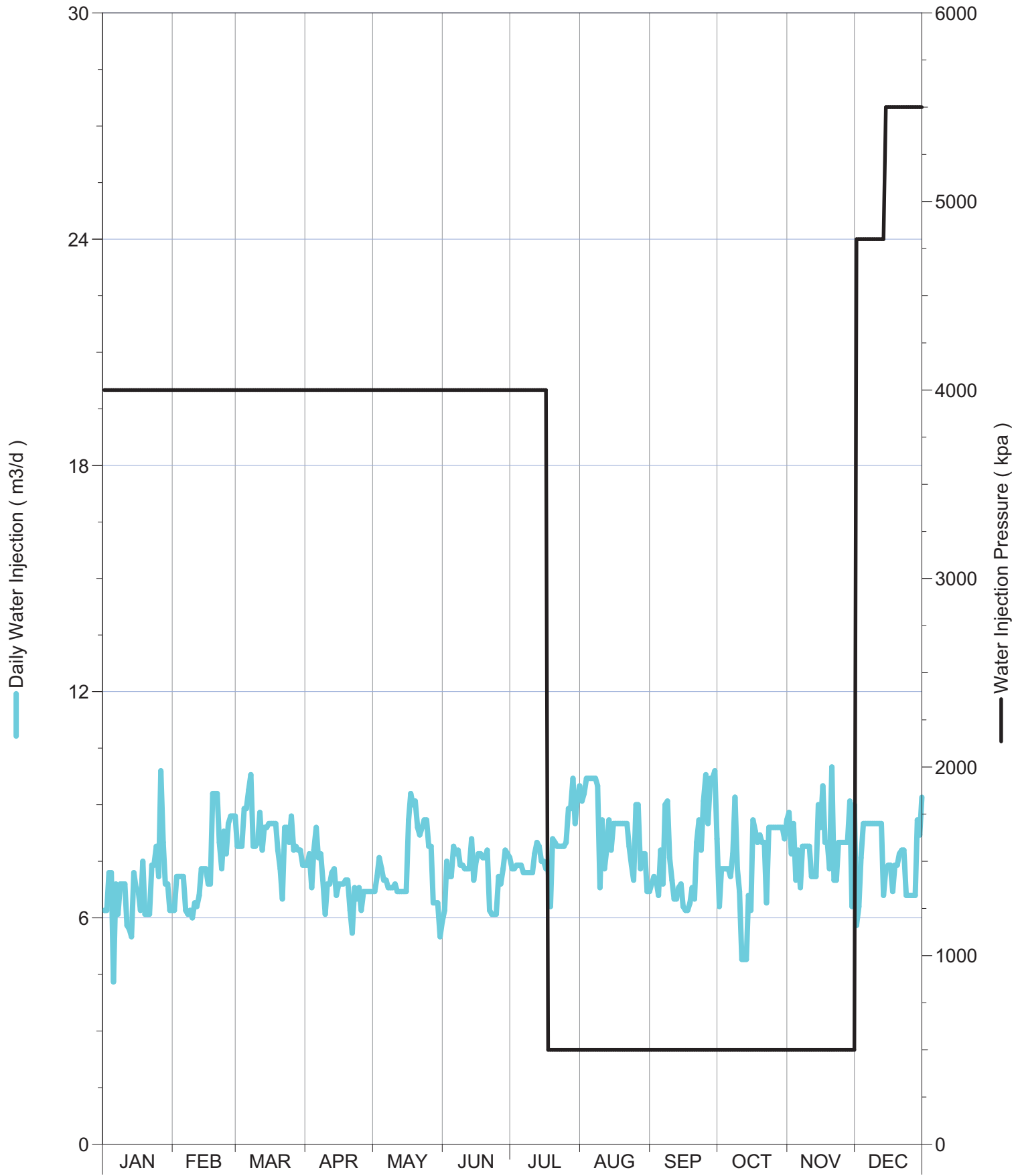
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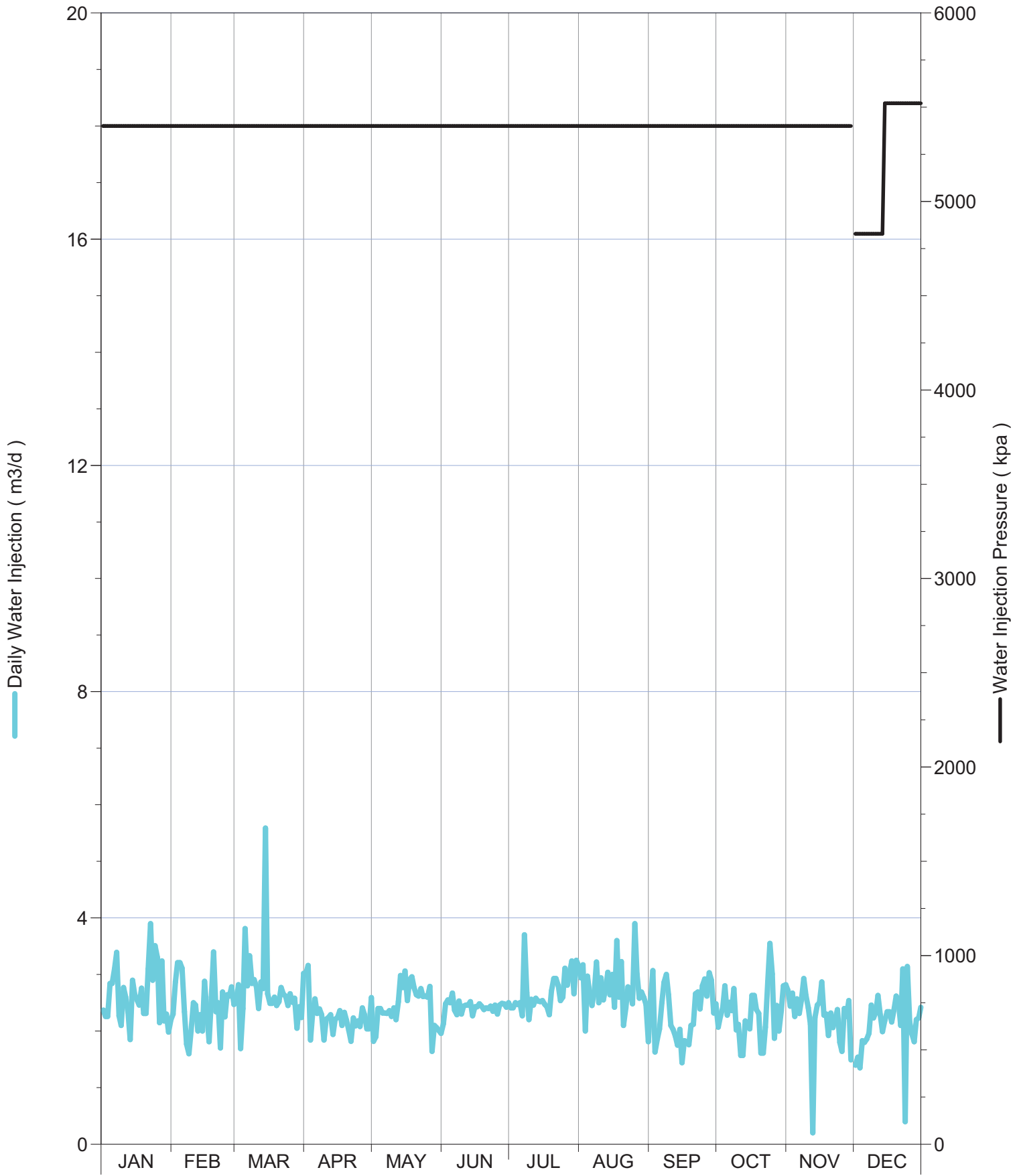
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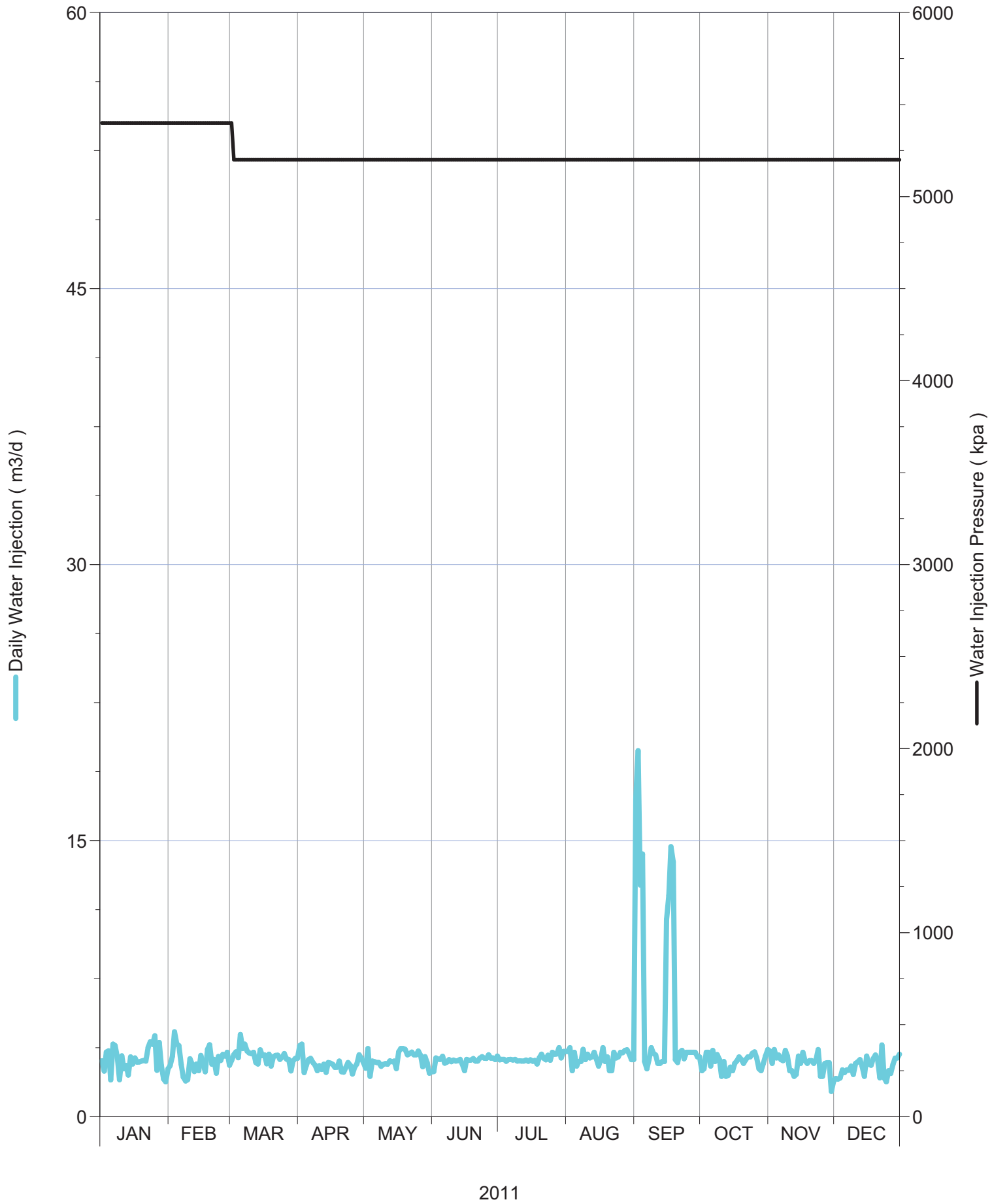


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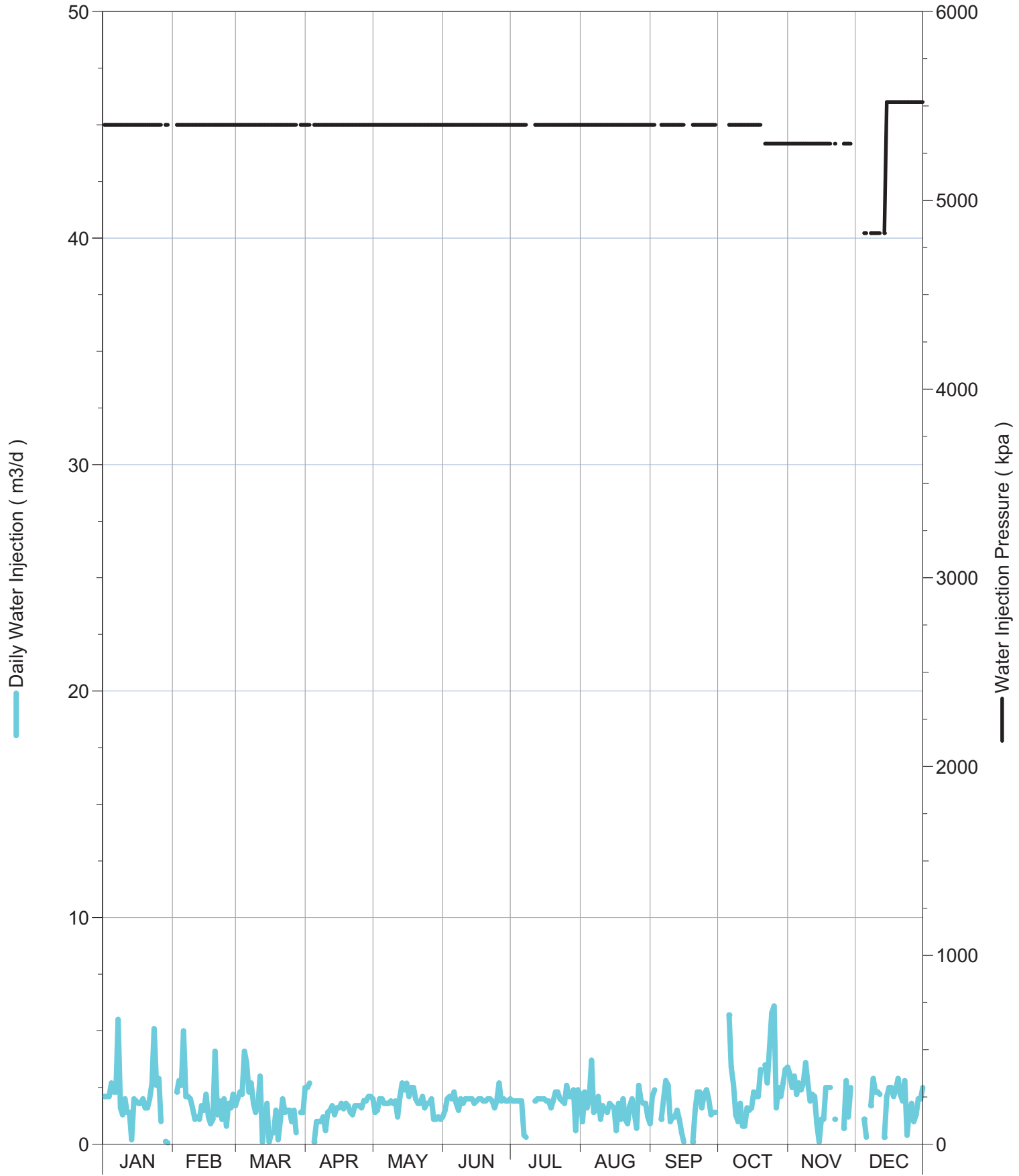


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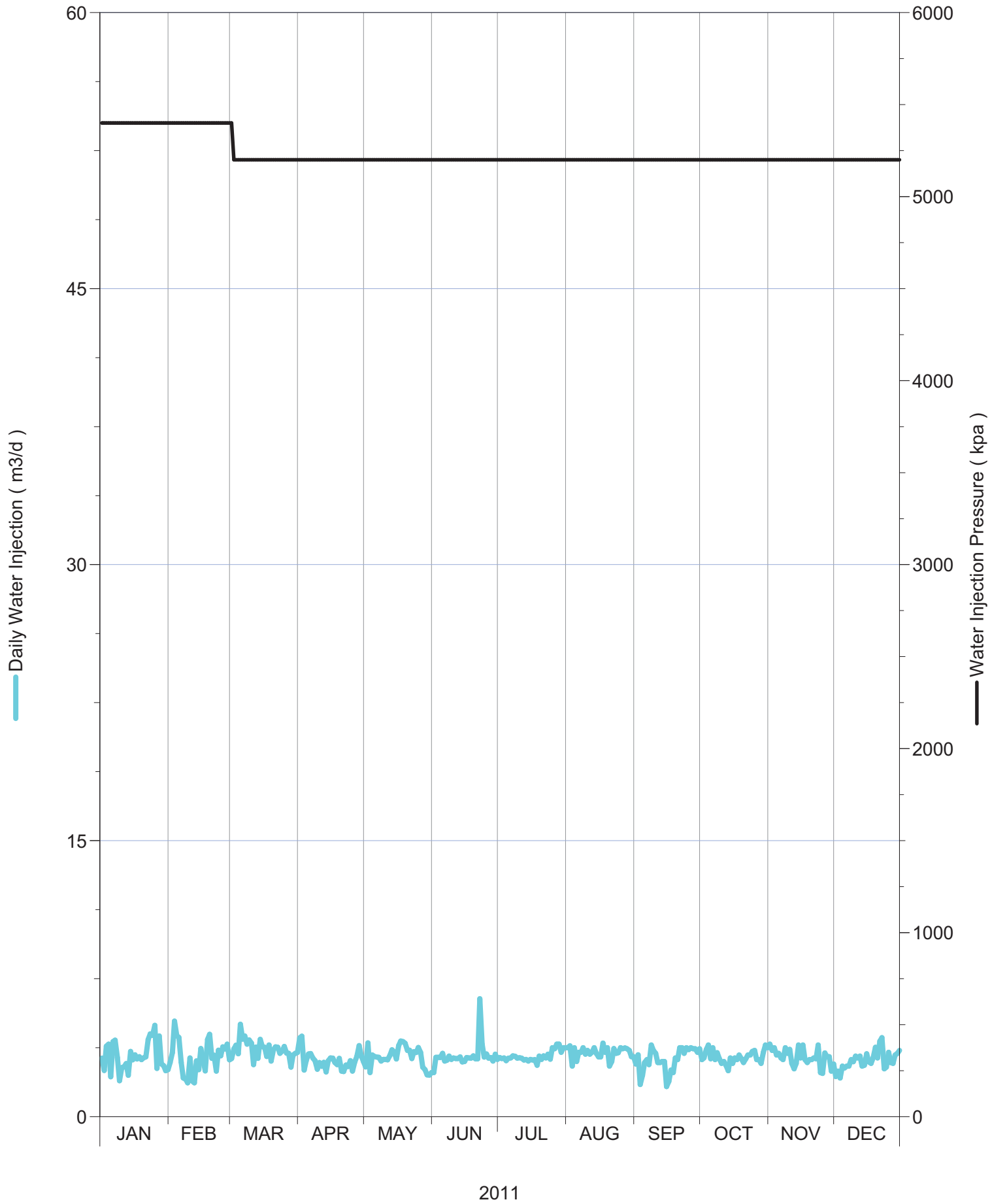
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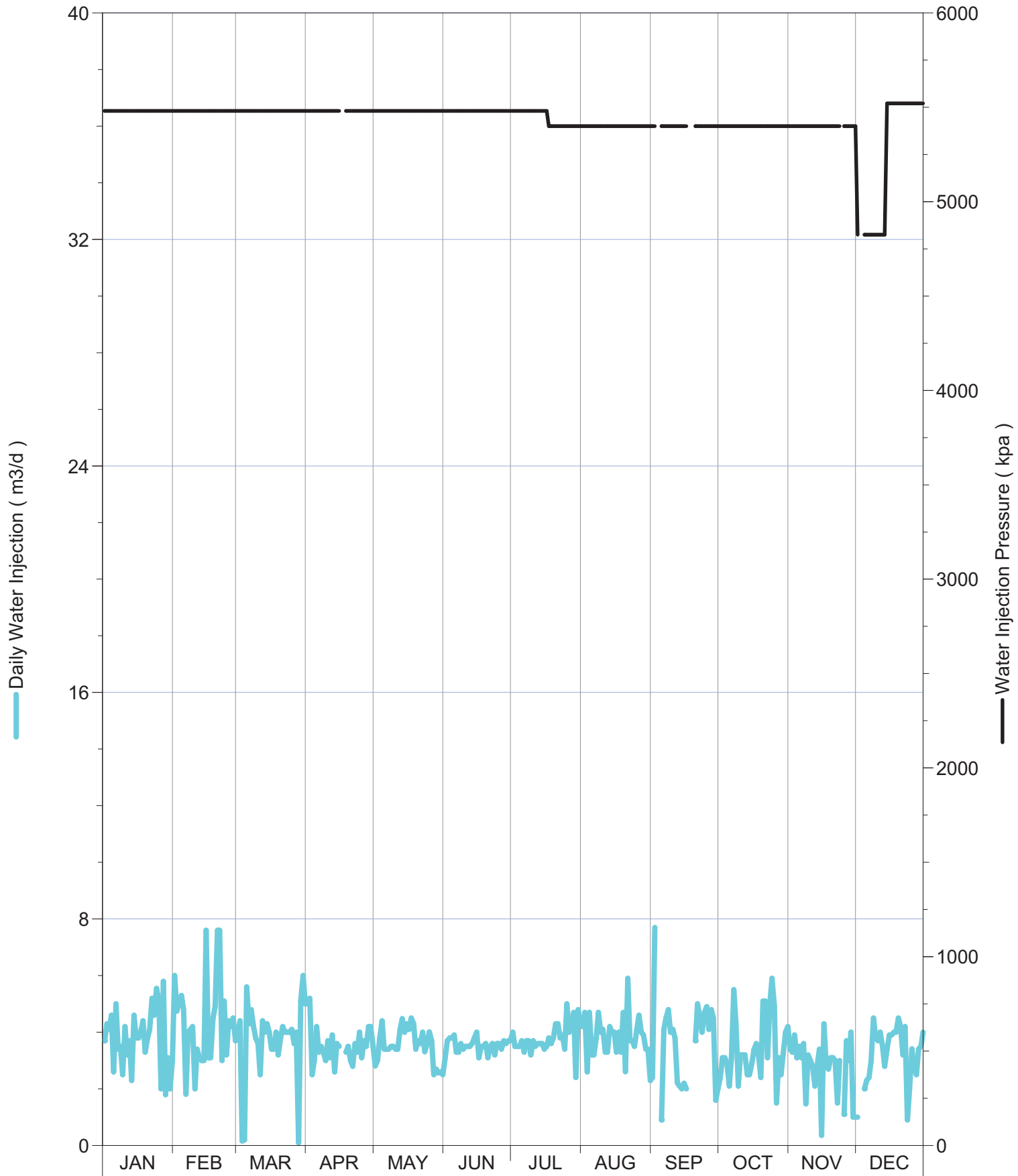
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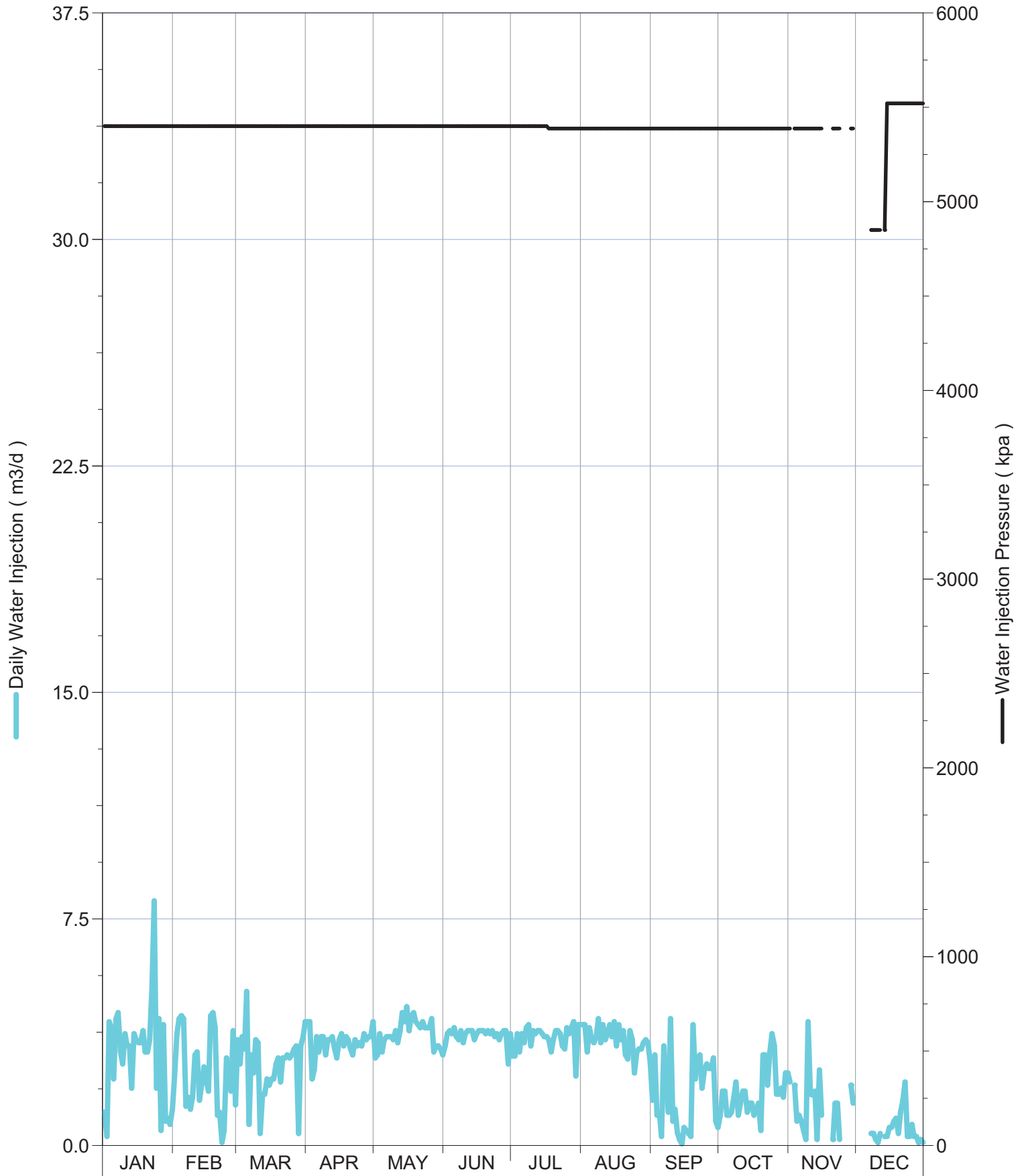
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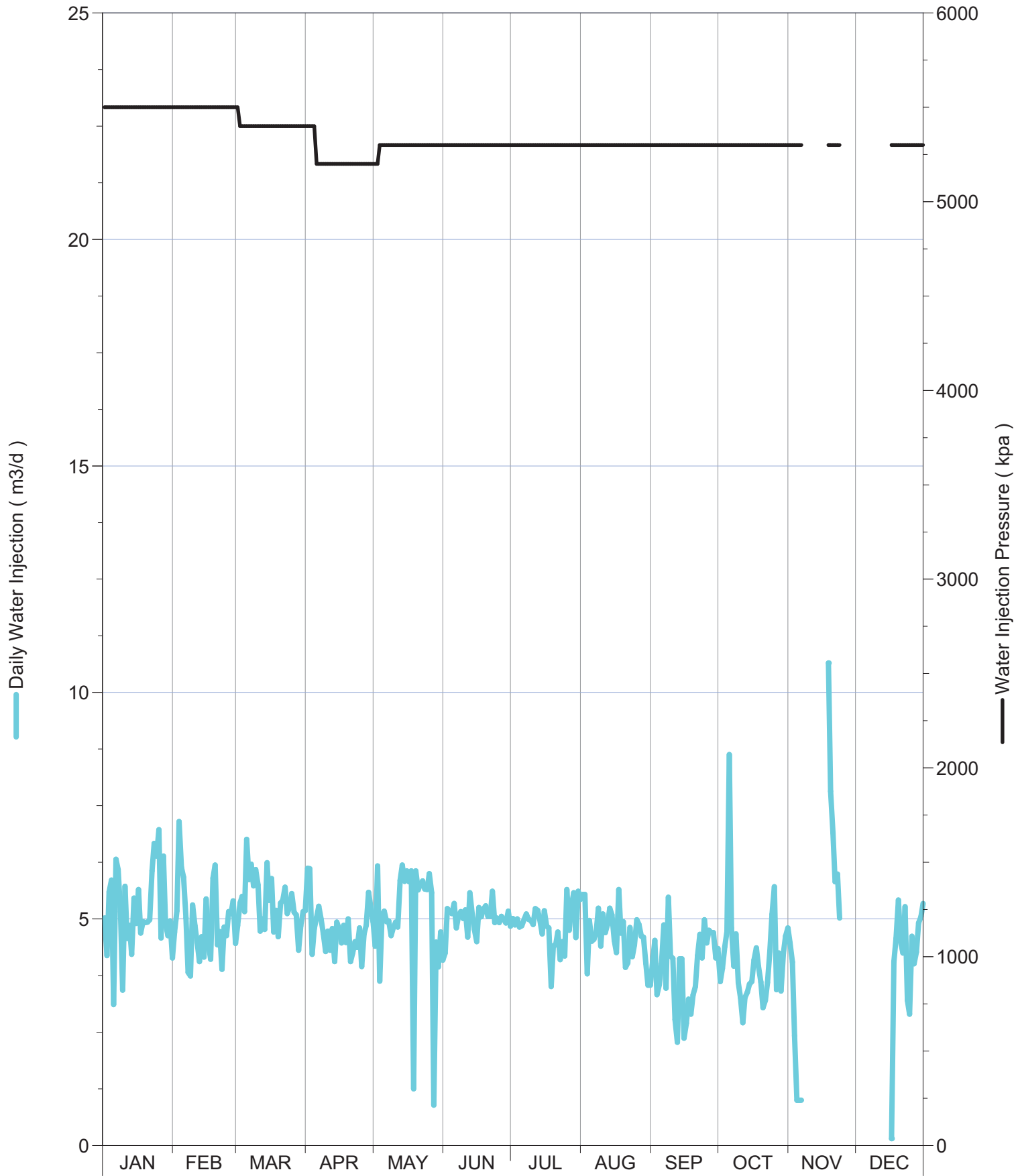
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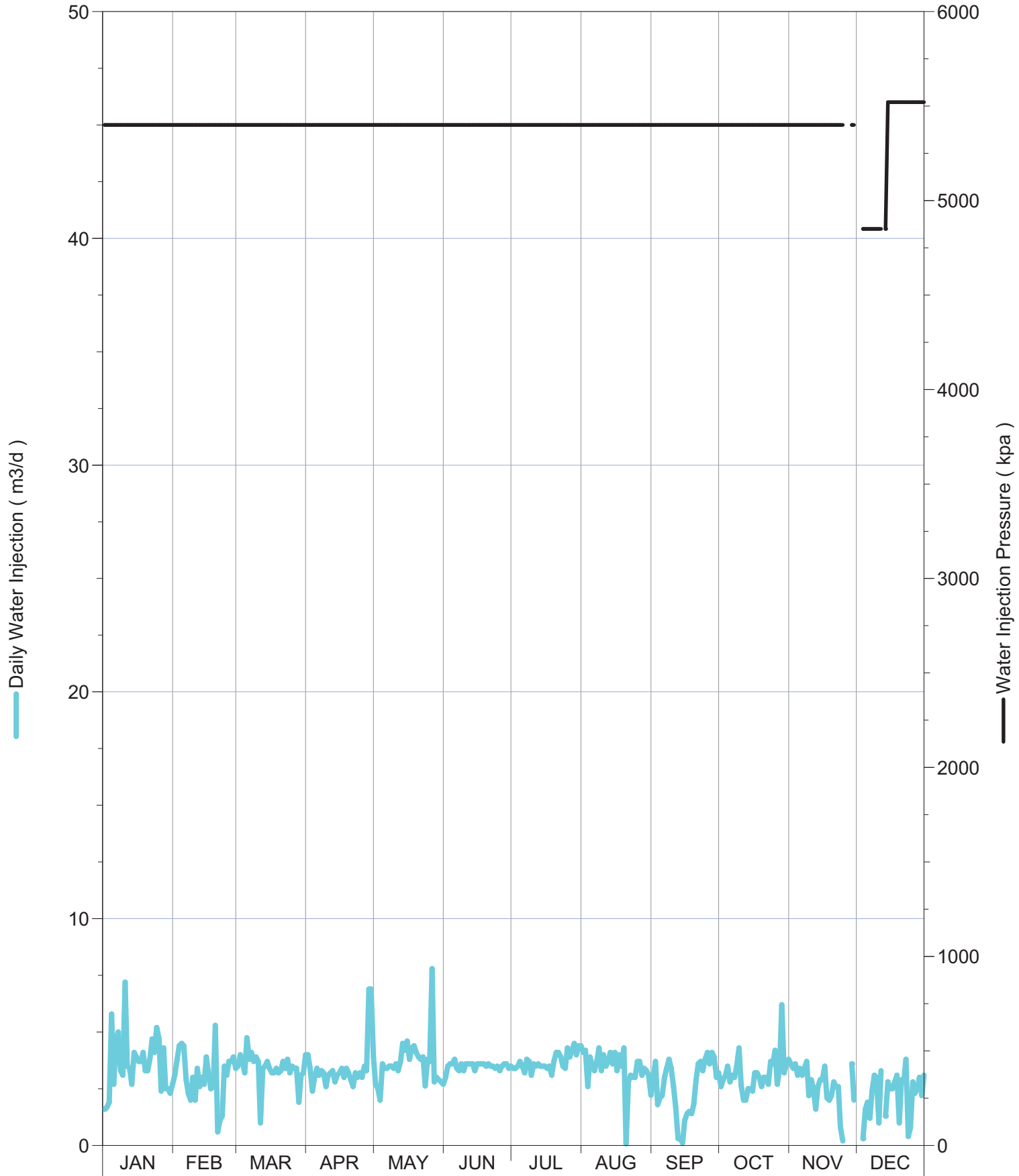
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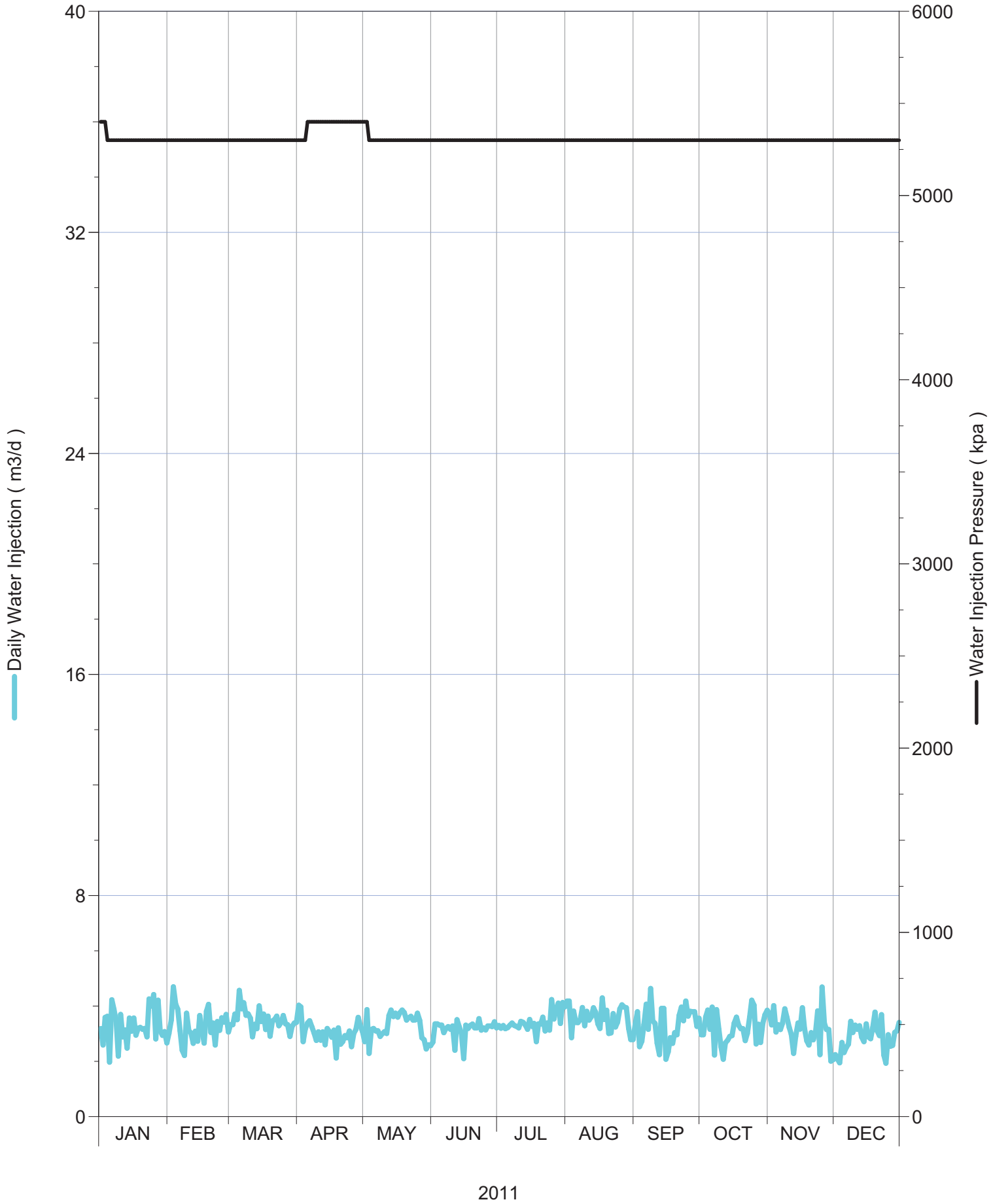
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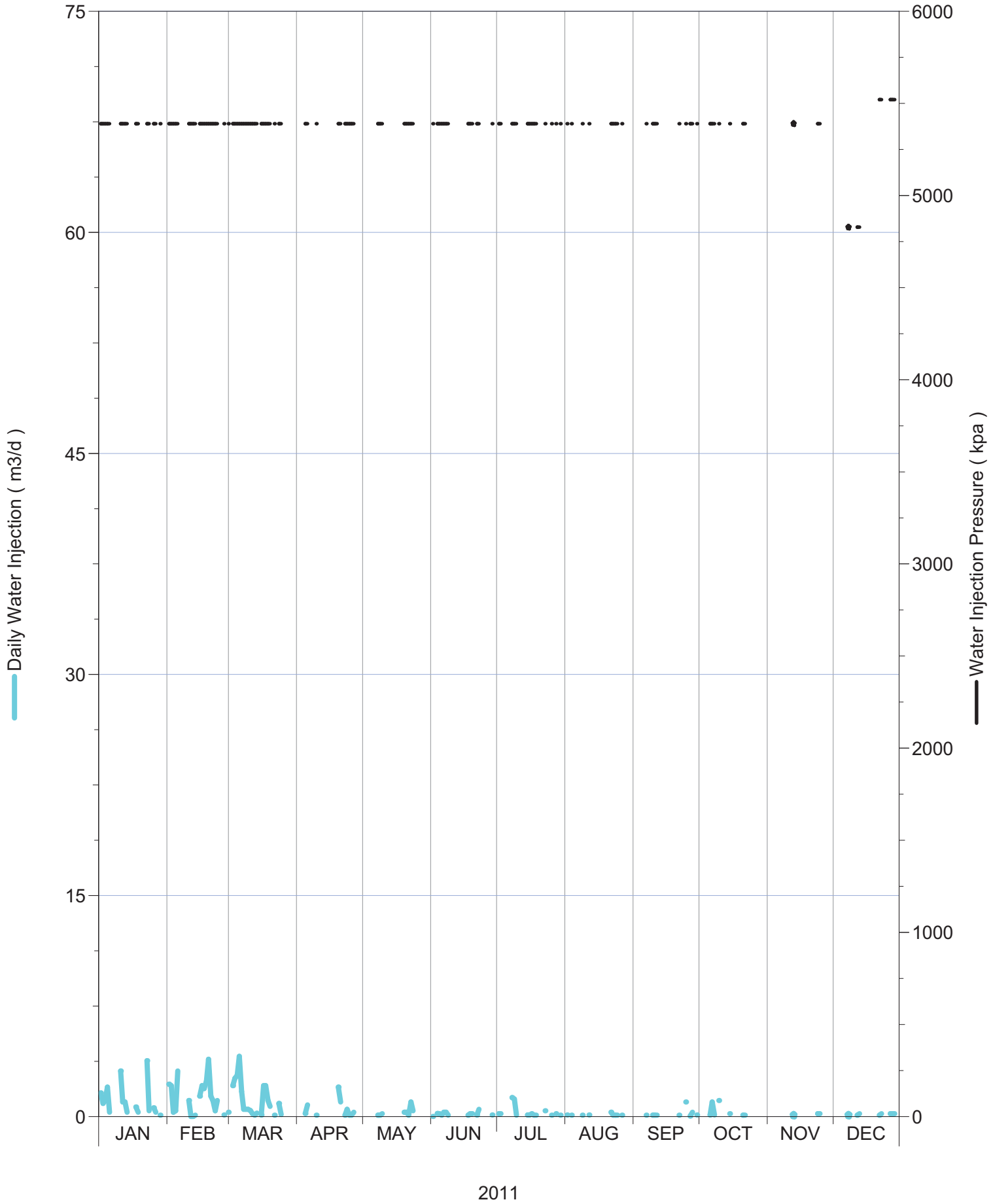
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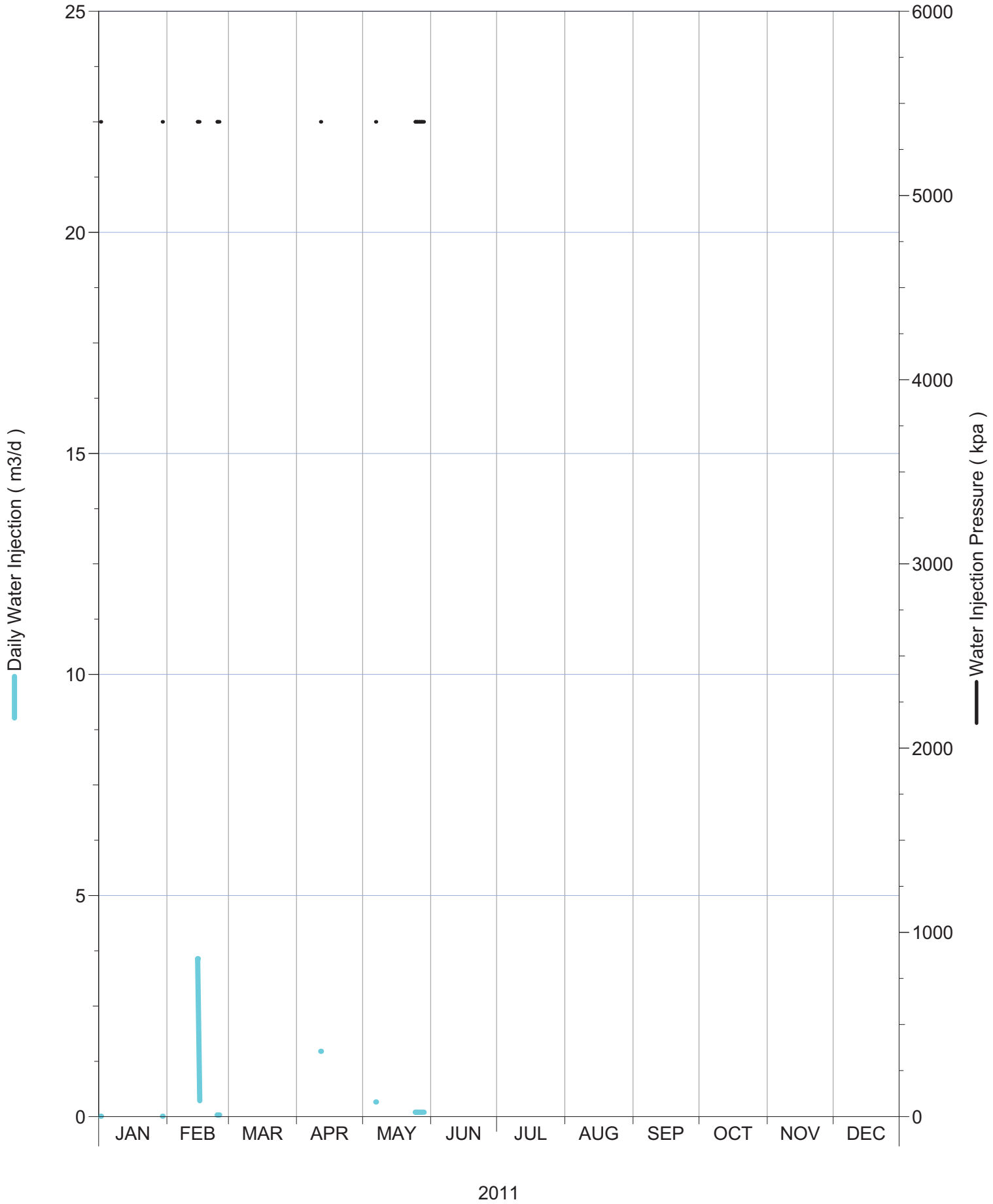
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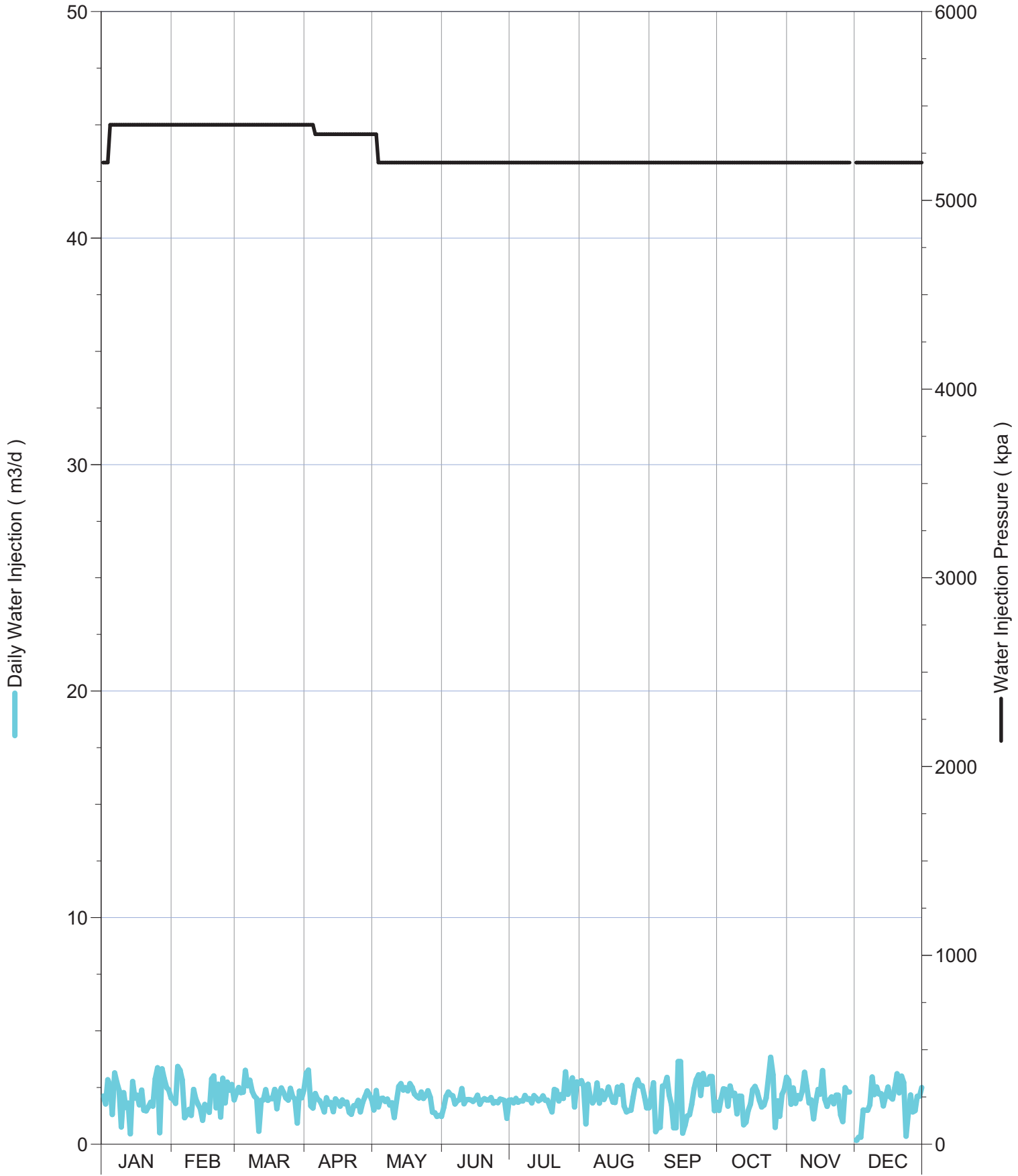
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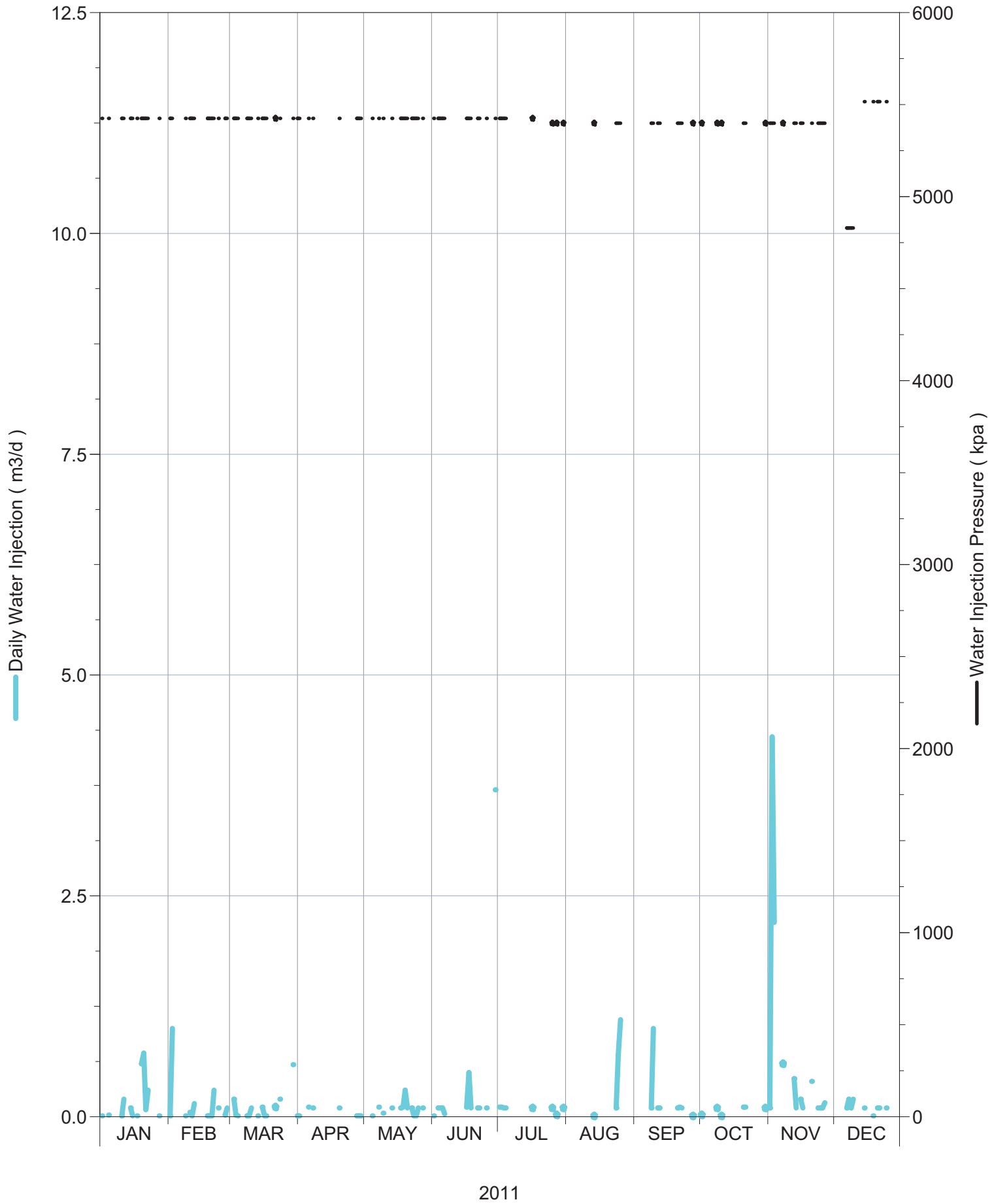
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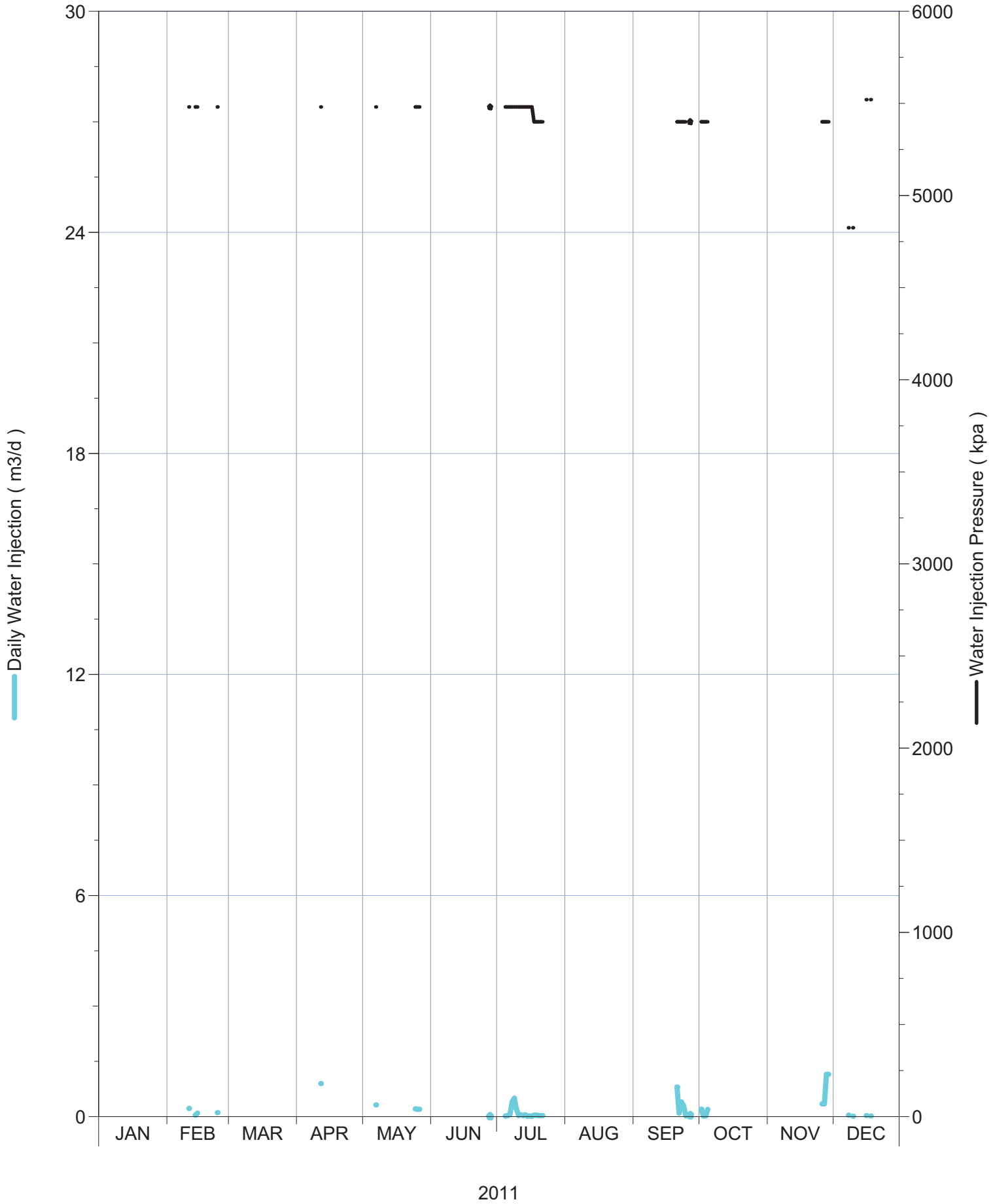
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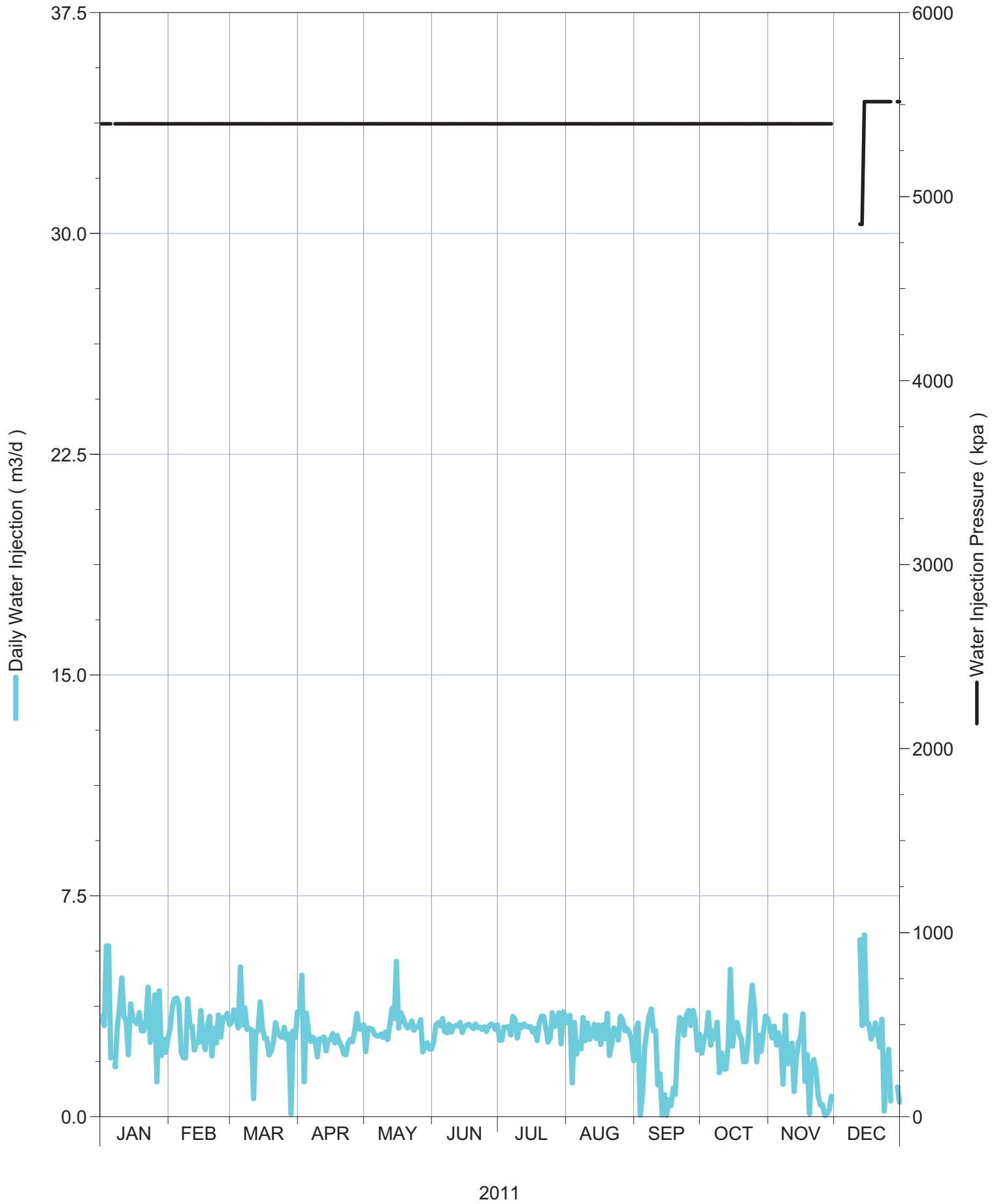
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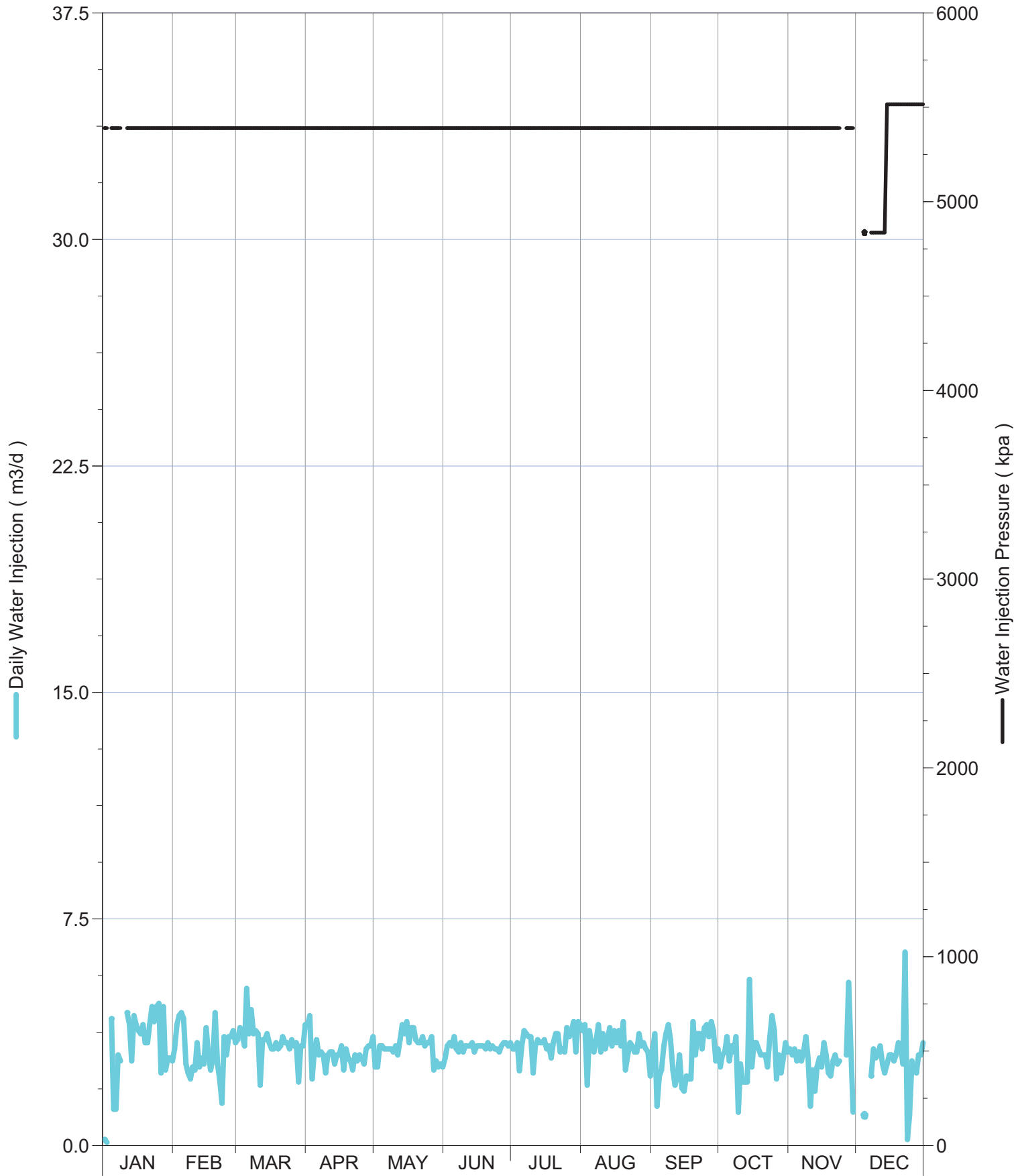
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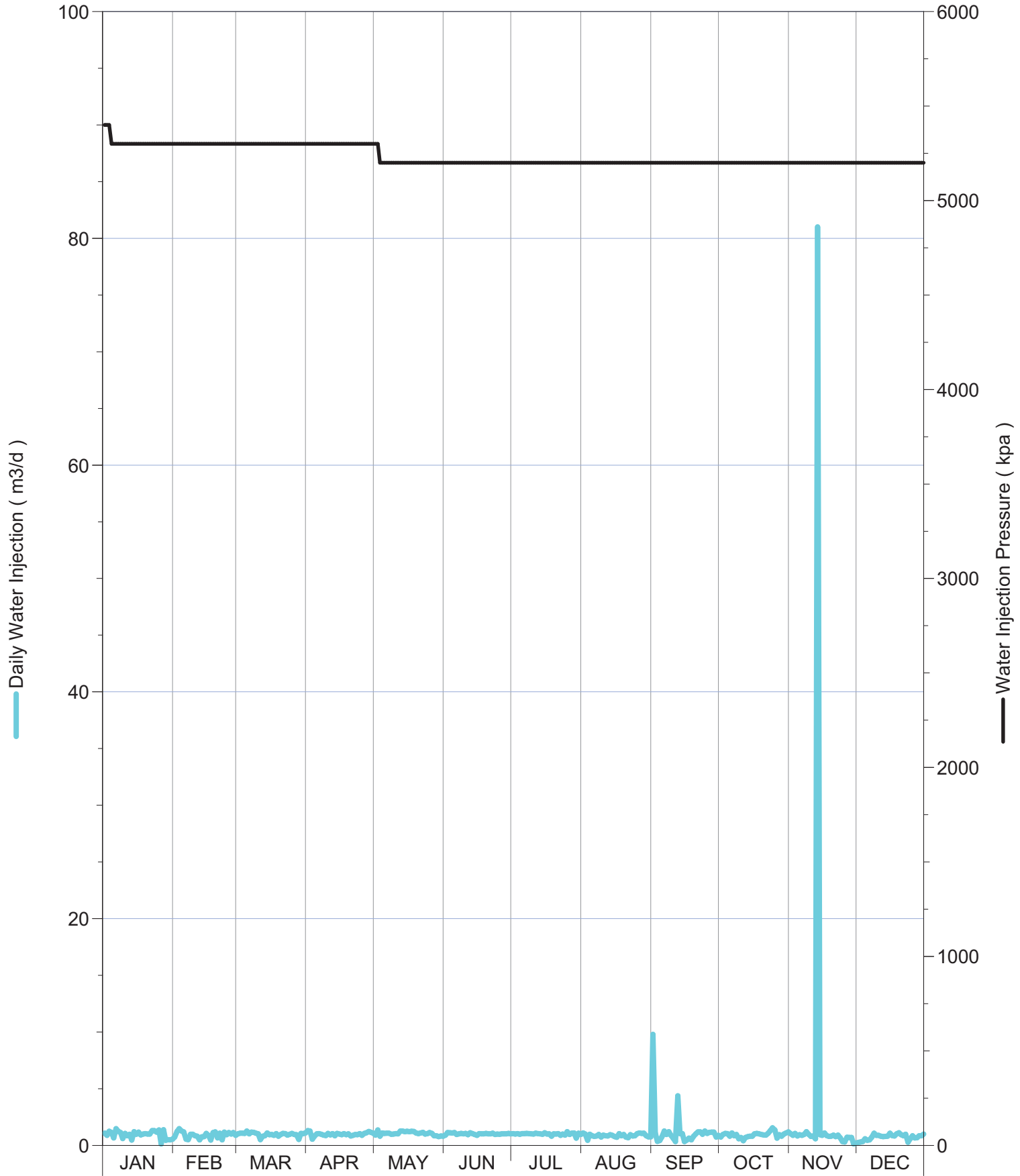
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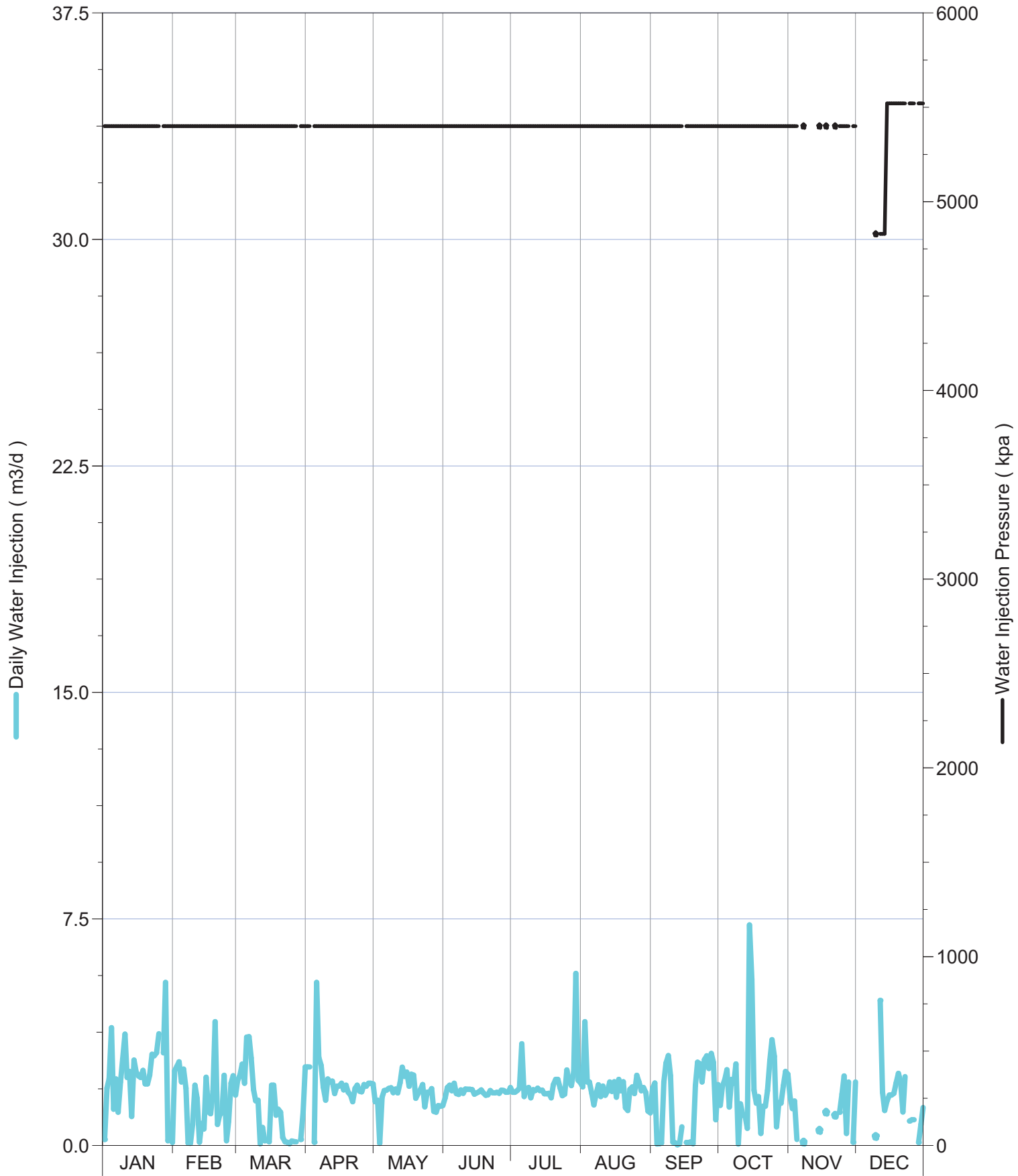
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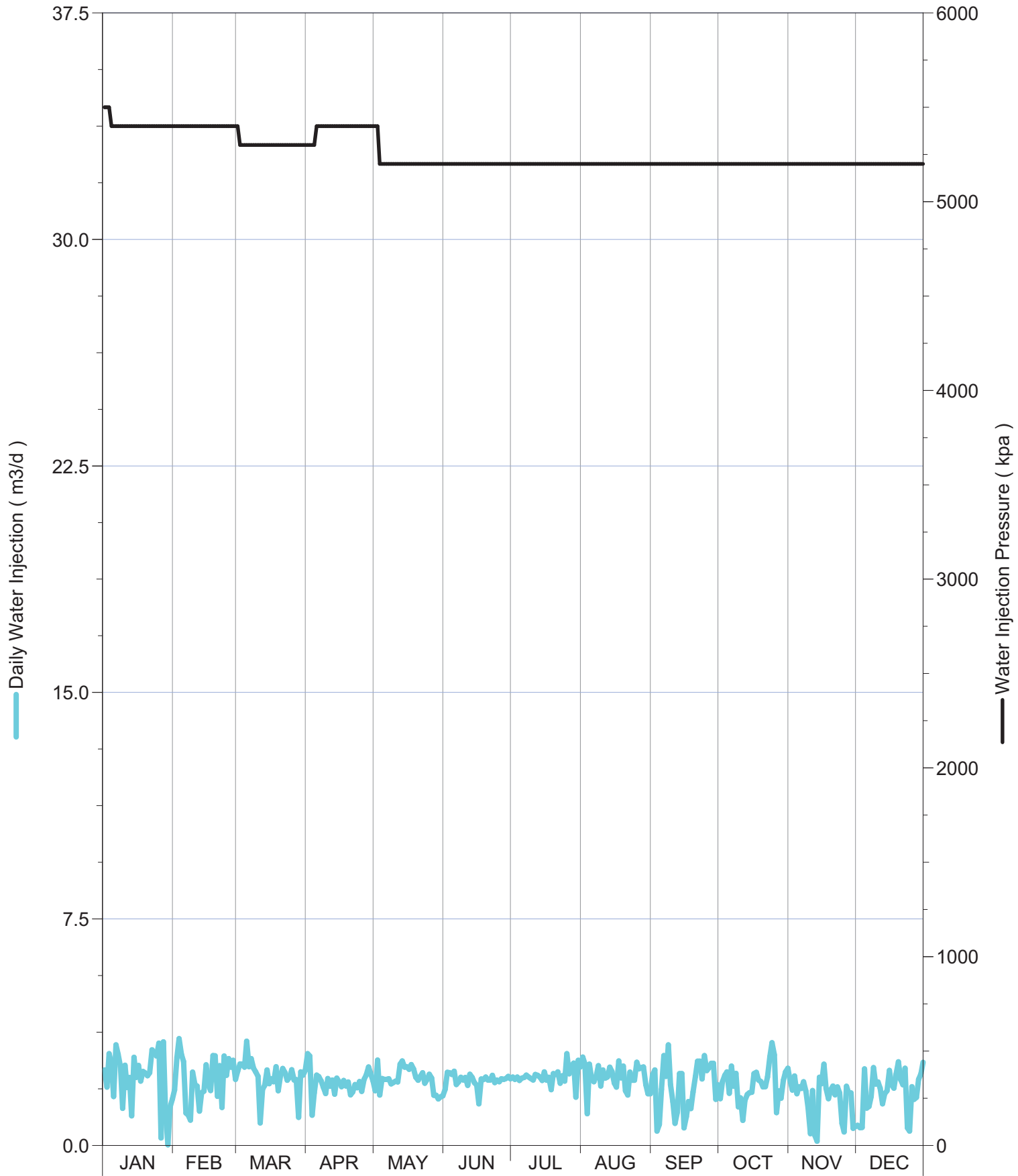
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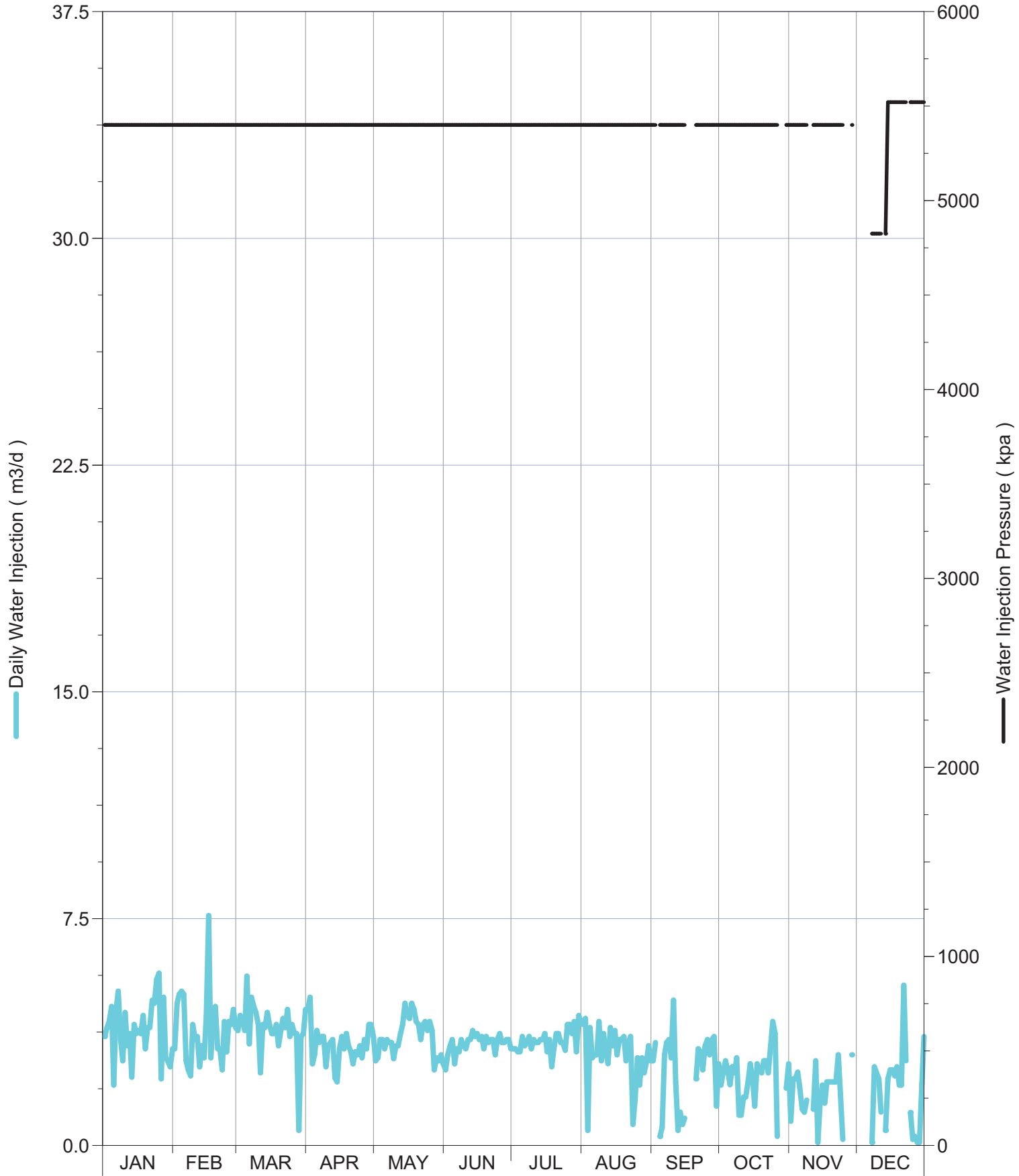


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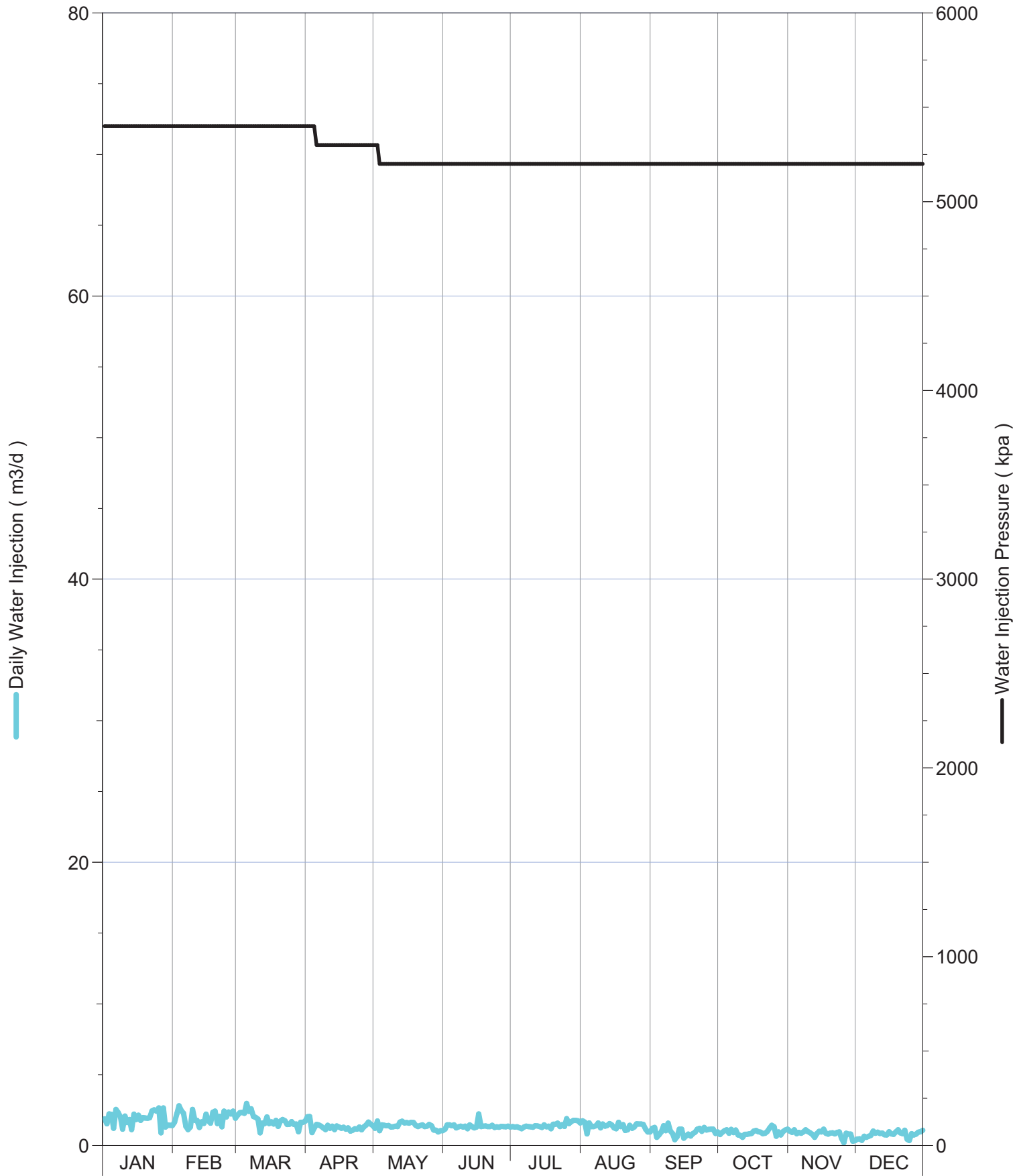


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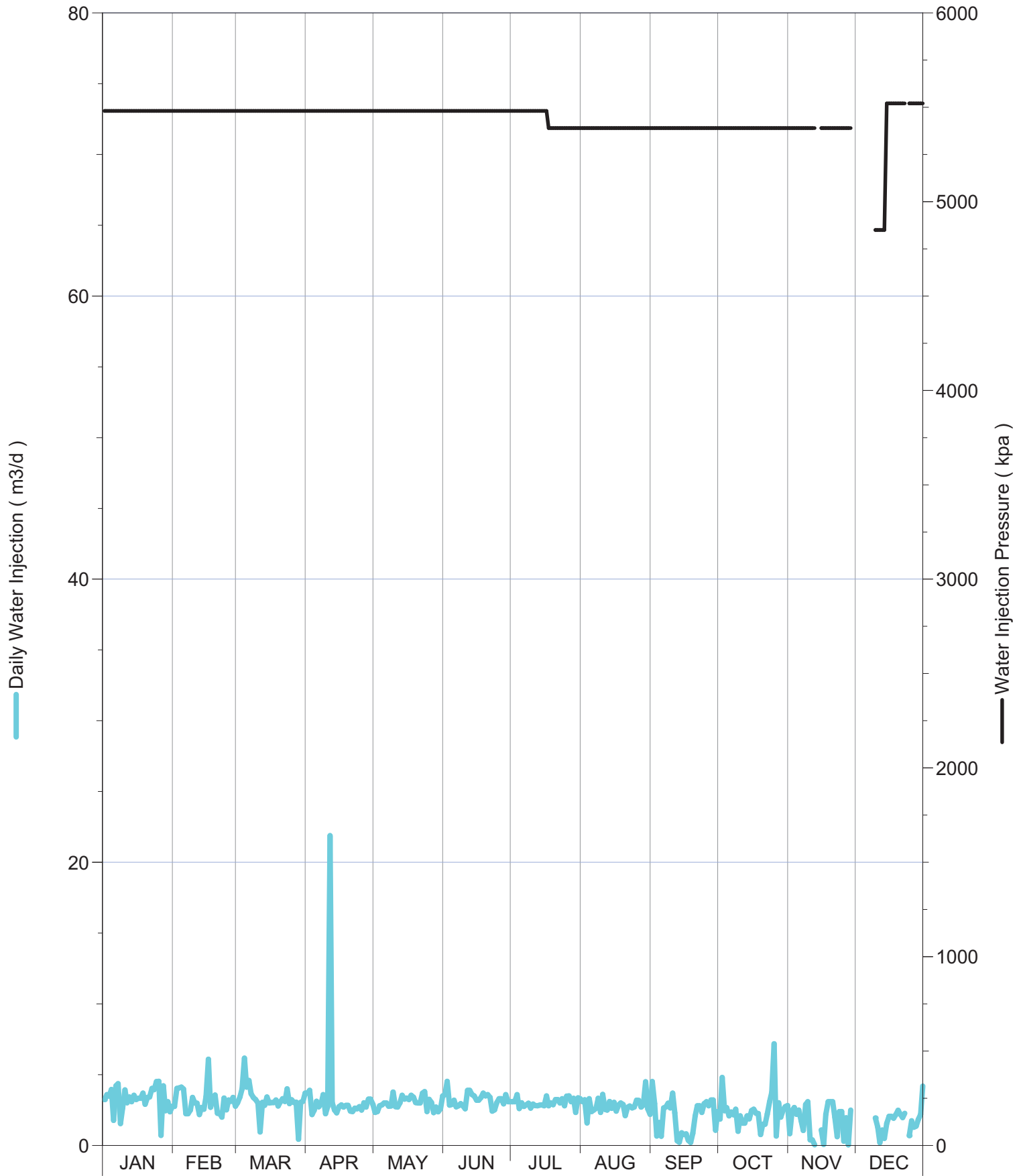


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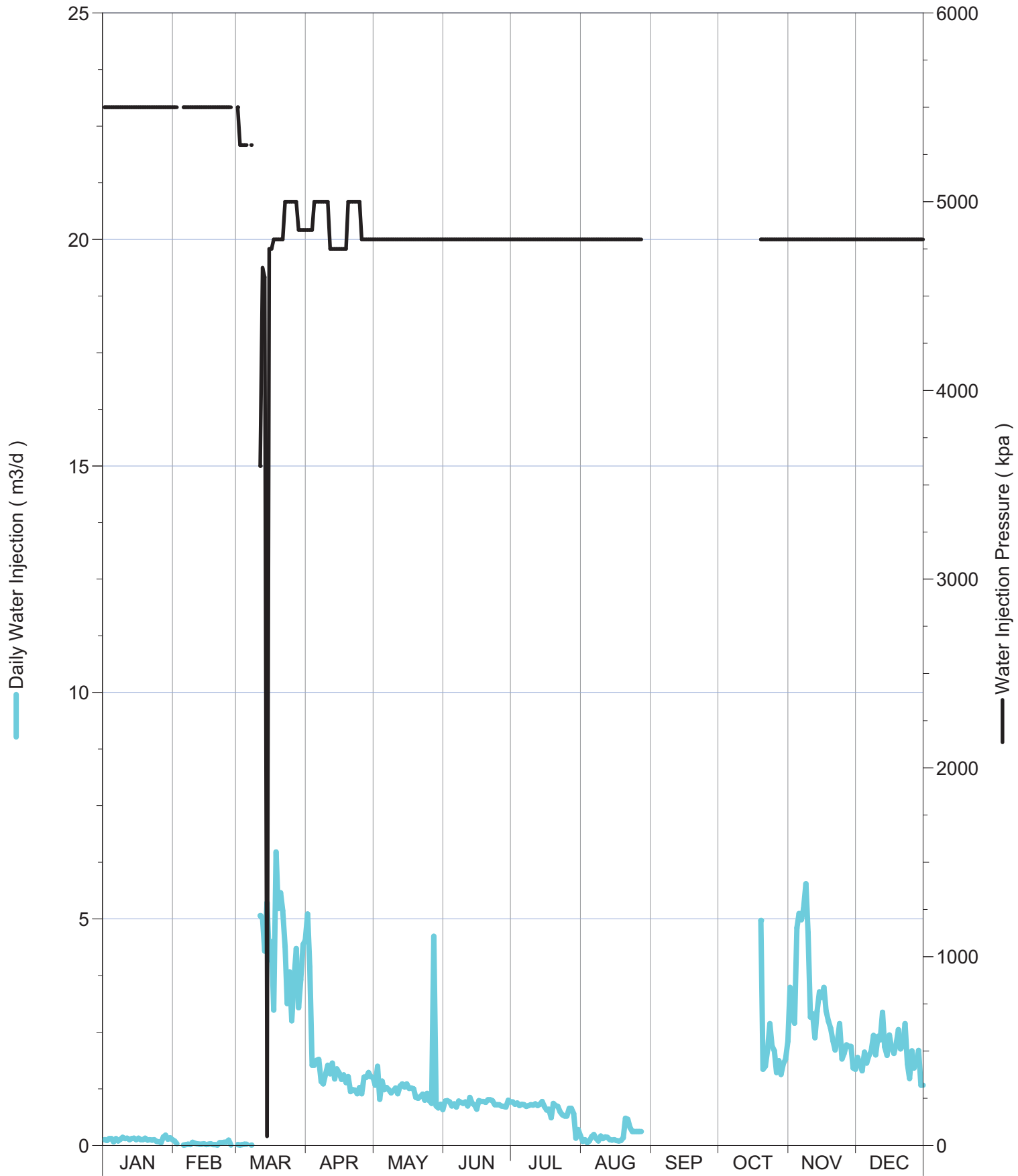


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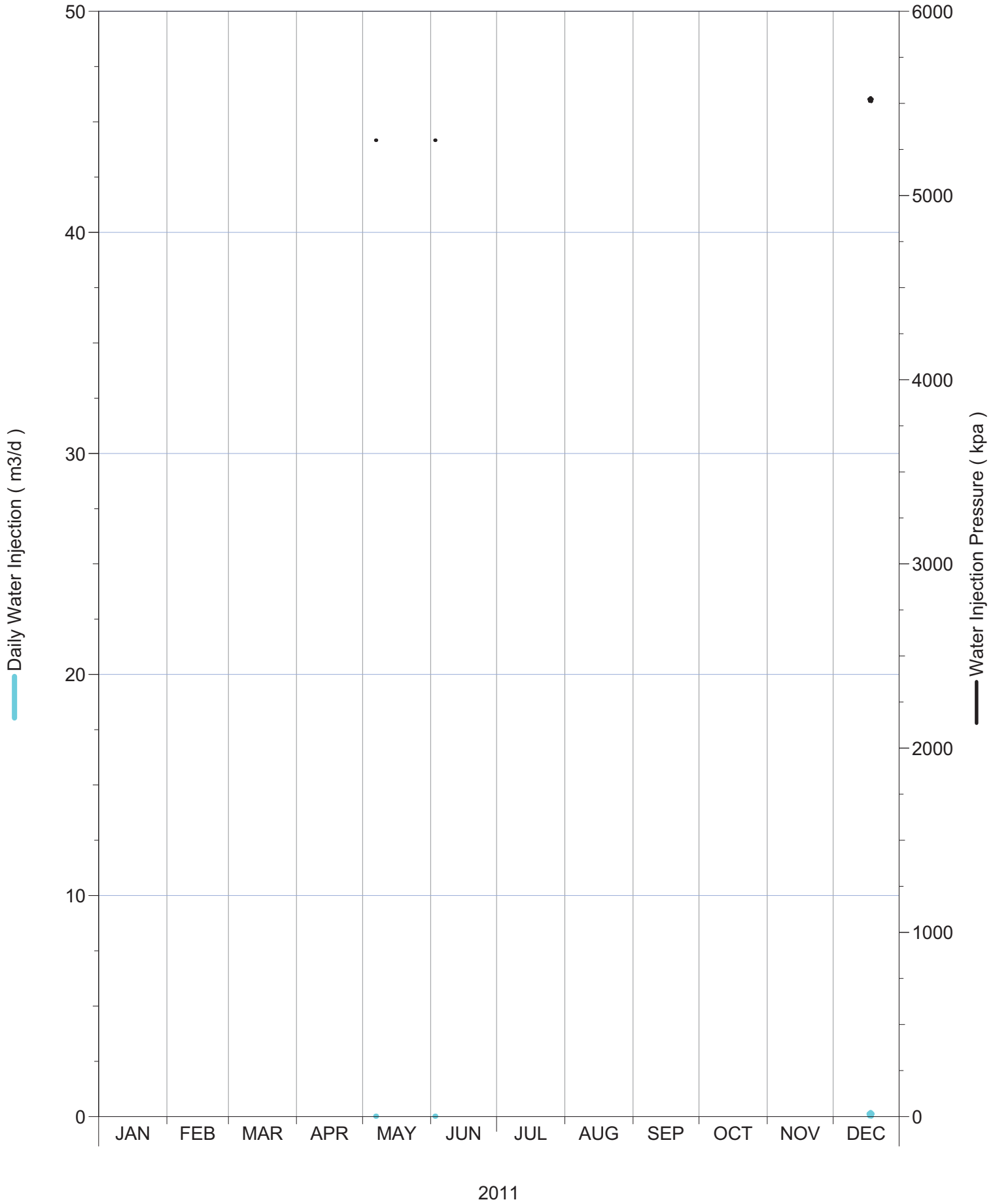


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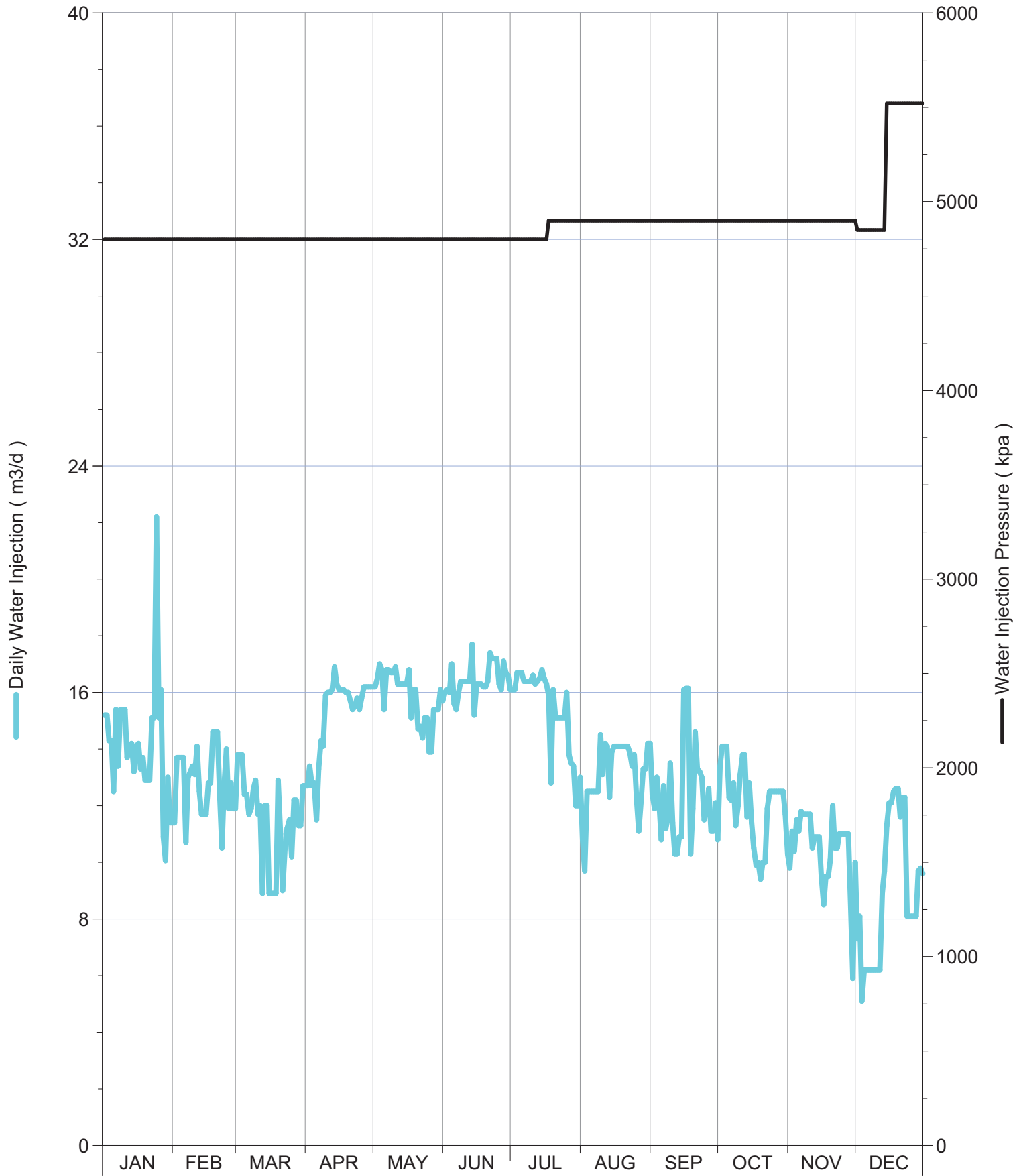


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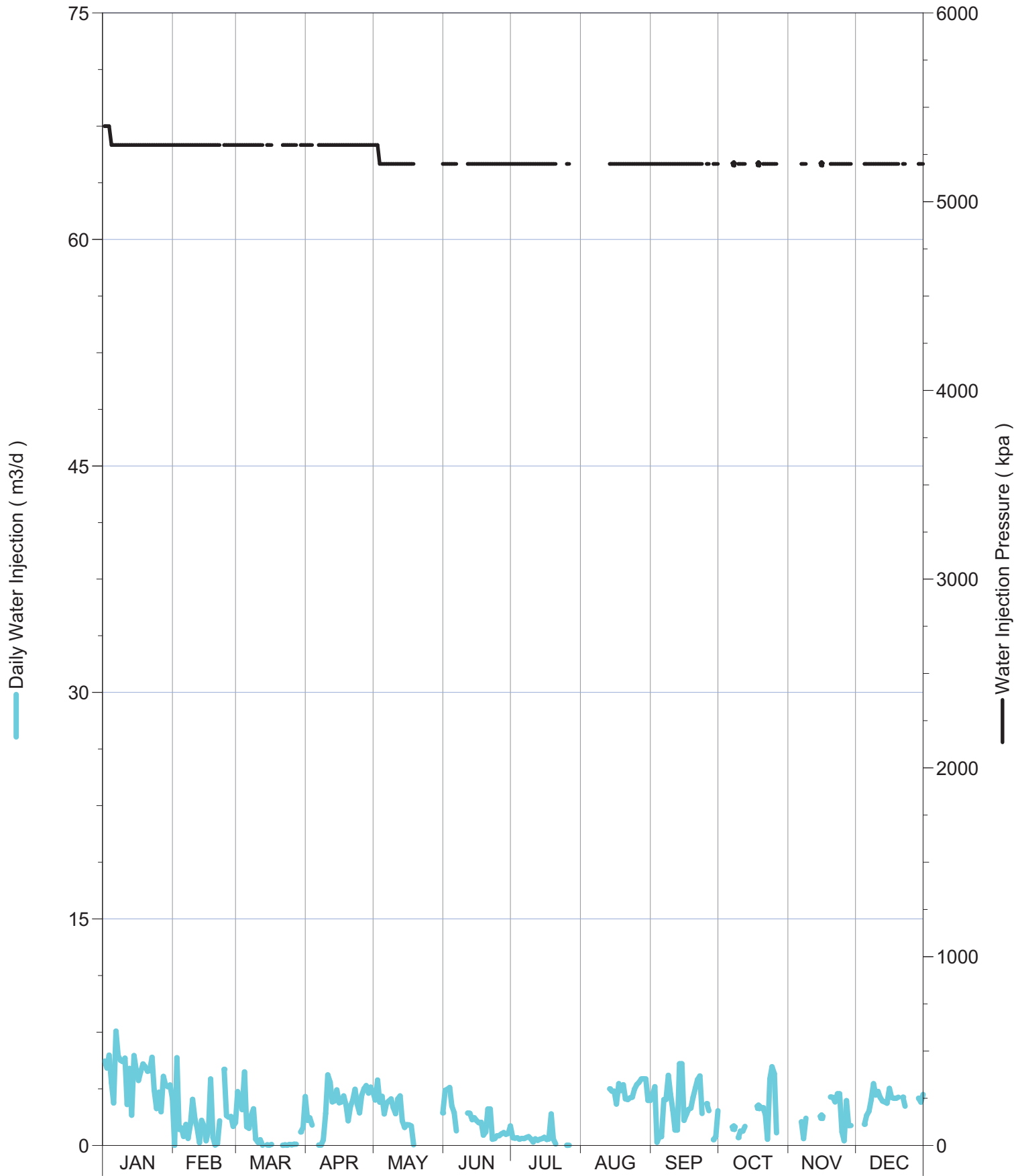


TABLE E.1: 2011 WELL SERVICING SUMMARY

Well Name	COMPLETED DATE	WELL STATUS/DESCRIPTION
A0/04-09-002-29W1/0	23-Jan	Waxed in rods.
A0/05-15-002-29W1/0	24-Jan	Waxed in rods.
A0/10-09-002-29W1/0	27-Feb	Tubing leak. Change BHP
02/07-16-002-29W1/0	12-Mar	Tubing leak. Change BHP.
00/07-08-002-29W1/0	15-Sep	Change failed pump. Change BHP
D0/11-04-002-29W1/0	18-Sep	Tubing leak.
00/03-09-002-29W1/0	20-Sep	Change BHP.
00/15-08-002-29W1/0	30-Sep	Change failed pump.
C0/13-09-002-29W1/0	3-Oct	Pump change.
B0/01-17-002-29W1/0	5-Oct	BHP siezed
A0/13-08-002-29W1/0	6-Oct	Change failed pump.
B0/13-04-002-29W1/0	12-Oct	Change broken polish rod and change BHP after Synoil treatment.
A0/13-08-002-29W1/0	17-Oct	Synoil treatment
B0/13-04-002-29W1/0	17-Oct	Synoil treatment
00/11-17-002-29W1/0	4-Nov	Tubing leak. Change BHP.

TABLE F.1: 2011-2012 PRESSURE SURVEY SUMMARY

Well Location	Date	SI Hours	Pressure (kPa)	Type
1B0/07-16-002-29W1/0	27-Oct-11	6864	4074	Acoustic (Static)
1B0/09-17-002-29W1/0	9-Nov-11	1200	4125	Acoustic (Static)
1A0/04-09-002-29W1/0	4-Jan-12	1704	8753	Acoustic (Static)
102/13-04-002-29W1/0	4-Jan-12	1704	5217	Acoustic (Static)
102/05-09-002-29W1/0	4-Jan-12	1704	4466	Acoustic (Static)
102/06-08-002-29W1/0	4-Jan-12	1704	6607	Acoustic (Static)
1C0/16-09-002-29W1/0	4-Jan-12	1704	4677	Acoustic (Static)
100/13-09-002-29W1/0	4-Jan-12	1704	3387	Acoustic (Static)
100/13-08-002-29W1/0	4-Jan-12	1704	3614	Acoustic (Static)
103/05-15-002-29W1/0	4-Jan-12	1704	2037	Acoustic (Static)
102/08-16-002-29W1/0	4-Jan-12	1704	5054	Acoustic (Static)
100/01-17-002-29W1/0	4-Jan-12	2160	5818	Acoustic (Static)
1B0/11-16-002-29W1/0	4-Jan-12	1704	2390	Acoustic (Static)
100/13-16-002-29W1/0	4-Jan-12	1704	4472	Acoustic (Static)
100/01-18-002-29W1/0	4-Jan-12	1704	4948	Acoustic (Static)