Field List

Interchange Content Element	Data Type	Implementation	Cardinality	Element Description	oTherm field
OBJECTID	int	int	1	Added by GIS software.	**N/A**
FacilityURI	URI	string 255	1	Unique identifier that specifies the facility. Ideally, the identifier is an http URI that will dereference to a known, useful representation of the feature. This identifier will be used to cross reference the feature to other information related to this feature.	**[site].uuid**
FacilityName	free text	string	1	Common or human-readable name by which the facility is known. Recommend using only web-safe characters (a-z A-Z 0-9 _-.) in the name. Be consistent in the naming convention used within any given dataset.	**[site].name**
Label	free text	string	1	Short text string for labeling the feature on maps. Can be the same as feature name. A label may be an OtherLocationName, OtherID or the Name or some combination.	**[site].id**
OtherID	free text	string	0..1	Alternative identifier(s) for the feature. Indicate the authority from which the OtherID is derived with a short (lower case) prefix delimited by a colon ':' If identifiers from multiple different authorities are available, delimit these identifiers with the pipe '|' character. For example, if a well were known to the Arizona Geological Survey (AZGS) by the id number 1337, the prefix would be azgs: and the identifier string would be azgs:1337. Any such prefixes used to scope identifiers should be explained in the dataset metadata.	**None**
FacilityOwner	free text	string	1	Companies, individuals, or other entities who own the property. Separate multiple with a pipe '|' character.	**None**
Notes	free text	string	0..1	Any additional information to be provided, including description and other data not captured by the template, details about collection method, contact information for related parties (original collector, project PI), collection platform or Launch, etc.	
FacilityStatus	term	string	1	Status of the feature at the time indicated in the StatusDate element. If unknown enter "unknown" in the field.	**None**
StatusDate	calendarDate	dateTime	0..1	The status of the feature can change from time to time, thus it is useful to know the date on which a given status was reported. Day, month and year must be specified; Excel will display using ISO 8601 date and time (yyyy-mm-ddT:hh:mm) format. If only the year is known, enter month and day as 'Jan. 1', (or '1/1/', or '1-1-', or 'January 1,'). All dates will be converted to yyyy-mm-ddThh:mm.	**None**
SystemType	term	string	1	Physical type of the system.	**source_type**

HeatExchangeSystem	term	string	1	Name of compound used to facilitate heat exchange. (Glycol, CO2, Water, Ethylene).	**antifreeze_type**
HVAC_specs	free text	string	0..1	Additional specifications of the HVAC system with respect to the physical installation.	**[site.thermal_load]. heating_design_load**
DateInstalled	calendarDate	dateTime	1	Date facility installation was completed. Day, month and year must be specified; Excel will display using ISO 8601 date and time (yyyy-mm-ddT:hh:mm) format. If only the year is known, enter month and day as 'Jan. 1', (or '1/1/', or '1-1-', or 'January 1,'). All dates will be converted to yyyy-mm-ddThh:mm.	**[source].date_installed**
HeatApplication	term	string	1	Statement for how heat is being used. Should come from controlled vocabulary.	**[site].application**
County	free text	string	1	Required. County name. If unknown or not applicable use 'missing'. If offshore, specify 'offshore' in this field.	**None**
State	free text	string	1	Required. State name without abbreviations. If unknown or not applicable use 'missing'. For offshore locations, specify the governing or nearest state and list the county as 'offshore'.	**site.state**
PLSS_Meridians	free text	string	0..1	List east-west and north-south meridians that Townships and Ranges are referenced to.	**None**
Township	free text	string	0..1	Township in PLSS grid, relative to reported baseline. Formatting and punctuation should be consistent for all locations referenced to the same baseline and meridian. Recommend adding leading '0's so that all number strings are the same length (typically 2 or occasionally 3 digits). Examples 01N, 112S, 001 N.	**None**
Range	free text	string	0..1	Range in PLSS grid, relative to reported meridian. Formatting and punctuation should be consistent for all locations referenced to the same baseline meridian. See instructions on TWP field.	**None**
Section_	decimal	double	0..1	PLSS section number. Must be numeric or null. Some surveys include half sections indicated by a 'nn.5' designation, where n indicates a number.	**None**
SectionPart	free text	string	0..1	Subdivision of a PLSS section	**None**
OtherLocationInformation	free text	string	0..1	Names of geographic features associated with the site that will be useful as search criteria to locate the information for this site. If identifiers from multiple different authorities are available, delimit these identifiers with the pipe character '|'.	**None**
UTM_E	free text	string	0..1	UTM easting coordinate as decimal number.	**None**
UTM_N	free text	string	0..1	UTM northing coordinate as decimal number,	**None**
UTMDatumZone	free text	string	0..1	The datum and UTM zone for the reported coordinates. Datum for most locations should be NAD27 or NAD83.	**None**

LatDegree	decimal	double	1	Latitude coordinate for facility site center point; values should be provided with at least 4 significant digits for sufficient precision (7 decimal places is recommended by the USGS (OFR 02-463, p. 6). Use decimal degrees.	**[site].latitute**
LongDegree	decimal	double	1	Longitude coordinate for facility site center point; values should be provided with at least 4 significant digits for sufficient precision (7 decimal places is recommended by the USGS (OFR 02-463, p. 6). Use decimal degrees.	**[site].longitude**
SRS	free text	string	1	The spatial reference system. It is recommended that an EPSG code be used to identify the SRS used to specify the location. If an EPSG code is used, identify it as such with the prefix 'EPSG:' For common EPSG codes, see the Data Valid Terms tab. EPSG:4326 is the identifier for WGS84, and should be the text in this field.	**None**
LocationUncertaintyStatement	free text	string	1	Information on how the original location was determined, e.g., 1:250,000 map, gps unit, Google Earth, PLSS Conversion, Spatial Datum Conversion, e.g., NAD27 to WGS84.	**None**
Driller	free text	string	0..1	Name of contractor that drilled the borehole(s) for the Heat Pump facility.	**None**
NumberOfWells	decimal	double	1	Enter the number of wells for the completed system.	**n_circuits**
SpacingAvg_ft	decimal	double	1	The average distance between boreholes in feet.	
SpudDate	calendarDate	dateTime	0..1	Date on which drilling of the well bore began. Day, month and year must be specified; Excel will display using ISO 8601 date and time (yyyy-mm-ddT:hh:mm) format. If only the year is known, enter month and day as 'Jan. 1' . If year is unknown, enter 1900. All dates will be converted to yyyy-mm-ddThh:mm. This is intended as a searching aid.	**None**
EndedDrillingDate	calendarDate	dateTime	0..1	Date on which drilling of the well bore ended. Day, month and year must be specified; Excel will display using ISO 8601 date and time (yyyy-mm-ddT:hh:mm) format. If only the year is known, enter month and day as 'Jan. 1'. If year is unknown, enter 1900. All dates will be converted to yyyy-mm-ddThh:mm. This is intended as a searching aid.	**None**
Permit	free text	string	0..1	Permit(s) assigned to the facility; if identifiers from multiple different authorities are available, delimit these identifiers with the pipe '|' character.	**None**
ElevationGL	decimal	double	0..1	Elevation, in meters, at ground level for the feature. 3 decimal places is recommended by the USGS (OFR 02-463, p.6). Elevations should be reported relative to mean sea level (MSL). If elevation varies, use the average elevation.	**None**

DrillerTotalDepth_ft	decimal	double	0..1	Length of borehole from borehole origin to bottom of borehole. If there are multiple wells, use the depth of the deepest well.	**[vertical_loop_spec] .borehole_depth**
HoleDiameter_in	decimal	double	0..1	Bit diameter at the origin of the borehole, reported in inches in decimal format.	**[vertical_loop_spec] .borehole_diameter**
CasingType	free text	string	0..1	Type of casing used in the borehole, for example "steel" or "plastic".	**None**
CasingDiameter_in	decimal	double	0..1	Internal (ID) or external diameter (ED) should be noted. Units must be same as those used to report bit diameter (Diameter units column). Note that if there are different casing types over different intervals in the well bore, these should be noted in tuples delimited by the pipe character '|' as follows: {top-bottom1, diameter1, xD1 | top-bottom2, diameter2, xD2}.	**None**
CasingDepth_ft	decimal	double	0..1	Bottom of cased interval of the borehole as reported by the driller.	**None**
DepthToWater_ft	decimal	double	0..1	Depth to groundwater in feet.	**[open_loop] .static_water_depth**
Depth_ft	decimal	double	0..1	Depth of the trench that is part of the system identified by the FacilityURI.	**[horizontal_loop_spec] .depth_to_bottom**
NumberOfTrenches	decimal	double	0..1	The number of trenches that are part of the system identified by the FacilityURI.	**[horizontal_loop_spec] .number_trenches**
FluidType	term	string	1	Please use Commodity of Interest vocabulary; use multiple records if multiple fluids produced or injected during reported interval.	**[ghex_pipe_spec]. antifreeze_type**
PipeDiameter_in	decimal	double	1	Diameter of the pipe, in decimal inches, used to convey the fluid within the system.	**[ghex_pipe_spec]. pipe_diameter**
PipeMaterial	free text	string	1	Material of the pipe used to convey the fluids.	**[ghex_pipe_spec]. pipe_material**
PipeTotalLength_ft	decimal	double	0..1	Total length of the pipe in the system in decimal feet.	**[ghex_pipe_spec] .total_pipe_length**
LithologyDescription	free text	string	0..1	Description of the lithology of surface geology or geologic column for well interval, e.g. granite, sandstone, limestone, arkose, schist. Recommend using CGI simple lithology vocabulary (see tab in this workbook). Use to account for EarthChem Material, EarthChem Type, EarthChem Composition.d alluvium, 36-40': gravels; etc.	**[source] .formation**
GeologicFormation	free text	string	0..1	Name of geologic unit that was encountered during drilling or trenching. Include hierarchy of names if the unit is part of a higher-rank geologic unit, e.g. Group name/Formation name, or Formation/Member, or Group/ Formation. Spell out unit names in full.	**None**
FacilityContact	free text	string	1	Person, organization, or position name for information about the facility.	**None**
PostalAddress	free text	string	0..1	Postal address for facility. Street, City, State.	**None**
Zip	free text	string	0..1	Zip code for facility; may be used for some geolocation information.	**[site].zip**
Phone	free text	string	0..1	Telephone number to contact party connected with facility.	**None**

EMailAddress	free text	string	0..1	E-mail address to contact party connected with facility.	**None**
Source	free text	string	1	Mandatory. Short text explanation of source of information defining this feature or record; may be author-date type citation, well log, report, data files etc., but should include some indication of how digital data originated. If unpublished data, provide researcher name, date and research institution for proper citation. Separate multiple citations with pipe '|' character.	**None**
MetadataURI	URI	string 255	0..1	URI identifying (and ideally dereferencing to get) a full formal metadata record for the observation report. A time series of observations may all reference the same metadata record that provides contact information and details on procedure, etc.	**None**
UpdateTimeStamp	calendarDate	dateTime	1	Date of last time line of data was updated or corrected by the service provider.(Format: 2012-06-22T00:00).	**None**
Shape	gml: PointProperty Type	gml: PointProperty Type	1	Managed by GIS and web feature server; generated from point lat, long, srs	**None**