

Appendix B: Known Colorado Thermal Springs and Wells

B.1 Occurrences of Geothermal Waters in the State

There are over 93 locations in the state of Colorado with geothermal waters flowing to the surface, either by naturally occurring flows or hot water pumped from wellbores (1). When counting each of the 400 individual springs, seeps, and wells, the total count would be 315 thermal springs, 44 artesian wells, and 41 wells. However, grouping these together into named hot spring systems by location brings the count of Colorado thermal springs and wells to 93, representing the 48 thermal springs, 27 thermal wells, and 18 artesian wells. Currently producing thermal wells in Colorado range in depth from 3.3 m (11 ft) to 2272.7 m (7457 ft). Produced water flow in thermal wells ranges from 0.07 l/s (1.1 gpm) to 171 l/s (2710.4 gpm). The water flow from thermal springs ranges from 0.02 l/s (0.3 gpm) to 143.32 l/s (2271.6 gpm). Usage of the thermal waters is dependent on temperature and ownership. Usage classification of the known thermal waters includes 31 of no usage, 27 of unknown usage, 19 developed bathing sites, 10 undeveloped bathing sites, 6 space heating, 2 agricultural (1 stock tank, 1 irrigation), 1 aquaculture, 1 greenhouse, and 1 for mineral water.

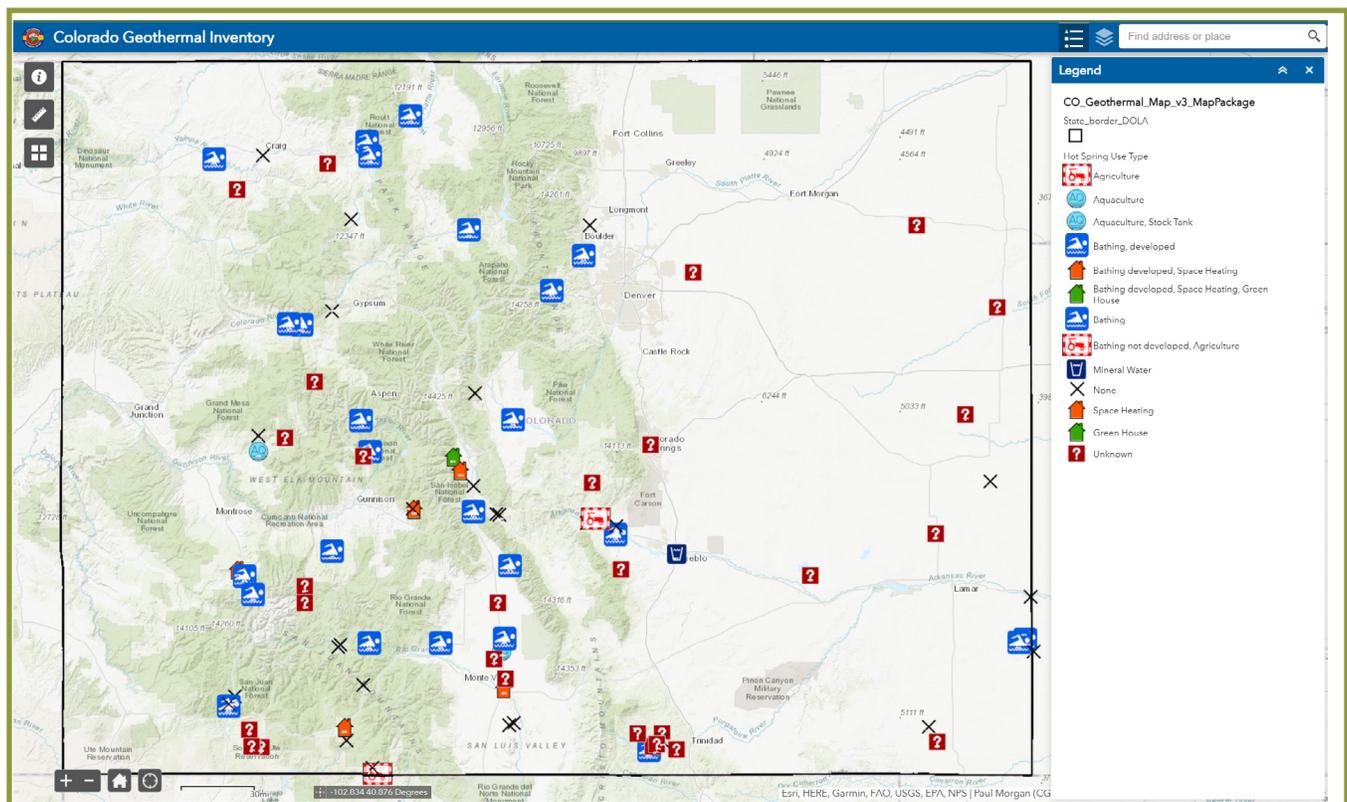


Figure B.1: Map of known Colorado thermal wells and springs.

	Count	no. of temp. meas.	Measured Temp °C			Measured Temp °F			no. of calc. geothermometry	Estimated Reservoir Temp °C			Estimated Reservoir Temp °F			no. of flow meas.	Flow (l/s)			Flow (gpm)		
			Min.	Avg.	Max.	Min.	Avg.	Max.		Min.	Avg.	Max.	Min.	Avg.	Max.		Min.	Avg.	Max.	Min.	Avg.	Max.
			14	44	84	57	111	183		20	53-83	200	68	127-181	392		0.02	6.52	171.00	0.30	103.40	2710.00
Geothermal Waters	93	396	14	44	84	57	111	183	315	20	53-83	200	68	127-181	392	263	0.02	6.52	171.00	0.30	103.40	2710.00
Thermal Springs	48	312	14	40	70	57	104	158	68	15	75	150	59	167	302	220	0.02	5.65	143.32	0.30	89.60	2271.60
Thermal Wells	27	45	20	34	84	68	93	183	17	5	55	150	41	131	302	10	0.38	13.63	51.00	6.10	216.00	808.40
Thermal Artesian Wells	18	46	25	42	70	77	108	158	17	25	65	120	77	149	248	35	0.25	10.12	171.00	4.00	160.50	2710.40
Thermal Water Use																						
No use	31	115	20	38	70	68	100	158								-	-	-	-	-	-	-
Unknown	27	30	20	26	48	68	79	118								10	0.38	6.70	15.83	6.10	106.00	251.00
Bathing (developed)	19	192	18	51	84	64	124	183								120	0.03	5.70	143.32	0.50	90.30	2271.00
Bathing (not developed)	10	45	28	43	56	82	109	133								36	0.07	2.20	8.55	1.10	33.60	135.50
Space heating	6	58	35	61	62	95	142	144								25	0.07	8.25	44.30	1.10	1307.70	702.70
Agriculture (irrigation)	1	5	70	63	70	158	145	158								3	4.75	6.14	7.00	75.30	97.30	111.00
Agriculture (stock tank)	1	3	31	39	42	88	102	108								1		0.75				11.90
Aquaculture	1	1		31			88									0						
Greenhouse	1	3	46	56	67	115	133	153								1		16.50				261.50
Mineral water	1	1		25			77									1		0.77				12.20

Table B.1: Summary table of Colorado thermal wells and springs.

B.2 Data Table of Known Geothermal Springs and Wells

This appendix gives access to an Excel worksheet with a list of known geothermal springs and wells in Colorado. This list includes names of the features, type, location, temperature, flow (if known), whether the source is perennial (flows all year), available chemistry, and well depth (wells only). At the bottom of the sheet is a list of source references, a list of location reliabilities, and a use key for the features.

The Excel Worksheet may be accessed here:

- On Google Drive: [Known Colorado Thermal Springs and Wells](#)
- From the CGS website: <https://coloradogeologicalsurvey.org/publications/of-24-12-data-for-2024-ecmc-geothermal-in-colorado-report/> (2)
- From the ECMC online library: <https://ecmc.state.co.us/library.html#/gtccsungs> (3)

B.3 References

1. Paul Morgan. Colorado Geothermal Inventory [Internet]. Denver, CO: Colorado Geological Survey; 2019 [cited 2024 Jun 7]. (Colorado Geological Survey Online Series). Report No.: ON-005-01. Available from: <https://cologeosurvey.maps.arcgis.com/apps/webappviewer/index.html?id=5dbd2f02495d4641847ca36a3509aed1>
2. Morgan P, Rogers NT. OF-24-12 Data for 2024 ECMC Geothermal in Colorado report [Internet]. Denver, CO: Colorado Geological Survey; 2024 [cited 2024 Jun 7]. (Open-File Report). Report No.: OF-24-12D. Available from: <https://coloradogeologicalsurvey.org/publications/of-24-12-data-for-2024-ecmc-geothermal-in-colorado-report/>
3. ECMC. ECMC (Energy and Carbon Management Commission). 2024 [cited 2024 Jun 12]. ECMC Library: Deep Geothermal, Carbon Capture and Storage (CCS), and Underground Natural Gas Storage (UNGS). Available from: <https://ecmc.state.co.us/library.html#/gtccsungs>