AMENDED ANNOUNCEMENT: LAZIO GEOTHERMAL LITHIUM PROJECT

MAIDEN MINERAL RESOURCE ESTIMATE

Dear Sir/Madam,

The Company has identified an error in the ASX announcement dated 18 April 2024.

The SOPE (sulphate of potash (K2SO4) Equivalent) reported was incorrectly calculated by multiplying K (potassium) by a factor of 3.23 as explained in the Notes to Table 1.1. *Lazio Brine MRE by classification,* whereas SOPE is calculated by multiplying K by 2.23.

The reporting of SOPE throughout the announcement has now been amended to reflect the correct calculation, as shown in the table and notes below:

JORC 2012: Lazio Brine Mineral Resources, at & above 70 mg/l Li cut-off

Category	*Volume*	*Lithium*		*LCE*	*Boron as Boric Acid*		*Potassium*		*SOPE*
	k m³	*mg/l*	*kt*	*Kt*	*mg/l*	*kt*	*mg/l*	*kt*	*kt*
Indicated	*8,145,000*	*190*	*39*	*208*	*7,500*	*1,500*	*84,000*	*17,500*	*39,025*
Inferred	*150,556,000*	*90*	*352*	*1,874*	*9,700*	*36,800*	*22,000*	*84,000*	*187,320*
Total	*158,701,000*	*100*	*392*	*2,087*	*9,500*	*38,400*	*25,000*	*101,500*	*226,345*

Table 1.1. Lazio Brine MRE by classification

Notes:

- *Mineral Resources are based on JORC Code definitions.*
- *A cut -off grade of at and above 70 mg/l Li has been applied to the model as preliminary test work has shown that there are reasonable prospects of the minerals of interest being extracted economically above this grade.*
- *An effective porosity of 2.5% was assumed for areas outside of the influence of the volcanic pipes and 3.5% within a 250 m radius of volcanic pipes intersected by drilling or interpreted from geophysical surveys.*
- *Resource blocks are not included if they are outside of a 5,000 m radius of wells with assay values.*
- *Rows and columns may not add up exactly due to rounding.*
- *LCE (lithium carbonate (Li_2CO_3) Equivalent) is calculated by multiplying Li by 5.323.*
- *SOPE (sulphate of potash (K_2SO_4) Equivalent) is calculated by multiplying K by 2.23.*

There are no other material changes required to the announcement and the Company confirms that all underlying data, modifying factors and statements contained in the announcement are correct and remain valid.

Authorised for ASX release on behalf of the Company by the Altamin Board

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ALTAMIN

LAZIO GEOTHERMAL LITHIUM PROJECT
MAIDEN MINERAL RESOURCE ESTIMATE

HIGHLIGHTS

- The maiden Mineral Resource estimate (MRE) for the Lazio Geothermal Lithium Project (Lazio Project) is the result of the interpretation of historical well field data, desktop technical assessments of various process options, and recent laboratory scale test work on synthesised brine that successfully demonstrated recovery of the lithium. The MRE, reported at and above a cut-off grade of 70 milligrams per litre (mg/l) lithium (Li), is:

JORC 2012: Lazio Brine Mineral Resources at & above 70 mg/l Li cut-off									
Category	Volume	Lithium (Li)		LCE[1] (Li_2CO_3)	Boron as Boric Acid		Potassium (K)		SOPE[2] (K_2SO_4)
	k m^3	mg/l	kt	kt	mg/l	kt	mg/l	kt	kt
Indicated	8,145,000	190	39	208	7,500	1,500	84,000	17,500	39,025
Inferred	150,556,000	90	352	1,874	9,700	36,800	22,000	84,000	187,320
Total	158,701,000	100	392	2,087	9,500	38,400	25,000	101,500	226,345

1 LCE – lithium carbonate equivalent (Li_2CO_3)
2 SOPE – sulphate of potash equivalent (K_2SO_4)

- The MRE has an exceptionally high potassium concentration, which averages 84,000 mg/l (Indicated) and 22,000 mg/l (Inferred), equivalent to approximately 187 kg and 49 kg of sulphate of potash equivalent (SOPE) (K_2SO_4) per m^3 of brine respectively.
- Bench-scale direct lithium extraction and crystallisation test work (DLEC™) have been successfully conducted to produce battery-grade lithium carbonate crystals on both high and low-grade brines, which were synthesised to represent those historically sampled at the Lazio project.
- A desktop analysis of conventional processing technology indicates that two commercially used methods will each be suitable for production of sulphate of potash (SOP) from the Lazio brines.
- An assessment and estimate of the contained geothermal heat-in-place within the Lazio Brine Reservoir has been made in accordance with United Nations Framework Classification for Resources to Geothermal Energy Resources (UNFC) (October 2022):

UNFC (October 2022): Total Heat-In-Place (PJ_{TH})[1]				
UNCF -G			UNCF-E	UNCF-F
G1 High Confidence ($P_{90\%}$)	G1+G2 Medium Confidence ($P_{50\%}$)	G1+G2+G3 Low Confidence ($P_{10\%}$)	E2	F2.1
26,613,000	46,382,000	66,926,000		

1 – Subject to the modifying factors listed in Table 2
2 – Assumes electrical conversion efficiency for a medium enthalpy geothermal brine (η) = 7.5%
UNFC-G = Estimate of the Resource Quantity
UNCF-E = Environmental – Socio-Economic feasibility
UNFC-F = Technical viability

- Applying commercially available heat to power generation technology and conservative electrical conversion efficiencies, the entire reservoir is estimated to contain significant electrical power potential, much of which can be used in providing carbon neutral heat and power to the processing methods. Thereafter any excess power can be made available to national and regional power grids.

Altamin Limited (Altamin or the Company) (ASX: AZI) is pleased to announce a maiden MRE for its Lazio Project in the central Italian Province of Lazio.

Geraint Harris, Managing Director of Altamin commented:

"***Our Altamin team and consultants have completed a thorough collection, analysis and interpretation of historical data that has lain dormant in Italy for several decades. The result of this modern review of historical data is a maiden MRE for the Lazio Project, which provides Italy with its first ever resource of lithium, more than 2 million tonnes lithium carbonate equivalent, and a sulphate of potash equivalent resource of more than 320 million tonnes. Furthermore, this very significant mineral endowment is accompanied by a geothermal estimate of between 140 and 350 MWe of potentially recoverable electrical energy, which may allow for any future extraction processes to have a low carbon footprint."***

Summary

The Project is held under six granted Exploration Licenses (ELs). These ELs are 100% owned and operated by a wholly owned Italian subsidiary of Altamin. All ELs are valid at the time of this report. The Project is approximately a 1-hour drive north from Rome near the villages of Cesano and Campagnano (Figure 1.1).

The ELs extend over the Cesano geothermal field which was drilled and tested for geothermal energy to generate electricity by Italian state power company, ENEL, in the 1970s and 1980s. The Cesano field is part of a much larger regional geothermal district which extends into Tuscany, where ENEL's geothermal plants have operated continuously since geothermal power generation was pioneered there in 1911.

The brine Mineral Resource and Geothermal Resource estimates are based on the historical drilling, testing and sampling of 16 wells within the Cesano Geothermal Field and its surrounds. Short-term and long-term flow tests of five productive wells were completed in the 1970s and 80s. The geothermal reservoir is a regional scale carbonate aquifer present across the entire project area at depths between approximately 1,300 and 3,100 meters below ground level. This region has been exposed to multiple episodes of volcanic activity represented physically at the surface in the form of calderas and scoria cones. The thermal anomaly at the top of the reservoir and the well locations are shown in Figure 1.1.

Hot brine of between 70,000 and 400,000 milligrams per litre (mg/l) total dissolved solids (TDS) is present throughout the reservoir in the project area. The highest TDS brine is associated with the hotter parts of the deposit that is co-incident with the emplacement of volcanic pipes and their associated fracturing and the lower TDS is considered to be the regional background level.

Elevated lithium is present in reported historical samples at concentrations of between 80 and 250 mg/l and potassium between 12,500 and 101,000 mg/l. The potassium concentrations are extraordinarily high due to interaction of the thermal fluids with the alkali (potassium) volcanics. These elemental concentrations have a near linear relationship to increasing TDS concentration. Boron as boric acid has been reported at concentrations of between 7,000 and 11,200 mg/l which has a reducing linear relationship to TDS. A conceptual cross section of the Cesano Geothermal Field is presented in Figure 1.2.

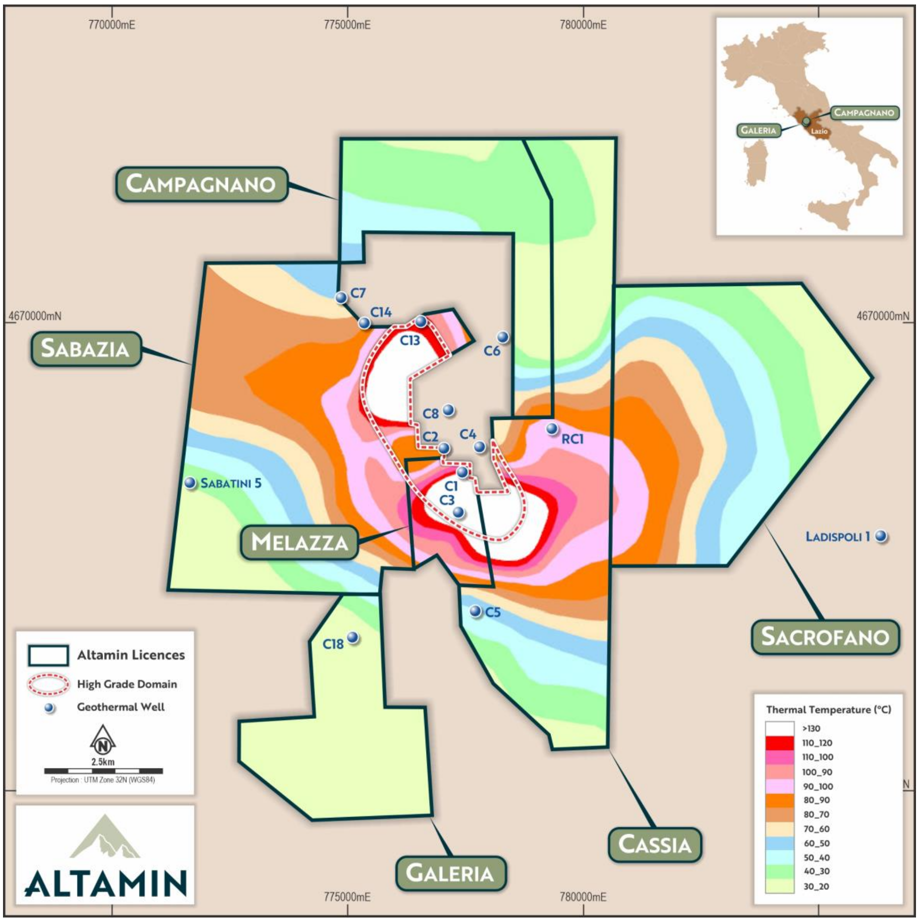

Figure 1.1: Plan View of the Temperature Areas at Top of Reservoir and the Wells (Source: STEAM/Altamin)

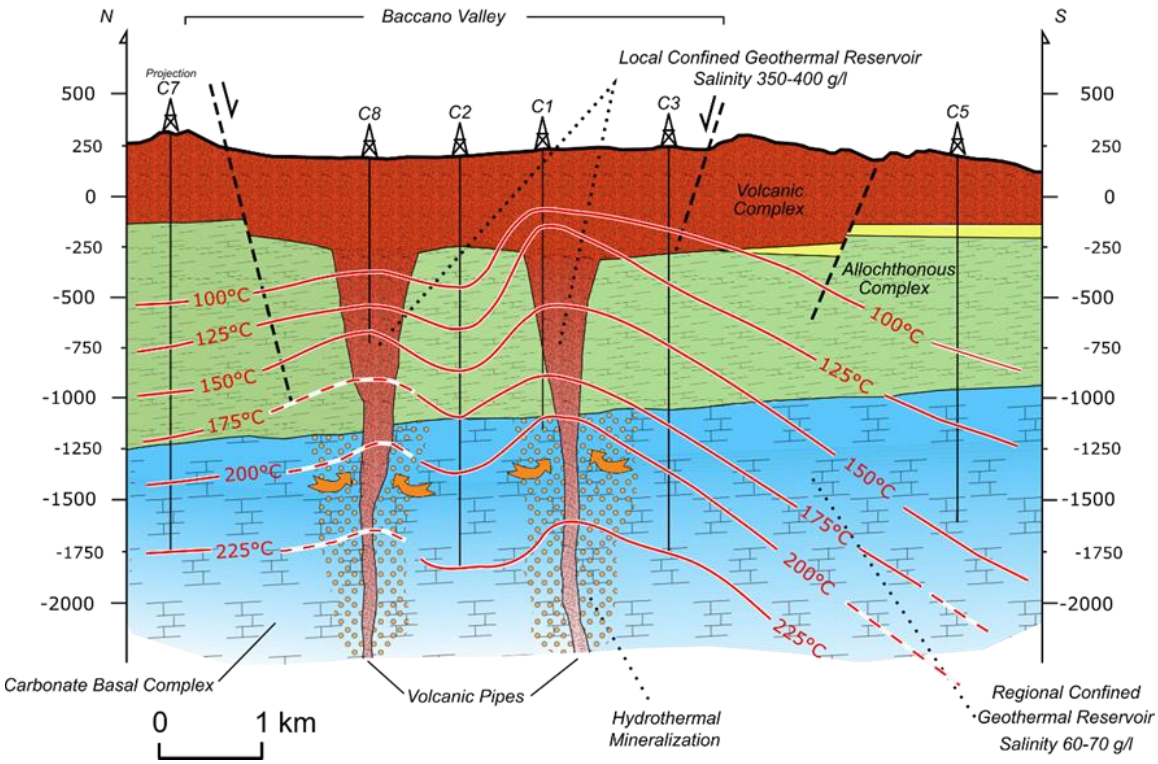

Figure 1.2: N-S Geological section (A-A’) through the conceptual model of the Cesano Geothermal Field (Source: STEAM)

The indicated category of the MRE includes the wells with long term flow testing data and multiple reported samples, which is also co-incident with the zones of the reservoir with hot high-TDS brine and corresponding high lithium and potassium grades. The inferred category of the MRE includes that part of the reservoir lying inside the EL area and where the carbonate aquifer is present within a 5,000m radius of a sampled well.

The MRE was completed using a conventional block model approach and a combination of geological, geophysical, thermal and assay data to produce a 3D spatial model of the geology, MRE and brine grades.

A 70 mg/l lithium concentration cut-off grade was applied to the MRE, as bench-scale direct lithium extraction and crystallization (DLEC™) test work has shown that concentrations at or above 70 mg/l Li is viable for recovery of battery grade lithium carbonate. This cut-off grade excludes any potential revenues from extraction of sulphate of potash (SOP), electrical energy or other value minerals.

Lithium and potassium have used industry standard methods to report post processing equivalents of Lithium Carbonate equivalent (LCE) and sulphate of potash equivalent (SOPE) respectively. Preliminary test work on synthetic brine for LCE and desktop-studies for SOPE have provided conceptually viable means for processing pathways for each of these product equivalents and are reported with their elemental tonnages in the MRE, presented in Table 1.1. However, further studies are required to better define processing routes and determine if the processing methods are feasible.

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Category	***Volume***	***Lithium***		***LCE***	***Boron as Boric Acid***		***Potassium***		***SOPE***
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The maiden Heat-in-Place estimate for the Lazio brines has been estimated using the statistical Monte Carlo method to obtain an estimate of the probability of the amount of thermal energy obtained from the reservoir. The Heat-in-Place estimate is reported using a minimum cut-off reservoir temperature of 150°C for the Campagnano, Galeria, Cassia and Sacrofano ELs and 200 °C for the Sabazia and Melazza ELs. The maiden Heat-in-Place estimate is presented in Table 1.2.

The Cesano reservoir contains both medium and high enthalpy geothermal brines, as such any potential electrical conversion of the Heat-in-Place has been estimated using a range of electrical conversion efficiencies (η) from η = 7.5 % to η = 15 %, even though certain parts of the reservoir returned η values between 18-20%. Because the electrical conversion efficiency (η) is not exactly known at this stage of investigation a potential electric power resource (in units of Mega-Watt electrical (MWe)) has been estimated for each EL using a conservative electrical conversion efficiency (η) of 7.5%, as listed in Table 1.2.

Preliminary Evaluation of Lazio Brine Reservoir for Heat and Power								
Area Name	Heat-In-Place (PJ_{TH})[1]			Recoverable Power (MWe)[2]			UNFC-E	UNFC-F
	UNFC-G1	UNFC-G2	UNFC-G3	UNFC-G1	UNFC-G2	UNFC-G3		
	High Confidence ($P_{90\%}$)	Medium Confidence ($P_{50\%}$)	Low Confidence ($P_{10\%}$)	High Confidence ($P_{90\%}$)	Medium Confidence ($P_{50\%}$)	Low Confidence ($P_{10\%}$)		
Campagnano	2,176,000	3,942,000	5,976,000	11.5	20.8	31.5	E2	F2.1
Galeria	1,419,000	2,577,000	4,148,000	7.5	13.6	21.9	E2	F2.1
Sabazia	10,873,000	17,011,000	23,158,000	57.3	89.7	122.1	E2	F2.1
Melazza	1,390,000	1,944,000	2,500,000	7.3	10.3	13.2	E2	F2.1
Cassia	5,306,000	11,191,000	16,958,000	28.0	59.0	89.4	E2	F2.1
Sacrofano	5,449,000	9,717,000	14,186,000	28.7	51.2	74.8	E2	F2.1
TOTAL	26,613,000	46,382,000	66,926,000	140.3	244.5	352.8	E2	F2.1

1 – Subject to the modifying factors listed in Table 2
2 – Assumes electrical conversion efficiency for a medium enthalpy geothermal brine (η) = 7.5%
UNFC-G = Estimate of the Resource Quantity
UNCF-E = Environmental – Socio-Economic feasibility
UNFC-F = Technical viability

Table 1.2 Estimate of the Heat-in-Place and Potential Recoverable Electric Power for all ELs) (Source: STEAM)

Whilst the estimate of heat-in-place is considered compliant with United Nations Framework Classification for Resources (UNFC) 2022 guidelines, the potential recoverable electrical power is strictly indicative and should not be construed to be compliant with UNFC. As no technical studies have yet been conducted to determine the electrical energy technology, any estimate of recoverable electrical power is presently not classifiable under UNFC.

RESOURCE REPORT

The Project is approximately a 1-hour drive from Rome and comprises six granted ELs centred around the villages of Cesano and Campagnano (Figure 1).

The MRE has been prepared in accordance with the *Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves* (JORC 2012). The estimate of the recoverable thermal energy is reported in accordance with the *United Nations Framework Classification for Resources* to Geothermal Energy Resources (2022) (UNFC). The UNFC applies to inter alia, energy resources including oil and gas, renewable energy, nuclear energy, and minerals.

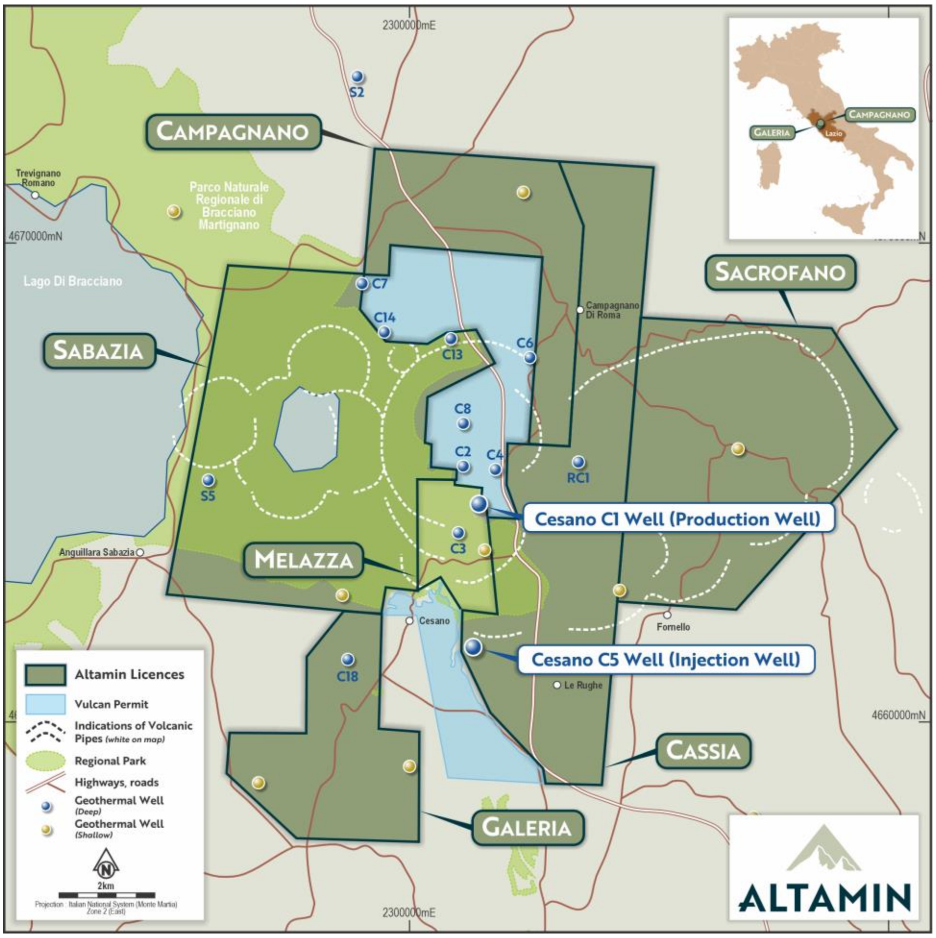


Figure 1: Location of the Exploration Licences and Geothermal Wells (Source: Altamin)

BACKGROUND

The Project is held under six granted ELs (Figure 1). These licences are 100% owned and operated by a wholly owned Italian subsidiary of Altamin. All ELs are valid at the time of this report. The ELs extend over the Cesano geothermal field which was investigated for geothermal energy to generate electricity by Italian state power company, ENEL (Enel), in the 1970s and 1980s. The Cesano field is the south-eastern part of a much larger regional geothermal district which extends northwest into Tuscany (approximately 250km), where Enel's geothermal plants have operated continuously since geothermal power generation was pioneered there in 1911.

From 1974 Enel investigated the Cesano geothermal field for geothermal power generation only. Several of the consultants employed by independent geothermal consultancy STEAM Srl (STEAM) are geoscientists who worked on Enel's Cesano project and have first-hand knowledge of the geological data and the technical aspects of this historical work. During their geothermal exploration activities thirteen (13) wells were drilled within the confines of Altamin's EL area, two (2) wells a short distance from the tenement boundary, and one (1) well some 10 km to the Northwest of the tenements, for a total of sixteen (16) wells. Five (5) of these wells have been flow tested. All wells were logged for, inter alia:

- Geology and hydrology,
- Temperature and chemical nature of the brines,
- Fluid dynamics and enthalpy, and
- Well head pressures.

Starting from 1975 preliminary production tests at well Cesano 1 (C1) determined that the well field contained anomalously high levels of dissolved minerals. Therefore, from September 1981 to 1984 pilot plant testing was conducted to investigate further the nature of the reservoir and energy production techniques which had been adapted for the high mineral content of the brine. During this period, successful tests for the production of glaserite (a naturally occurring precursor to SOP) were also performed by means of an atmospheric crystalliser. This production phase was carried out with C1 as the extraction well and Cesano 5 (C5) as the reinjection well over a period of around 36 months for a total production time of more than 1,000 hours. The pilot plant test work achieved the following:

- Investigated the potential long term production capacity of the geothermal reservoir,
- Tested generation technology to produce electrical energy (helical screw expander) and evaluate their reliability in the presence of scaling from high levels of total dissolved solids (TDS),
- Reduced mineral salt scaling through the evaluation of various scaling inhibitors,
- Investigated the feasibility of by-product mineral production, mainly glaserite and boron, and
- Registered no seismic activity during the re-injection of, up to 400 t/h, of brine into a single well (C5).

Enel's primary focus was on power generation and not chemical production. Therefore, due to the high levels of TDS, after the pilot plant work no further test work or exploitation was conducted thereafter on the Cesano brines for SOP production or other minerals, nor at any time since.

MINERAL RESOURCE

Drilling

The Project has been assessed based on detailed validation of irregularly spaced rotary drilling that intersected the underlying reservoir on an approximate 800m drill spacing in two areas, with step-out drilling linking these two areas at an approximate 2,000m spacing, and a further two (2) holes drilled between 7,000m and 10,000m from its nearest neighbour (Figure 1). There are sufficient data points to model the reservoir and the nature of the brine(s) over the majority of the EL area.

All the Cesano geothermal wells were systematically referenced to the Monte Mario geographical coordinate system (EPSG:4806) in ENEL-Mica 1987. These coordinates readily transform between the various EPSG grids and other recognised grids. It is a directive that all data lodged with the governing authorities are now submitted using UTEM coordinates projected onto the WGS84 ellipsoid. The locations of the well-pads were confirmed by reviewing the 1988 and 1994 orthophotos, which showed the construction of wellhead infrastructure and, in particular, the sumps.

Well data has been obtained from the well completion reports from the Italian Geothermal Resources Inventory (Enel-Mica, 1987). All wells were logged for, inter alia:

- Geology and hydrology,
- Temperature and chemical nature of the brines,
- Fluid dynamics and enthalpy, and
- Well head pressures.

In addition, twelve (12) shallow holes were drilled to depths around 300m to collect temperature and stratigraphic information on the shallow formations.

General practice for each deeper well was to start drilling with a 20" (inch) diameter roller bit with bit diameter gradually reducing as depth increased with most holes finishing with around an 8½" production diameter (open hole section). The casing strings were typically of three carbon steel pipes (17½", 13$^{3}/_{8}$" and 9$^{5}/_{8}$"), where length and thickness were designed in accordance with the depth of the target. Pressure cementing was used to seal off the variable aquifer zones. At or around the intersection of the carbonate sequence holes were left open for hydrological test work.

Geology

There is no detailed information on sampling of historical drillhole cuttings however, as major facies and/or formation changes, as well as detailed palaeontological observations, were accurately recorded it is certain that cuttings were routinely collected at the well head and geological observations were accurately recorded in the well completion reports. No photographic records of the cuttings are available, nevertheless the level of detail present in the obtained drill-logs is considered sufficient to support MRE.

The ELs are located in the eastern sector of the large Quaternary Sabatini Volcanic complex, characterized at surface by collapsed calderas, and in several volcanic areas, as calderas and scoria cones. These volcanics blanket the surface to depths of many hundreds of metres. They are underlain by unconsolidated clay and sand of the Post-Orogenic Complex which may be locally absent, a thick and impermeable Allochthonous Flysch Facies Complex of between 200m to over 1,000m, and finally a sedimentary Carbonate Complex of mostly limestone which can exceed over 1,000m thickness. The regional metamorphic basement was not encountered although expected to be at some depth. Figure 2 is a typical cross section through the stratigraphic sequence looking northwest.

The mineralised brines are hosted in the Carbonate Complex which is open in all directions.

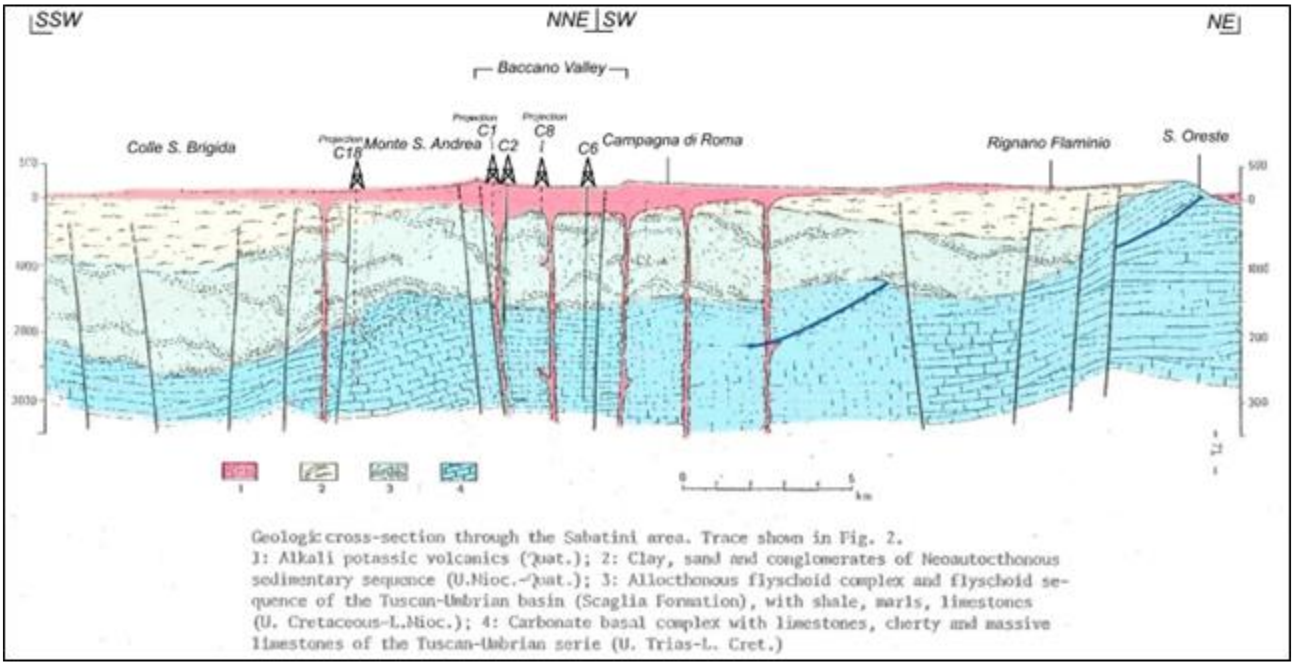


Figure 2: Geological cross-section through the Sabatini Area - Modified from Baldi et al., 1982 (Source: STEAM)

Hydrology

From a hydrogeologic point of view, the regional and local volcanic permeable blanket contains the shallowest fresh aquifer, which has no geothermal interest. Like the rest of the Sabatini Mountains area, the frequently permeable volcanic cover houses a phreatic water table. These waters are generally cold, with low salinity, and only encounter deep, hot waters in some places.

The formations of the Post-Orogenic Complex and the Allochthonous Flysch Facies Complex generally show low permeability and constitute a stratigraphic layer that hydraulically and thermally separates the deep geothermal system from the shallow aquifer systems. The underlying Carbonate Complex rocks are usually permeable due to fracturing, contain fluids under pressure and generally at very high temperatures, and act both as a regional and local geothermal reservoir.

Sampling and Analysis

The chemical data is drawn from scientific papers which summarise analytical data acquired during the short and long production tests that evaluated the geothermal potential of the Cesano wellfield and nature of the contained fluids and gasses. All brine assay results are historical and have been obtained from the referenced reports. These reports are peer reviewed published technical documents which have been relied on for scientific research and as the basis of the historical multi-million-dollar geothermal development decisions.

Senior members of the technical team from independent geothermal engineering consultancy STEAM were involved with the site investigations historically conducted by Enel and have provided supporting information in regard to sampling, analysis and quality assurance/quality control (QA/QC) procedures used at the time.

Based on the field experience of STEAM senior experts, sampling was completed using a pressure-resistant bottle equipped with two valves. Initially (before sampling) the bottle is completely filled with silicone oil that has the same density of the brine to be collected and does not mix with it. The silicone oil filled bottle is connected to a port, equipped with a pressure gauge, either at the wellhead or at the liquid phase pipeline after the first pressure separator Figure 3.

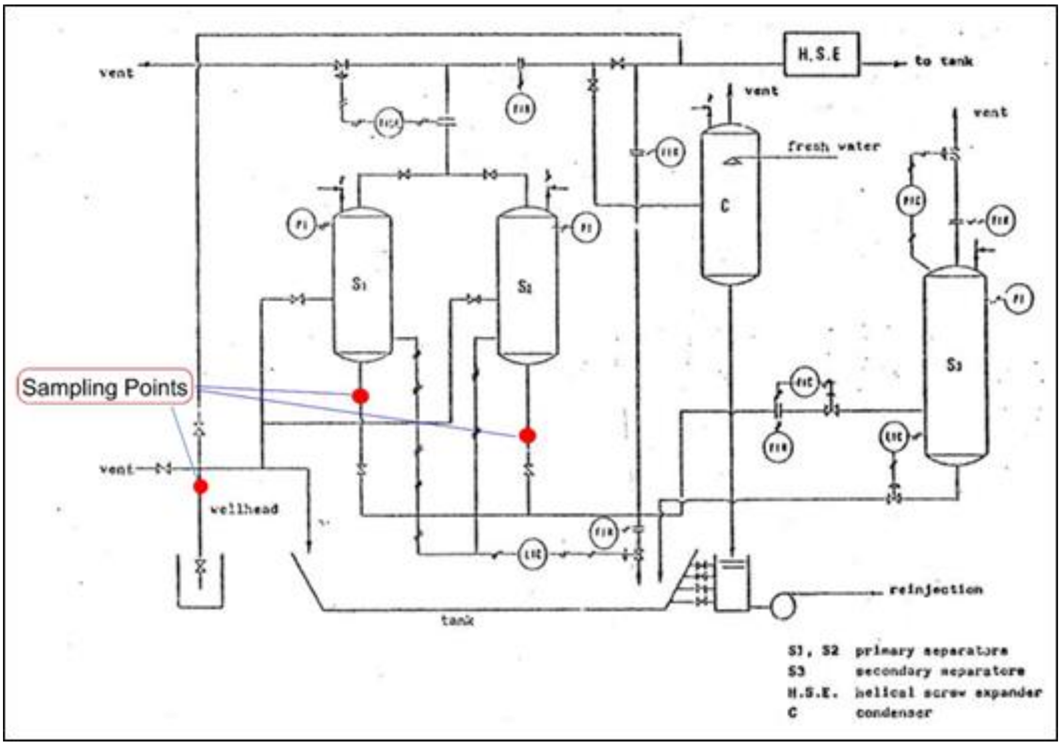


Figure 3: Process flow diagram of long production test plant in Cesano 1 and location of sampling points (modified from Allegrini et al. 1982). (Source: STEAM)

Enel's laboratory located at Castelnuovo di Val di Cecina (Pisa) was used for all brine analysis. The analytical methods used in the laboratory were the same as those used in the International Institute of Geothermal Researches of the Italian National Council of Researches (IIRG-CNR). Analytical methods were based on atomic absorption analysis of cations and metals. Specifically:

- *Lithium and potassium* - Spectrometry of atomic absorption - sensitivity for 1 % absorbance = 0.04 mg/l - Limit of detection = 0.02 mg/l – Reproducibility = +/- 3%;
- *Sulphate* - Colorimetric and Turbidimetric Method - sensitivity for 1 % absorbance = 2 mg/l - Limit of detection = 0.2 mg/l - Reproducibility = +/- 3%; and
- *Boron* – Colorimetric - sensitivity for 1 % absorbance = 0.02 mg/l - Limit of detection = 0.02 mg/l – Reproducibility = +/- 3%.

The analytical data produced by the Enel laboratory are considered of high quality, using industry standard analytical practices and quality control including instrument calibration, daily preparation of standard solutions, and analysis in duplicate of at least 10% of a congruous number of samples.

The brine assay data and all results are to be considered to be representative of bottom of hole conditions. Flash and thermodynamic corrections have been applied for samples collected post separator and parts per million (ppm) has been converted to milligram per litre (mg/l) using specific gravity of the brine.

Porosity and Brine Volume

Effective porosity is used to determine the brine volume within the reservoir. There are no direct measurements of effective porosity for the Cesano geothermal field therefore estimates of effective porosity have been determined from reviews of the same reservoir formations in regional proximity.

The geothermal brine reservoirs of the mineral resources are hosted within the Carbonate Complex and volcanic breccias of the intruded volcanic pipe systems. This stratigraphy is present throughout the Tuscany and Lazio regions of Italy and has been subject to many investigations related to geothermal resources and exploitation. Local scale tests and regional scale models have been developed for the various geothermal fields which are based on many years of exploration and operational data (Barelli et. al., 1976, Enel, 2009, Ebigbo et. al., 2016, Romagnoli et. al., 2010). For the carbonate complex an effective porosity of 2.5% was considered appropriate for resource estimation. Whilst various references report an effective porosity of 5% for volcanic breccia rocks, the geometry and nature of the Lazio volcanics are discrete and laterally discontinuous, so a more conservative 3.5% was considered appropriate.

Modelling and Estimation Methodology

The main geological units which control the Cesano geothermal reservoir were interpreted and modelled using geological logging from the databases. The georeferenced historical geological cross-sections were also used as a template for interpretation.

A cross section (Figure 4) looking north indicates a generally uniform distribution of the overlying volcanics and the underlying sedimentary package across the entirety of the Project area.

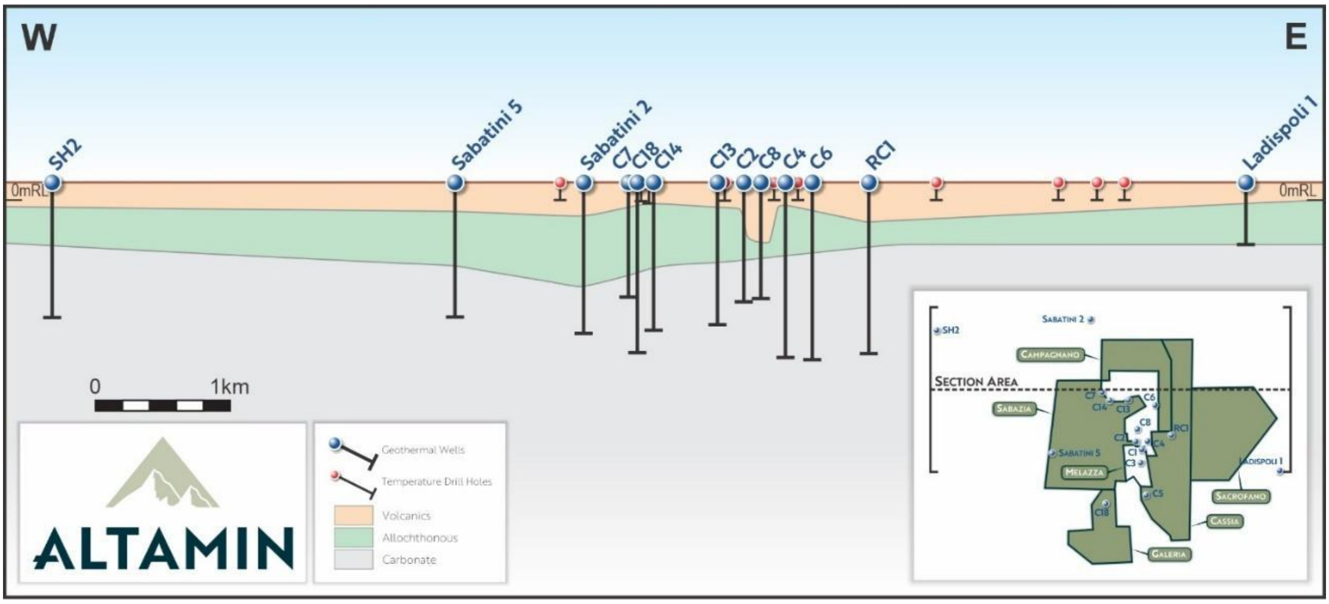


Figure 4: Geological Cross Section looking north (Source: Altamin)

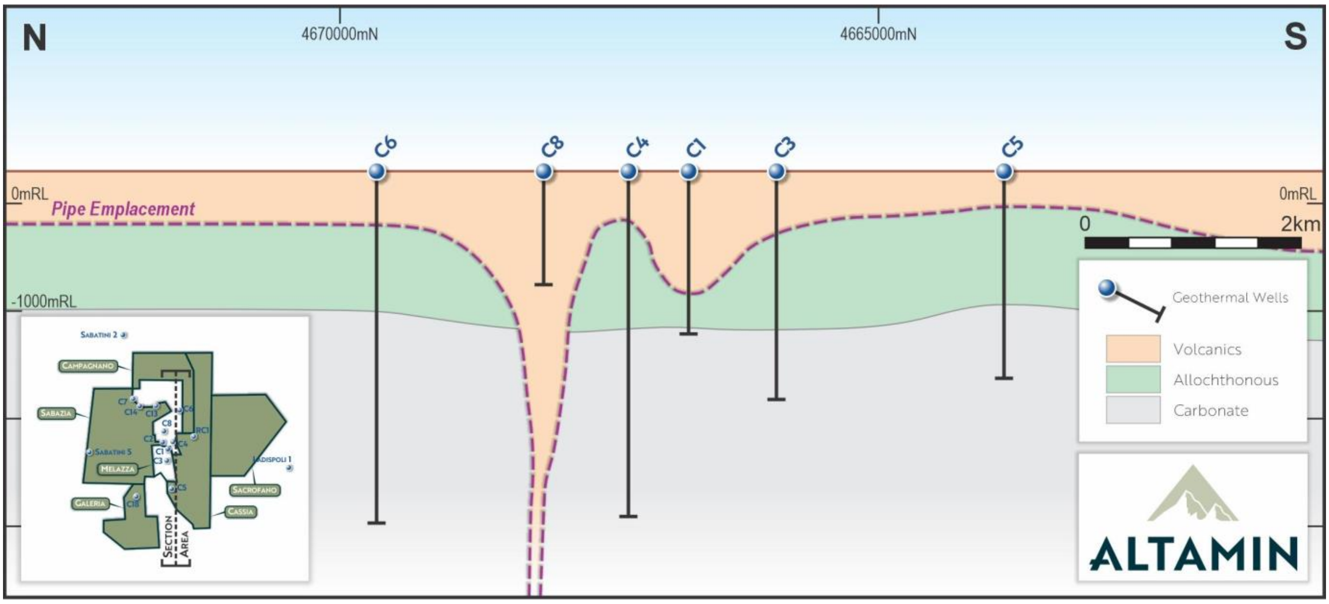


Figure 5: Geological Cross Section looking west (Source: Altamin)

The contact between the Allochthonous Flysch and Carbonate Complex marks the top of the reservoir, and this is reasonably modelled in 3D by linking the interfaces to form a digital terrain model (DTM). The DTM represents the top of the carbonate aquifer (Figure 6) and was validated to make sure that it covered the area of the modelled deposit and extended to the limits of the EL area (Figure 6).

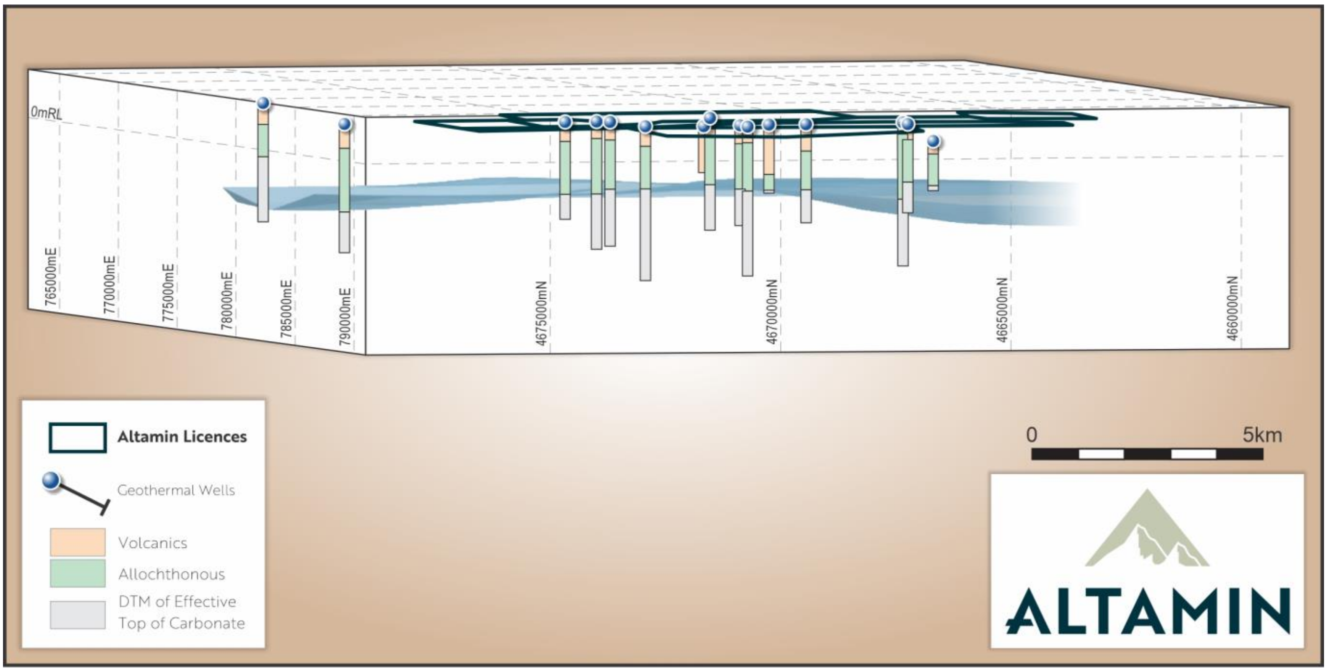


Figure 6: Isometric View looking southeast showing the modelled DTM (blue) as top of the Aquifer (Source: Altamin)

Block Model Construct and Mineralisation Domains

Block Model

An empty block model was created encompassing the entire area of the ELs but constrained to an elevation from 350m to a depth of 3,000m beneath ground level. The dimension parameters of the filling blocks are specified in Table 1.

Axis	Extent (m)		Block size (m)	Minimum sub-celling (m)	No. of parent blocks
	Minimum	Maximum			
Easting	770,000	786,500	100	100	166
Northing	4,658,300	4,674,000	100	100	204
RL	350	-3,000	10	5m	131

Table 1: Block Model Characteristics

The initial filling with a corresponding parent cell size was followed by sub-celling where necessary. The sub-celling occurred at the top of the reservoir (contact of the Allochthonous Flysch and Carbonate Complex). The parent cell size was chosen on the basis of the exploration grid and general morphology of the regional reservoir, and in order to avoid the generation of too large block models. The sub-celling size was chosen to maintain the resolution of the top of the reservoir.

Reservoir

The contact between the Allochthonous Flysch Facies Complex and Carbonate Complex marks the top of the reservoir containing the geothermal brines. Hydrological interpretation of the down hole temperature suggest that brine inflows are best observed between the top of the carbonate and to depths of 2,700m below ground level. No obvious well inflows have been observed below 2,700m below ground level, therefore the base of the resource has been set at 2,700m below ground level. All blocks within the block model below a depth of 2,700m were disregarded.

Volcanic Pipes

The historical morphological and tectonic image, together with the drilling logs and the interpretation of various geophysical techniques were used to outline a volcanic pipe domain. Figure 7 displays the outline of the main volcanic pipe activity (brown) within which various volcanic pipes are interpreted using one or a combination of geological evidence (caldera shapes), geological and geophysical interpretation, or drilling.

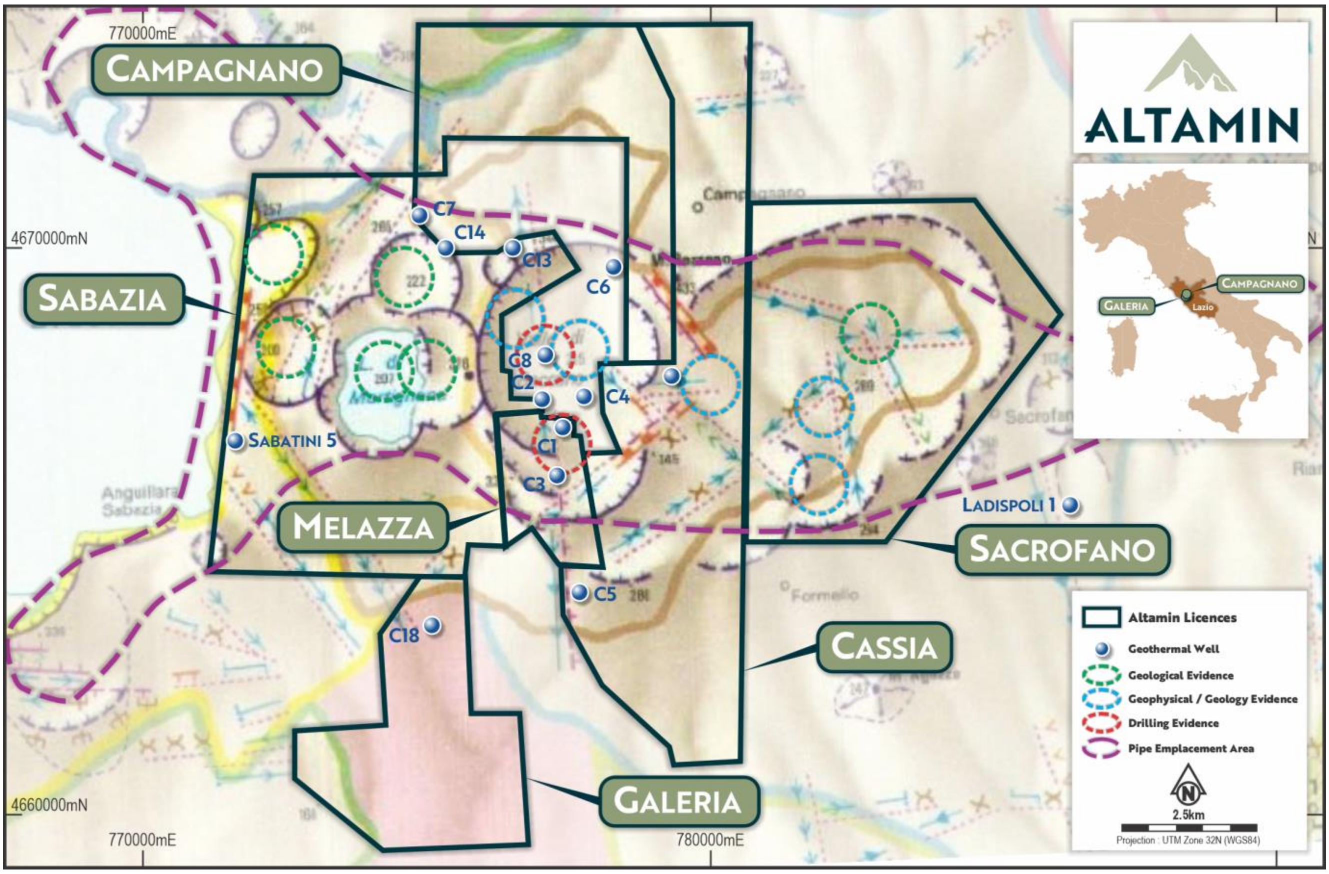


Figure 7: Plan View of the Morphological and Tectonic Image with Outline of Main Area of Volcanic Activity (Source: STEAM/Altamin)

High Temperature

Figure 8 displays a colour contoured plan of the distributions of the temperature at the contact of the Carbonate Complex and the overlying volcanics (top of reservoir). At such depth, the effect of meteoric cold-water infiltration is considered negligible. There are minimum values on the periphery and maxima in the central area coinciding with the areas where the volcanic formations are thickest around the explosion diatremes (necks) crossed in part by the wells C1 and C8. An interpreted high-grade domain (dashed red) surrounds the core of this area where temperatures on the contact are greater than 100°C. All temperatures increase with depth thereafter.

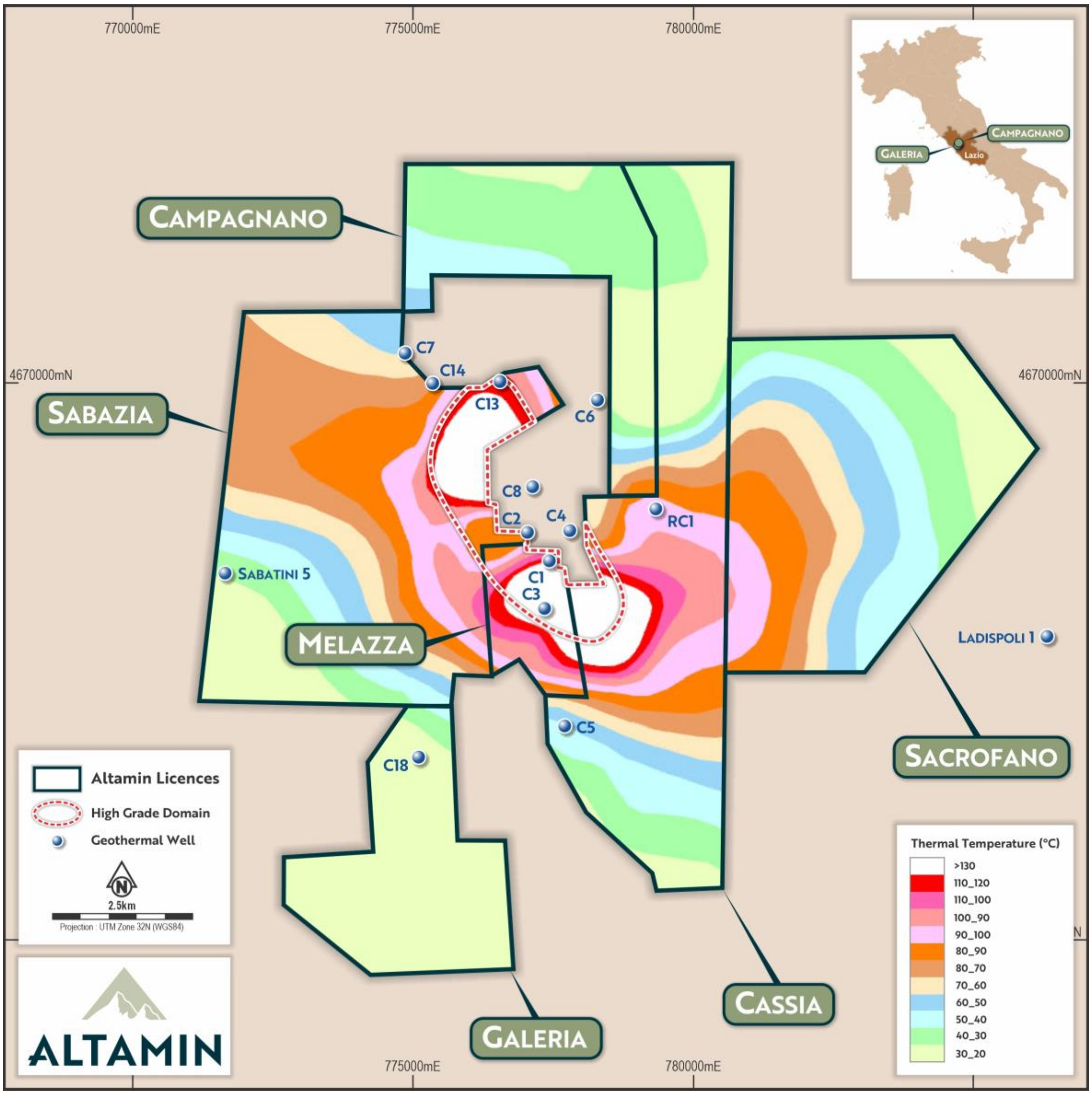


Figure 8: Plan View of the Temperature Areas at Top of Reservoir and the Wells (Source: STEAM/Altamin)

Effective Porosity

For the carbonate complex an effective porosity of 2.5% is considered appropriate for resource estimation. All blocks in the block model were assigned accordingly. The volcanics are known to have higher porosity but their geometry is less certain, as the volcanic pipes are discrete intrusive features that are laterally discontinuous. Therefore, within a radius of 250m of a known or interpreted volcanic pipe and to a maximum height of -730 m below ground surface, a porosity of 3.5% is considered appropriate for resource estimation. All blocks contained within these volcanic pipes were merged into the block model and assigned an effective porosity of 3.5% (Figure 9).

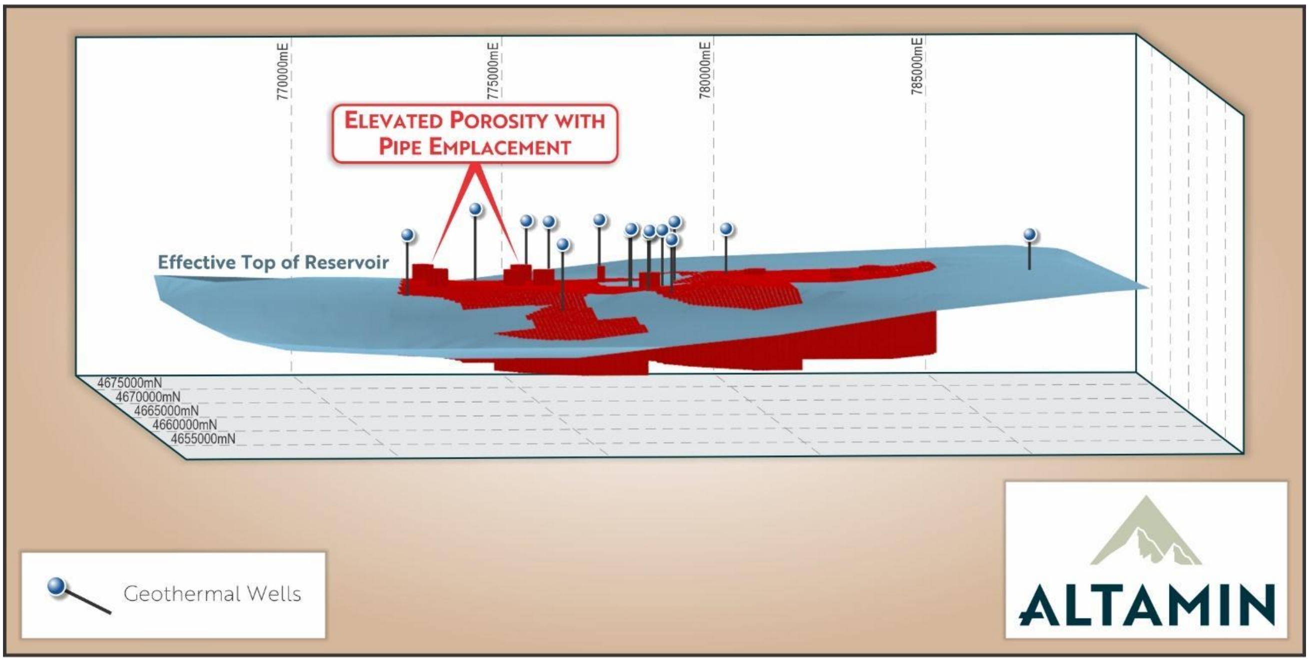


Figure 9: Isometric View looking North showing Elevated Porosity with pipe Emplacement (Source: Altamin)

Lithium, boron and potassium grades were interpolated using the criteria listed in Table 2 and displayed in Figure 10.

Criteria	Domain	Lithium (mg/l)	Boron as H_3BO_3(mg/l)	Potassium (mg/l)	% of Model
Inside High Temp & Volcanic Domains	High Grade	200	7,300	90,000	7%
Inside area of Volcanic Pipe & Volcanic Domain	Medium Grade	150	8,400	60,000	8%
Inside Volcanic Domain	Low Grade	100	9,400	30,000	15%
Outside Volcanic Domain & inside 5,000 m radius from Well with Assay Value	Regional Grade	70	10,000	14,000	71%

Table 2: Mineralisation Domains (Source: Altamin)

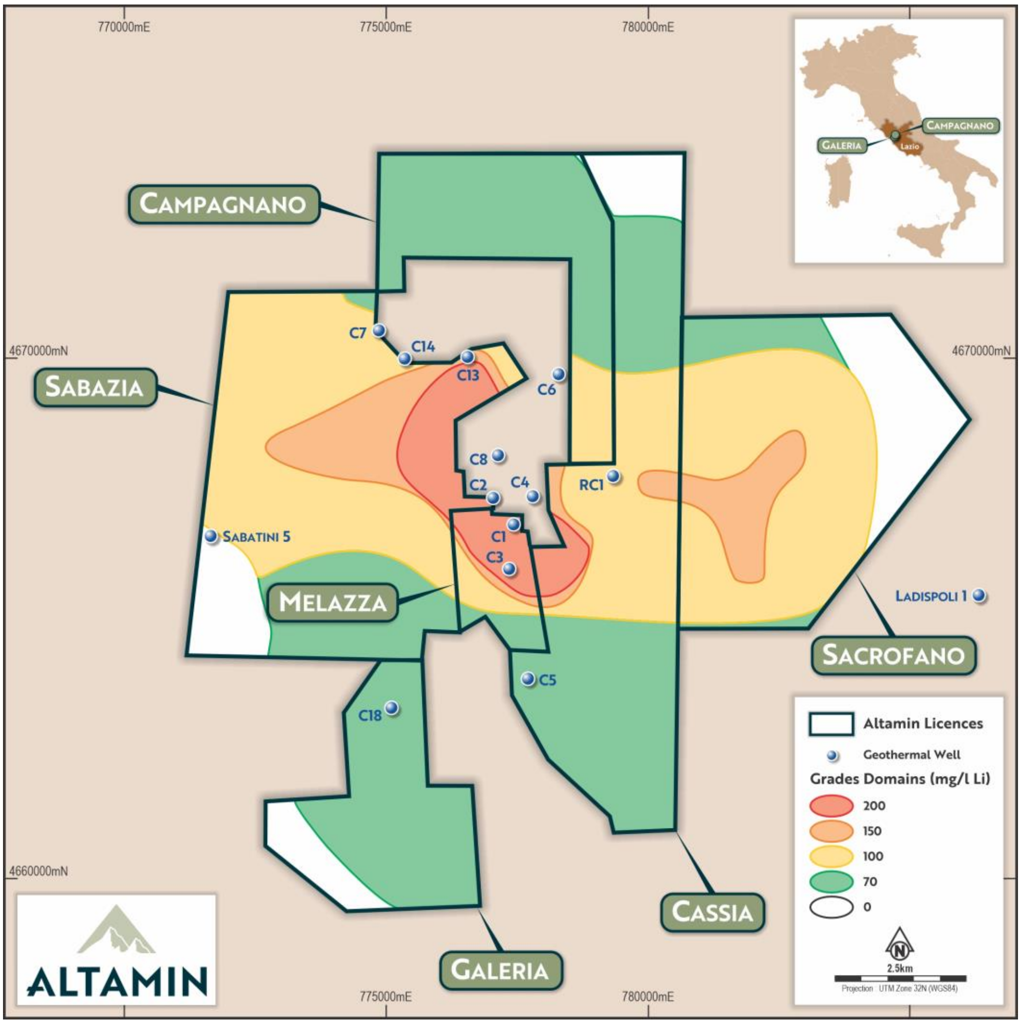


Figure 10: Plan of Lithium in Brine Grades (Source: Altamin)

Modifying Factors

Lithium Mineral Test Work

Altamin provided the composition of the Cesano brines that reflect higher and lower Li values found in samples (similar to historical sampling of wells C1 and C5) to Watercycle Technologies (Watercycle), based in Manchester, UK., to test if lithium extraction and crystallisation of battery grade lithium carbonate was possible, see Table 3. Watercycle synthesised brine samples in their laboratory, to match the historical sample chemistry, and conducted the testing using their Direct Lithium Extraction and Crystallisation (DLEC^{TM}) process technology. Watercycle was successful in extracting and crystallising lithium to form battery grade lithium carbonate (Li_2CO_3) with a purity ≥99.7% from the synthesised brines using their DLEC^{TM} process.

Chemical composition	C1	C5
Total salinity	310,000 ppm	101,000 ppm
pH	7.8	8.0
Ca++	366 mg/L	9.5 mg/L
Mg++	6.4 mg/L	6 mg/L
Na+	53,800 mg/L	22,000 mg/L
K+	79,400 mg/L	15,800 mg/L
Li+	158 mg/L	80 mg/L
NH4+	11 mg/L	206 mg/L
Cl-	22,100 mg/L	26,530 mg/L
SO4--	147,000 mg/L	24,450 mg/L
Boron as H3BO3	6,150 mg/L	11,265 mg/L
SiO2	55 ppm	133 ppm

Table 3: Chemical composition of well's C1 and C5 as synthesised by Watercycle (Source: Altamin)

Selective extraction of lithium is achieved on the adsorptive membranes which then underwent a purification process to remove impurities, including magnesium, boron, calcium, and other metals. The purification step is crucial to ensure a high-quality lithium product. Thereafter the Li-rich brine was concentrated to increase the lithium content in the solution to the degree that, with the addition of chemical agents (sodium carbonate), allows crystallisation of lithium carbonate. The lithium carbonate precipitates were separated from the remaining solution, then washed, filtered, and dried to obtain a solid lithium carbonate product.

Considering the samples tested, approximately 83% of the lithium present in the brines was successfully extracted and recovered in the first pass. This recovery rate signifies the effectiveness of the extraction process, indicating that a significant portion of the lithium ions in the brine are captured by the DLEC™ system during a single run through the adsorption process. The high recovery rate demonstrated the efficiency of the technology in capturing lithium and a preliminary economic model for the DLEC™ system indicated that the extraction of Li_2CO_3 was feasible from Cesano style brines at Li concentrations below 70 mg/l.

It is noted that Watercycle used brine analysis that are pre-flash compositions. When taking into account the pressure and temperature of the brine, flashing off the steam will be necessary, with the resultant fluid being concentrated in the process therefore increasing contained lithium and other mineral concentrations. Watercycle's model indicated that the extraction of Li_2CO_3 was potentially feasible from Cesano style brines at reservoir Li concentrations below 70 mg/l.

The process exhibited high selectivity in lithium extraction and effectively removed other impurities. XRD (X-ray diffraction) confirmed the extraction of lithium carbonate crystals from the two brines. Watercycle performed further purification cycles to demonstrate that extraction and direct crystallisation of battery-grade quality lithium carbonate is achievable. These successful findings set a promising foundation for further lithium extraction and crystallization test work, eventually advancing to pilot-scale. It should be noted that the Watercycle DLEC™ technology is currently at pilot scale (for other clients of Watercycle) and is only planned to be at commercial scale operations within 2025. DLEC™ technology is proprietary to Watercycle and there is no guarantee that this will reach commercial viability or eventual field trials will be successful on live brines from the Cesano field. However, there are currently multiple companies developing various DLE solutions and in the future Watercycle's DLEC™ and these can also be trialled.

Boron Mineral Processing Review

Whilst Altamin has not engaged any third party to specifically study the reasonable prospects of extracting boron from the Cesano brines, both STEAM and K-UTEC have indicated that there are a number of different approaches used within the chemical industry for boron production from brine/solutions:

- as alkali borates based mainly on a cooling crystallisation process,
- as boric acid though acidification using sulphuric acid, e.g. but by the cost of an additional CO_2 release, and
- as Ca/Mg borates by applying precipitation processes using quicklime or other alkaline materials and a Ca or Mg source.

Suitable technology for the extraction of boron from Cesano brine has yet to be investigated, but some of the available technologies are selective ion exchange resins, solvent extraction, adsorption or reverse osmosis. Any potential revenue from Boron has not been considered in the formulation of the cut-off grade applied to the MRE.

Potassium Mineral Processing Review

In the first production tests on the Cesano field it was shown that flashing of Cesano 1 (C1) well brine caused the dissolved salts, mostly glaserite ($3K_2SO_4$ Na_2SO_4), to precipitate in large quantities. The high potassium content in the brine (around 80,000 mg/l), as well as the flow test results, were the reason for considering the possibility of the production of K_2SO_4 salts back in the early 1980s.

Altamin provided the composition of the C1 and C5 brine to K-UTEC, a renowned service provider for the global mining and natural resources industry with several decades of experience in extracting and producing inorganic salts and hydroxides of lithium, potassium, magnesium, boron and other alkali, alkaline earth, rare earth and so-called energy metals. K-UTEC conducted a desktop investigation to determine if the utilisation of the C1 brine is generally possible using three approaches:

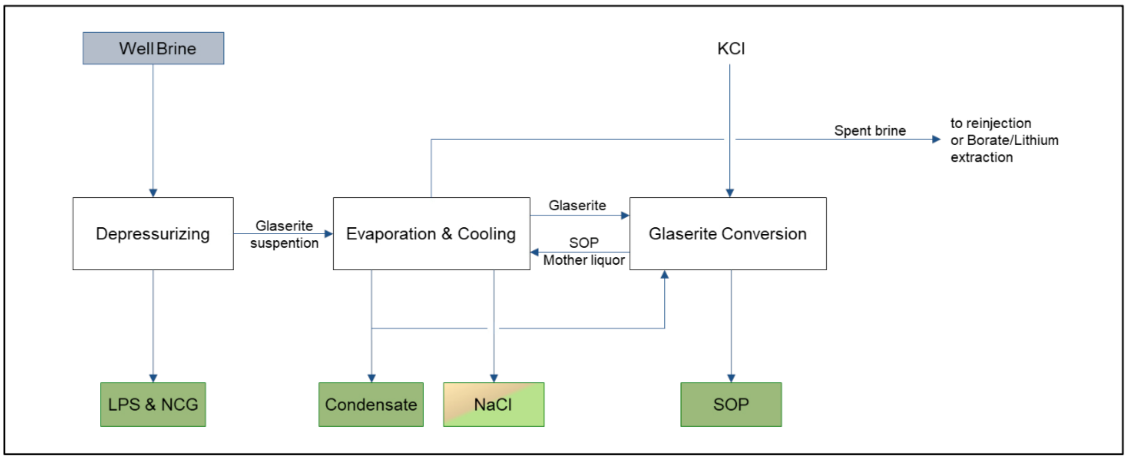
- Option A: direct glaserite production by cooling and possibly evaporation,
- Option B: decomposition of glaserite with water to SOP and production of anhydrous Na_2SO_4 without using additional chemicals, and
- Option C: conversion of glaserite with purchased KCl to SOP with the possibility to produce NaCl as an additional by-product. In this option, almost all sulphate of the brines is maximally converted into a high value product.

K-UTEC's desktop assessment of the processing of C1 well brine shows that, due to the brine composition, there are only minor obstacles to the recovery processes for SOP or glaserite, which appear conceptually feasible for this Project.

A conceptual process flow diagram for Option C is shown in Figure 11.

Considering only C1 brine and the production of SOP and NaCl by adding KCl, the recovery rates are estimated to be 95 % of potassium fed into the process. The relatively small volume of water that must be evaporated makes this processing an attractive proposition and the amount of water condensate produced in Options A-C likely exceeds the water consumption, rendering a positive water balance. Furthermore, the evaporation considered for the SOP process concentrates lithium by a factor of ~13x within the brine, which would increase the efficiency of subsequent direct lithium extraction processes.

Considering only C5 brine (which has similar composition to the regional aquifer brine in the MRE), the recovery rates are 39 % of potassium fed into the process. Furthermore, the evaporation considered for this SOP process concentrates lithium by a factor of ~4x, elevating the concentration of the brine where direct lithium extraction methods can be applied in addition to any SOP production. Examining historical well flow rates the conceptual analysis determined that commercially material quantities of SOP could be produced from the Cesano project utilising C1 or C5 brines.



Note:
LPS – Low Pressure Steam,
ML – Mother Liquor,
MVR – Mechanical Vapour Recompression,
DLE – Direct Lithium Extraction,
KCl – Potassium chloride

Figure 11: Conceptual Sulphate of Potash Process Flow Diagram (Source: K-UTEC)

Classification and Reporting

Clause 20 of the JORC Code requires that reported Mineral Resources must have reasonable prospects for eventual economic extraction, regardless of the classification of the Mineral Resource. It is considered that there are reasonable prospects for eventual economic extraction of the mineralisation on the following basis:

- The deposit is located close to road, power, water, and rail infrastructure,
- Effective porosity not total porosity has been used to calculate the MRE,
- The mineralisation contains elevated lithium, boron, and potassium grades, over a reasonable area,
- The deposit contains heat, which can be used as an energy source and mineral extraction processes are indicated to produce a positive water balance,
- The mineralisation forms a continuous and coherent zone at a relatively modest depth and in a favourable orientation which may allow extraction,
- Results from recent test work confirm that minerals of commercial interest are able to be produced from the brine,
- There is potential to increase and upgrade the Mineral Resource with additional drilling,
- The use of grade shells provides an appropriate global head grade, given the Mineral Resource may be exploited by extraction of brines from wells, and
- Drilling of directional and inclined wells can be used to extract the brine beneath the areas of conservation.

Criteria Used

The Mineral Resource has been classified in accordance with guidelines contained in the JORC Code. The classification reflects the strengths and weaknesses associated with the Mineral Resources reported herein. Key criteria that have been considered when classifying the Mineral Resource are detailed in JORC Table 1, which is included in Appendix B. The MRE is based on drilling results obtained between the 1970s and 1980s and classified as Indicated and Inferred, reflecting the following observations:

- The close spacing between drillholes when considering brine resources,
- Accurate survey control (east, north, elevation) for the historical drillholes,
- Reasonable confidence in the grade continuity associated with high temperature and volcanism, and
- The adoption of a conservative effective porosity for brine volume.

The resource classification applied is illustrated in Figure 12 (yellow – Inferred blocks, pink – Indicated blocks). The following approach was adopted:

- **Measured Resources**: Not reported,
- **Indicated Resources**: Indicated Mineral Resources are assigned to blocks which were within areas of coincident high brine temperature, volcanic pipe emplacement and within approximately 3,000m of the production well C1 where long duration pilot scale testing occurred. Here geological and hydrological parameters are reasonably understood and interpreted, and
- **Inferred Resources**: Inferred Mineral Resources are model blocks lying outside the Indicated wireframes, which still display reasonable coincidence with high temperature and volcanic pipe emplacement. Here geological and hydrological parameters are interpreted from both empirical observations and geophysical interpretation.

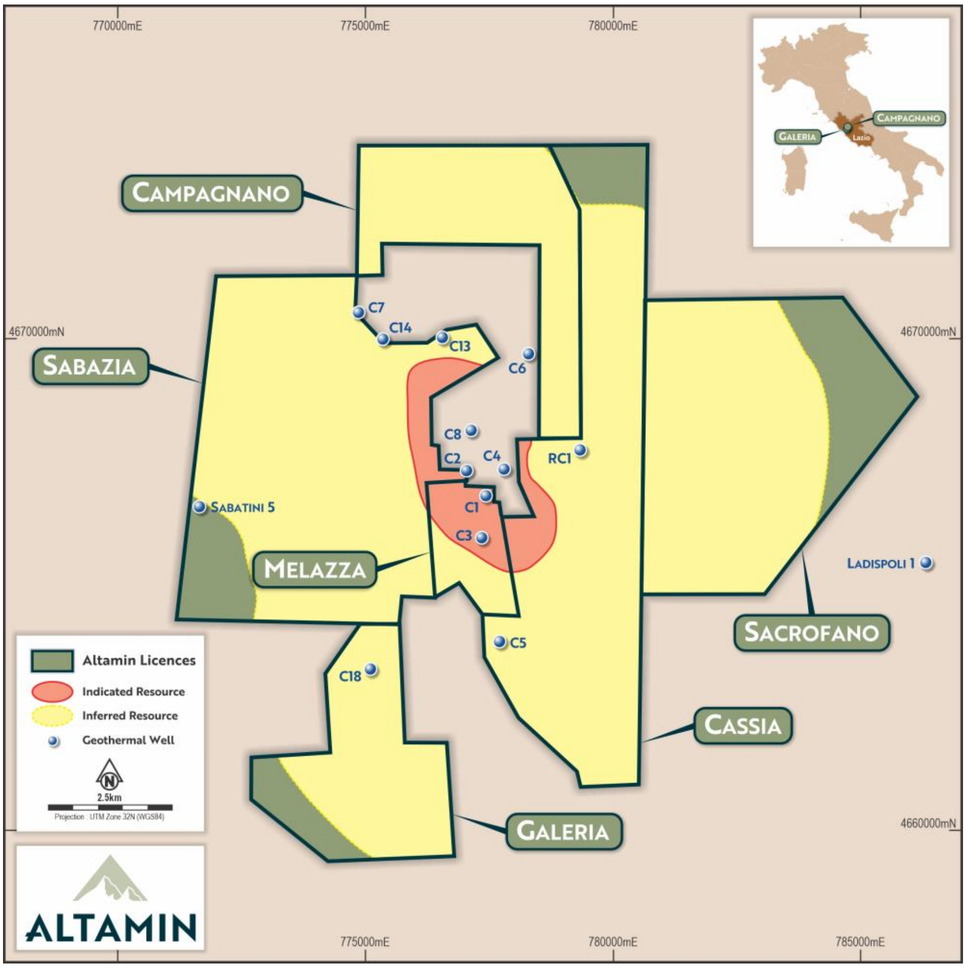


Figure 12: Mineral Resource Classification Plan View (Source: Altamin)

Cut-off Grade Assumptions

The updated MRE for the Lazio brine is shown in Table 4. Mineral Resources are reported using a cut-off grade at and above 70 mg/l lithium. The lithium cut off considers the lowest grade Lazio brine (as characterized by well C5) as recoverable from bench top scale assessment. The use of a single element lithium cut-off grade is considered a conservative approach by ignoring probable by-product revenue streams from energy, sulphate of potash, boron and potentially other compounds.

The MRE contains approximately 392 kt of lithium metal or 2,087 kt of lithium carbonate equivalent (LCE), 38,400 kt of boron as boric acid, and 101,500 kt of potassium or 226,345 kt of sulphate of potash equivalent (SOPE).

All blocks that occurred within the ELs area but outside the 5,000 m radius of a well with assay data were excluded from the model.

JORC 2012: Lazio Brine Mineral Resources, at & above a 70 mg/l Li cut-off										
Category	**Volume**	**Lithium** (Li)		**LCE**[1] (Li_2CO_3)	**Boron as Boric Acid**		**Potassium** (K)		**SOPE**[2] (K_2SO_4)
	k m^3	mg/l	kt	kt	mg/l	kt	mg/l	kt	kt
Indicated	8,145,000	190	39	208	7,500	1,500	84,000	17,500	39,025
Inferred	150,556,000	90	352	1,874	9,700	36,800	22,000	84,000	187,320
Total	158,701,000	100	392	2,087	9,500	38,400	25,000	101,500	226,345

Notes:

- *Mineral Resources are based on JORC Code definitions.*
- *A cut -off grade at and above 70 mg/l Li has been applied to the model as preliminary test work has shown that there are reasonable prospects of the minerals of interest being extracted economically above this grade.*
- *An effective porosity of 2.5% was assumed for areas outside of the influence of the volcanic pipes and 3.5% within a 250 m radius of volcanic pipes intersected by drilling or interpreted from geophysical surveys.*
- *Blocks are not included if they are outside of a 5,000 m radius of wells with assay values.*
- *Rows and columns may not add up exactly due to rounding.*
- *LCE (lithium carbonate (Li_2CO_3) Equivalent) is calculated by multiplying Li by 5.323*
- *SOPE* (sulphate of potash (K2SO4) Equivalent) is calculated by multiplying K by 2.23

Table 4: Lazio Brine MRE by classification

Geothermal Model

At a regional scale, the Cesano Carbonate Complex reservoir extending throughout the locality is laterally connected to the large regional aquifer of Latium and Tuscany where the same carbonate formations outcrop throughout the central-northern Appennines of Tuscany and Umbria.

The conceptual geothermal model of the Cesano area may be interpreted with reasonable certainty using surface and 3D geological, hydrogeological, and geophysical data, together with the physical and chemical characteristics of the fluids Figure 13.

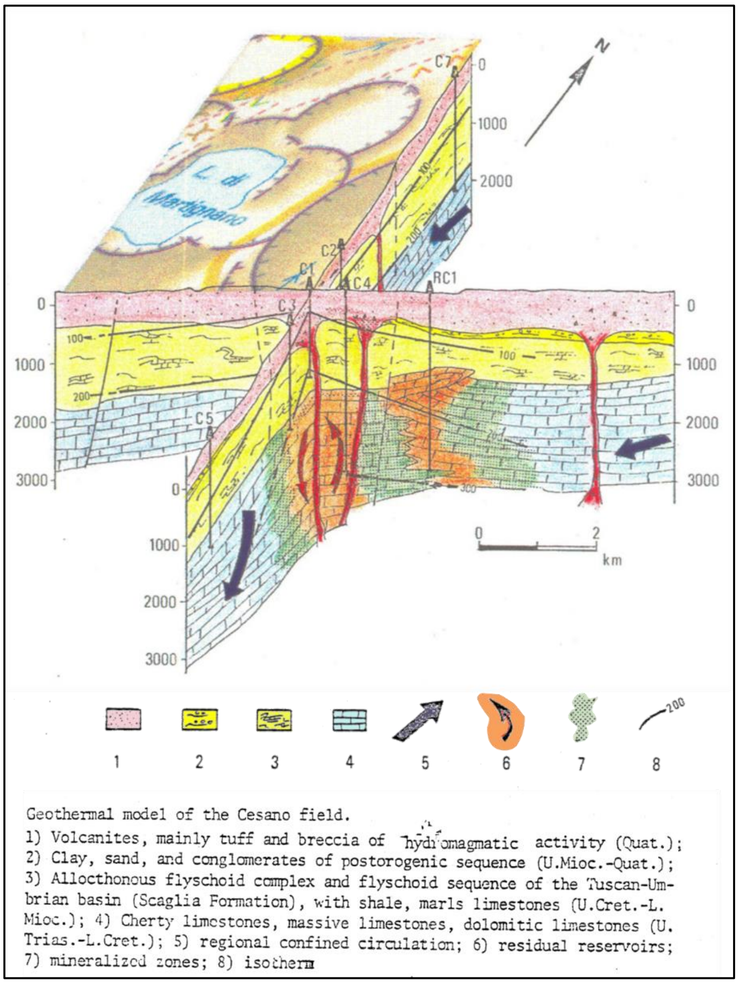


Figure 13: Geothermal Model of the Cesano Field (Modified from Baldi et al., 1982). The red vertical lines are the volcanic pipes. (Source: STEAM)

The Cesano field is heavily influenced and controlled by two secondary events:

- The increase in permeability of the carbonate formations, as a consequence of fractures and high-stress conditions, and
- The decrease in permeability due to self-sealing phenomena as a result of secondary hydrothermal mineralisation.

These events are more intense and more frequent in the zones most affected by strong hydro-magmatic activity, such as in the Baccano valley. Local zones of higher permeability in the Baccano Valley may be interpreted as related to explosion necks (as in wells C1 and C8), with reservoirs closed to varying degrees in all directions and saturated with brine of extremely high salinity and relatively high concentrations of lithium, potassium and boron.

The gradual closure of these reservoirs was possibly caused by the increase in the concentrations of the dissolved salts, mainly sodium and potassium sulphates (Baldi et al. 1982), due to water-rock interaction and/or boiling (steam separation) until attainment of saturation with glaserite, görgeyite, and other sulphate minerals, the precipitation of which self-sealed these local reservoirs. The semi-permeable boundaries of these local reservoirs give rise to the very high salinity of the fluids and the lateral discrepancy of their temperature and pressure values. In C1 and C8 wells, these parameters differ from one to the other and from those of the regional confined aquifer.

Moving away from the areas of intense hydro-magmatic activity, the frequency of the secondary hydrothermal mineralisation decreases, whereas the permeability of the mainly carbonate rocks (with local high-stress conditions) generally increases, as seen in wells C5 and C7 which lie outside the main volcanic centres. The reservoir production zones intercepted by these productive wells are saturated with brine of different chemical and physical characteristics.

Figure 14 shows the high temperature of the deeper reservoir brines under the Baccano Caldera testified by:

- Hot fluids tapped by C1 and C8 wells,
- Production data of well C1 suggests that the well is connected to a deeper and hotter reservoir, and
- The presence of similar H_3BO_3 concentrations (around 7,500ppm), in all the fluids discharged from the Cesano wells, a common provenance from a deeper and hotter reservoir.

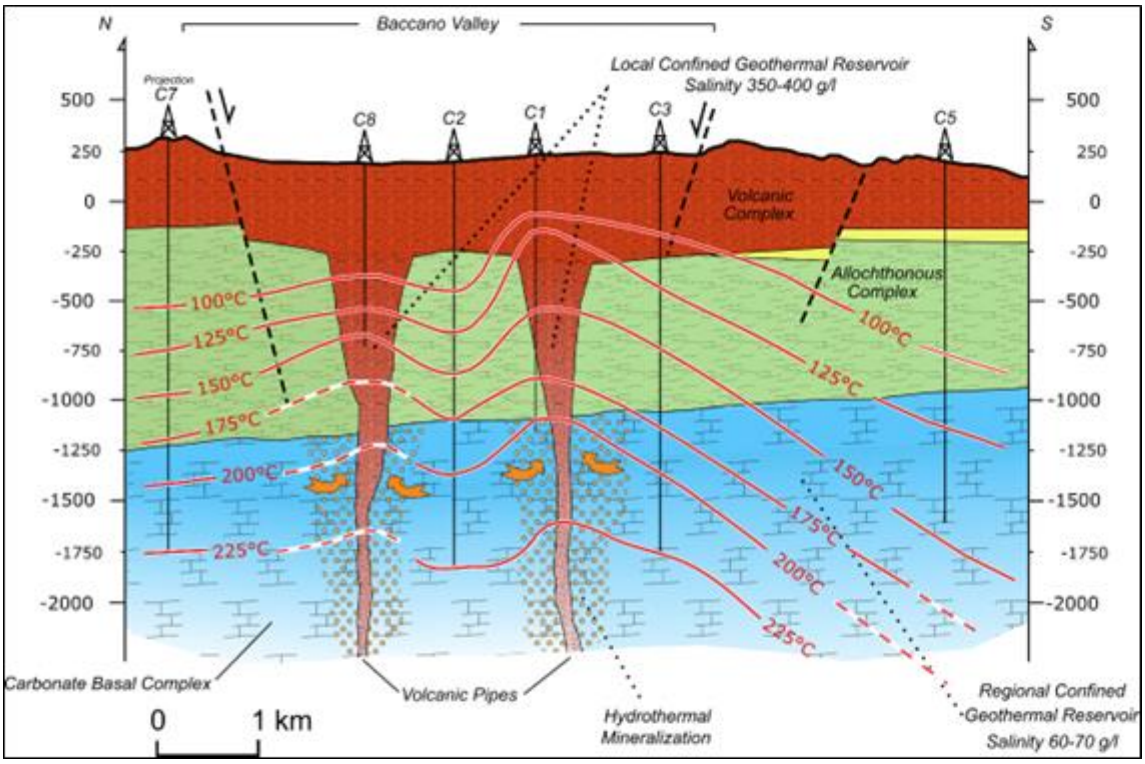


Figure 14: Geological cross section along N-S direction focused in the Baccano Valley and conceptual model of Cesano Geothermal Field (Source: STEAM)

According to Baldi et al. 1982, the sulphate dissolved in the neutral Na-Cl brines of the regional geothermal aquifer is acquired through leaching of the deepest reservoir rocks, that is, the anhydrite dolostone and limestone of the Upper Trias. In contrast, the high sulphate concentrations, and the SO_4-rich compositions of several Cesano brines is probably due to:

- Early absorption of SO_2-rich magmatic fluids in deep meteoric waters with the production of sulfuric acid,
- Subsequent neutralisation of sulphuric acid through reaction with volcanic rocks with the production of alkali sulphate minerals, and
- Late dissolution of these alkali sulphate minerals by the neutral Na-Cl brines of the regional geothermal aquifer.

Figures 15 and 16 highlight the lateral continuity of the rocks that host the reservoir of the Cesano geothermal field whilst Figure 17 is a plan of the area showing the location of the cross sections. Figure 15 crosses three ELs (Galeria, Sabazia and Campagnano) and shows that the maximum occurrence of volcanic vents is in the Sabazia licence, near the Martignano Lake, where the volcanic centres are still recognisable. The Galeria and Campagnano licences lie outside the area of maximum occurrence of volcanic vents.

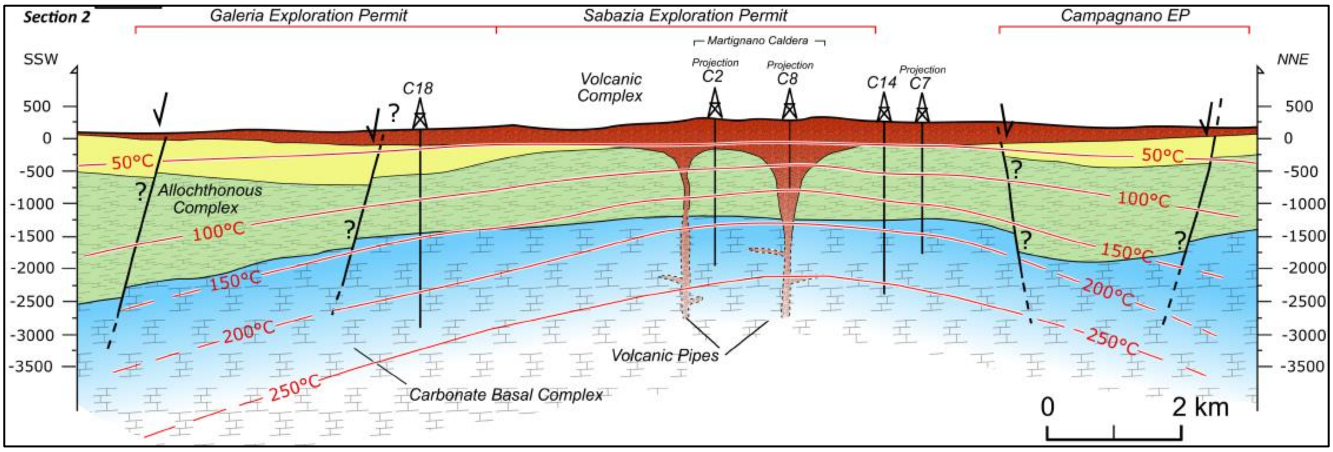


Figure 15: Geological cross section along NNE-SSW direction focused in the Baccano Valley and conceptual model of Cesano Geothermal Field (Source: STEAM)

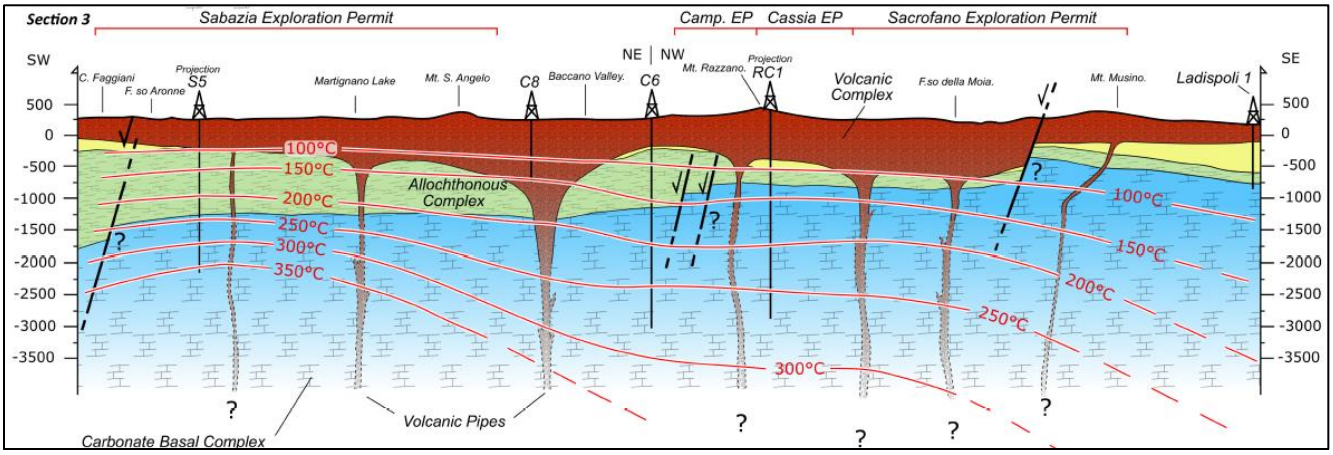


Figure 16: Geological cross section along NNE-SSW direction focused in the Baccano Valley and conceptual model of Cesano Geothermal Field (Source: STEAM)

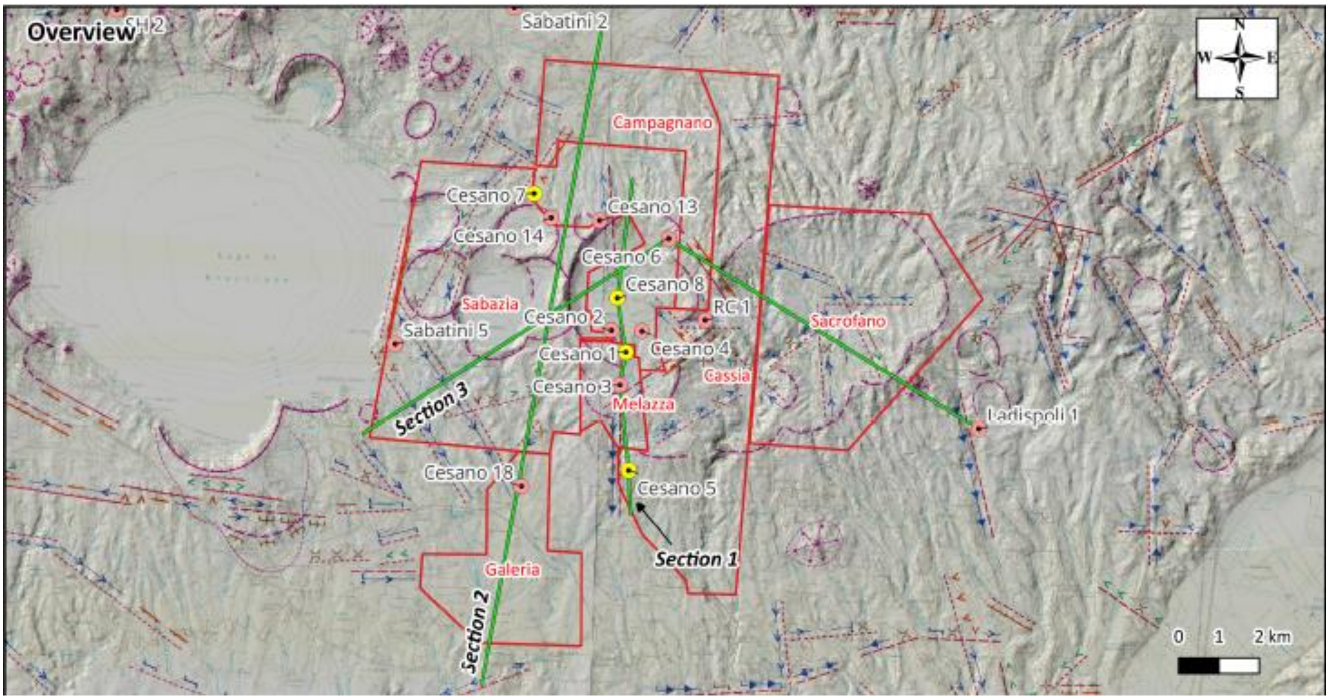


Figure 17: Plan Location of the ELs (red boundary) and the Cross Sections (Green Lines) (Source: STEAM)

The isotherms drawn in Figure 15 show that in the Galeria and Campagnano ELs the expected temperature at the top of the reservoir is approximately 150°C, whereas the temperatures expected at -3,000m are about 250°C. Higher temperatures, about 200°C, are expected at the top of the reservoir in the Sabazia EL.

The western part of Figure 16 (SW-NE direction) crosses a large portion of the Sabazia EL, while the eastern part (NW-SE direction) crosses the other three ELs (Campagnano, Cassia and Sacrofano). As shown in Figure 16, many volcanic pipes are expected. In fact, in addition to the volcanic pipe detected by C8 well, other potential mineralised reservoirs could be discovered inside the volcanic structures of Martignano Lake, Stracciacappa, and Sacrofano calderas.

The highest temperatures are expected in the Sabazia EL based on the Sabatini 5 temperature data, with values higher than 300°C between depths of 2,000 and 3,000 m. The eastern part of Figure 16 (NW-SE direction) shows a lower geothermal anomaly in the eastern part of the Cesano geothermal field, where the shallow geothermal wells and the well Ladispoli 1 detected a lower geothermal gradient of 60 – 75 °C/km.

Estimation of Geothermal Resource Heat-in-Place

The Geothermal Resource was estimated according to the basic concepts outlined by Muffler and Cataldi (1978) and more recent scientific publications (Bayrante, 1992; Ofwona, 2007; Garg, et al., 2010; Garg, et al., 2011, Garg and Combs 2015).

The recoverable thermal energy (heat in place) within the thickness of the geothermal reservoir is estimated using:

$$\mathrm{H} = \mathrm{S} \cdot \mathrm{h} \cdot (\mathrm{H_r} + \mathrm{H_w})$$

Where:

H = Recoverable Thermal Energy (kJ$_{Th}$);
S = Surface of the considered geothermal reservoir (m^2);
h = Thickness of the geothermal reservoir (m);
Hr = Heat contained in the unit volume of rock (kJ/m^3);
Hw = Heat contained in the unit volume of geothermal fluid (kJ/m^3).

The recoverable thermal energy contained in the unit volume of rock is estimated using:

$$\mathrm{H_r} = (\mathrm{T_s} - \mathrm{T_r}) \cdot (1 - \phi) \cdot \mathrm{C_r} \cdot \rho_\mathrm{r}$$

Where:

T_s *= Average temperature of the reservoir (°C);*
T_r *= Reference temperature (°C);*
C = Specific heat of the rock (kJ/kg·°C);
ρ *= Density (kg/m^3);*
ϕ *= Porosity.*

The recoverable thermal energy contained in the unit volume of geothermal fluid is given by:

$$\mathrm{H_w} = \rho_{\mathrm{wi}} \cdot \phi \cdot (\mathrm{h_{ws}} - \mathrm{h_{wr}})$$

Where:

ρ_{wi} *= Density of geothermal fluid(kg/m3);*
ϕ *= Porosity;*
h = Enthalpy of the fluid (in kJ/kg);
ws = geothermal fluid;
wr = reference temperature.

The rock volume involved in this approach is generally inferred from the thickness and lateral continuity of the rocks that constitute the potential reservoir however, other parameters used in the estimation are not always so easily defined. For this purpose, the equations listed above are estimated using the statistical "Monte Carlo" method to obtain an estimate of the probability of the amount of recoverable thermal energy from the reservoir. The methodology uses the probability distribution of each of the input variables (Kalos &

Withlock, 2008), like reservoir thickness, effective porosity, concentration of the elements of interest, and reservoir temperature. Therefore, for each "uncertain" input data, it is necessary to define a range of associated values through a probability distribution, of which the most typically used are the Uniform, the Triangular, and the Log-Normal.

Modifying Factors

The recoverable geothermal energy is for the total area of each and every EL with the reservoir thickness based on the top of the potential carbonate reservoir map for each EL, and a bottom boundary of– 3,000m a.s.l., in accordance with the maximum depth of investigation reached by Cesano geothermal wells (C6 reached 3,219m of depth).

The effective porosity, as previously described, most likely value falls in the range between 2 and 3%, based on the average porosity detected in the Alfina geothermal field and according to an extensive review of scientific papers for the Tuscan and Latium geothermal reservoir formations.

The ranges of assumed values and the distribution functions used in overall estimation of recoverable geothermal energy are summarized in the following Table 5.

Parameter	Probable Distribution	Campagnano			Galeria			Sabazia		
		Min. Value	Med. Value	Max. Value	Min. Value	Med. Value	Max. Value	Min. Value	Med. Value	Max. Value
Area (km^2)	Fixed	-	12.0	-	-	11.5	-	-	32.4	-
Reservoir Thickness (m)	Uniform	1,200	-	2,000	750	-	1,500	1,250	-	1,500
Effective Porosity (%)	Uniform	2	-	3	2	-	3	2	-	3
Reservoir Temp. T_s [°C]	Uniform	150		250	150		250	200		350
Reference Temp. T_r [°C]	Fixed		110			110			110	
Rock Vol. Heat Cap. (kJ m-3 °C-1)	Fixed		2,295			2,295			2,295	
Wells Considered	-	C5 – C7			C5 – C7			C1 – C7		

Parameter	Probable Distribution	Melazza			Cassia			Sacrofano		
		Min. Value	Med. Value	Max. Value	Min. Value	Med. Value	Max. Value	Min. Value	Med. Value	Max. Value
Area (km^2)	Fixed	-	3.7	-	-	25.9	-	-	25.2	-
Reservoir Thickness (m)	Uniform	1,500	-	1,750	1,500	-	1,750	1,750	-	2,000
Effective Porosity (%)	Uniform	2	-	3	2	-	3	2	-	3
Reservoir Temp. T_s [°C]	Uniform	200		300	150		300	150		250
Reference Temp. T_r [°C]	Fixed		110			110			110	
Rock Vol. Heat Cap. (kJ m-3 °C-1)	Fixed		2,295			2,295			2,295	
Wells Considered	-`	C1 – C5			C1 – C5			C1 – C5		

Table 5: Values and Probability Distribution Adopted for each Variable for the Heat in Place Simulation for each EL (Source: STEAM)

Recoverable Geothermal Energy Iterations						
	Campagnano	Galeria	Sabazia	Melazza	Cassia	Sacrofano
Iterations Nº	10,000	10,000	10,000	10,000	10,000	10,000
Minimum (PJ_{TH})	1,358,353	817,612	8,481,071	1,168,708	3,668,914	4,137,796
Average (PJ_{TH})	4,008,463	2,683,921	17,017,404	1,948,162	11,180,204	9,800,165
Maximum (PJ_{TH})	7,711,382	5,579,029	26,802,619	2,832,464	19,760,716	16,278,516
Median (PJ_{TH})	3,942,388	2,576,848	17,010,819	1,944,406	11,191,489	9,716,773
Std Dev (PJ_{TH})	1,409,315	1,020,354	4,529,569	408,074	4,233,552	3,180,835
Range (PJ_{TH})	6,353,029	4,761,417	18,321,548	1,663,756	16,091,802	12,140,720
Kurtosis	-0.74	-0.56	-1.12	-1.09	-1.17	-1.16
Skewness	0.27	0.42	0.05	0.04	0.02	0.05

Table 6: Statistical parameters derived from the heat-in-place simulation for each Altamin EL (Source: STEAM)

Estimation of Electric Production from Heat-in-Place

The potential electrical power (E_{TH}) is estimated by using the Heat in Place (H) and applying modifying factors listed by Muffler and Cataldi, 1978; Ofwona, 2007, and Garg and Combs 2015 using the following expression:

$$E = \frac{H \cdot R_f \cdot \eta}{F \cdot L}$$

Where:
E = Electrical power (Mwe),
H = Heat in Place (J),
R_f = Recovery factor (%),
η = Electrical conversion efficiency (%),
F = Capacity factor (%), and
L = Power plant life (years).

Modifying Factors

The **power plant life (L)** and **capacity factor (F)** are design parameters and a power plant life of 30 years and a capacity factor of 94% has been adopted, which are typically assumed in the geothermal power plant design.

The **thermal recovery factor** $(\boldsymbol{R_f})$ is the ratio of the heat recovered at the wellhead to the heat stored in the reservoir (Garg and Combs 2015). Williams (2014) presents estimates of thermal recovery factors based on both theoretical grounds and data from operating hydrothermal fields and suggests that the appropriate range for fracture-dominated geothermal reservoirs is from 8% to 20%. According to Williams (2014), if a permeable reservoir exists, then R_f is non-zero; therefore, the following results were obtained from a conservative approach, considering R_f = 6.25% as suggested by Muffler and Cataldi (1978).

The **electrical conversion efficiency (**$\boldsymbol{\eta}$**)** is not always certain in that it depends on the temperature of the geothermal fluid, as well as on the technology used for the exploitation. Consequently, the electric power was evaluated for a minimum of η = 7.5% and maximum of η = 15%, respectively for medium and high enthalpy geothermal fluids. For the medium enthalpy fluids, the electric power was evaluated in accordance with the binary power plant performance, whilst high enthalpy fluids, as foreseen in the Cesano area, 18 to 20% performance could be reached. A value of η = 7.5% was selected as a conservative approach.

The maiden Heat-in-Place estimate for the Lazio brines are reported according to the UNFC Specification for Geothermal Energy Resources (2022) in Table 6. A minimum cut-off reservoir temperature of 150°C for the Campagnano, Galeria, Cassia and Sacrofano ELs and 200°C for Sabazia and Melazza have been applied to the estimate.

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Estimation of Recoverable Electrical Power and Heat-in-Place

The results of the evaluation for heat and recoverable electrical power are shown in Table 7.

Preliminary Evaluation of Lazio Brine Reservoir for Heat and Power (UNFC 2022)								
Area Name	Heat-In-Place (PJ_{TH})[1]			Recoverable Power (Mwe)[2]			UNFC-E	UNFC-F
	G1	G2	G3	G1	G2	G3		
	High confidence ($P_{90\%}$)	Medium Confidence ($P_{90\%}$ to $P_{50\%}$)	Low Confidence ($P_{10\%}$ to $P_{50\%}$)	High confidence ($P_{90\%}$)	Medium Confidence ($P_{90\%}$ to $P_{50\%}$)	Low Confidence ($P_{10\%}$ to $P_{50\%}$)		
Campagnano	2,176,000	1,766,000	2,033,000	11.5	9.3	10.7	E2	F2.1
Galeria	1,418,000	1,158,000	1,570,000	7.5	6.1	8.3	E2	F2.1
Sabazia	10,872,000	6,138,000	6,147,000	57.3	32.4	32.4	E2	F2.1
Melazza	1,390,000	554,000	555,000	7.3	2.9	2.9	E2	F2.1
Cassia	5,306,000	5,885,000	5,766,000	28.0	31.0	30.4	E2	F2.1
Sacrofano	5,449,000	4,267,000	4,468,000	28.7	22.5	23.6	E2	F2.1
TOTAL all Areas	**26,611,000**	**19,768,000**	**20,539,000**	**140.3**	**104.2**	**108.3**	**E2**	**F2.1**

1 – Subject to the modifying factors listed in Table 2
2 – Assumes electrical conversion efficiency for a medium enthalpy geothermal brine (η) = 7.5%
G1 to G3 and UNFC-E and -F are according to UNFC classifications stipulated in Tables 5 to 7.
UNCF-E = Environmental – Socio-Economic feasibility
UNFC-F = Technical viability

Table 7: Estimate of the Heat-in-Place and Recoverable Electric Power for all Exploration Licences (Source: STEAM)

Note the estimates of equivalent recoverable electrical power presented above are strictly indicative and should not be construed to be compliant with UNFC.

The specific electric power, that is, the electric power per unit area which is also known as power density in the geothermal literature (e.g., Wilmarth and Stimac 2015; Cumming 2016) is presented in Table 8.

Specific Electric Power (Mwe/km2)						
	P90%		**P50%**		**P10%**	
	η = 7.5%	**η = 15.0%**	**η = 7.5%**	**η = 15.0%**	**η = 7.5%**	**η = 15.0%**
Campagnano	0.96	1.91	1.73	3.46	2.62	5.25
Galeria	0.65	1.3	1.18	2.36	1.9	3.8
Sabazia	1.77	3.54	2.77	5.53	3.77	7.53
Melazza	1.98	3.96	2.77	5.54	3.56	7.12
Cassia	1.08	2.16	2.28	4.56	3.45	6.9
Sacrofano	1.14	2.28	2.03	4.06	2.97	5.93

Table 8: Potential electric power per unit area for each ALTAMIN ELs (Source: STEAM)

Considering the results obtained in this work, it can be concluded that the Cesano geothermal field and the ELs are characterised by favourable geological and geochemical conditions for both geothermal power production and mineral extraction, with an upside for producing further minerals of commercial value such as boron.

All the analyses and interpretations presented and discussed in this release are based on an extensive literature review of the geothermal exploration activities performed in the 1970s and 1980s in the Cesano area and the Sabatini volcanic complex. The key drill hole and assay data from the historical exploration results is presented in Appendix A.

To confirm these evaluations, geophysical and drilling activities must be carried out as a pilot project to confirm technical viability of the Project, by directing initial wells toward the previously drilled rock volumes, such as the volcanic pipes, in which there is a high probability of encountering the highest-grade mineral-rich geothermal brines.

Geothermal Classification and Reporting

The Geothermal Resource has been classified in accordance with the United Nations Framework Classification for Resources (UNFC) which is the global best practice for reporting of energy and mineral resources. The Supplementary Specifications for the application of the United Nations Framework Classification for Resources (Update 2019) to Geothermal Energy Resources (2022) has been applied to this report.

STEAM has identified that there are reasonable grounds that the Cesano Geothermal Energy Project has sufficient cumulative quantity of heat for the production of geothermal energy. The estimate is classified under the UNFC according to the status of the Project using three fundamental criteria combined within a three-axis "decision tree" as follows:

- The E-axis defines three possible categories (E1, E2 and E3) based on the social and economic conditions for establishing commercial viability of the Project including, inter alia, regulatory, and environmental conditions. E1 has the most favourable rating and E3 the least favourable,
- The F-axis defines four possible categories (F1, F2, F3 and F4) which apply to the general levels of certainty that the Project studies have reached moving from F4 to F1 as project progression advances, and
- The G-axis defines three categories (G1, G2 and G3 for a "known" geothermal energy source, and G4.1 to G4.3 for a "potential" geothermal energy source) indicating the level of confidence in the estimation of the geothermal energy resources quantities which considers geological and hydrological aspects, and accuracy of the modifying factors. G1 / G4.1 designate highest confidence and G3 / G4.3 lowest confidence.

The classification framework is based on the three fundamental criteria:

1. Economic and social viability,
2. Field project status and level of feasibility, and
3. Geological knowledge.

The following Tables 9 to 11 summarise the category definitions.

Categories	Definitions
E1	Extraction and sale have been confirmed to be economically viable
E2	Extraction and sale are expected to become economically viable in the foreseeable future.
E3	Extraction and sale are not expected to become economically viable in the foreseeable future or evaluation is at too early a stage to determine economic viability.

Table 9: E Category Definitions

Categories	Definitions
F1	Feasibility of extraction by a defined development project or mining operation has been confirmed.
F2	Feasibility of extraction by a defined development project or mining operation is subject to further evaluation. *Sub Category F2.1 Project activities are on-going to justify development in the foreseeable future.*
F3	Feasibility of extraction by a defined development project or mining operation cannot be evaluated due to limited technical data.

Table 10: F Category Definitions

Categories	Definitions
G1	Estimate quantities associated with a known deposit with a high level of confidence.
G2	Estimated quantities associated with a known deposit with a moderate level of confidence.
G3	Estimated quantities associated with a known deposit with a low level of confidence.
G4	Estimated quantities associated with a potential deposit, based primarily on indirect evidence.

Table 11: F Category Definitions

Recommendations and Future Work Program

All the analyses and interpretations are based on an extensive literature review of the geothermal exploration activities performed in the '70s and '80s in the Cesano area and the Sabatini volcanic complex.

To confirm these evaluations, drilling activities must be carried out, directing the future wells toward the rock volumes in which there is a high probability of encountering lithium-rich geothermal brines such as the volcanic pipes. Drilling will be essential to better understand and evaluate extraction parameters and modifying factors which at present are not fully understood, particularly relating to effective porosity and brine geochemistry.

Before drilling, it is planned to carry out the following geophysical surveys to identify the presence of volcanic pipes and better define the depth of the carbonate basal complex:

- Detailed resistivity survey and high-quality 2D and/or 3D modeling of acquired data, and.
- Detailed gravity survey and 2D and/or 3D modeling of acquired data.

The integrated interpretation of the two types of geophysical data will decrease interpretation ambiguities and better detect volcanic pipes, subject to a dense station pattern and, where possible, calibrated with the existing stratigraphic data.

In principle, the best resistivity survey is Magnetotellurics (MT), but the presence of the very invasive broadcasting station of "Radio Vaticana" may invalidate the quality of MT results. If the frequencies of this broadcasting station cannot be removed from the MT signal, controlled source electromagnetic surveys will be taken into consideration as an alternative survey method.

Furthermore, measuring and mapping the CO_2 diffuse degassing from the soil is being considered as an effective exploration tool to identify some more permeable/fractured areas of the geothermal reservoirs. This technique will first focus on those areas affected by tectonic and volcanic-tectonic structures and most likely to have CO_2 diffuse degassing. Planned measuring stations will cross the known structures orthogonally and extend the measurements until the background values of the CO_2 diffuse degassing from the soil are determined on both sides of the structures themselves.

The outcomes of these surface exploration surveys will then be used to locate exploratory wells.

Authorised for ASX release on behalf of the Company by the Altamin Board

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The MRE was prepared by the following lead consultants who are industry recognised:

- STEAM Srl (STEAM) was established in 1987 as an engineering company for the purpose of operating in the energy and environmental sectors pertaining to geothermal energy development. Its principal partners have many years of experience in geothermal field studies and particularly drilling, reservoir engineering and geological/geophysical survey studies. STEAM prepared the estimate of the recoverable thermal energy and electrical energy. STEAM also estimated a mineral resource for lithium, boron and potassium using a statistical method as a comparison and cross check against the MRE prepared by Aquifer Resources and quoted in this release.
- Aquifer Resources Pty Limited (Aquifer Resources) provided an experienced brine resource focused hydrogeologist and CP/QP (Adam Lloyd) who has completed numerous brine resource assessments over the last 8 years in potassium, lithium and magnesium including geothermal environments working as a consultant and directly for mining companies. Aquifer Resources has worked on some of WA's largest infrastructure and mining projects. Adam is a CP/QP for Brine Resource and Reserve estimation for JORC (2012) and NI43-101. Aquifer, with assistance from Altamin, provided a QA/QC analysis and MRE for the contained lithium, boron and potassium elements contained within the brine.
- Watercycle Technologies Ltd (Watercycle) is a UK-based deep tech company focused on developing sustainable, high-yield, low-cost, mineral extraction and water treatment systems. Its core technology spans mineral extraction, concentration, and crystallisation for primary lithium production from sub-surface waters and industrial brines. Watercycle synthesised brine samples and conducted testing using their Direct Lithium Extraction and Crystallisation (DLEC™) process technology.
- K-UTEC Salt Technologies (K-UTEC) is a renowned service provider for the global mining and natural resources industry with several decades of experience since 1951. They have unique expertise in extracting and producing inorganic salts and hydroxides of lithium, potassium, magnesium, boron and other alkali, alkaline earth, rare earth and so-called energy metals. K-UTEC conducted an assessment of the chemical and physical process development flow sheets required for the production of potassium through precipitation of glaserite from the brine.

Competent Person Statement

The information in this release that relates to Mineral Resources is based on and fairly represents information and supporting documentation which has been prepared by Mr Adam Lloyd, an employee of Aquifer Resources Pty Ltd, who is a member of the Australian Institute of Geoscientists. Mr Lloyd has sufficient experience relevant to the style of mineralization and type of deposit under consideration and to the activity that is being undertaken to qualify as a Competent Person, as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Lloyd has consented to the inclusion of the matters in this report based on his information in the form and context in which it appears.

The information in this announcement that relates to Exploration Results is based on information compiled and conclusions derived by Paolo Basile, a Competent Person who is a member of the European Federation of Geologists (Euro Geol No. 1898) which is a recognised professional organisation. Mr Basile is a full-time employee of Steam Srl and has sufficient experience that is relevant to the technical assessment of exploration results under consideration, the style of mineralisation and types of deposit under consideration and to the activity being undertaken to qualify as a Practitioner as defined in the 2015 Edition of the "Australasian Code for the public reporting of technical assessments and Valuations of Mineral Assets", and as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Basile consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears.

The compilation of the information in this release that relates to Geothermal Energy Estimates was completed by Mr Paolo Basile, an employee of STEAM Srl, using data acquired by STEAM and sourced from open domain databases or from ENEL. Mr Basile holds a Masters Degree in Applied Geology and has more than 12 years of experience in applied hydrogeology, geothermal and mineral resources evaluation, and has worked on several geothermal projects within Italy and worldwide. His areas of expertise include Geothermal Resources Evaluation, permitting production, management and planning of construction activities of geothermal fields. Mr Basile is a member of the Italian Association of Geologists, n°1651 Region of Tuscany, sits on the Board of the Italian Geothermal Association, and is a certified EuroGeologist. As EuroGeologist title holder (Registration No. 1898), Mr Basile is entitled to sign off on company resource reports submitted to regulatory bodies. Mr Basile consents to the inclusion in this release of all matters based on his information and has reviewed all statements pertaining to this information in the form and context in which it appears. Mr Basile is engaged by Altamin as an independent consultant and is not employed by the Company.

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APPENDIX A – Well Collar and Assay Tables

Well	Easting (m) WGS84 32N	Northing (m) WGS84 32N	Elevation (mRL)	Azimuth (°)	Dip (°)	Total Drilled Depth (m)	Tested Interval Depth from (m)	Tested Interval Depth to (m)	Tested / Sampled Geology
C1	777388	4666779	255	0	-90	1,435	1,380	1,435	Argellite/ Carbonate
C2	776991	4667299	230	0	-90	2,097	1,823	2,097	Carbonate
C3	777297	4665952	250	0	-90	2,061	1,590	2,061	Carbonate
C4	777749	4667329	225	0	-90	3,128	2,140	3,128	Carbonate
C5	777665	4663844	240	0	-90	1,851	1,819	1,851	Carbonate
C6	778255	4669666	263	0	-90	3,219	1,800	3,219	Carbonate
C7	774833	4670548	250	0	-90	2,035	2,011	2,035	Carbonate
C8	777079	4668114	212	0	-90	960	920	960	Volcanics
C13	776503	4669998	295	0	-90	2,592	1,850	2,593	Carbonate
C14	775303	4669980	270	0	-90	2,672	2,000	2,672	Carbonate/ Trachyte
C18	775031	4663268	185	0	-90	3,002	2,600	3,002	Carbonate
Ladispoli 1	786281	4665486	200	0	-90	1,025	946	1,025	Carbonate
RC1	779299	4667713	225	0	-90	3,047	1,665	3,042	Carbonate
SH2	764166	4674376	325	0	-90	2,498	1,140	2,498	Skarn / Carbonate
Sabatini 2	774018	4675123	225	0	-90	2,700	2,045	2,700	Carbonate
Sabatini 5	771650	4666581	200	0	-90	2,347	1,810	2,348	Carbonate

Table A.1: Well Details Table

Well	C4	C5	C5	RC1	RC1	C7	C7
Unit	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**ppm**	**mg/l**
Reference	Baldi et al., 1982	Conti et al., 1980	Baldi et al., 1982	Conti et al., 1980	Baldi et al., 1982	Conti et al., 1980	Baldi et al., 1982
Total dissolved solids (TDS)	137,000	101,000	112,000	167,376	243,000	65,787	78,500
Ca++		9.5		60.36		9	
Mg++		6		10.69		trace	
Na+		22,000		52,142		13,500	
K+		15,800		33,833		12,000	
Li+		80					
Cs+		62		-		-	
Rb+		116		-		95	
Fe++(+)+++		7.2		-		-	
NH_4+		206		31.17		-	
As+++		440		-		295	
Cl-		26,530		17,313		20,980	
SO_4--		24,450		76,638		7,796	
NH_3(total)		29.41		528.5		-	
Boron as H_3BO_3		11,265		7,892		9,499	
SiO_2		133		140		200	
pH		7.95		8.35		-	
Sb		-				16	

Note: the chemical analysis is considered to be bottom of hole representative of the aquifer conditions. The exception * analysis is from post flash sampling and require flash correction to normalize. Ppm is converted to mg/l by multiplying by the specific gravity of the fluid.

Table A.2: Reported Brine Assays 1

Well	C1	C1	C1	C1	C1	C1	C1	C8	C8
Unit	mg/l	mg/l	ppm*	mg/l	ppm	mg/l	ppm	mg/l	mg/l
Reference	Private communication Source STEAM)	Baldi et al., 1982	Allegrini et al., 1986	Personal 1990 (Source STEAM)	Report HSE (Source STEAM)	Corsi et al., 1980	Allegrini et al., 1980	Baldi et al., 1982	ENG-ENALT 1C 1981
Total dissolved solids (TDS)	350,000	390,000	314,000	-	310,000	364,000	-	400,000	370,000
Ca++	110		371	146	366	200	208		
Mg++	15		6.9	14	6.4	30	27.1		
Na+	57,000		54,800	61,000	53,800	60,000	51,000		
K+	77,000		78,340	88,000	79,400	80,000	64,000		
Li+	180		163	250	158	220	165		
Cs+	62		57.6	-	55.4	30	42		
Rb+	350		285	-	296	400	280		
Fe++(+)+++	-		-	-	4.5	-	4.5		
NH_4+	100		11	-	11	-	90		
As+++	5		1.2	-	-	15	4.3		
Cl-	27,000		22,100	28,000	22,100	27,500	20,000		
SO_4--	180,000		151,600	192,250	147,400	186,000	140,000		
NH_3(total)			-	-	-	-	86		
Boron as H_3BO_3	7,000		6,200	8,641	6,910	7,500	-		
SiO_2	130		55.2	-	33	120	113		
pH	7.5		-	8.1		-	-		
F-		-		-		55	66		

Note: the chemical analysis is considered to be bottom of hole representative of the aquifer conditions. The exception * analysis is from post flash sampling and require flash correction to normalize. Ppm is converted to mg/l by multiplying by the specific gravity of the fluid.

Table A.3: Reported Brine Assays 2

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APPENDIX B – JORC CODE, 2012 EDITION Tables

Section 1: Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections)

Criteria	JORC Code explanation	Commentary

Sampling techniques	• *Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.*
	• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used*
	• *Aspects of the determination of mineralisation that are Material to the Public Report.*
	• *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*
		• The chemical data reported is drawn from scientific papers which summarize analytical data acquired during the short and long production tests with the aim of evaluating the geothermal potential of the Cesano wellfield and nature of the contained fluids and gasses.
		• The sampling methods used are described in Corsi et. Al., 1980. Based on the field experience of STEAM senior experts, that participated in the Cesano exploration activities, sampling was completed using a pressure-resistant bottle equipped with two valves. Initially (before sampling) the bottle is completely filled with silicone oil that has the same density of the brine to be collected and does not mix with it. The silicone oil filled bottle is connected to a port, equipped with a pressure gauge, either at the wellhead or at the liquid phase pipeline after the first pressure separator. Sampling was completed as follows:
		  ◦ The upstream valve is opened, and the brine enters the bottle, thus bringing it to the same pressure as that present in the pipeline
		  ◦ The downstream valve is then gradually opened, monitoring the pressure on the pressure gauge so that it remains as close as possible to the pipeline pressure
		  ◦ The silicone liquid flows out of the bottle and is collected in a container
		  ◦ As soon as the geothermal brine begins to flow out of the bottle, both valves are closed simultaneously
		  ◦ The bottle is disconnected and sent to the laboratory for chemical analysis.
		• Some samples were collected at the weir box, after flashing and precipitation of both calcite and glaserite (Corsi et al. 1980). These brine analyses have been removed from the assessment.
		• All other reported analyses are referred to in this report and are as reconstructed bottom hole conditions representative of the aquifer.

Criteria	JORC Code explanation	Commentary
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• General practice for each well was to start drilling with around an 18" (inch) diameter roller bit with bit diameter gradually reducing as depth increased with most holes finishing with around an 8½" production diameter (open). Steel casing was used for collar construct within which steel liners were inserted again to varying depths. Pressure cementing completed to seal off the variable aquifer zones. Neither casing or liners were slotted. At or around the intersection of the carbonate sequence holes were left open. • Coring was not required or undertaken as the target was the reservoir brines themselves rather than the drill material itself.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximize sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred* • *due to preferential loss/gain of fine/coarse material.*	• There is no detailed information on historical drillhole cutting sampling although it is very likely that cuttings were routinely collected at the well head and geological observations recorded immediately. Major facies and/or formation changes were accurately recorded in the well completion reports. • Drill sampling recovery is not applicable to the assessment of brine geochemistry.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• It is very likely that cuttings were routinely collected at the well head and geological observations recorded immediately. Major facies and/or formation changes were accurately recorded. • Geological observations recorded and retained are of a level of detail necessary to support appropriate Mineral Resource estimation and geochemical studies. • Drill holes were logged in their entirety
Sub-sampling techniques and sample preparation	○ *If core, whether cut or sawn and whether quarter, half or all core taken.* ○ *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* ○ *For all sample types, the nature, quality and appropriateness of the sample preparation*	• Sub sampling techniques and sample preparation are not applicable to the assessment of brine geochemistry. • Samples are required to be collected under pressure and at high temperatures using the in-line silicone sampler as described above. This ensures that salts are not precipitated due to reduction in pressure or temperature.

Criteria	JORC Code explanation	Commentary
	technique. ○ *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* ○ *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Samples were collected at the weir box, after flashing and precipitation of both calcite and glaserite (Corsi et al. 1980). These brine analyses have been removed from the assessment. All other reported samples/analyses referred to in this report are as reconstructed bottom hole conditions representative of the aquifer.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory* ○ *checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• All brine assay results are historical and have been obtained from the referenced reports. These reports are peer reviewed published technical documents which have been relied on for scientific research and multimillion dollar geothermal development decisions. • Senior members of the STEAM technical team were involved with the site investigations by Enel and have provided supporting information in regard to sampling, analysis and QA/QC procedures used at the time. The data is considered adequate for use in mineral exploration reporting and forming a Mineral Resource estimate. • ENEL Laboratory based on Castelnuovo di Val di Cecina (Pisa) was used for all brine analysis. The analytical methods used in the laboratory were the same as those used in the International Institute of Geothermal Researches of the Italian National Council of Researches (IIGR-CNR). • Analytical methods were based on atomic absorption analysis of cations and metals. Specifically: ○ Li – Spectrometry of atomic absorption – sensitivity for 1 % absorbance = 0.04 mg/L – Limit of detection = 0.02 mg/l – Reproducibility = +/- 3% ○ K – Spectrometry of atomic absorption – sensitivity for 1 % absorbance = 0.04 mg/L – Limit of detection = 0.08 mg/l – Reproducibility = +/- 3% ○ SO4 – Colorimetric and Turbidimetric Method – sensitivity for 1 % absorbance = 2 mg/L – Limit of detection = 0.2 mg/l – Reproducibility = +/- 3% • The analytical data produced by the ENEL laboratory are of high quality, typical analytical practices are used for quality control, such instrument

Criteria	JORC Code explanation	Commentary
		calibration, daily preparation of standard solutions, analysis in duplicate of a congruous number of samples at, at least 10%.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• Senior members of the STEAM technical team were involved with the site investigations by Enel and have provided supporting information in regard to sampling, analysis and QA/QC procedures used at the time. The data is considered adequate for use in mineral exploration reporting and forming a Mineral Resource estimate.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• At the time of data collection the European Petroleum Survey Group (EPSG) published and used a database of coordinate systems including EPSG 4806 and 32633 which are listed in this report. These coordinates readily transform between the various EPSG grids and other recognised grids. It is a directive that all data lodged with the governing authorities are now submitted using UTEM coordinates projected onto the WGS84 ellipsoid, a metric system where coordinates are calculated in metres. As such data coordinates used in this report use WGS84 Zone 32N, although it is noted that the Project area overlaps both Zone 32N and 33N. • Azimuths are true (grid) north. • Accuracy and quality of the survey data is sufficient for the purposes of Mineral Resource estimate. • Topographic control of the well head is available however, there is no requirement to apply any topography surface to the Mineral Resource estimate.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• The Project has been assessed based on detailed validation of irregularly spaced Rotary drilling that intersected the underlying reservoir on an approximate 800 m x 800 m or less drill spacing in two areas, with step-out drilling linking these two areas at an approximate 2,000 m x 2,000 m spacing, and a further 2 holes drilled between 7,000 m and 10,000 m from its nearest neighbour (Figure 1). The well-pad locations were selected following interpretation of a number of geophysical datasets

Criteria	JORC Code explanation	Commentary
		and then best sited to avoid surface cultural development. • The data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource estimate. • Sample compositing has not been applied.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• Drillholes are always orthogonal to the generally flat lying regional dip, such that downhole intercepts are a reflection of the true thickness. • Drill hole orientation has not introduced any sampling bias.
Sample security	• *The measures taken to ensure sample security.*	• The data is historical however, it is noted that the exploration activities and results being reported were collected and analysed entirely within Enel's organisation such that third party were not involved and thus sample security was at all times under the control of Enel. • Enel Laboratory based on Castelnuovo di Val di Cecina (Pisa) was used for all brine analysis. The analytical methods used in the laboratory were the same as those used in the International Institute of Geothermal Researches of the Italian National Council of Researches (IIGR-CNR).
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• The data has been reviewed by STEAM SRL and their personnel who worked on the project during the period 1970-85. Furthermore, Mr Paolo Basile is a member of a Recognised Professional Organisation. • Mr Adam Lloyd of Aquifer Resources Pty Ltd, who is a member of the Australian Institute of Geoscientists has reviewed the work of STEAM and found it to be of a sufficient standard

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• The Project is held under six granted Exploration Licenses (ELs). These licences are 100% owned and operated by a wholly owned Italian subsidiary of ALTAMIN. The Campagnano, Galeria, Sacrofano, Cassia, Sabazia and Melazza ELs are located in the Lazio region of Central Italy. They are under the authority of the Regione Lazio. • Parts of the ELs are granted over two European Environment Agency Conservation Areas which are part of the Natura 2000 protection areas network for the Birds and Habitats Directives. It is currently unknown if drilling or operational licences will be granted within these areas however, the resources identified may be accessed through directional and angled wells where necessary. • All ELs are valid at the time of this report and there are no known impediments to their renewal.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• The ELs extend over the Cesano geothermal field which was investigated for geothermal energy to generate electricity by Italian state power company, Enel, in the 1970s and 1980s. The Cesano field is the south-eastern part of a much larger regional geothermal district which extends northwest into Tuscany, where Enel's geothermal plants have operated continuously since geothermal power generation was pioneered there in 1911. • From 1974 Enel investigated the Cesano geothermal field for geothermal power generation only. Several of the authors of this report are geoscientists who worked on Enel's Cesano project and have first-hand knowledge of the geological data and the technical aspects of this historical work. During their geothermal exploration activities thirteen (13) wells were drilled within the confines of ALTAMIN's tenement area, two (2) wells a short distance from the tenement boundary, and one (1) well some 10 km to the northwest of the tenements, for a total of sixteen (16) wells. Five (5) of these wells have been flow tested.

Criteria	JORC Code explanation	Commentary
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The ELs are located in the eastern sector of the large Quaternary Sabatini Volcanic complex, characterized at surface by collapsed calderas, several volcanic centres, mainly calderas and scoria cones. These volcanics blanket the surface to depths of many hundreds of metres. They are underlain by unconsolidated clay and sand which may be locally absent, a thick and impermeable flysch complex of between 200 m to over 1,000 m, and finally a sedimentary carbonate complex of mostly limestone which can exceed over 1,000m thickness. The regional metamorphic basement was not encountered although expected to be at some depth. • Hydrologically the volcanic permeable blanket contains the shallowest fresh aquifer, which is of no geothermal interest. The groundwater is generally cold with low salinity while hotter zones are encountered infrequently at deeper locations within the shallow aquifer. The sand, clay, and Allochthonous flysch sediments are of generally low permeability and act as an aquitard, hydraulically separating the shallow aquifers from the deep geothermal system. The underlying carbonate rocks are permeable due to fracturing, contain fluids under pressure and are generally at very high temperatures. The carbonate acts both as a regional and local geothermal reservoir. The fluids contained within the reservoir are brines of hypersaline salinity that are elevated in several elements including lithium, boron and potassium. • Geological logging indicates the top of the reservoir (top of the carbonate) is approximately 1,600m beneath ground surface locally rising further 400m to the surface within the permeable volcanic pipes associated with the calderas. Drilling indicates that the bottom of the reservoir may be deeper than 3,000 m beneath the surface however, water inflows to the wells are not observed any deeper than 2,700 m from surface which is taken conservatively as the bottom of the reservoir. The surface extent of the reservoir is taken as the area of the ELs lying within a 5,000 m radius from wells with chemical analyses. • Higher grade brines are associated with areas both elevated in temperature and volcanic pipe emplacement. The high-grade shell is restricted to an area where high temperature, volcanic pipes and drill density is at its greatest development, whilst the surrounding medium

Criteria	JORC Code explanation	Commentary
		and low-grade shells are confined to areas of interpreted volcanic pipes. A background grade observed in wells drilled in areas of lower temperature and less volcanism is ascribed to all other parts of the model.
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* ○ *easting and northing of the drill hole collar* ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes is included in the report including: ○ easting and northing of the drill hole collar ○ elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar ○ dip and azimuth of the hole ○ down hole length and interception depth • hole length.
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• The standard unit for minerals in brine reporting is mg/l and all results are to be considered to be representative of bottom of hole conditions. Flash and thermodynamic corrections have been applied for samples collected post separator and ppm has been converted to mg/l using specific gravity of the brine. A standardized set of analysis is presented in this report. • Altamin are assessing resources of Li, K, SO_4 and Boron with the Cesano geothermal field. Some analyses only have TDS as the reported analyte. Therefore, to supplement and increase data density relationships of the key parameters have been estimated where Li, K, SO_4 and Boron have not been determined. The relationships between TDS and Li, K, SO_4 and Boron are presented in this report.
Relationship between mineralisation	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to*	• The drilling is nearly always orthogonal to the bedding it is reasonably assumed that down hole lengths and/or intervals of screening or brine

Criteria	JORC Code explanation	Commentary
widths and intercept lengths	*the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	production intervals are substantially true widths.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Please refer to the Figures contained within this report.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• The results reported in this announcement are comprehensively reported in a balanced manner.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• Other exploration data applicable to the Mineral Resource estimate is included in this report. • Metallurgical test work performed or desk top studies and reviews of mineral processing to extract Li, K, SO_4 and Boron is included in this report.
Further work	• *The nature and scale of planned further work (e.g., tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• The following actions are recommended: ○ Further definition of the volcanic pipes through geophysical investigation so that the shallow hot areas of the reservoir can be further defined. ○ Construction and calibration of a dynamic geothermal and solute transport model to simulate heat and dissolved solutes in the reservoir. Use the model to simulate an abstraction and injection regime over a life of mine. ○ Driling of a new well to validate the historical work and produce quantities of brine that can be used for future process and pilot scale testing.

Section 3: Estimation and Reporting of Mineral Resources

(Criteria listed in Section 1 and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	Data used in the Mineral Resource estimate was provided as a validated Micromine database, which in turn was sourced from a validated database prepared by STEAM Srl, and peer reviewed and normalised by Aquifer Resources Pty Ltd. The validation routines were employed to confirm validity of data. Key files (collar, survey, geology, assay, porosity and brine volume) were validated to ensure that they were populated with the correct original data. All drill hole collar, downhole survey and geological data are stored and maintained using the Micromine software. The database is updated as the new and validated data become available. A database copy is stored at on the cloud and at various sites within the Company. All the database changes are strictly regulated according to in-house instructions. The resultant database was validated for potential errors in Micromine software using specially designed processes. The following error checks were carried out during final database creation: ○ Sample intervals overlap in the assay file ○ First sample is not equal to 0 m in the assay file ○ First depth is not equal to 0 m in the survey file ○ Azimuth is not between 0 and 360° in the survey file ○ Dip is not between 0 and 90° in the survey file ○ Azimuth or dip is missing in survey file ○ Total depth of the holes is less than the depth of the last sample. ○ Negative-grade samples. Drill hole data was verified against source documentation. The surveyed drill holes were then also verified visually for consistency.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken, indicate why*	Several of the authors of this report are geoscientists who worked on Enel's Cesano project and have first-hand knowledge of the geological data and the technical aspects of this historical work. They now work for, or own, the STEAM consultancy. They have made many site visits and are very

Criteria	JORC Code explanation	Commentary
	this is the case.	knowledgeable about all aspects of the Project.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	Sufficient drilling has been conducted to reasonably interpret the geology and the Cesano reservoir and brine. The carbonate rocks host the Cesano reservoir and are traceable between all the drill holes and drill sections. Interpretation of the deposit was based on the current understanding of the deposit geology. Each cross section was displayed in Micromine software together with drill hole traces colour-coded according to grade values, bothe elemental assay and heat value, and rock type. The interpretation honoured the geological drill hole intervals particularly relating to the host carbonates and the intrusive volcanic pipe(s). Preliminary mineral processing studies on the elements of interest conclude that there are fair and Reasonable prospects that the elements can be economically extracted from the solutions at at lithium grades at or above 70 mg/l, and this cut-off has been applied to the model. Geological logging including geophysical interpretation in conjunction with thermal and elemental assays have been used to interpret the mineralisation. Alternative interpretations are likely to have some material impact on the Mineral Resource estimate on a local scale close to volcanic pipe(s) but less so on a global basis. The geology of the carbonate rocks, the host to mineralisation, is well understood within the Mineral Resource area and thus no alternative interpretations were adopted. No internal waste was included in the interpreted reservoir. The bottom of the reservoir was set at 2,700m beneath ground surface rather than to the bottom of the deepest holes that remained in carbonate at or around 3,000m beneath ground surface. Continuity is affected by the presence or otherwise of the intrusive volcanic pipe(s) and the limits of the drill hole coverage.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	The carbonate host rocks are flat lying over the entirety of the Project area and well beyond. The mineralisation within the host rock is interpreted over some 14.3 km north-south, and 14.7 km east west, between 660m and 2,700m beneath ground surface, a thicknes of approximately 2,000 m. The Competent Person is satisfied that the dimensions interpreted are

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>appropriate to support Mineral Resource estimation.</td></tr>
<tr><td>Estimation and modelling techniques</td><td>

The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.
The availability of check estimates, previous estimates and/or mine production records and whether the MRE takes appropriate account of such data.
The assumptions made regarding recovery of by-products.
Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).
In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.
Any assumptions behind modelling of selective mining units.
Any assumptions about correlation between variables.
Description of how the geological interpretation was used to control the resource estimates.
Discussion of basis for using or not using grade cutting or capping.
The process of validation, the checking process used,

</td><td>
The Mineral Resource estimate was based on thirteen (13) wells drilled within the confines of Altamin’s tenement area, two (2) wells a short distance from the tenement boundary, and one (1) well some 10 km to the northwest of the tenements, for a total of sixteen (16) wells. Five (5) of these wells have been flow tested. The block model consists of 100 x 100 x 10 m blocks (sub celled to the minimum cell size of 100 x 100 x 5 m at the interface of the surface of the carbonate). The block model was constrained in plan to those parts of the EPLs lying within a 5,000 m radius from wells with chemical analyses, and in section between the top of the carbonate host rock to a depth of 2,700 m. Minor blocks extended above the carbonate rock surface to depths of 725 m beneath ground surface in areas of volcanic pipe intrusion. These blocks were constrained to a 250m radius around the pipes.
The deposit was domained by reservoir extent, volcanic pipe emplacement, temperature, effective porosity and grade of the brines. A combination of the domains were used to estimate high, medium, low and regional grade shells as set out below.
<table>
<tr><th>Criteria</th><th>Domain</th><th>Li mg/l</th><th>H_3BO_3 mg/l</th><th>K mg/l</th><th>% of Model</th></tr>
<tr><td>Inside High Temp Domain Inside Volcanic Domain</td><td>High</td><td>200</td><td>7,300</td><td>90,000</td><td>7%</td></tr>
<tr><td>Inside area of Volcanic Pipe Inside Volcanic Domain</td><td>Medium</td><td>150</td><td>8,400</td><td>60,000</td><td>8%</td></tr>
<tr><td>Inside Volcanic Domain</td><td>Low</td><td>100</td><td>9,400</td><td>30,000</td><td>15%</td></tr>
<tr><td>Outside Volcanic Domain Inside 5,000m radius from Well with Assay Value</td><td>Regional</td><td>70</td><td>10,000</td><td>14,000</td><td>71%</td></tr>
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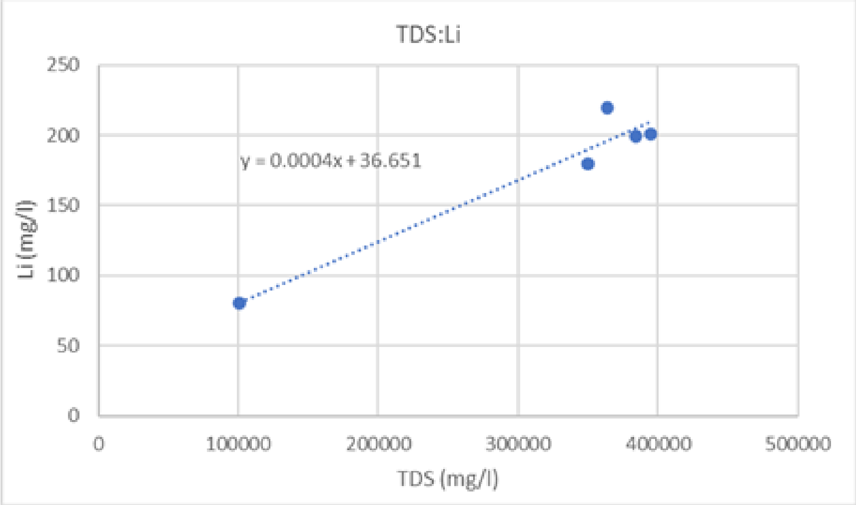
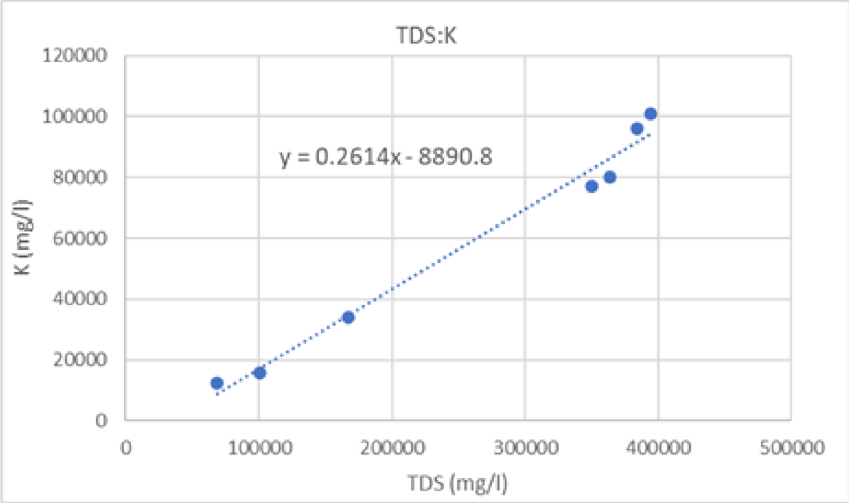
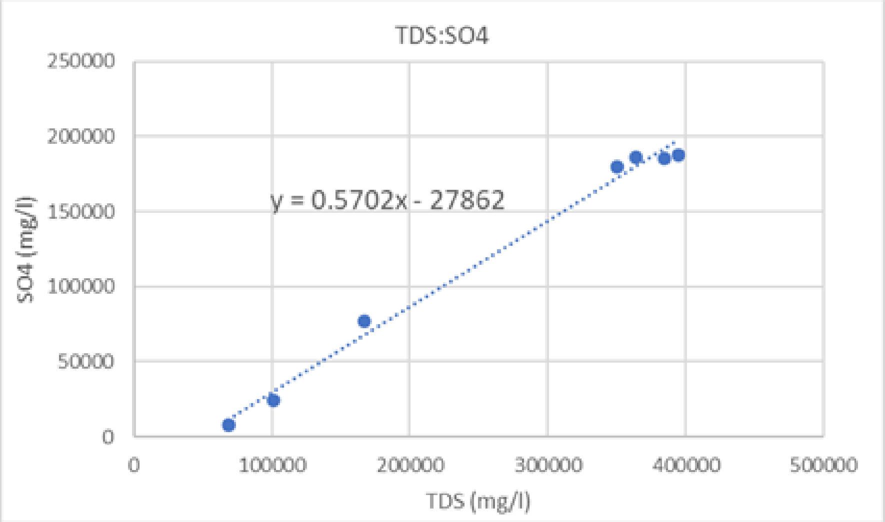
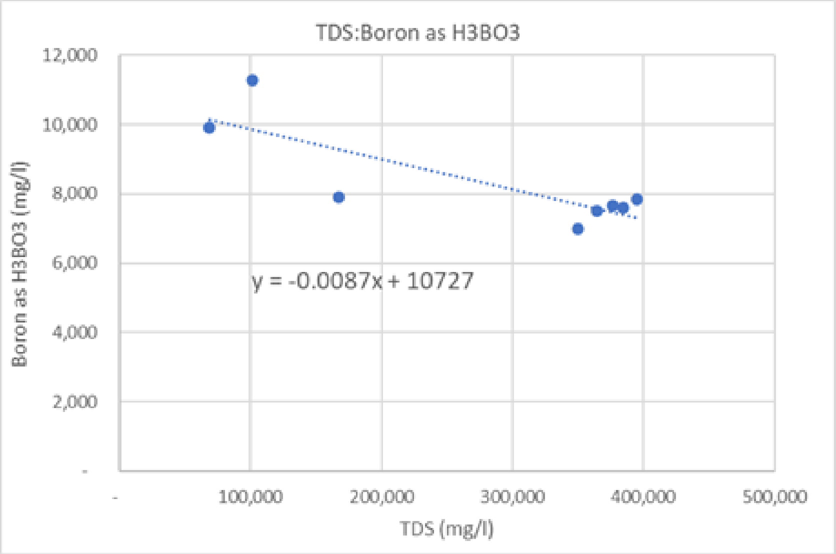
</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
	the comparison of model data to drill hole data, and use of reconciliation data if available.	The Competent Person is satisfied that estimation and modelling techniques are appropriate to support the Mineral Resource estimation. Recent metallurgical test work confirms that there are reasonable prospects of eventual economic extraction at lithium grades at or above 70 mg/l to produce battery grade lithium carbonate product without deleterious elements. Also, several applicable processing routes have been assessed as feasible to extract potassium as sulphate of potash. There is no recovery other than the main elements of lithium, potassium and boron. There has been no estimation of deleterious elements or other non-grade variables of ecoomic significance. The average exploration drilling spacing was 800 m x 800 m or less in two areas, with step-out drilling linking these two areas at an approximate 2,000 m x 2,000 m spacing, and a further 2 holes drilled between 7,000 m and 10,000 m from its nearest neighbour. Drillholes are always orthogonal to the generally flat lying regional dip, such that downhole intercepts are a reflection of the true thickness No assumptions were made for selective mining unit although it is noted that the deposit will be "mined" by extracting elements of interest from hot geothermal brines issuing from a number of well heads with spent brines re-injected back to the reservoir via injection wells. Altamin are assessing resources of Li, K, SO_4 and Boron with the Cesano geothermal field. Some analyses only have TDS as the reported analyte. Therefore, to supplement and increase data density relationships of the key parameters have been estimated where Li, K, SO_4 and Boron have not been determined. The relationships between TDS and Li, K, SO_4 and Boron are presented in figures within this report and below:

Criteria	JORC Code explanation	Commentary
		 

Criteria	JORC Code explanation	Commentary
		  The MRE is influenced and controlled by both the interpretation of the carbonate host rocks, the volcanic pipes and the distribution of the lithium,

Criteria	JORC Code explanation	Commentary
		potassiuim and boron mineralisation. Grade estimation was validated using visual inspection of interpolated block grades versus underlying data. This demonstrated reasonable correlation of modelled grades with the assay values.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	The tonnages were estimated on an in-situ dry bulk density basis which includes natural moisture. Moisture content was not estimated.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	A review of the test work completed by Water Cycle Technologies suggests that brines having a lithium grade at or above 70 mg/l have reasonable prospects of being extracted economically. This cut-off has been applied to the model.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	No assumptions or predictions relating to metallurgical amenability are reflected in the resource block model. Altamin has conducted metallurgical testing programme(s) on representative samples of synthetic brine solutions similar to the C1 & C5 wells at Watercycle Technologies The process exhibited high selectivity in lithium extraction and effectively removed other impurities. The lithium-rich solution obtained from the extraction was concentrated and crystallised to produce lithium carbonate, a crucial material used in manufacturing lithium-ion batteries. XRD (X-ray diffraction) confirmed the extraction of lithium carbonate crystals from the two brines however, further purification steps are required to achieve the desired battery-grade quality. The successful initial findings provide a strong basis to advance the test work to pilot-scale. Altamin has not engaged any third party to specifically study the reasonable prospects of extracting boron from the Cesano brines, both STEAM and K-UTEC (see below) have indicated that there are a number of different approaches used within the chemical industry for boron production from brine/solutions: ○ as alkali borates based mainly on a cooling crystallisation process ○ as boric acid though acidification using sulphuric acid, e.g. but by the cost of an additional CO_2 release.

Criteria	JORC Code explanation	Commentary
		○ as Ca/Mg borates by applying precipitation processes using quicklime or other alkaline materials and a Ca or Mg source Suitable technology for the extraction of boron from Cesano brine has yet to be investigated, but some of the available technologies discussed in this report include selective ion exchange resins, solvent extraction, adsorption and Reverse Osmosis of ceramic industries. Altamin provided the composition of the Cesano brines (C1 and C5) to K-UTEC, a renowned service provider for the global mining and natural resources industry with several decades of experience in extracting and producing inorganic salts and hydroxides of lithium, potassium, magnesium, boron and other alkali, alkaline earth, rare earth and so-called energy metals. K-UTEC reported that the utilisation of the Cesano 1 brine is generally possible using three approaches: ○ Option A: direct Glaserite production by cooling and possibly evaporation ○ Option B: decomposition of obtaining Glaserite with water to SOP and production of anhydrous Na_2SO_4 without using additional chemicals. ○ Option C: conversion of obtaining Glaserite with purchased KCl to SOP with the possibility to produce NaCl as an additional by-product. In this option, almost all sulphate of the brines is maximally converted into a high value product. The test work and desk top reviews demonstrates that the mineralisation may be be readily separated from the brine solutions.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential*	No environmental impact studies have been considered however, waste and process residues will be re-injected into the reservoir as part of the extraction/processing flow sheet, thereby restricting any possible envrionmental impacts from the extraction and processing operation. No significant environmental constraints are envisaged.

Criteria	JORC Code explanation	Commentary
	environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	Flash and thermodynamic corrections have been applied for samples collected post separator and ppm has been converted to mg/l using specific gravity of the brine. Effective porosity is to be used to determine the brine volume within the reservoir. There are no direct measurements of effective porosity for the Cesano geothermal field therefore estimates of effective porosity have been determined from reviews of the same reservoir formations in regional proximity. The target geothermal brine reservoirs of the mineral resources include the carbonate complex and volcanic breccias of the intruded volcanic pipe systems. This stratigraphy is present throughout the Tuscany and Lazio regions of Italy and have been the subject to many investigations related to geothermal resources. Local scale tests and regional scale models have been developed for the various geothermal fields which are based on many years of exploration and operational data. For the carbonate complex an effective porosity of 2.5% is considered appropriate for resource estimation. The volcanics are slightly less uncertain in their geometry and nature as the volcanic pipes are discrete intrusive features that are laterally discontinuous. Therefore, a more conservative 3.5% is considered appropriate for resource estimation.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories* • *Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).*	The Mineral Resource Classification is based on confidence in the quality of the drilling, sampling and assay data from the geothermal wells, and the geological and grade continuity based on interpretation. The MREs are based on drilling results and sampling obtained between 1970s and 1980s and classified as Indicated and Inferred, reflecting the following observations: o The relative close spacing between drillholes for geothermal brine exploration

Criteria	JORC Code explanation	Commentary
	• *Whether the result appropriately reflects the Competent Person's view of the deposit.*	○ Accurate survey control (east, north, elevation) for the historical drillholes ○ Reasonable confidence in the grade continuity associated with high temperature and volcanism ○ The adoption of a conservative effective porosity. Measured Resources are not reported. Indicated Mineral Resources are assigned to blocks which were within areas of coincident high brine temperature, volcanic pipe emplacement and within approximately 3,000m of the production well C1 where long duration pilot scale testing occurred. Here geological and hydrological parameters are reasonably understood and interpreted. Inferred Mineral Resources are model blocks lying outside the Indicated wireframes, which still display reasonable coincidence with high temperature and volcanic pipe emplacement. Here geological and hydrological parameters are interpreted from both empirical observations and geophysical interpretation. The classification has taken into account all available geological and sampling information, and the classification level is considered appropriate for the current stage of this Project. The Mineral Resource estimate appropriately reflects the view of the Competent Person.
Audits or reviews	• *The results of any audits or reviews of MREs.*	Internal audits were completed by STEAM which verified the technical inputs, methodology, parameters and results of the estimate using the statistical Monte Carlo methodology. An external audit of the Monte Carlo methodology using a geological 3D model was prepared by Aquifer Resources Pty Ltd which found reasonable correlation between the two methodologies. By applying the same constraints used by STEAM to the geological model (model), that is an estimate over the entirety of the EL area to a depth of -3,000 m, the model is similar to STEAM's P65 value for lithium and P73 value for potassium suggesting that the geological model is conservative.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the MRE using an approach or procedure deemed appropriate by the*	Industry standard modelling techniques were used, including but not limited to: • Interpretation and wireframing.

Criteria	JORC Code explanation	Commentary
	Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• Grade domaining and modelling of geology, assay and temperature. • Block modelling. • Model classification, validation and reporting. The relative accuracy of the estimate is reflected in the classification of the deposit. The relative accuracy of the Mineral Resource estimate is reflected in the reporting of the Mineral Resource to an Indicated and Inferred classification as per the guidelines of the 2012 JORC Code. The statement refers to global estimation of tonnes and grade and is suitable for use in a subsequent scoping study and further exploration at the deposit. No production data of any reliability or accuracy of specific origin are available.

APPENDIX C – UNFC Reporting

From UNFC Guidelines (reporting requirements)

Criteria	Commentary
The Geothermal Energy Source including the state of knowledge about the Source and uncertainties about its characteristics	The ELs extend over the Cesano geothermal field which was drilled and tested for geothermal energy to generate electricity by Italian state power company, ENEL, in the 1970s and 1980s. The Cesano field is part of a much larger regional geothermal district which extends into Tuscany, where ENEL's geothermal plants have operated continuously since geothermal power generation was pioneered there in 1911. The brine Mineral Resource and Geothermal Resource estimates are based on the historical drilling, testing and sampling of 16 wells within the Cesano Geothermal Field and its surrounds. Short-term and long-term flow tests of five productive wells were completed in the 1970s and 80s. The geothermal reservoir is a regional scale carbonate aquifer present across the entire project area at depths between approximately 1,300 and 3,100 meters below ground level. This region has been exposed to multiple episodes of volcanic activity represented physically at the surface in the form of calderas and scoria cones. The thermal anomaly at the top of the reservoir and the well locations are shown in the text. Hot brine of between 70,000 and 400,000 milligrams per litre (mg/l) total dissolved solids (TDS) is present throughout the reservoir in the project area. The highest TDS brine is associated with the hotter parts of the deposit that is co-incident with the emplacement of volcanic pipes and their associated fracturing and the lower TDS is considered to be the regional background level.
The physical Project including technology to be used for transferring subsurface energy to the surface and for any energy conversion. Conversion efficiency should be stated for any energy conversions	Hot geothermal brines enriched in lithium, boron and potassium will be extracted from a number of wells ("production wells") and the resultant hot fluids/steam will be used for both the production of geothermal power for electricity production and further processed to extract lithium, boron and potassium before the "depleted fluids" are then re-injected back into the reservoir ("reinjection wells") some distance from the production wells. This process has been successfully implemented at Enel's geothermal plants which have operated continuously since geothermal power generation was pioneered there in 1911, the only difference being that lithium, boron and potassium will be extracted before reinjection. Mining in a brine sense is the extraction of brine from the ground (everything from the

Criteria	Commentary
	well head is processed). In this case mining would be from boreholes designed based on 3D dynamic reservoir model. The brine would flow to the surface under the formation pressure. No below ground pumping is envisaged. The potential electric power resource (in units of Mega-Watt electrical) for each EL uses an electrical conversion efficiency (η) of 7.5 %. The electrical conversion efficiency (η) is not univocally defined in that it depends on the temperature of the geothermal fluid, as well as on the technology used for the exploitation. Consequently, the electric power was evaluated for a minimum of η = 7.5 % and maximum of η =15 %, respectively for medium and high enthalpy geothermal fluids. For the medium enthalpy fluids, the electric power was evaluated in accordance with the binary power plant performance, whilst high enthalpy fluids, as foreseen in the Cesano area, 18 to 20 % performance could be reached. Therefore, the minimum value of η =7.5 % was selected in a conservative approach.
Any additional energy or mass inputs into the system at an Intermediate Node	The Project is being assessed under the assumption that the reservoir is a single node of energy. No additional energy or mass inputs have been considered.
The Geothermal Energy Product (electricity, heat etc.)	The primary consumer of the thermal energy will be the minerals processing plant associated with the production of LCE and SOPE. Opportunistic power supply to third parties may be viable pending further drilling, modelling and design.
The Reference Point(s) where the product is sold, used or transferred	The product may be sold, used or transferred at point of generation within the EL area.
The Project Lifetime and what are the key factors that limit that lifetime	Modelling assumes a typical 30 year life for electrical generation from the heat-in-place energy resource. Geothermally this may be much longer, but Li and K brine dilution may occur prematurly due to minerals deficient breakthrough of reinjected brine to production wells.
The expected Project capacity factor considering daily or annual variability and possible trends of production over the lifetime	Project development and operational factors are not yet confirmed and require a higher level of study to determine daily or annual variability or production trends with time.
The basis for calculating the expected resource quantity,	STEAM has identified that there are reasonable grounds that the Cesano Geothermal Energy Project has sufficient cumulative quantity of heat for the production of

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Criteria	Commentary
including the basis for the G1, G2, G3 (or G4.1, G4.2, G4.3) range	geothermal energy. The Geothermal Resource was estimated according to the basic concepts outlined by Muffler and Cataldi (1978) and more recent scientific publications (Bayrante, 1992; Ofwona, 2007; Garg, et al., 2010; Garg, et al., 2011, Garg and Combs 2015). The recoverable thermal energy (heat in place) within the thickness of the geothermal reservoir is estimated using: $$H = S \cdot h \cdot (H_r + H_w)$$ *Where:* *H = Recoverable Thermal Energy (kJ_{Th});* *S = Surface of the considered geothermal reservoir (m^2);* *h = Thickness of the geothermal reservoir (m);* *Hr = Heat contained in the unit volume of rock (kJ/m^3);* *Hw = Heat contained in the unit volume of geothermal fluid (kJ/m^3).* The recoverable thermal energy contained in the unit volume of rock is estimated using: $$H_r = (T_s - T_r) \cdot (1 - \phi) \cdot C_r \cdot \rho_r$$ *Where:* *T_s = Average temperature of the reservoir (°C);* *T_r = Reference temperature (°C);* *C = Specific heat of the rock (kJ/kg·°C);* *ρ = Density (kg/m^3);* *ϕ = Porosity.* The recoverable thermal energy contained in the unit volume of geothermal fluid is given by: $$H_w = \rho_{wi} \cdot \phi \cdot (h_{ws} - h_{wr})$$ Where: *ρ_{wi} = Density of geothermal fluid(kg/m3);* *ϕ = Porosity;* *h = Enthalpy of the fluid (in kJ/kg);*

Criteria	Commentary
	ws = geothermal fluid; *wr = reference temperature.* The statistical "Monte Carlo" method was used to obtain an estimate of the probability of the amount of recoverable thermal energy from the reservoir. This estimated a probability (P90, P50 and P10). The methodology uses the probability distribution of each of the input variables (Kalos & Withlock, 2008), like reservoir thickness, effective porosity, concentration of the elements of interest, and reservoir temperature. Therefore, for each "uncertain" input data, it was necessary to define a range of associated values through a probability distribution, of which the most typically used are the Uniform, the Triangular, and the Log-Normal. It was considered that the recoverable thermal energy estimate having a: - probability of P90 be assigned to the G1 category in that the quantity can be estimated with a high level of confidence, - probability of P50 be assigned to the G2 category in that the quantity can be estimated with a moderate level of confidence, and - probability of P10 be assigned to the G3 category in that the quantity can be estimated with a low level of confidence
The Project's access to the Source, including licences, permits, and ownership	The Project is held under six granted Exploration Licenses (ELs). These licences are 100% owned and operated by a wholly owned Italian subsidiary of Altamin. All ELs are valid at the time of this report.
The environmental and social impact of the Project, including the status of necessary environmental permits	No work has been completed at the time of reporting on the environmental and social impacts of the Project.
The status and conclusions of technical feasibility studies for the Project and any associated technical preparations and contracts for the design, supply or construction of the Project.	The technical feasibility of the Project cannot be evaluated at this time due to limited technical data. There are no contracts for the design, supply or construction of the Project.