GENERAL GUIDELINE

- Please provide zero only if data is indeed zero. If there is no data or not applicable, please leave the cell blank!
- If any measurement is below detection limit (e.g. < 0.05), then please provide the detection limit (without the „<" sign), and in the corresponding remarks column, add an explanation that it is the detection limit!!! (For example if the detection limit for Lithium in your measurements is 0.05 and you have a measurement under this value, please provide 0.05 in the Li column and add DL_Li_0.05 in the corresponding Remarks column (Remarks trace element in this example)!!!
- We added remarks columns to the end of each group of elements. Please provide only the number to the elements and add any text to these remarks columns.
- The detailed guidelines for each sheet are listed below

WELL DATA

Well ID: IDs should be specific, unique and uniform in the Fluid Atlas' database. Well ID: first the initial of well (W), then the two-digit country code, then the numbering of the wells in increasing order from 001. Example: W_HU_002

Country: name of country

Local ID for the well: local ID of well as found in original paper

Well type: type of well, e.g. injection, production, gas well, etc

Name of the facility: name of the facility where the well is found

Power (thermal) (MWth): If thermal, power produced in MWth

Latitude (WGS84, decimal degree): latitude coordinate in WGS 84, decimal degrees (between -90 and 90)**.** Please use only numeric characters!

Longitude (WGS84, decimal degree): longitude coordinate in WGS 84, decimal degrees (between -180 and 180)**.** Please use only numeric characters!

Date of well completion (year): please provide only the year

Wellhead elevation (m, amsl): elevation above mean sea level in meters

Surface elevation (m, amsl): elevation above mean sea level in meters

True vertical well depth (m): distance between wellhead and bottom of well (postive number), measured along a vertical line

Measured well depth (m): distance between wellhead and bottom of well (postive number), measured along the well

Top of screened interval (m, below wellhead, true vertical depth): If there are more screened sections, please provide the tops of the screened sections as a list by Alt+Enter. The corresponding bottom measurements will be given in the next column. (positive number) Depth given as true vertical depth

Bottom of screened interval (m, below wellhead, true vertical depth): If there are more screened sections, please provide the bottoms of the screened sections in the respective order as a list by Alt+Enter. Depth given as true vertical depth (positive number)

Top of screened interval (m, below wellhead, measured depth): the same as above, but with measured depth

Bottom of screened interval (m, below wellhead, measured depth): the same as above, but with measured depth

Hydraulic head (m, amsl): Height of a vertical column of water at rest referenced to a datum plane. Derived as $p/(\rho g)$

PZ data (MPa/m): Pressure (P) change along a vertical axis (Z), given as the gradient of the pore pressure: how the pressure is changing over a unit depth: (P2-P1)/(Z2-Z1) [MPa/m]. If you have multiply PZ data, please list it with Alt+Enter. Provide the corresponding depth also as a list in the next (PZ data depth) column.

PZ data depth (m): Depth of the measured pressure change (PZ). Please provide as a list by Alt+Enter in the respective order.

Bottomhole temperature (°C): temperature at the bottom of the well in °C. Please provide the measurement depth in the next column.

Depth of measured bottomhole temperature (m): Depth of the measured bottomhole temperature

Outflow temperature (°C): Outflow temperature in °C. If there are multiple measurements, please provide them as list by Alt+Enter. If applicable, provide the year of the measurement in the next column in respective order.

Year of outflow temp. measurement: Year of the outflow temperature measurement. If there are more measurements, please provide them as list by Alt+Enter in the respective order.

Well yield (m3/hour): Well yield in m^3/h. Please provide the year and remarks of measurement in the next columns if applicable, list with Alt+Enter if needed.

Year of well yield measurement:

Remarks of well yield measurement: e.g. artesian, pumping

Scaling exists (Y/N)

Inhibitor added (Y/N)

Geothermal gradient in well (°C/100m): If data is an interval, please provide average. Please pay attention to the measurement unit.

References for the data (link/DOI/ISBN/ISSN/national archive identifier): List by Alt+Enter if multiple

Remarks: Please provide remarks here if needed for any column

FLUID SAMPLE DATA

FLUID SAMPLE IDENTIFICATION

Well ID: Respective Well ID of the fluid sample. The well the fluid sample was taken from.

Fluid sample ID: IDs should be specific, unique and uniform in the Fluid Atlas' database. Fluid sample ID: first the reference to the well ID, then the initials of 'fluid sample' (FS), then the numbering of the fluid samples in increasing order from 001. Example: W_HU_002_FS_018.

Local ID for fluid sample: local ID of fluid sample as referenced in literature

Sampling method (please select): Choose from Freeflow, Pumping, Pointwise (with bailer), Pumping with packers, Gas-lift test and fluid inclusion method**.**

Sample depth (m): m below wellhead. interval if packers used. If unknown, leave blank.

Sample location: Location of the fluid sample, like Well-head - Separator High-Pressure, Well-head - Separator Low Pressure, Well-head - Weir box, Well-head – TPS, Surface, etc

Sampling date: Date of sampling

Analysis date: Date of the analysis of the fluid sample

FLUID SAMPLE PHYSICAL PROPERTIES

Dominant phase by mass (please select): Please choose from: Liquid, Gas, Condensate, Two-phase.

Temperature (°C): temperature of the fluid sample in °C.

Pressure (MPa): Pressure at the sampling depth (MPa).

Hydraulic head (m): At the sampling depth, given in m amsl as $h0+p/(\rho g)$. Please note that it is not calculated from the wellhead, but the mean sea level.

Density (kg/dm3): please pay attention to the unit (kg/dm^3) (numeric, between 0 and 2)

Kinematic viscosity (m2/s)

Dynamic viscosity (kg/m/s)

Specific heat capacity (J/K/kg)

Electrical conductivity (µS/cm, EC25)

FLUID SAMPLE CHEMICAL PROPERTIES

pH: On site measurement. Analyses may be for a different phase to that recorded for the well. Range 0-14

pH temperature: temperature, at which the pH was measured

Dissolved oxigen (mg/L): In situ measurement

Eh (mV): Redox potential, in situ measurement

Total alkalinity (meq/L): In situ measurement (0-2500)

Carbonate alkalinity (meq/L): In situ measurement

TDS (mg/L): Total Dissolved Solid

TDG (Nml/kg): Total dissolved gas in Normal ml/kg H2O

GLR: Gas/Liquid Ratio

Remarks: Analytical method or any other comments regarding the previous variables in fluid samples

DISSOLVED MAJOR CATIONS (MG/L)

Ca, K, Mg, Na, Si (mg/L)

TMC: Total Major Cations (mg/L). Value must be approximately the sum of the major cations listed above.

Remarks major cations: Analytical method for dissolved major cations analysis or any other comments regarding dissolved major cations

DISSOLVED TRACE ELEMENTS (MG/L):

Ag, Al, As, Au, B, Ba, Be, Bi, Br, Co, Cr, Cu, Cs, Fe, Ga, Ge, Hf, Hg, I, In, Li, Mn, Nb, Ni, Pb

PGE: Platinum Group Elements, if you have PGE data, please fill in the „PGE and REE in fluid samples" sheet

REE: Rare Earth Elements, if you have REE data, please fill in the „PGE and REE in fluid samples" sheet

Rb, Sb, Sc, Sr, Ta, Ti, W, Zn

Remarks trance elements: Analytical method for trace alament analysis or any other comments regarding trace elements in fluid samples

DISSOLVED MAJOR ANIONS (MG/L)

Cl, S, F, CO_3, HCO_3, SO_4, PO_4, HBO_2 (mg/L)

TMA: Total Major Anions (mg/L). Value must be approximately the sum of the major anions listed above.

Remarks major anions: Analytical method for dissolved major anions analysis or any other comments regarding dissolved major anions

ORGANICS AND PETR. COMP. (MG/L)

TOC: Total Organic Carbon (mg/L)

TPH: Total Petroleum Hydrocarbon (mg/L)

BTEX: Benzene, Toluene, Ethylbenzene and Xylene (mg/L)

Remarks organics and petr. components: Analytical method or any other comments regarding organics and petroleum components

DISSOLVED GAS (VOL%): Volume % of the total dissolved (gas TDS) as 100%

CO_2, O_2, H2S, N_2, CH_4, Ar, H_2, He

Remarks dissolved gas: Analytical method or any other comments regarding dissolved gas

ISOTOPES (‰)

Oxigen-18

Deuterium (2H)

Tritium (3H): For Tritium, please give the value in Bq/L (Becquerel/liter), not in ‰

Oxigen-18 (SO_4)

Sulfur-34 (SO_4)

Sulfur-34 (H2S)

Carbon-13 (CO_2)

Lithium-7

Boron-11

87Sr/86Sr

Remarks isotopes: Analytical method or any other comments regarding isotopes in fluid sample

REFERENCES FOR THE DATA (LINK/DOI/ISBN/ISSN/NATIONAL ARCHIVE IDENTIFIER; LIST IF MULTIPLE): List by Alt+Enter if multiple

REMARKS: Please provide remarks here if needed for any column

ROCK SAMPLE DATA

RESERVOIR DATA

Well ID: Respective Well ID. The well the rock sample originates from. If the rock sample is not taken from a well, please indicate the nearest well and add the coordinates or place name to the remarks column.

Reservoir type (please select): Please select from Porous, Karstic, Fractured, Double porosity

Reservoir pressure (please select): Please select from Hydrostatic, Subhydrostatic or Overpressured. Subhydrostatic: at least 5 bar less than the hydrostatic; Overpressured: 10 bar higher than the hydrostatic

Hydraulic conductivity (m/s): Please provide if there was a pump test. If interval, provide average.

ROCK SAMPLE IDENTIFICATION

Rock sample ID: first the reference to the well ID, then the initials of 'rock sample' (RS), then the numbering of the rock samples in increasing order from 001. Example: W_HU_002_RS_001

Local ID for rock sample: local ID for the rock sample

Sampling method: method of taking the rock sample

Sample depth (m): m below wellhead. Interval if packers used .

Sampling date (year): Year when the rock sample was taken

Analysis date (year): Date of the analysis of the rock sample

ROCK SAMPLE GEOLOGICAL INFORMATION

Rock type (please select): Please select from the list: Granite; Granodiorite; Tonalite; Syenite; Monzonite; Diorite; Gabbro; Peridotite; Pyroxenite; Hornblendite; Carbonatite; Rhyolite; Trachyte; Dacite; Andesite; Basalt; Alkali basalt; Ultramafic volcanic rock; Rhyolitic volcaniclast; Dacitic volcaniclast; Andesitic volcaniclast; Basaltic volcaniclast; Marble; Quartzite; Slate; Phyllite; Schist; Gneiss; Granulite; Hornfels; Greenschist; Serpentinite; Amphibolite; Eclogite; Migmatite; Pelite; Psammite; Arcose; Psephite; Conglomerate; Breccia; Carbonatic siliciclastic rock; Marl; Dolomite; Micritic limestone; Sparitic limestone; Biolithite; Bioclastic rock; Fresh-water carbonate rock; Sulphate salt rock; Chloride salt rock; Nitrate salt rock; Borate salt rock; Mixed salt rock; Chert; Phosphorite; Coal; Oil shale; Iron ore; Manganese ore; Aluminia ore; Non-ferrous metal ore

Age of rock: Please select from the list: Quaternary; Neogene; Paleogene; Cretaceous; Jurassic; Triassic; Permian; Carboniferous; Devonian; Silurian; Ordovician; Cambrian; Precambrian

Mineralogical composition: Please list the main minerals, separated by Alt+Enter.

Formation name: Name of the formation where the rock sample was taken from

Formation code on geological map: Code of the formation

Link to geological map

MAIN ELEMENTS IN ROCK SAMPLES (WEIGHT PERCENT): Weight % of main elements in the rock sample. The total dissolved solid (TDS) as 100% Please indicate the analytical method in the 'Remarks: main elements' column.

SiO_2, Al_2O_3, Fe_2O_3, MgO, CaO, Na_2O, K_2O, TO_2, P_2O_5, MnO, SO_3

LOI: Loss on Ignition (weight percent)

Remarks: main elements: Analytical method for main element analysis or any other comments regarding main elements in rock samples

TRACE ELEMENTS IN ROCK SAMPLES (PPM): Amount of trace elements in the rock sample in PPM. Please indicate the analytical method in the 'Remarks: trace elements' column.

Ag, As, B, Ba, Be, Bi, Cd, Ce, Co, Cr, Cs, Cu, Ga, Ge, Hf, Hg, In, Li, Mo, Nb, Ni, Pb, PGE, Rb, REE, S, Sb, Se, Sn, Sr, Ta, Th, Tl, U, V, W, Zn, Zr

Remarks: trace elements: Analytical method for trace element analysis or any other comments regarding trace elements in rock samples

ROCK SAMPLE PHYSICAL PROPERTIES

Permeability (Darcy): Permeability of rock in Darcy

Porosity: Ratio of the volume of voids to the total soil volume in percent.

Heat capacity (J/K/kg)

Thermal conductivity (W/m/K)

REFERENCES FOR THE DATA (LINK/DOI/ISBN/ISSN/NATIONAL ARCHIVE IDENTIFIER; LIST IF MULTIPLE)

REMARKS

PGE AND REE IN FLUID SAMPLES

IDENTIFICATION

Well ID: Respective Well ID of the fluid sample. The well the fluid sample was taken from.

Fluid sample ID: Respective fluid sample ID.

PGE IN FLUID SAMPLES (PPM)

Os, Ir, Ru, Rh, Pt, Pd: amount of Platinum Group Elements in ppm

REE IN FLUID SAMPLES (PPM)

Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu: amount of Rare Earth Elements in ppm

PGE AND REE IN ROCK SAMPLES

IDENTIFICATION

Well ID: Respective Well ID of the rock sample. The well the rock sample was taken from.

Rock sample ID: Respective rock sample ID.

PGE IN ROCK SAMPLES (PPM)

Os, Ir, Ru, Rh, Pt, Pd: amount of Platinum Group Elements in ppm

REE IN ROCK SAMPLES (PPM)

Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu: amount of Rare Earth Elements in ppm

GAS SAMPLE DATA

GAS SAMPLE IDENTIFICATION

Well ID: Respective Well ID of the gas sample. The well the gas sample was taken from.

Fluid sample ID: Respective fluid sample ID if applicable. ID of the fluid sample if the gas sample was taken together with it.

Gas sample ID: IDs should be specific, unique and uniform in the Fluid Atlas' database. Gas sample ID: first the reference to the well ID, then the initials of 'gas sample' (GS), then the numbering of the gas samples in increasing order from 001. Example: W_HU_002_GS_001.

Local ID for gas sample: local ID of gas sample as referenced in literature

Sampling location (please select): Choose from:

- wellhead
- deep: If deep is given, please specify depth in next column.

Sampling depth (m): m below wellhead. Please fill in if „deep" was chosen in the previous column. If unknown, leave blank.

Sampling date: Date of sampling

Analysis date: Date of the analysis of the gas sample

Remarks (Gas ID): Any remarks regarding Gas sample identification

GAS SAMPLE BASIC PROPERTIES

Phase of sample (please select): Please choose from:

- gas
- dissolved gas
- condensate

Temperature (°C): temperature of the gas sample in °C.

Pressure (MPa): Pressure of gas during sampling (MPa).

pH: pH of the gas sample. Range 0-14

pH temperature: temperature, at which the pH was measured

Gas/Liquid ratio (GLR): Gas to liquid ratio

Total Dissolved Gas (Nml/kg): gas dissolved in fluid component (Nml/kg)

Remarks (Gas basic): Any remarks regarding Gas basic properties

MAIN GAS ELEMENTS (µMOL/MOL OR PPM)

Ar, CO_2, H_2, O_2, N_2, He, CH_4: elements in µmol/mol or ppm

Remarks (main gas elements): Any remarks regarding Main gas elements

MAJOR CATIONS (PPM)

B, Ca, Fe, K, Mg, Na, SiO2: elements in ppm

TMC: Total Major Cations (ppm). Value should be approximately the sum of the major cations listed above

Remarks (major cations): Any remarks regarding Dissolved major cations

MAJOR ANIONS (PPM)

Cl, S, F, CO_2, CO_3, H_2S, H_2, HCO_3, SO_4, PO_4, HBO_2, S_2O_3: elements in ppm

DIC (total dissolved inorganic carbon): total dissolved organic carbon in ppm

TMA: Total Major Anions (ppm): Value should be approximately the sum of the major anions listed above

Remarks (major anions): Any remarks regarding Dissolved major anions

TRACE ELEMENTS (PPB)

AG, AL, AR, AS, AU, BA, BE, BR, CD, CE, CO, CR, CS, CU, DY, ER, EU, GA, GD, GE, HF, HG, HO, I, LA, LI, LU, MN, MO, ND, NI, P, PB, PR, RB, SB, SC, SE, SM, SN, SR, TB, TE, TH, TI, TL, TM, U, V, W, Y, YB, ZN: elements in ppb

REMARKS (TRACE ELEMENTS): Any remarks regarding Trace elements

NOBLE GASES

^{20}Ne (vol-ppm): amount of ^{20}Ne in volumetric ppm

^{84}Kr (vol-ppb): amount of ^{84}Kr in volumatric ppb

NOBLE GAS ISOTOPE RATIOS

^{3}HE/^{4}HE [RA], ^{20}NE/^{22}NE, ^{21}NE/^{22}NE, ^{40}AR/^{36}AR, ^{38}AR/^{36}AR, ^{128}XE/^{132}XE, ^{129}XE/^{132}XE, ^{130}XE/^{132}XE, ^{131}XE/^{132}XE, ^{134}XE/^{132}XE, ^{136}XE/^{132}XE: ratios of the given noble gas isotopes (unitless)

NOBLE GAS ELEMENT RATIOS

^{4}He/^{20}Ne, ^{4}He/^{40}Ar (10^{-3}), ^{20}Ne/^{40}Ar(10^{-3}), ^{40}Ar/^{84}Kr (10^{3}), ^{40}Ar/^{132}Xe (10^{3}), ^{84}Kr/^{132}Xe, ^{20}Ne/^{36}Ar: ratios of the given noble gases (unitless)

Remarks (noble gas): Any remarks regarding Noble gases

REFERENCES FOR THE DATA (LINK/DOI/ISBN/ISSN/NATIONAL ARCHIVE IDENTIFIER; LIST IF MULTIPLE): List by Alt+Enter if multiple

REMARKS (GENERAL): Please provide remarks here regarding the data in general

SCALE SAMPLE DATA

SCALE SAMPLE IDENTIFICATION

Well ID: Respective Well ID. The well, the scale sample was taken from.

Scale sample ID: first the reference to the well ID, then the initials of 'scale sample' (SS), then the numbering of the scale samples in increasing order from 001. Example: W_HU_002_SS_001

Local ID of scale sample: local ID of the scale sample

Sample location (please select): location of the scale sample:

- Wellhead,
- Well (below wellhead: production pipe, casing, etc.),
- Other (after wellhead: heat exchanger, buffer tank, surface pipeline system, separator, OP, FFCV),
- Unidentified

Sample depth (m): m below wellhead.

Sampling date (year): Year when the scale sample was taken

Analysis date (year): Date of the analysis of the scale sample

Remarks (Scale ID): any comments regarding the identification of scale sample

OXIDES IN SCALE SAMPLES (WEIGHT PERCENT): Weight % of oxides below in the scale sample.

SiO_2, Al_2O_3, Fe_2O_3, MnO, MgO, CaO, Na_2O, K_2O, TiO_2, P_2O_5

LOI: Loss on Ignition (weight percent)

Total oxides (sum): amount of total oxides in ppm

Remarks (oxides): analytical method or any comments regarding main oxides in scale samples

MAIN ELEMENTS (PPM): Amount of main elements in the scale sample in PPM

Al, C, Ca, Fe, K, Mg, Mn, Na, S, Ti

Remarks (main elements): Analytical method for main element analysis or any other comments regarding main elements in scale samples

TRACE ELEMENTS IN SCALE SAMPLES (PPM): Amount of trace elements in the scale sample in PPM

Ag, As, Au, B, Ba, Bi, Be, Br, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Ga, Ge, Gd, Hf, Hg, Ho, In, Ir, La, Li, Lu, Mo, Nb, Nd, Ni, Pb, Pd, Pr, Rb, Re, Ru, Sc, Sb, Se, Sm, Sn, Sr, Ta, Tb, Te, Th, Tl, Tm, U, V, W, Y, Yb, Zn, Zr

Remarks (Trace elements): analytical method for trace element analysis or any other comments regarding trace elements in scale samples

REFERENCES FOR THE DATA (LINK/DOI/ISBN/ISSN/NATIONAL ARCHIVE IDENTIFIER; LIST IF MULTIPLE): List by Alt+Enter if multiple

REMARKS: Please provide remarks here regarding the data in general