S-K 1300 TECHNICAL REPORT,

MAIDEN INFERRED BROMINE- AND LITHIUM-BRINE RESOURCE ESTIMATIONS FOR TETRA TECHNOLOGIES, INC.'S TETRA PROPERTY IN ARKANSAS, UNITED STATES

Prepared For: **TETRA Technologies, Inc.**
24955 Interstate 45 North
The Woodlands, TX 77380, U.S.A.

Prepared by: **APEX Geoscience Ltd.** [1]
100-11450-160 Street
Edmonton, AB T5M 3Y7, Canada

Hydrogeological Consultants Ltd. [2]
17740 - 118 Avenue NW
Edmonton AB T5S 2W3, Canada

Hargrove Engineers and Constructors [3]
4150 S. Sherwood Forest Blvd.
Baton Rouge, LA 70816, U.S.A.

Coutret and Associates Inc. [4]
401 Edwards Street, Suite 810
Shreveport, LA 71101, U.S.A.

Authors:
[1] D. Roy Eccles, M.Sc., P. Geol.
[2] Jim Touw, B.Sc. P. Geol.
[3] William Novak, B.Sc., P.E.
[4] Robert M. McGowen, BS, P.E.

Effective Date: 15 September 2022
Signing Date: 15 September 2022

Contents

APEX Geoscience Ltd.

Tables

Figures

1 Executive Summary

1.1 Issuer and Purpose

This technical report has been prepared for the issuer, TETRA Technologies, Inc. (TETRA). TETRA intends to explore, and potentially develop, industrial products and minerals such as bromine- and lithium-brine from their southwestern Arkansas brine leases to support battery, energy storage and low carbon opportunities. TETRA proposes to assess stratigraphically deep (>2,250 m, or >7,450 feet, below surface) hypersaline formation water, or brine, from oil and gas reservoirs, or aquifers, associated with the Late Jurassic Smackover Formation. It is conceivable that TETRA can develop technologies to remove the bromine (Br) and lithium (Li) from the brine underlying the TETRA Property.

During 2022, TETRA drilled a test well to validate the historical Br and Li content of the Smackover Formation brine underlying the TETRA Property and to conduct preliminary Direct Lithium Extraction test work. Hence, the purpose of this technical report is to 1) provide a summary of TETRA's 2022 exploration work together with brine analytical results and preliminary mineral processing test work observations and preliminary results, 2) prepare maiden mineral resource models and estimations for bromine- and lithium-brine, and 3) make recommendations for future exploration work.

This technical report is prepared in accordance with the U.S. Securities and Exchange Commissions (SEC's) final disclosure rules for mining company issuers (Regulation S-K subpart 1300, or S-K 1300). The Effective Date of this technical report is 15 September 2022.

1.2 Author and Qualified Person Site Inspection

This technical report has been prepared by a multi-disciplinary team that includes 1) Roy Eccles, P. Geol., of APEX Geoscience Ltd. in Edmonton, AB; 2) Mr. James (Jim) Touw, P. Geol. of Hydrogeological Consultants Ltd. in Edmonton, AB; 3) Mr. William (Billy) Novak, P.E. of Hargrove Engineers and Constructors in Baton Rouge, LA; and 4) Mr. Robert M. McGowen, P.E. of Coutret and Associates Inc. in Shreveport, LA. The authors are Qualified Persons as defined by S-K 1300.

Mr. McGowen performed the most recent personal inspection of the TETRA Property on April 18, 2022. As part of the site inspection, Mr. McGowen can verify the drilling permit application, the active well MKP A-47 drilling, the subsurface stratigraphy, and validated the active brine sampling program being conducted by TETRA.

As part of the brine sampling program, Mr. McGowen collected a sample of Smackover Formation brine from well MKP A-47 and couriered the sample to the Mr. Eccles, who independently analyzed the sample at a Canadian laboratory. The sample collection and analysis provide an independent validation of the bromine- and lithium-brine mineralization that is the subject of this technical report.

1.3 Property Location, Description and Access

The TETRA Property consists of 1,004 individual brine leases that encompass 41,528 gross acres and 31,355 net acres. The TETRA Property is situated in southwest Arkansas within Townships 16-17 South and Ranges 22-24 West of the 5th Meridian. Most of the Property occurs within Lafayette County with the eastern part of the Property in Columbia County. The TETRA Property is located approximately 15 miles (24 km) west of the City of Magnolia, Columbia County, AR, and approximately 1.9-3.1 miles (3 to 5 km) south of the cities/towns of Lewisville, Stamps, and Buckner, Lafayette County, AR.

The TETRA Property is divided into 3 sub-properties as defined by the contiguous location of the brine leases, the lease acquisition dates, expiry dates, and/or the bromine and lithium mineral rights: The Main Lease, S-SW Lease, and S-SE Lease sub-areas. Two separate mineral resource estimation areas were assessed and include:

1. The maiden TETRA Br-brine resource area encompasses all 1,004 brine leases that define the entire TETRA Property (i.e., includes the Main Lease Area, S-SW Lease, and S-SE Lease sub-areas).

2. The maiden TETRA Li-brine resource area is defined by a portion of the TETRA Property that corresponds with the S-SE Lease sub-area and is comprised of 112 individual brine leases that encompass 5,100 gross acres and 3,682 net acres.

The Property is best accessed by east-west US Highway 82, which links the cities of Lewisville, Stamps, and Magnolia, and then by travelling south on Arkansas State Highways 29, 53, or 313, all of which traverse through the Property. The property has historically significant oil and gas activity infrastructure in-place and an extensive all-season secondary road network. Exploration is generally not influenced by weather and field exploration programs and/or potential production development can occur year-round.

1.4 Bromine and Lithium Exploration, Production, Extraction Rights and Royalties

TETRA has brine leases that give TETRA the rights to explore, produce, and extract all minerals contained in the brine, including bromine and lithium, from brine underlying the entire TETRA Property. The maiden TETRA Br-brine resource area and estimate presented in this technical report encompasses the entire TETRA Property. The maiden Li-brine resource area and estimate has a smaller spatial extent because:

- As a result of a 2017 agreement between TETRA and Standard Lithium Ltd., Standard Lithium Ltd. has brine rights to explore for lithium and has an option for a period of 10-years to obtain the rights to produce and extract lithium from the Main Lease Area and S-SW Lease portions of TETRA's brine leasehold through an option agreement subject to Standard Lithium Ltd.'s annual payments. Standard Lithium Ltd. has not yet exercised its option to acquire the rights to produce the brine to extract the lithium.

- Accordingly, the maiden TETRA Li resource estimate is concentrated on the contiguous group of 112 brine leases in south-southeast portion of the property (i.e., the lease area that is not subject to any lithium option rights in favor of a third party).
- Note: Because TETRA owns the underlying rights to all minerals contained within the brine, a 2021 lithium-brine mineral resource prepared by Standard Lithium Ltd. within the Main Lease and S-SW Lease areas is of important interest to TETRA, and therefore, the Standard Lithium Ltd. (2021) resource estimation is reiterated in this technical report within the other data and information section.

In accordance with Arkansas law, 'production units' are established such that brine can be derived from a common aquifer in the Smackover Formation with the unit having defined boundaries to ensure that all mineral owners potentially impacted by the producing well(s) would receive proper compensation. Payments made to the Lessor for production of brine are known as "in lieu" royalty payments because the payments are made annually based on a statutory rate, as opposed to a true royalty based on the amount of the produced brine. The statutory in lieu royalty payment is increased or decreased annually based on changes in the Producer Price Index. The Arkansas Oil and Gas Commission must approve the royalty rate for any "additional substance" profitably extracted from brine produced by an operator of a brine unit.

To date, TETRA has not applied for a production unit(s) at the TETRA Property.

1.5 Surface Rights

Arkansas law allows the severance of the surface estate from the mineral estate by proper grant or reservation, thereby creating separate estates. Under the laws of conservation in the State of Arkansas, however, the mineral rights are dominant over the surface rights. In some cases, when the mineral owner leases the right to produce oil, gas and/or brine, the Lessee succeeds to the mineral owner's right of surface use, subject to lease restrictions. Conflicts arising between the Lessee and surface owner can be avoided by creating Lease agreements that clearly identify the scope of surface use rights.

1.6 Environmental and Property-Related Uncertainties

None of the TETRA Property occurs in areas where surface access is restricted, or where the minerals are reserved, or withdrawn. There are no known environmental conditions that would affect TETRA's ability to acquire brine samples for assay testing or mineral processing test work. No environmental or cultural impact studies pertaining to the possible future extraction of the Smackover Formation brine resource on the TETRA Property have been completed to date.

As with any early-stage exploration project there exists potential risks and uncertainties. TETRA will attempt to reduce risk/uncertainty through effective project management, engaging technical experts, and developing contingency plans.

Most brine companies are reliant on pre-existing oil and gas wells that are managed and operated by current petro-companies (or geothermal companies), and hence, there is typically some risk associated with a dependency on the petro-operation and continued brine access. It is possible that situations could arise where the petro-companies shut down well production – for example – due to poor commodity prices, depletion of petroleum product reserves, and/or production well performance of the reservoir. In this instance, TETRA could adopt a strategy to mitigate the reliance on pre-existing oil and gas wells, which are managed and operated by current petro-companies. For example, TETRA could permit and drill their own wells or consider options such as purchasing the well, renting the operation of the well, etc. In addition, and as the project advances, TETRA will need to configure how many wells might be required to run any future successful commercial operation.

1.7 Geology, Hydrogeology, and Mineralization

This technical report focuses on the Late Jurassic (Oxfordian) Smackover Formation, which is generally considered to represent a classic carbonate ramp that developed along the northern margins of a series of interior salt basins resulting from initial Gulf of Mexico rifting. The Upper Smackover Member, which includes the highly porous Reynolds interval, formed in an ooidal beach complex and/or sand shoal. The Middle Smackover Member formed within a carbonate shelf high-stand systems tract. The Lower Smackover Member transitions from a slope environment to an anoxic deep marine basin.

Consequently, the Lower Smackover Member (Brown Dense) and the overlying Buckner/Haynesville evaporite/mudstone form aquitards that effectively sandwich the – clean, porous, grain-supported carbonate aquifer rocks of the Upper Smackover Member. This aquifer, and in particular, the Upper Smackover Member, forms the main oil, gas, and brine reservoir rock of the region due to its high porosity and permeability. The mineral resources assessed in this technical report focuses on the Upper Smackover Member.

Based on regional hydrogeological assessment of the Smackover Formation, which incorporated over 2,000 Smackover Formation core plug measurements, the Upper Smackover Member within the Property is likely to have an average effective porosity of 10%, and permeability values that are less than 210 mD, with an average of 53.3 mD. Higher porosity and permeability may be present in the Smackover Formation strata underlying the southern portion of the TETRA Property (e.g., within the McKamie-Patton oilfield). The storativity and average transmissivity of the Smackover aquifer is estimated at 2.4×10^{-5} and 2.3 m^2/day.

Hydrodynamically, petro-companies and bromine companies (other than TETRA) have historically produced brine from the Smackover Formation aquifer as part of hydrocarbon production and to generate bromine from the brine for over 5 decades in 3 separate counties of southern Arkansas (Union, Columbia, and Lafayette).

With respect to mineralization, the Smackover Formation bromide- and lithium-rich brine is slightly acidic, of the Ca-Na-Cl type, and typically contains 250,000 to 450,000 mg/L of total dissolved solids. The historical, within TETRA Property, concentrations and TETRA-2022-analyzed Smackover Formation brine yield bromine values that range between 3,752 and 6,856 mg/L Br (mean of 5,370.6 mg/L Br, n=18 analyses). Lithium concentrations in the southern portion of the TETRA Property – and associated with the Li-brine resource area – range between 265 and 489 mg/L Li (mean of 416.2 mg/L Li; n=17 analyses). These values define the confined aquifer brine deposit type mineralization at the TETRA Property as these metals occur in substantially higher amounts than, for example, background seawater values of 65 mg/L Br and 0.1 mg/L Li.

1.8 Historical Oil and Gas Infrastructure and Brine Geochemistry

Some of the historical brine data compiled and presented in this technical report occur outside of TETRA's sub-properties. In these instances, the Qualified Person has been unable to verify the neighboring property bromine and lithium results, and therefore, this information is not necessarily indicative to the mineralization that occurs within the TETRA Property that is the subject of this technical report.

Petroleum resources in southern Arkansas were discovered in the early 1920s and the counties of Union, Lafayette, Columbia, and Ouachita have accounted for more than 85% of the oil production in Arkansas. Presently, the Magnolia, AR region remains a primary energy producing region. Produced water, or brine, of the Jurassic Smackover Formation was originally produced as a waste by-product of petroleum production. Upon examination of the wastewater geochemical attributes and technological development, the first commercial recovery of bromine from Smackover Formation brine occurred in Union County in 1957, and Br-brine production led by Albemarle Corporation and LANXESS has continued throughout southern Arkansas since that time.

A compilation of publicly available, historical bromine and lithium geochemical analytical results have within TETRA Property values of 3,752 to 6,856 mg/L Br (average of 5,372 mg/L Br; n= 10 analyses from 6 separate wells) and 132 to 461 mg/L Li (average of 340 mg/L Li; n= 12 analyses from 6 separate wells). Adjacent off-property values (n=8 analyses from 8 separate wells) includes 1,935 to 6,575 mg/L Br (average of 4,435 mg/L Br) and 46 to 1,430 mg/L Li (average of 339 mg/L Li). Historical bromine values are reasonably consistent throughout the entire TETRA Property.

In contrast to bromine, higher historical lithium values occur in the southern part of the Property and the Qualified Person advocates that there is, currently, a hypothetical geological explanation for low (e.g., 132 and 187 mg/L Li) versus high (e.g., 265 to 450 mg/L Li) lithium values in the north and south portions of the Property, respectively.

1.9 TETRA 2022 Exploration Work

During 2022, TETRA formed an agreement with Mission Creek Resources, LLC to drill a 10,000-foot (3,048 m) deep, vertical (-90° dip), oil and gas well within the southern portion of the TETRA Property. The well, which is called MKP A-47, is currently owned and operated by Mission Creek Resources, LLC.

Based on a geophysical wireline log study conducted at well MKP A-47, the top surface of the Upper Smackover Member was intersected at approximately -9,280 feet (-2,828.5 m). The top surface of the Middle Smackover Member was intersected at approximately -9,370 feet (-2,856.0 m). The interval between these two members (i.e., the Upper Smackover Member) defines the aquifer interval being assessed for its bromine- and lithium-brine content.

TETRA collected representative Upper Smackover Member aquifer brine at 3 separate perforation windows, which correlate to different sample depths within the MKP A-47 well bore and the Upper Smackover Member. A total of 8 original Upper Smackover Member brine samples were collected along with an additional 9 samples for Quality Assurance – Quality Control work (e.g., duplicate samples, certified sample standards, and blank samples).

The brine samples were couriered to two separate, independent, and accredited laboratories: ACZ Laboratories in Steamboat Springs, CO and to WetLab in Sparks, NV. Of the 8 original samples, a single outlier Br and Li analytical result analyzed at ACZ was observed, sample TTI-A47-G4-S, which yielded significantly lower Br (1,850 mg/L Br) and Li (403 mg/L Li) in comparison to 1) the other sample results, and 2) its counterpart sample analyzed at WetLab (5,800 mg/L Br and 477 mg/L Li). The ACZ sample was re-analyzed, using similar analytical equipment, but employed different dilution factors. Hence, and in the Qualified Persons opinion, the initial analysis, and the re-run analysis, on brine from sample TTI-A47-G4-S at ACZ are not reliable.

Subsequently, the bromine concentrations of the remaining 7 original Upper Smackover Member sample analyses range between 4,550 and 6,000 mg/L Br with an average of 5,350 mg/L Br (n=18 historical and TETRA-generated analyses). This dataset has an average percent relative standard deviation of 10% which represents very good data quality.

With respect to lithium, the concentrations of the 7 original Upper Smackover Member sample analyses range between 461 and 489 mg/L Li with an average of 473 mg/L Li (n=17 historical and TETRA-generated analyses). The average percent relative standard deviation of the dataset is 2%, which represents very good data quality.

As a result of TETRA's brine sampling program, the Company has validated the historical Smackover Formation bromine- and lithium-brine data. The Qualified Person advocates that the historical and TETRA-generated data can be implemented with confidence into the bromine- and lithium-brine resource estimations presented in this technical report.

1.10 TETRA 2022 Mineral Processing Test Work

During the 2022 Smackover brine sampling program at well MKP A-47, TETRA collected an additional 3,456 gallons (13,083 litres) of Smackover brine for mineral processing test work at the TETRA Innovation Group - TETRA Technologies, Inc. in Conroe, TX.

With respect to bromine extraction from the Smackover Formation brine, it is the Qualified Person's opinion that there is reasonable likelihood that bromine can be commercially produced based on: 1) knowledge that bromine has been historically produced from Smackover Formation brine in southern Arkansas for over 50-years by brine company's other than TETRA, 2) the TETRA Property Smackover brine has similar physical and chemical attributes to the brine that has historically been used to produce bromine in Union and Columbia counties, 3) TETRA's previous experience in filtration technologies associated with produced oil and gas waste production water, 4) the proposed bromine-extraction process flowsheet and design information being evaluated by TETRA, and 5) the existing infrastructure at the TETRA Property including rail, power, water, pipelines, existing Smackover formation wells, improved paved roads, and available labor.

During 2022, TETRA conducted lithium-based laboratory and initial pilot mineral processing tests on Smackover Formation brine obtained from the test well drilled within the TETRA property (well MKP A-47). TETRA is developing a resin-based adsorption/desorption Direct Lithium Extraction technology that employs Simulated Moving Bed (SMB) methodologies in which multiple columns are packed with resin to allow lithium to be adsorbed and desorbed at the same time to make the extraction process fully continuous. Experimental work conducted by TETRA has shown that deleterious elements such as sodium (Na^+), potassium (K^+), calcium (Ca^{2+}), magnesium (Mg^{2+}), and boron (B) can be successfully removed in columnar testing. Beneficiation of the brine feed to an eluate composite liquor has increased Li^+ from 360 ppm Li to 938 ppm Li during the current pilot testing efforts.

1.11 Reasonable Prospect of Economic Extraction

The technical report was prepared by a multi-disciplinary team that include geologists, hydrogeologists, and chemical engineers with relevant experience in the geology of the Smackover Group, brine geology/hydrogeology, and brine processing. There is collective agreement that the TETRA bromine- and lithium-brine project has reasonable prospects for economic extraction.

To support this contention, the Qualified Persons evaluated site infrastructure and resources, in-place Arkansas brine regulations, aquifer dimensions, brine access, brine composition, fluid flow, recovery extraction technologies, and environmental factors. With respect to product value, numerous countries have political and societal ambitions to reduce carbon emissions and transition their economies to renewable energy. Battery and critical metal markets favouring lithium and zinc-bromine are anticipated to have continued, and even increased, demand. Hence, the potential of using rapid extraction technologies to remove critical battery metals from brine creates an opportunity for the potential production of bromine and lithium from low concentration, but large source, confined aquifer brine deposits.

Relevant factors that influence the prospect of economic extraction involve 1) the narrow timeline in which lithium must be sequestered from the brine cycle, which currently involves pumping brine and/or brine and hydrocarbons to the surface, removal of bromine and/or oil, and reinjecting the brine back down into the reservoir/aquifer, 2) the suitability of the bromine or lithium concentrate for battery manufacturing, and 3) scaling the technology up from bench- and/or demonstration-scale tests to commercial production.

1.12 Mineral Resource Estimates

Three-dimensional modelling, statistical analysis, and resource estimations to predict the total in situ bromine- and lithium-brine was completed using the commercial mine planning software MICROMINE (v 21.0).

Spatially, the mineral resource models and estimation processes are constrained into 2 distinct resource areas defined as:

1. The maiden TETRA Br-brine resource estimate area is within a proposed brine unitisation area that encompasses the entire TETRA Property (1,004 individual brine leases that encompass 41,528 gross acres and 31,355 net acres).

2. The maiden TETRA Li-brine resource area is within a proposed brine unitisation area defined by the S-SE Leases sub-portion of the TETRA Property (112 individual brine leases that encompass 5,100 gross acres and 3,682 net acres).

Stratigraphically, the mineral resource models and estimation processes is confined to the Upper Smackover Member of the Smackover Formation. The Upper Smackover resource domain includes high porosity zones within the Upper Smackover Member including the unit often referred to as the highly porous Reynolds interval.

A 3D geological model of the Upper Smackover Member was created by preparing the top surface of the Upper Smackover Member. The top of the Upper Smackover Member is defined by 87 stratigraphic picks occurring within TETRA's Property and 105 picks within the general TETRA Property boundary. The base of the Upper Smackover Member is defined by 1) a single stratigraphic pick, and a further 4 picks, occurring within, or adjacent to, the TETRA Property boundary, and 2) extrapolating an average domain thickness of 200 feet (61 m) below the top surface of the Upper Smackover Member. This was deemed to be the most accurate way to extend the wireframe to depth because of the limited control on the top of the Middle Smackover Member via historical oil and gas drilling.

The Upper Smackover Member resource domain occurs underneath the entire TETRA Property at depths of between -9,541 and -7,451 feet (-2,908 and -2,2271 m) beneath the Earth's surface. The Upper Smackover resource domain wireframes were then clipped to the outline of the TETRA proposed unitisation boundaries and converted to 3-D wireframe solids. Rather than applying the net brine lease percentages, the mineral resources were calculated assuming 100% interest to the brine via the formation of brine production units. The aquifer volumes underlying the TETRA Property within the Upper Smackover Member of the proposed resource unitisation areas is summarized as:

- The maiden TETRA Br-brine resource area underlying the entire TETRA Property has an Upper Smackover Member domain aquifer volume of 2.171 miles^3, or 9.049 km^3.

- The maiden TETRA Li-brine resource area underlying the S-SE portion of the Property has an Upper Smackover Member domain aquifer volume of 0.234 miles^3, or 0.977 km^3.

The brine volume is calculated by multiplying the aquifer volume (in km^3) times the average porosity for each domain, times the percentage of brine assumed within the pore space. An Upper Smackover Member average porosity of 9.0% and a brine pore space volume of 98% was used because the Upper Smackover Member represents a mature oil and gas reservoir that produces high fluid modal abundances of brine in comparison to hydrocarbons.

The brine volumes underlying the TETRA Property within the Upper Smackover Member of the proposed resource unitisation areas is summarized as:

- The maiden TETRA Br-brine resource area underlying the entire TETRA Property has an Upper Smackover Member domain brine volume of 0.213 miles^3, or 0.887 km^3.

- The maiden TETRA Li-brine resource area underlying the S-SE portion of the Property has an Upper Smackover Member domain brine volume of 0.023 miles^3, or 0.096 km^3.

Average bromine- and lithium-brine concentrations used in the resource estimation process include 5,370.6 mg/L Br (n=18 analyses) and 416.2 mg/L Li (n=17 analyses). No top cuts or capping of upper limits have been applied to the bromine or lithium assay values or are deemed to be necessary. The Qualified Person recommends cutoff values of 250 mg/L Br and 50 mg/L Li in this initial mineral resource assessment.

The TETRA Property bromine- and lithium-brine resource estimations is classified as an 'inferred mineral resource' in accordance with guidelines established by S-K 1300.

Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into a mineral reserve.

The in-situ bromine- and lithium-brine inferred resources are globally (totally) estimated within the proposed TETRA Property unitisation areas and the Upper Smackover Member as follows:

1. The maiden inferred TETRA Br-brine resource underlying the entire TETRA Property is estimated to contain 5,250,000 short tons (4,763,000 metric tonnes) of elemental bromine (Table 1.1).

2. The maiden inferred TETRA Li-brine resource underlying the S-SE portion of the Property is estimated to contain 44,000 short tons (40,000 metric tonnes) of elemental lithium (Table 1.2). Using a conversion factor of 5.323 to convert elemental Li to Li_2CO_3, or Lithium Carbonate Equivalent (LCE), the maiden inferred TETRA Li-brine resource is estimated to contain 234,000 short tons LCE (212,000 metric tonnes LCE).

Table 1.1 Maiden TETRA Br-brine resource estimation presented as global (total) resource within the Upper Smackover Member underlying the entire TETRA Property.

Reporting parameter	Upper Smackover Member (entire TETRA Property)
Aquifer volume (miles^3)	2.171
Aquifer volume (km^3)	9.049
Brine volume (miles^3)	0.213
Brine volume (km^3)	0.887
Average bromine concentration (mg/L)	5,370.6
Average effective porosity (%)	10.0
Total elemental Br resource (short tons)	5,250,000
Total elemental Br resource (metric tonnes)	4,763,000

Note 1: Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into a mineral reserve.
Note 2: Weight in short tons (2,000 lbs or 907.2 kg) and metric tonnes (1,000 kg or 2,204.6 lbs).
Note 3: Tonnage numbers are rounded to the nearest 1,000 unit.
Note 4: In a confined aquifer (as reported herein), the average effective porosity of 10% is a proxy for specific yield.
Note 5: Resource estimations were completed and reported using cutoffs of 250 mg/L Br and 50 mg/L Li.

Table 1.2 Maiden TETRA Li-brine resource estimation presented as global (total) resource within the Upper Smackover Member underlying the South-Southeast sub-portion of the TETRA Property.

Reporting parameter	Upper Smackover Member (S-SE Leases Sub-Property)
Aquifer volume (miles^3)	0.234
Aquifer volume (km^3)	0.977
Brine volume (miles^3)	0.023
Brine volume (km^3)	0.096
Average lithium concentration (mg/L)	416.2
Average effective porosity (%)	10.0
Total elemental Li resource (short tons)	44,000
Total elemental Li resource (metric tonnes)	40,000
Total LCE (short tons)	234,000
Total LCE (metric tonnes)	212,000

Note 1: Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into a mineral reserve.
Note 2: Weight in short tons (2,000 lbs or 907.2 kg) and metric tonnes (1,000 kg or 2,204.6 lbs).
Note 3: Tonnage numbers are rounded to the nearest 1,000 unit.
Note 4: In a confined aquifer (as reported herein), the average effective porosity of 10% is a proxy for specific yield.
Note 5: Resource estimations were completed and reported using cutoffs of 250 mg/L Br and 50 mg/L Li.
Note 6: To describe the resource in terms of the industry standard, a conversion factor of 5.323 is used to convert elemental Li to Li_2CO_3, or Lithium Carbonate Equivalent (LCE).

1.13 Other Data and Information

TETRA's maiden Li-brine resource estimate encompasses the S-SE Lease sub-portion of the TETRA Property. With respect to lithium and the remaining Main Lease and S-SW Lease sub-areas within the TETRA Property, TETRA has granted Standard Lithium an option to acquire the rights to produce and extract lithium within these sub-portions of the TETRA Property (i.e., the Main Lease and S-SW Lease areas). The option may be exercised until 2027 subject to annual payments. Standard Lithium has not yet exercised its option to acquire the rights to produce and extract lithium. Standard Lithium calls the optioned property the SW Arkansas Lithium Project.

Because TETRA owns the underlying rights to all minerals from brine within the TETRA Property, the lithium mineral resource prepared by Standard Lithium is important to TETRA. Accordingly, the Standard Lithium Ltd. (2021) resource table is reiterated in this technical report. Using a cutoff of 50 mg/L Li, the SW Arkansas Lithium Project resource estimate is classified as ‘inferred’ in accordance with the Canadian Institute of Mining (CIM) definition standards. The total (global) in-situ Inferred lithium brine resource is estimated as a total (global) in-situ Inferred lithium brine resource that is predicted to include 248,000 short tons (225,000 metric tonnes) of elemental lithium, or 1,318,000 short tons (1,195,000 metric tonnes) of LCE. Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into a mineral reserve.

1.14 Conclusions

During 2022, TETRA completed the following activities:

- Drilled an oil and gas permitted vertical well, MKP A-47, to depth of 10,000 feet (3,048 m), to acquire Upper Smackover Member brine within the boundaries of the TETRA Property.
- Collected representative Upper Member Smackover brine samples for assay testing to validate the historical brine geochemistry and to obtain a greater understanding of the distribution of the bromine and lithium concentrations within the Smackover Formation brine underlying the TETRA Property.
- Conducted stratigraphic and hydrogeological studies to validate the geological domain boundaries and hydro-parameters of the Upper Smackover Member.
- Conducted mineral processing test work to explore and develop the bromine and lithium extraction processes.

It is the QP’s opinion that the exploration work conducted by TETRA is reasonable and within the standard practice of bromine- and lithium-brine evaluations within the deep-seated confined aquifer deposit type setting. The exploration results provide reasonable and sufficient data for the mineral resource geological modelling and estimation work presented in this technical report.

Mineral resources were prepared in accordance with the U.S. Securities and Exchange Commissions final disclosure rules for mining company issuers (S-K 1300) and have an Effective Date of 15 September 2022. The in-situ bromine- and lithium-brine inferred resources are globally (totally) estimated within the proposed TETRA Property unitisation areas and the Upper Smackover Member as follows:

1. The maiden inferred TETRA Br-brine resource underlying the entire TETRA Property is estimated to contain 5,250,000 short tons (4,763,000 metric tonnes) of elemental bromine (Table 1.1).
2. The maiden inferred TETRA Li-brine resource underlying the S-SE portion of the Property is estimated to contain 44,000 short tons (40,000 metric tonnes) of

elemental lithium (Table 1.2). Using a conversion factor of 5.323 to convert elemental Li to Li_2CO_3, or Lithium Carbonate Equivalent (LCE), the maiden inferred TETRA Li-brine resource is estimated to contain 234,000 short tons (212,000 metric tonnes) LCE.

Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into a mineral reserve.

As with any early-stage exploration project there exists potential risks and uncertainties. The inferred Br- and Li-brine resource estimations presented in this technical report are subject to change as the project achieves higher levels of confidence in the spatial extent of the aquifers, mineralization, metals-from-brine recovery processes and technological development, and the appropriate cutoff value in relation to extraction results.

1.15 Recommendations

The TETRA bromine- and lithium-brine project in southwest Arkansas is a project of merit. A two-phased work program is recommended that continues to assess the Br- and Li-brine potential at the Property and defines work intended to increase the confidence level of the data and the mineral extraction test work toward updated mineral resource estimation(s) and/or a Preliminary Economic Assessment scoping study. The total estimated cost of Phase 1 and Phase 2 work recommendations, with a 10% contingency, is USD$10,411,500 (Table 1.3).

Phase 1 work recommendations involve 1) re-opening, or drilling, additional wells to improve the geological and mineralization confidence level at the Property scale, or within a defined production target area, 2) ongoing mineral processing test work, and 3) consideration of modifying factors toward advancement of the project.

The Phase 2 work recommendations are subject to the positive results of the Phase 1 work initiatives. Phase 2 work recommendations include 1) refinement of the bromine- and lithium-brine recovery process flowsheet toward the development and construction of a demonstration pilot plant, 2) community consultation and environmental studies, and 3) updated mineral resource estimations and/or Preliminary Economic Assessment technical reporting in accordance with S-K 1300.

Table 1.3 Future work recommendations and estimated costs.

Phase	Description	Cost estimate (USD$)	Sub-Total (USD$)
Phase 1	Target wells (including suspended wells) and/or drill new wells in other parts of the TETRA Property for brine sample collection for assay testing and mineral processing test work.	$7,500,000	
	Ongoing extraction columnar test work and refinement of the bromine and lithium recovery process.	$300,000	
	Consideration and advancement of modifying factors such as marketing information, statutory and regulatory legal matters, environmental matters, commission or plans to engage mine planning participants, government factors, and socio-economic factors.	$125,000	$7,925,000
Phase 2	Planning and development of the bromine and lithium recovery process flowsheet toward development of a demonstration pilot plant.	$1,250,000	
	Community consultation and environmental studies.	$40,000	
	Resource estimation updates (if necessary) and Preliminary Economic Assessment technical reporting.	$250,000	$1,540,000
		Sub-total	$9,465,000
		10% contingency	$946,500
		Total	**$10,411,500**

2 Introduction

2.1 Issuer and Purpose

This technical report has been prepared for the issuer, TETRA Technologies, Inc. (TETRA or the Company). TETRA is an energy services company that markets completion fluids and associated products and services, water management, frac flowback, production well testing, and offshore rig cooling to energy and other markets. TETRA is a producer, marketer, and distributor of calcium chloride, which it supplies as feedstocks along with brominated products for its completion fluids business.

In January 2021, TETRA announced the company's intent to explore and potentially develop industrial products and renewable energy minerals such as bromine- and lithium-brine resources, from the Company's southern Arkansas brine leases (TETRA Property or the Property; Figure 2.1) to support battery, energy storage and low carbon opportunities (TETRA Technologies, Inc., 2021a; Magnolia Reporter, 2021a).

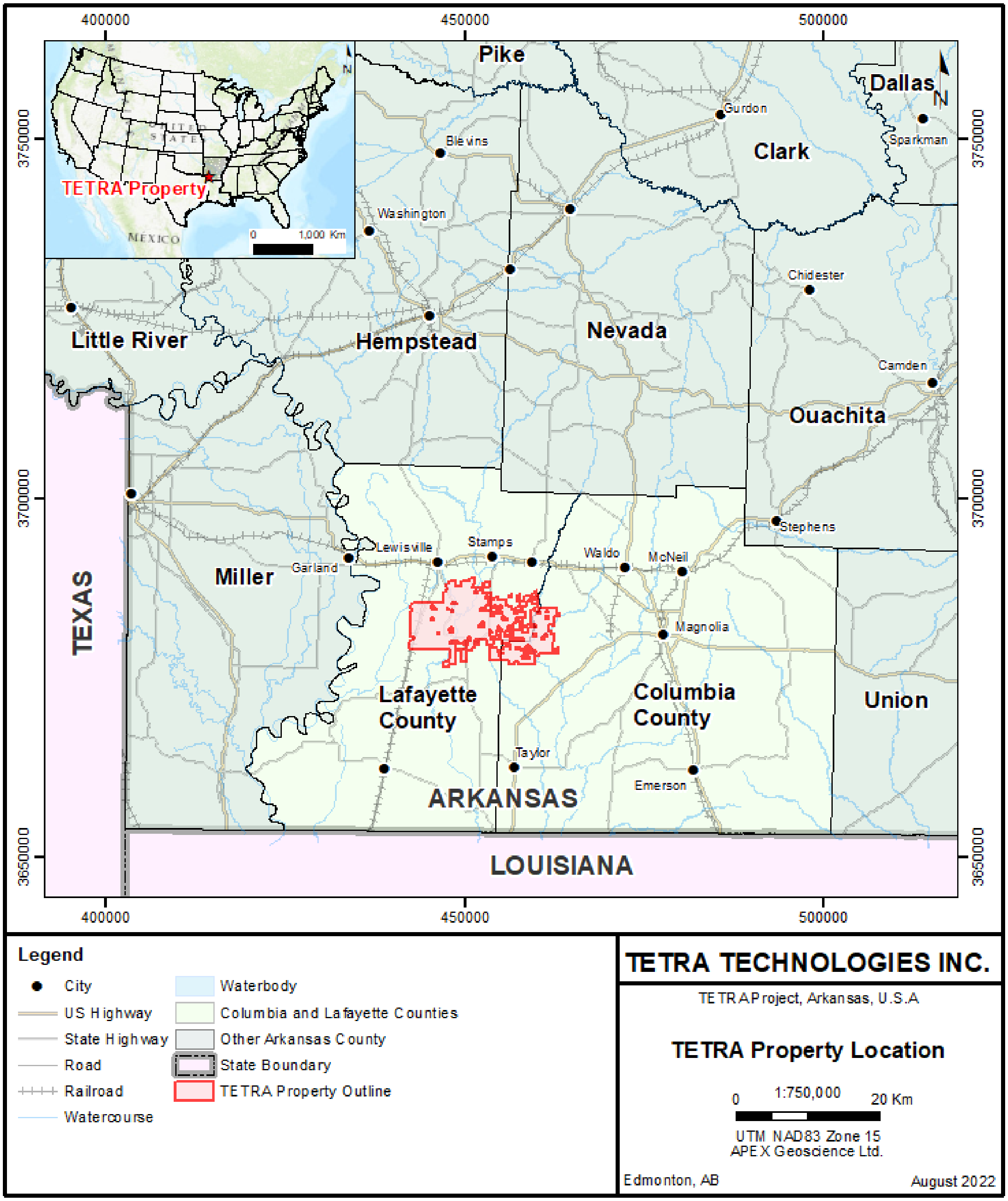
TETRA proposes to assess stratigraphically deep (e.g., >7,450 feet, or >2,250 m the below surface) hypersaline formation water, or brine, from oil and gas reservoirs, or aquifers, associated with the Late Jurassic Smackover Formation. In southern Arkansas, the Smackover Formation brine is pumped from the aquifer to the earth's surface as a source of bromine, or as a wastewater product associated with hydrocarbon production (e.g., oil, gas, and condensate). At the TETRA Property, the brine is processed to recover marketable hydrocarbon products and then the brine is reinjected back down into the subsurface aquifer. It is conceivable that TETRA can develop technologies to remove the bromine and lithium from the brine circuit at the TETRA Property.

In August 2021, the Company announced conceptual bromine- and lithium-brine exploration targets for the TETRA Property (TETRA Technologies, Inc. 2021b). In March-May 2022, TETRA, in conjunction with Mission Creek Energy Resources, LLC, TETRA accessed and collected Smackover Formation brine from Mission Creek Energy Resources, LLC well MKP A-47 to validate historical bromine- and lithium-brine geochemical data and obtain brine for mineral processing test work.

Accordingly, the purpose of this technical report is to 1) provide a summary of TETRA's 2022 exploration work together with brine analytical results and preliminary mineral processing test work observations, 2) prepare maiden mineral resource models and estimations for bromine- and lithium-brine, and 3) make recommendations for future work programs.

This technical report is prepared in accordance with the U.S. Securities and Exchange Commissions (SEC's) final disclosure rules for mining company issuers (Regulation S-K subpart 1300, or S-K 1300), which was adopted October 31, 2018, and became lawful on January 1, 2021. The Effective Date of this technical report is 15 September 2022. This current technical report supersedes and replaces TETRA's initial geological introduction report on the TETRA Property (TETRA Technologies, Inc. 2021b; Eccles, 2021).

Figure 2.1 General location of the TETRA Property in southwest Arkansas.



2.2 Authors and Site Inspection

S-K 1300 requires that all technical disclosure be prepared by, or under the supervision of a Qualified Person (QP). This technical report has been prepared by 1) Roy Eccles, P. Geol., of APEX Geoscience Ltd. (APEX) in Edmonton, AB; 2) Mr. James (Jim) Touw, P. Geol. of Hydrogeological Consultants Ltd. (HCL) in Edmonton, AB; 3) Mr. William (Billy) Novak, P.E. of Hargrove Engineers + Constructors in Baton Rouge, LA; and 4) Mr. Robert M. McGowen, P.E. of Coutret and Associates Inc. in Shreveport, LA.

The authors are Qualified Persons as defined by S-K 1300 as individuals with 5+ years' experience in this type of mineralization and deposit, and members in good standing of a recognized professional organization. A list of Qualified Persons (QPs) for the technical report, and their responsibilities, is presented in Table 2.1.

Mr. Eccles coordinated the overall technical report and takes responsibility of Sections 1-9 and 11-24. Mr. Eccles is a Professional Geologist with the Association of Professional Engineers and Geoscientists of Alberta (APEGA; #74150) and has worked as a geologist for more than 35 years since his graduation from the University of Alberta. Mr. Eccles has been involved in all aspects of mineral exploration and mineral resource estimations for metallic and industrial mineral projects, including lithium-brine specific exploration, valuation, and resource estimations in confined brine aquifer settings in western Canada, southern United States, central Europe, and other international destinations.

Mr. Touw P. Geol. takes responsibility for the geology sub-section 7.4, Hydrogeological Characterization Study. Mr. Touw is a Professional Geologist with APEGA and has worked as a geologist and hydrogeologist for more than 30 years since his graduation from university. As a Senior Hydrologist with HCL, Mr. Touw has been involved in mineral exploration and hydrology with technical experience that includes the collection, processing and interpretation of subsurface hydrogeological data, project management of hydrogeological programs, and the preparation and review of hydrogeological reports.

Mr. Novak P.E. takes responsibility of Section 10, Mineral Processing and Metallurgical Testing. Mr. Novak is a registered Professional Engineer with the State of Louisiana (#35937) since 2011 and has worked as an Engineer for more than 16 years since his graduation from university. Mr. Novak's technical experience includes designing, engineering, and managing chemical projects within the petrochemical, plastics, and pulp and paper industries, and in the separation, optimization, and purification of solids such as bromine from production slurry's.

Mr. McGowen P.E. takes responsibility of Section 9.4, Qualified Person Site Inspection. Mr. McGowen is a registered Professional Engineer with the State of Arkansas since 1985 and has over 40 years' experience since his graduation from the university. Mr. McGowen technical expertise includes 20 years of work experience in South Arkansas Smackover Formation (Reynolds interval) brine reservoirs.

Table 2.1 Summary of Qualified Persons contributions in this technical report.

Report section title	Qualified Person	Professional status	Company
Section 1: Summary	Roy Eccles	P. Geol.	APEX Geoscience Ltd.
Section 2: Introduction	Roy Eccles	P. Geol.	APEX Geoscience Ltd.
Section 3: Property Description	Roy Eccles	P. Geol.	APEX Geoscience Ltd.
Section 4: Accessibility, Climate, Resources, Infrastructure, and Physiography	Roy Eccles	P. Geol.	APEX Geoscience Ltd.
Section 5: History	Roy Eccles	P. Geol.	APEX Geoscience Ltd.
Section 6: Geological Setting, Mineralization, and Deposit Type	Roy Eccles	P. Geol.	APEX Geoscience Ltd.
Section 7: Exploration	Roy Eccles	P. Geol.	APEX Geoscience Ltd.
Section 7.4: Hydrogeological Characterization Study	Jim Touw	P. Geol.	Hydrogeological Consultants Ltd.
Section 8: Sample Preparation, Analysis and Security	Roy Eccles	P. Geol.	APEX Geoscience Ltd.
Section 9: Data Verification	Roy Eccles	P. Geol.	APEX Geoscience Ltd.
Section 9.4 Qualified Person Site Inspection	Robert McGowen	P.E.	Coutret and Associates Inc.
Section 10: Mineral Processing and Metallurgical Testing	William Novak	P.E.	Hargrove Engineers + Constructors
Section 11: Mineral Resource Estimates	Roy Eccles	P. Geol.	APEX Geoscience Ltd.
Sections 12-19 of S-K 1300 are not included. TETRA's Project is an early-stage exploration project.			
Section 20: Adjacent Properties	Roy Eccles	P. Geol.	APEX Geoscience Ltd.
Section 21: Other Relevant Data and Information	Roy Eccles	P. Geol.	APEX Geoscience Ltd.
Section 22: Interpretation and Conclusions	Roy Eccles	P. Geol.	APEX Geoscience Ltd.
Section 23: Recommendations	Roy Eccles	P. Geol.	APEX Geoscience Ltd.
Section 24: References	Roy Eccles	P. Geol.	APEX Geoscience Ltd.

Mr. McGowen performed the most recent personal inspection of the TETRA Property on April 18, 2022. As part of the site inspection, Mr. McGowen can verify the drilling permit application, the active well MKP A-47 drilling, the subsurface stratigraphy, and validated the active brine sampling program being conducted by TETRA.

A single sample of Smackover Formation brine collected from well MKP A-47 was couriered to the senior author and QP, who independently analyzed the sample at a Canadian laboratory as an independent validation of the bromine- and lithium-brine mineralization that is the subject of this technical report.

2.3 Sources of Information

The sources of information are based on the compilation of publicly available geological and geochemical data as they pertain to TETRA's Property and the surrounding area. The data compilation includes original, historical oil field brine data.

Government oil and gas information was obtained from the Arkansas Oil and Gas Commission (AOGC) and the Arkansas Geological Survey (AGS). This information included, for example, well collars, well depths, well stratigraphic information, well e-log profiles, formation horizon top picks, core plug measurements, etc.

Miscellaneous Government of Arkansas and journal articles were used to summarize the geological setting of southern Arkansas (e.g., Bishop, 1967; Alkin and Graves, 1969; Bishop, 1971a and b; Buffler et al., 1981; Moore and Druckman, 1981; Moore, 1984; Harris and Dodman, 1987; Salvador, 1991a and b; Troell and Robinson, 1987; Kopaska-Merkel et al., 1992; Moldovanyi and Walter, 1992; Zimmerman, 1992; Heydari and Baria, 2005; Mancini et al., 2008; Arkansas Geological Survey, 2021a,b). Company information, including technical reports and news releases, were used to reference any historical mineral exploration, or other work, conducted at the TETRA Property and to reference TETRA's Br- and Li-brine work programs (e.g., Standard Lithium Ltd., 2018, 2021, 2022; TETRA Technologies, Inc., 2021a,b).

Mr. Eccles has reviewed the information from government and miscellaneous reports, including geological information, historical oil and gas stratigraphic horizon picks, and historical well fluid geochemical data. Based on review of these documents and/or information, the senior author and QP has deemed that these reports and information, to the best of his knowledge, are valid contributions to this technical report, and therefore takes ownership of the ideas and values as they pertain to the current technical report.

Mr. Touw has reviewed historical Smackover Formation hydrological data that includes regional core plug effective porosity and permeability measurements. The QP has evaluated these data and is satisfied to include them in consideration of preliminary transmissivity and storativity interpretations and in the assessment of reasonable prospects of potential economic extraction of native brine.

The geochemical assay analytical work was conducted at ACZ Laboratories Inc. (ACZ) in Steamboat Springs, Colorado, Western Environmental Testing Laboratory (WetLab) in Sparks, NV, AGAT Laboratories Ltd. (AGAT) in Edmonton, AB, and Inorganic Ventures in Christiansburg, VA. These laboratories are independent of TETRA and are accredited with State certifications of approved laboratories and/or International Organization for Standardization (ISO), National Environmental Laboratory Accreditation Program (NELAP), or The NELAC Institute (TNI) standard interpretations.

The senior author and QP has reviewed the analytical protocols and accreditations of the laboratories used in TETRA's brine analytical programs and is satisfied the data were created using reasonable and standard methodologies in the field of bromine and lithium brine analytical work. Accordingly, the QP has no issue with using these data in the historical, geological, and mineral resource evaluations presented in this technical report.

2.4 Units of Measure

With respect to units of measure, unless otherwise stated, this Technical Report uses:

- Abbreviated shorthand consistent with the International System of Units (International Bureau of Weights and Measures, 2006).
- 'Bulk' weight is presented in United States short tons (tons; 2,000 lbs or 907.2 kg) and metric tonnes (tonnes; 1,000 kg or 2,204.6 lbs).
- Geographic coordinates projected in the Universal Transverse Mercator (UTM) system relative to Zone 15 of the North American Datum (NAD) 1983.
- Currency in U.S. dollars unless otherwise specified (Canadian dollars, CDN$).

3 Property Description

3.1 Description and Location

The TETRA Property consists of 1,004 individual brine leases that encompass 41,528 gross acres and 31,355 net acres (Figure 3.1; Table 3.1). The TETRA Property is situated within Townships 16-17 South and Ranges 22-24 West of the 5th Meridian. Most of the Property occurs within Lafayette County with the eastern part of the Property in Columbia County. The TETRA Property is located approximately 15 miles (24 km) west of the City of Magnolia, Columbia County, AR, and approximately 1.9-3.1 miles (3 to 5 km) south of the cities/towns of Lewisville, Stamps, and Buckner, Lafayette County, AR. The general centroid of the TETRA Property, presented in Universal Transverse Mercator Zone 15S, and North American Datum 83 (UTM, Z15S, NAD83) coordinates, is 452200 m Easting, 3682800 m Northing.

3.2 Lease Acquisition and Expiry by Sub-Property Term/Areas

The TETRA Property brine leases is grouped into 3 sub-property term/areas as defined by the contiguous location of the brine leases, the lease acquisition dates, expiry dates, and/or the bromine and lithium mineral rights. The 3 sub-property term/areas are presented in Table 3.1 and Figure 3.2 (with corresponding colour codes) and described as follows:

1. The “Main Lease Area” was acquired in 1994-1998, 2005-2006, and 2018-2021 and expires in 2022-2024, 2030-2031, and 2042-2047.

2. The “S-SW Leases” (or add-on area) was acquired in 2018 and expires in 2043.

3. The “S-SE Leases” were acquired in 2019-2021 and expires in 2044-2046.

3.3 Description of Bromine and Lithium Resource Areas Within the Property

The maiden Br and Li mineral resources presented in this technical report are separated into 2 distinct resource areas defined as follows:

1. The maiden TETRA Br-brine resource area encompasses all 1,004 brine leases that define the entire TETRA Property (as presented in Figure 3.1). I.e., the bromine resource area includes the Main Lease Area, S-SW Lease, and S-SE Lease sub-property areas as presented in Table 3.1 and Figure 3.2.

2. The maiden TETRA Li-brine resource area is defined by a sub-portion of the TETRA Property that corresponds with the S-SE Leases (Figure 3.2) and is comprised of 112 individual brine leases that encompass 5,100 gross acres and 3,682 net acres (Table 3.1; Figure 3.3). The reason for this sub-portion Li resource area is explained in Section 3.5.

Figure 3.1 General outline of the TETRA Property.

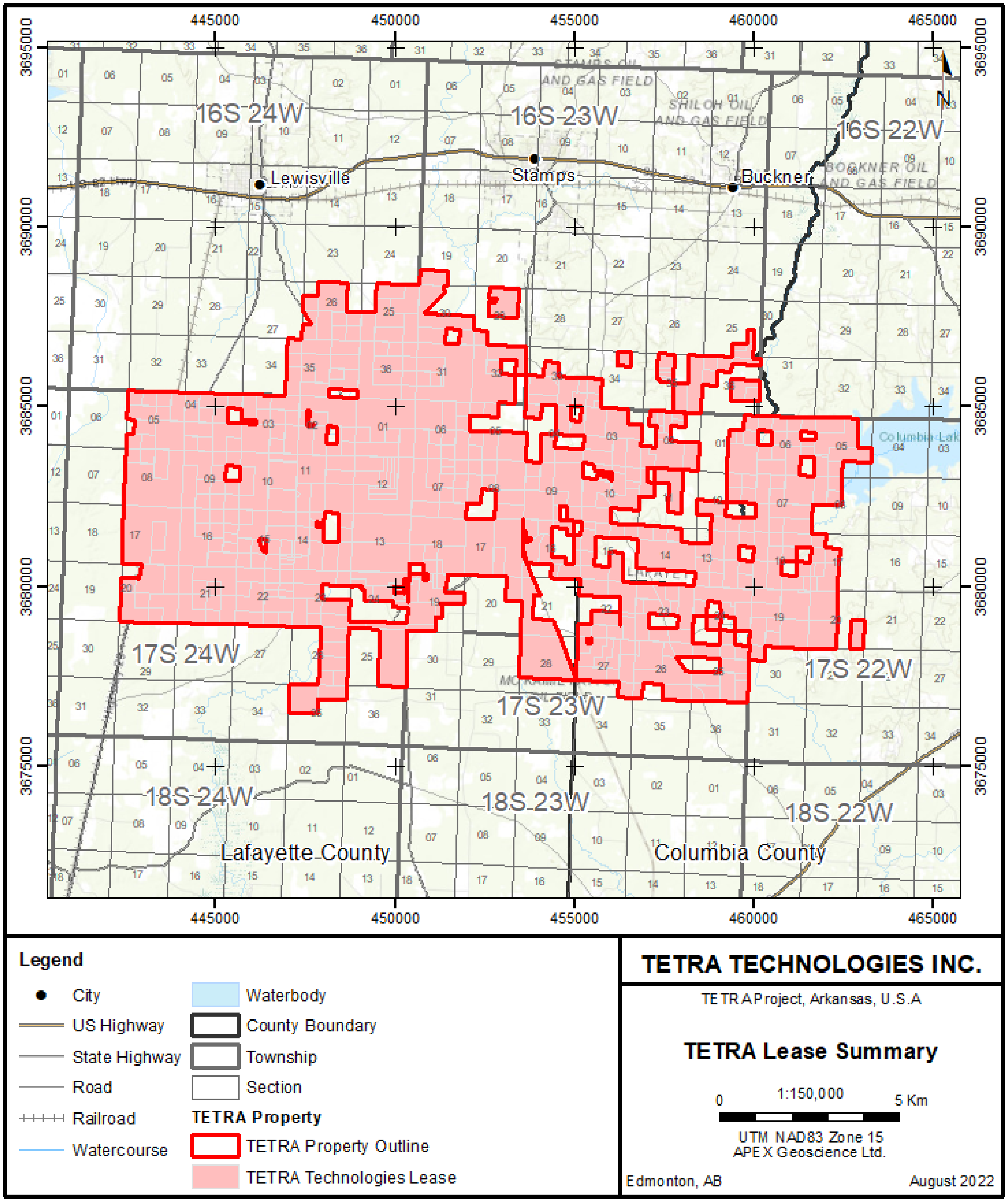


Table 3.1 Summary description of the TETRA Property, including sub-property areas, bromine and lithium mineral rights, maiden Br and Li resource areas, centroid coordinates, number of leases, lease term and expiry dates, gross and net acres, and brine lease mineral interest percentages.

Sub-Property Areas	TETRA's bromine and lithium mineral rights [1]	Maiden Bromine Resource Area	Maiden Lithium Resource Area	Lease area centroid UTM Z15S NAD83 Easting (m)	Lease area centroid UTM Z15S NAD83 Northing (m)	Number of individual leases	Lease ownership	Lease agreement date(s)	Lease expiry date(s)	Gross acres	Net acres	Average brine interest (%)
Main Lease Area	Br mineral rights [2]	Yes	No	452725	3683900	869	TETRA	1994-1998 2005-2006 2018-2021	2022-2024 2030-2031 2042-2047	35,788.0	27,263.8	76
South-Southwest Leases (or add-on area)	Br mineral rights [2]	Yes	No	448340	3677660	23	TETRA	2018	2043	640.0	409.2	64
South-Southeast Leases	Br and Li mineral rights	Yes	Yes	456572	3678150	112	TETRA	2019-2021	2044-2046	5,100.0	3,682.0	72
					Total (all areas)	**1,004**				**41,528.0**	**31,355.0**	**76**
					Total (Maiden bromine resource area)	**1,004**				**41,528.0**	**31,355.0**	**76**
					Total (Maiden lithium resource area)	**112**				**5,100.0**	**3,682.0**	**72**

[1] TETRA owns the underlying bromine and lithium-brine rights.

[2] Standard Lithium Ltd. has an option to acquire lithium-brine rights through an agreement with TETRA.

Figure 3.2 Division of the TETRA Property by the general sub-property term/area. The colour coding corresponds with Table 3.1.

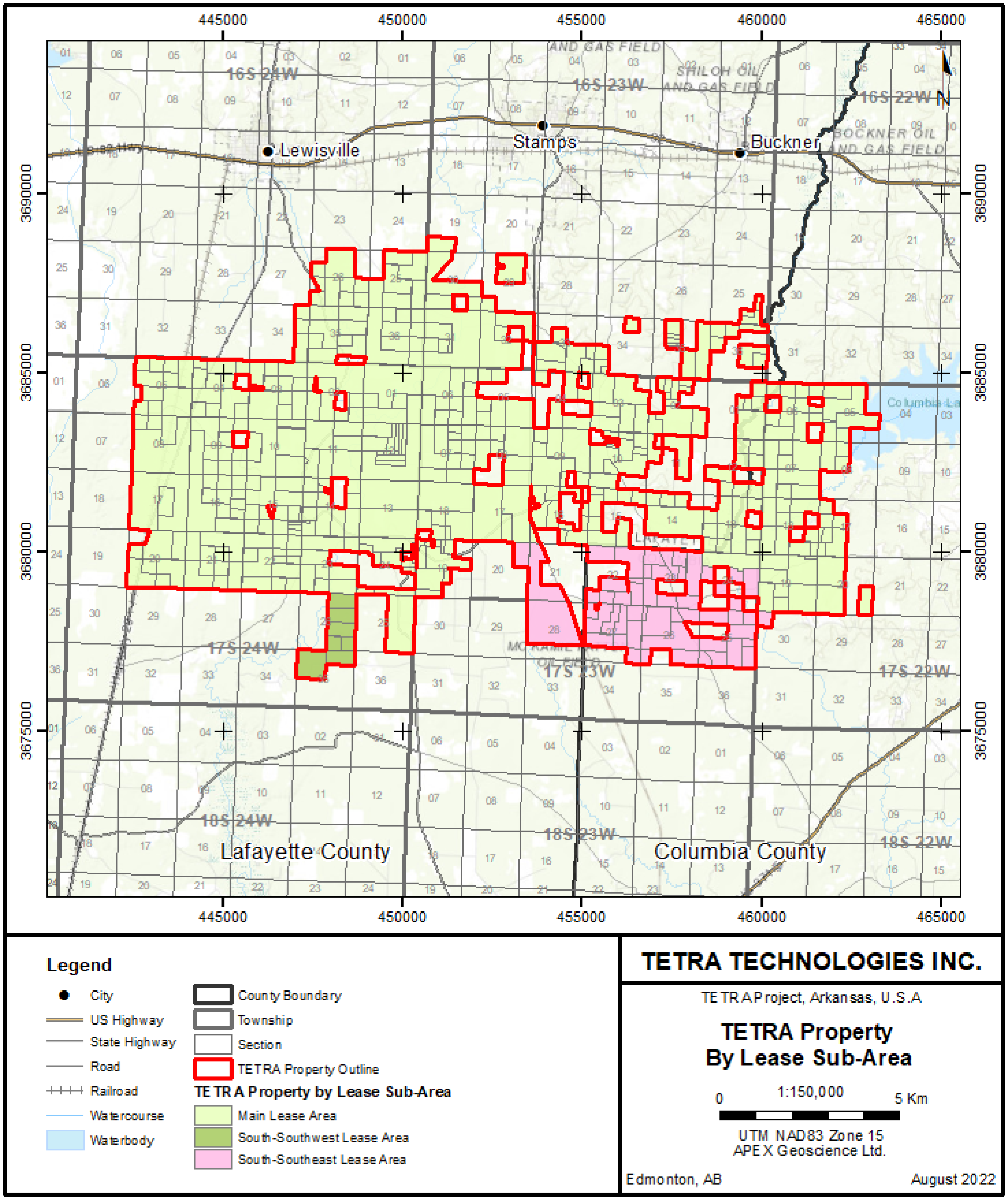
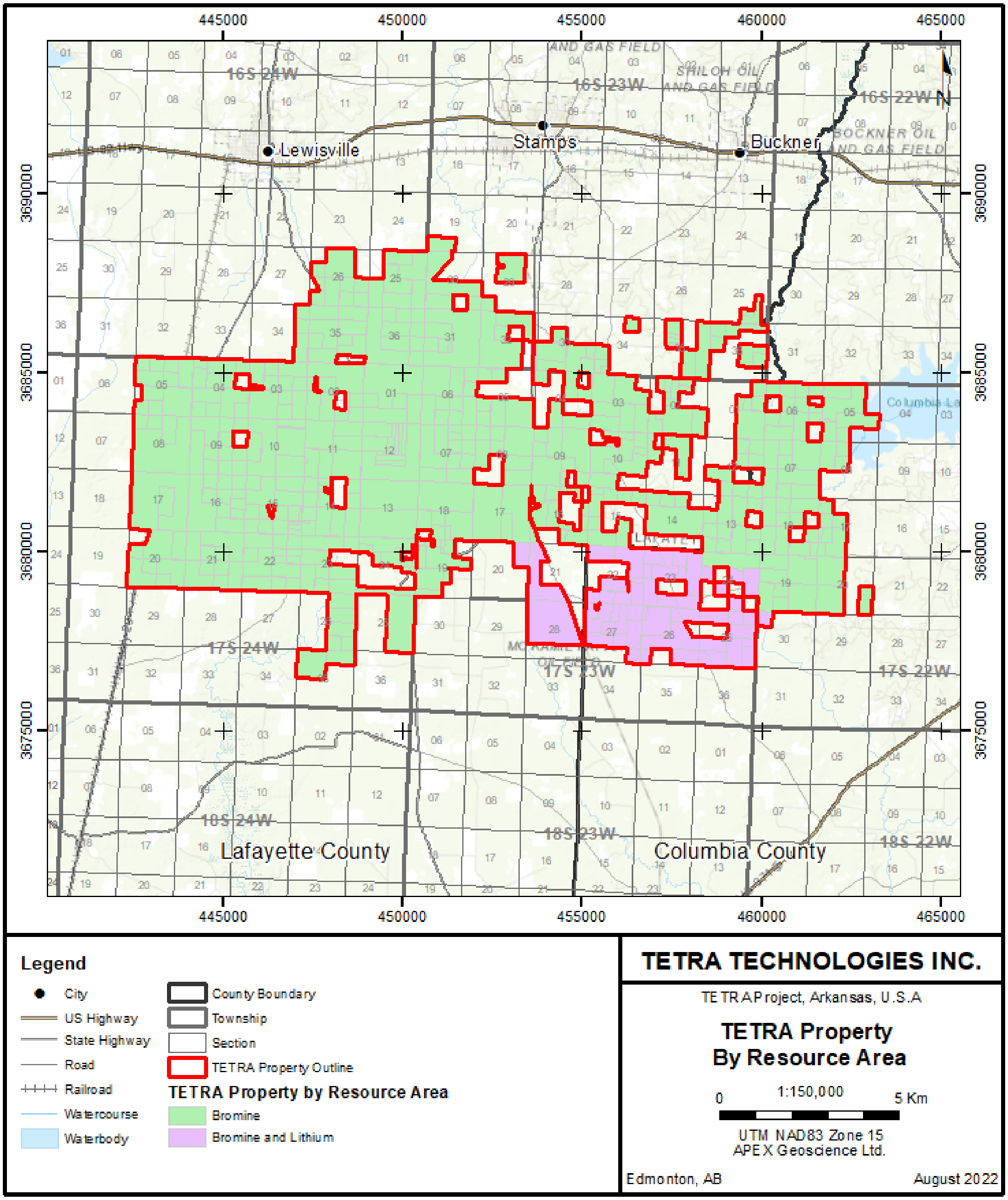


Figure 3.3 Division of the maiden TETRA Br-brine (entire Property) and maiden TETRA Li-brine (S-SE Leases) resource areas as presented in this technical report.



3.4 Bromine Exploration, Production, and Extraction Rights

With respect to bromine, TETRA holds the rights to explore, produce and extract bromine from brine underlying the entire TETRA Property pursuant to brine leases from the various landowners. Hence, the maiden TETRA Br resource estimate presented in this technical report will encompass the entire TETRA Property (as depicted in Figures 3.1 and 3.3 and Table 3.1).

3.5 Lithium Exploration, Production, and Extraction Rights

As a result of a 2017 option agreement between TETRA and Standard Lithium, TETRA has granted Standard Lithium an option to acquire the rights to produce and extract lithium from a portion of TETRA's total brine leasehold. The option period is valid for a period of 10-years subject to Standard Lithium's annual payments. Standard Lithium has not yet exercised its option to acquire the rights to produce and extract lithium.

The area in which Standard Lithium has the lithium rights option is defined within the TETRA-Standard Lithium option agreement, which is comprised of the Main Lease Area and the South-Southwest Lease Area as presented in Figure 3.2 and Table 3.1 (highlighted in light and dark green, respectively). Note that the Main Lease Area shown in Figure 3.2 includes some interspersed leases (n=23) in which TETRA holds brine rights including lithium that are not subject to the option agreement.

During 2020 and 2021, TETRA acquired a contiguous group of 112 leases totalling 5,100 gross acres and 3,682 net acres in the South-Southeast Leases sub-property (Figure 3.2 and Table 3.1; highlighted in purple). TETRA holds the rights to explore, produce and extract both bromine and lithium from the brine within this leasehold area. Hence, the maiden TETRA Li resource estimate presented in this technical report will encompass the South-Southeast Lease area (as depicted in Figure 3.3 and Table 3.1).

3.6 Brine Deeds

In addition to the individual brine leases, in 1992, TETRA acquired a 35-year term conveyance to Smackover Formation brine rights over an area of 2,045 acres in the form of 8 saltwater brine deeds. The Brine Deeds permit TETRA or its assignee to produce brine attributable to its Grantor's interest in the covered lands.

3.7 Mineral Brine Rights and Summary of Mineral Brine Rights on Individual Brine Leases

The mineral interest owner has the right to develop the minerals and the right to lease the minerals to others for development. When a company desires to develop the mineral resources in an area, the company must secure mineral lease agreements from the mineral owners. The mineral lease is a legal binding contract between the mineral owner (Lessor) and an individual or company (Lessee), which allows for the exploration and extraction of the minerals covered under the lease.

Individual brine lease information was provided to the QP by TETRA. The brine lease files included legal land descriptions, land titles, net and gross acreage, and brine lease expiry dates. Based on gross and net brine lease acreages, brine/mineral lease holding percentages are 76% and 67% (see Table 3.1). However, the brine leases for the 1,004 total leases are complicated, and therefore, a summary of the average percent leases held by TETRA on a per section basis is presented in Figure 3.4. The percentages are presented in increments of 20% and the figure shows that of the ‘roughly’ 73 sections,

- The brine rights in approximately 36 sections, or about 49.3%, of the Property is held 80-100% by TETRA.
- Approximately 25 sections (34.2%) are held 60-80% brine by TETRA.
- Approximately 5 sections (6.8%) are held 40-60% brine by TETRA.
- Approximately 5 sections (6.8%) are held 20-40% brine by TETRA.
- Approximately 2 sections (2.7%) are held <20% brine by TETRA.

To simplify this further, Figure 3.5 displays the percentage of lease areas where brine rights are leased by TETRA for any given section in increments of <31% of the section leased (or <200 acres), 31-75% of the section leased (or 200-479 acres), or >75% of the section leased (or >480 acres). This figure shows that TETRA holds brine lease rights for >75% of each individual section for most of the western half of the TETRA Property.

Brine rights of >75% is significant toward forming a brine production unit in Arkansas. The *Arkansas Code of 1987* states that if a Company *“has valid and subsisting leases or otherwise owns or controls the right to produce brine from not less than seventy-five percent (75%) of the entire area of the proposed brine production unit or brine expansion unit”.* The significance of a brine unit is discussed in the text that follows.

3.8 Formation of a Brine Production Unit

Brine mining is the extraction of useful materials (elements or compounds) which are naturally dissolved in brine. Mining a unit of brine for minerals constitutes unique regulatory policy. Mineral deposits are typically composed of solid materials that can be extracted in a defined and permitted spatial area. In contrast, a liquid mining media has ambiguous spatial boundaries that are best defined by the dimensions of the overall reservoir rather than any solid mining unit. Hence, brine production is likened better to oil and gas production from a reservoir as opposed to mineral mining *sensu stricto*.

The AOGC, in accordance with Arkansas law, consequently established ‘production units’ such that brine can be derived from a common aquifer in the Smackover Formation with the unit having defined boundaries to ensure that all mineral owners potentially impacted by the producing well(s) would receive proper compensation.

Figure 3.4 Division of the TETRA Property by average percentage mineral ownership on a per Public Land Survey System Section basis.

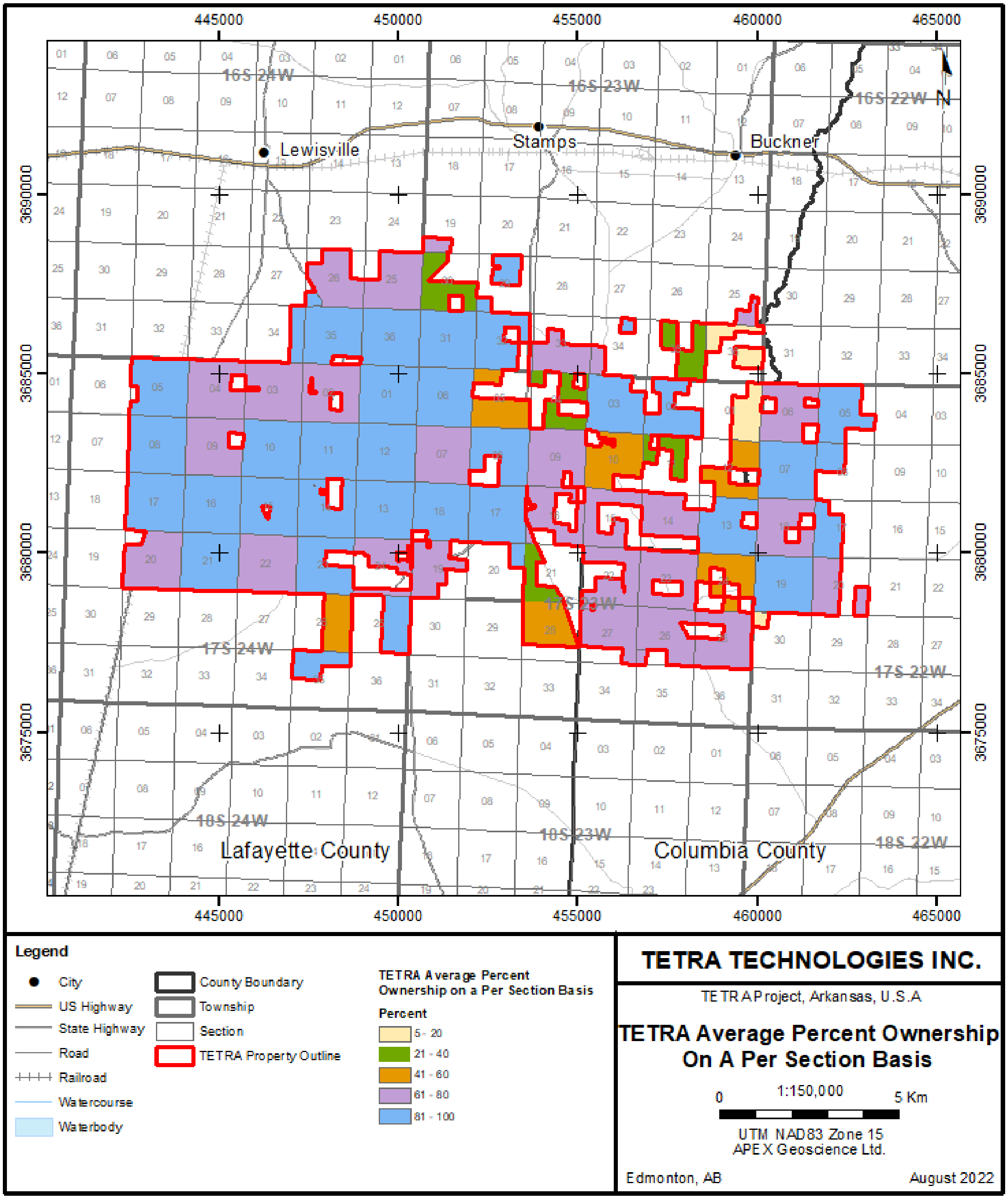
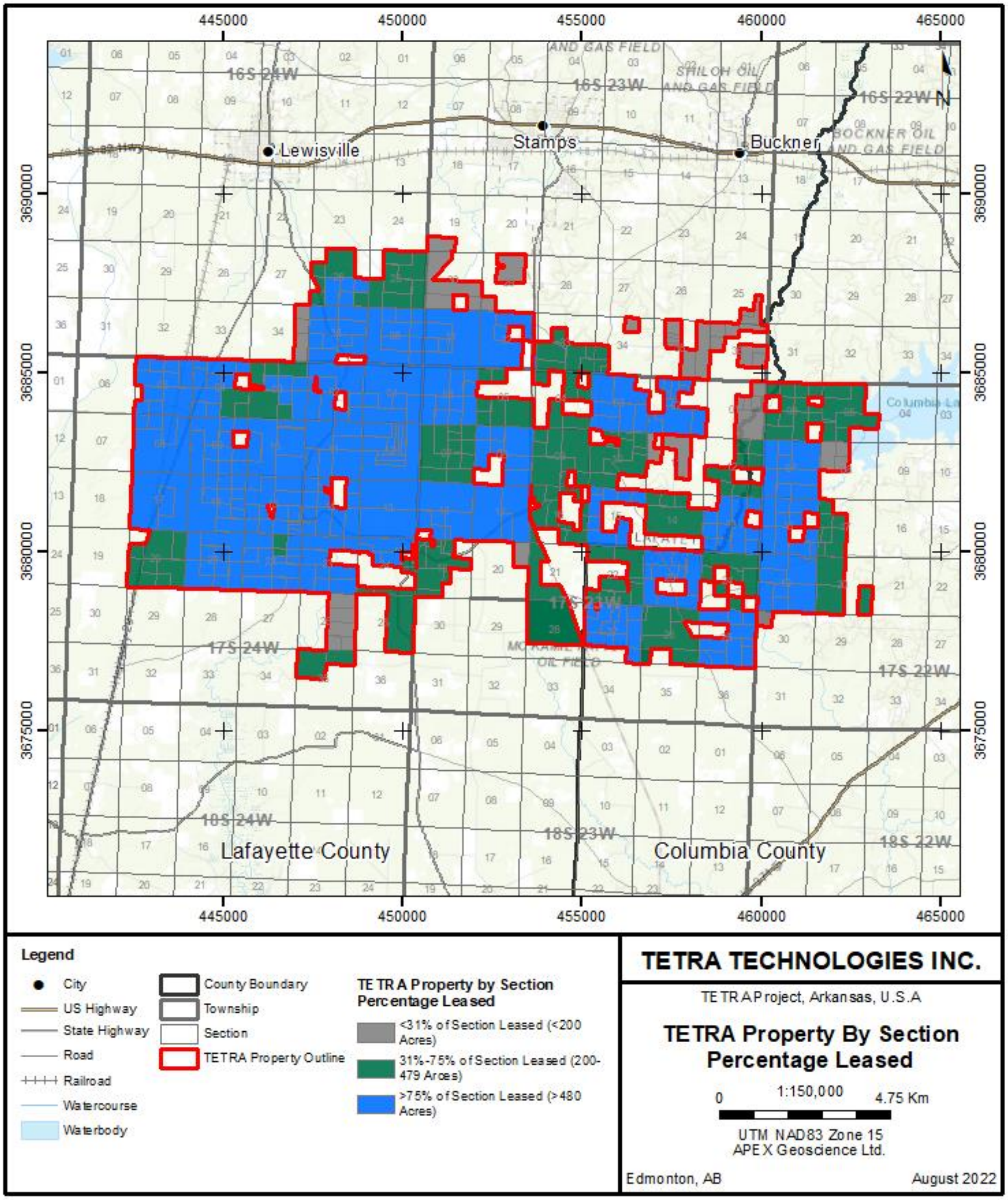


Figure 3.5 Division of the TETRA Property by the percentage leased within each Public Land Survey System Section.



Under the *Arkansas Brine Statute*, the AOGC will approve a unit for a brine operator when the operator files an application supported by the following elements:

1) A description of the proposed brine production unit or brine expansion unit. A statement of the plan of development and operation of the brine production unit or brine expansion unit. All geological and engineering data necessary for the Oil and Gas Commission to be fully advised of the feasibility of the proposed plan.

2) A statement detailing all costs and expenses chargeable to the proposed brine production unit or a brine expansion unit and a statement of all credits due against costs and expenses.

3) A plan of each proposed brine production unit or brine expansion unit which indicates the tracts or parcels of land included in the plat and the location of each well then located within the proposed unit to produce brine and the injection or disposal of effluent and the proposed location of each well that is proposed to be drilled for production and injection or disposal purposes.

4) A list of owners within the unit, including the brine, interest, and last known address of each such owner.

5) A statement that the petitioner has valid and subsisting leases or otherwise owns or controls the right to produce brine from not less than seventy-five percent (75%) of the entire area of the proposed brine production unit or brine expansion unit. The petitioner may not combine its leases or other rights to produce brine, relative to an adjacent brine production unit or brine expansion unit, with leases or other rights to produce brine necessary to achieve the seventy-five (75%) percent lease requirement to form a separate brine production unit or brine expansion unit.

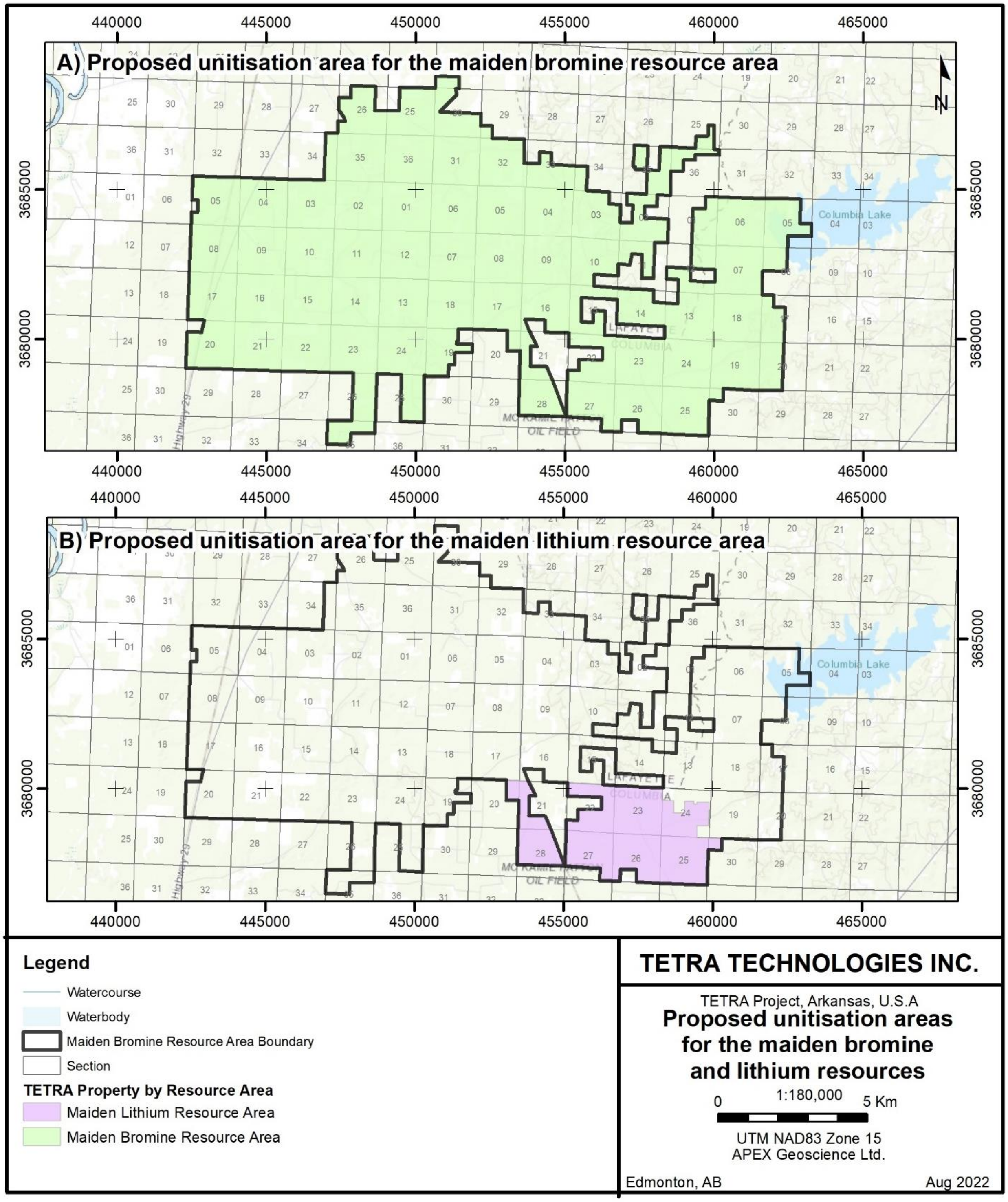
3.9 Proposed Brine Unitisation Area for Resource Modelling and Estimation

Note: At the Effective Date of this technical report, TETRA has not initiated a brine unitisation application process with the AOGC.

As part of the maiden mineral resource estimation process, however, the QP tries to estimate the potential integrated bromine- and lithium-brine resources on the basis that the TETRA leasehold area would be unitised as part of any future production scenario. Hence, the resource estimation process presented in this technical report uses an area of interest, or brine unitisation area, that encapsulates the outline of mainly contiguous grouped leases within the bromine and lithium resource areas (see Section 3.3 and Figure 3.6).

In the QPs opinion, this is a reasonable approach to estimate the bromine- and lithium-brine resource potential of the Smackover Formation brine aquifer underlying the TETRA Property.

Figure 3.6 Proposed brine unitisation areas for the mineral resource estimates.



3.10 Royalty Payments Related to Any Future Production

With respect to any future brine production through the establishment of brine unit(s), it is the expectation of the AOGC that entities desiring to drill and operate an oil, gas, or brine well in Arkansas will attempt in good faith to negotiate a satisfactory mineral lease with mineral owners before resorting to the integration provisions of Arkansas law. In the case of brine production, the operator will negotiate a per acre bonus consideration to be paid upon signing of the lease.

Payments made to the Lessor for production of brine are known as “in lieu” royalty payments because the payments are made annually based on a statutory rate, as opposed to a true royalty based on the amount of the produced brine. The statutory in lieu royalty payment is increased or decreased annually based on changes in the Producer Price Index.

The AOGC must approve the royalty rate for any “additional substance” profitably extracted from brine produced by an operator of a brine unit.

With respect to the 8 Brine Deeds with an area of 2,045 acres, the deeds permit TETRA or its assignee to produce brine attributable to its Grantor’s interest in the covered lands without royalty becoming due. Thus, with respect to those Grantors’ brine interests, no delay rental or brine royalty payment is required, and no additional royalty will become due upon commercial extraction of lithium. Instead, TETRA is obligated to make annual promissory note installment payments of $79,125, in the aggregate, on promissory notes executed by TETRA in favor of the Grantor and its related parties. These notes provide for 35 annual installments, coinciding with the term of the Brine Deed.

TETRA is also required to pay annual rental of $100 each to the two surface owners who leased the surface right of ingress and egress to TETRA in documents called Landowner Agreements.

3.11 Surface Rights

Arkansas law allows the severance of the surface estate from the mineral estate by proper grant or reservation, thereby creating separate estates. Under the laws of conservation in the State of Arkansas, however, the mineral rights are dominant over the surface rights. In some cases, when the mineral owner leases the right to produce oil, gas and/or brine, the Lessee succeeds to the mineral owner’s right of surface use, subject to lease restrictions.

If a Lessor does not want the land surface disturbed a “No Surface Operations Clause” may be negotiated with the Lessee and included in the mineral Lease agreement. This clause may be used to limit or restrict the use of the property for drilling activity or long-term production operations. Conflicts arising between the Lessee and surface owner can be avoided by creating Lease agreements that clearly identify the scope of surface use rights.

The Lessee holding the Lease has a legal authority to enter the property for exploration and production even if the non-mineral owning surface owner objects to the intrusion on the property. That does not mean the surface owner will be without compensation. The amount and type of compensation is strictly a matter of negotiation between the surface owner and the company entering the property. If mutual agreement cannot be reached, the surface owner always has the right to seek the advice of an attorney and relief through the court system.

In the State of Arkansas when a person sells a piece of property the mineral rights automatically transfer with the surface rights, unless otherwise stated in the deed.

3.12 Environmental Liabilities, Permitting and Significant Factors

Several Federal and State permits, and approvals are required for brine production in Arkansas, for example:

- U.S. Environmental Protection Agency and the AOGC – Underground Injection Control Permit and the Clean Air Act.
- AOGC – Operating Agreement; Arkansas Department of Environmental Quality (ADEQ) – Operating Air Permit.
- Arkansas Department of Pollution Control and Ecology – Arkansas Water and Air Pollution Control Act.

No environmental or cultural impact studies pertaining to the possible future extraction of the Smackover Formation brine resource on the TETRA Property has been completed to date. There are no known environmental conditions that would affect TETRA's ability to perform work and acquire brine samples for assaying or mineral processing test work.

3.13 Property-Related Risks and Uncertainties and Mitigation Strategies

As with any early-stage exploration project there exists potential risks and uncertainties. TETRA will attempt to reduce risk/uncertainty through effective project management, engaging technical experts, and developing contingency plans.

The following property-related risks and uncertainties have been identified at this stage of TETRA's bromine- and lithium-brine project at the TETRA Property:

- There is some risk associated with a dependency on petro-operators, and the petro-operation, to supply continued Smackover Formation brine access. It is possible that situations could arise where the petro-companies shut down well production – for example – due to poor commodity prices, depletion of petroleum product reserves, and/or production well performance of the reservoir. As a mitigation strategy, TETRA could permit and drill their own wells or consider options such as purchasing the well, renting the operation of the well, etc. In addition, and as the project advances, TETRA will need to configure how many wells might be required to run any future successful commercial operation.

- At the Effective Date of this technical report, TETRA has not initiated a brine unitisation application process with the AOGC. The proposed brine production unit area used in the resource estimation process is subject to change as the TETRA bromine- and lithium-brine project evolves, and TETRA contemplates the economic viability of the project.

- Any future submission for a Brine Production Unit and/or any future assessment of the royalty rates by the AOGC are not completed in a timely manner and/or the unit boundary outline and royalty rates impact the projects economics. Annual adjustments to any future in-lieu royalty payments under the applicable Producer Price Index may influence the economics of the project.

4 Accessibility, Climate, Local Resources, Infrastructure, and Physiography

4.1 Accessibility and Infrastructure

The large, western portion of the TETRA Property occurs in Lafayette County with a smaller eastern portion of the property situated within Columbia County. The Property is 1.9 miles (3 km) south-southeast of the City of Lewisville, AR and 9.3 miles (15 km) west of the City of Magnolia, AR.

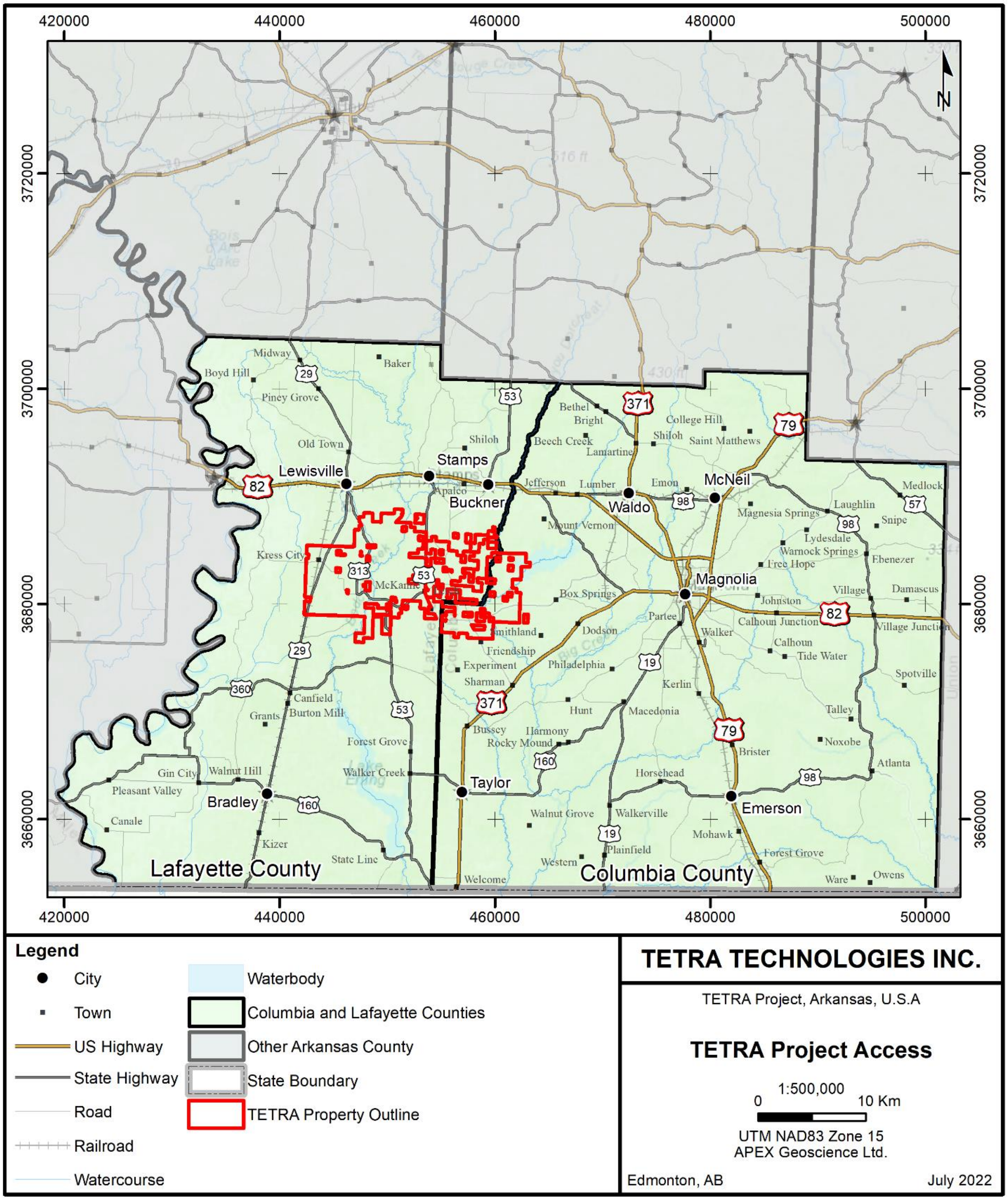
The Property is best accessed by east-west US Highway 82, which links the cities of Lewisville, Stamps, and Magnolia, and then by travelling south on Arkansas State Highways 29, 53, or 313, all of which traverse through the Property (Figure 4.1).

With respect to all-weather access roads, the property has historically significant infrastructure in-place because of an oil boom that occurred during the first half of the 20th Century, and oil and gas activity that is still active at present. Consequently, the all-season secondary road network across the Property is extensive given that the region has produced oil, gas, and brine for nearly 100 years.

The nearest airport is the Magnolia Municipal Airport, a city-owned, public-use airport located 3 miles (6 km) southeast of the central business district of Magnolia. In addition, there are two airports, one commercial and a small general aviation airport, located in Union County near the City of El Dorado, AR. El Dorado is approximately 34 miles (55 km) east of Magnolia.

The Union Pacific Rail Line passes through Lewisville and passes through the Property as the line trends southerly toward Shreveport, LA.

Figure 4.1 Access routes to the TETRA Property.



4.2 Site Topography, Elevation and Vegetation

Lafayette County has a population of 7,645, making it the 3rd-least populous county in Arkansas (2010 census). According to the U.S. Census Bureau, the county has a total area of 545 square miles (1,410 km^2), of which 528 square miles (1,370 km^2) is land and 17 square miles (44 km^2; 3.1%) is water. Columbia County has a population of 24,552 with a total area of 767 square miles (1,990 km^2), of which 766 square miles (1,980 km^2) is land and 0.7 square miles (1.8 km^2; 0.1%) is water.

The Property occurs in the western portion of the West Gulf Coastal Plain, an area of relatively gently sloping terrain that extends across the southern portion of the U.S. from Texas to Georgia (Stroud et al., 1981). The plain region was covered by the Gulf of Mexico seawater until about 50 million years ago. The land rose during periods of tectonic uplift, and water in the Gulf of Mexico retreated to its approximately present position. Because the plain region was covered by seawater for much of its history, the geological terrain of the Coastal Plain is flat to rolling with sedimentary bedrock with extensive deposits of sand and gravel, and industrially significant deposits of clay, bauxite, and petroleum. The average altitude of the TETRA Property area is 336 ft (102 m) above sea level.

The surrounding region is a mix of dense forest, farm prairies, and low rolling hills. The natural vegetation of the Gulf Coastal Plain consists of a mixed forest cover. The most extensive tree type is the loblolly-shortleaf pine, usually found in combination with numerous hardwood types. Bottomland hardwood forest is common along and near streams, oak-hickory-gum type occurs in well-drained sites, and willow-oak type occupies flat, poorly drained soil areas. Mammal's native to the State of Arkansas includes armadillo, badger, bat, beaver, black bear, bobcat, coyote, deer, elk, fox, muskrat, opossum, otter, rabbit, racoon, shrew, skunk, squirrel, vole, weasel, and woodchuck.

Agricultural activities are generally pastureland, truck farming, and limited row crops within narrow fertile valleys adjacent to the major streams flowing through the region.

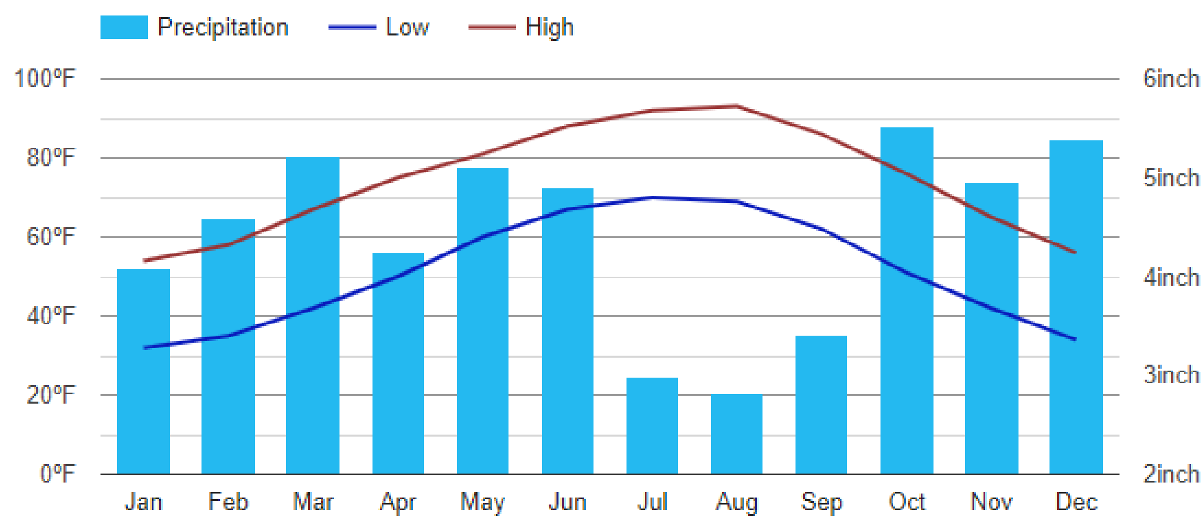
4.3 Climate

The climate of Arkansas is classified as humid subtropical (Figure 4.2). The average temperature is 64 °F (18 °C), and the average annual rainfall is 50.3 inches (1,280 mm). The winters are mild but can dip into the teens at night and have highs in the 30s and even some 20s but average out around 50 °F. Summers are often hot, humid, and dry but with occasional isolated afternoon storms, highs in the mid to upper 90s and even 100s.

With respect to precipitation, Magnolia receives on average, 80 days of rain, snow, sleet, or hail per year. Rainfall is the dominant form of precipitation and averages 49.1 inches (125 cm) per year. The Magnolia area averages 201 days of sunshine per year.

Exploration is generally not influenced by weather and field programs and/or any future production development can occur year-round.

Figure 4.2 Magnolia climate chart. Source: U.S. Climate Data (2021).



4.4 Local Resources

Magnolia was founded as a cotton, farm production, and marketing town. During World War II, Magnolia became a manufacturing city. In 1938, oil and natural gas were discovered near the city in what was called the Magnolia Oilfield, the largest producing field by volume in the nation during the World War II. The city soon became a producer in steel, lumber, aluminum, bromine, rubber-coated products, and fuel cells for the military.

Presently, the City's primary economic focus is industrial, including:

- Albemarle Corporation's Bromine Products Division (which has two facilities near town),
- Amfuel (which produces fuel cells for the military), and
- Sapa Group's extruded aluminum products facility.

The region is also home to several oil and brine drilling companies, many of which are locally owned, and timber companies, such as Deltic and Weyerhaeuser. Major industrial employers include SAPA, Albemarle, Amfuel, CMC, Weyerhaeuser, Deltic Timber, Partee Flooring, and Southern Aluminum.

The TETRA Property area has nearly 100-years of oil and gas expertise – and approximately 70-years Br-brine expertise. Workers associated with these industries are locale to the area and their knowledge and expertise could be utilized as part of any future Br-Li-brine production scenario associated with TETRA.

5 History

5.1 Historical Energy and Minerals Production in Southern Arkansas

This sub-section includes regional information that occurs in the general vicinity of the TETRA Property. In off-Property information instances, please know the QP has been unable to verify the information and that the information is not necessarily indicative to the mineralization on the Property that is the subject of the technical report.

Petroleum resources were discovered in the early 1920s in southern Arkansas with the discovery of oil in well Hunter No. 1 drilled east of the City of Stephens, AR (Ouachita County) in April 1920. Other more productive wells were drilled, and the historic southern Arkansas oil boom began on January 10, 1921, with the completion of the Busey No. 1 well. Ten counties in southern Arkansas produced oil during the boom including Ashley, Union, Ouachita, Columbia, Nevada, Hempstead, Bradley, Calhoun, Lafayette, and Miller.

Historically, most of the oil production occurred in reservoirs associated with the Smackover Formation in the counties of Union, Lafayette, Columbia, and Ouachita (Figure 5.1). These 4 counties accounted for more than 85% of the oil production in Arkansas (University of Arkansas, 2009). Presently, there are approximately 186 oil and gas operators in Arkansas producing approximately 230,000 barrels of oil and 40 million MCF of gas (Drilling Edge, 2021). The Magnolia region remains one of the primary producing regions.

A summary of the oil and gas fields in the general Property region is presented in Figure 5.2. Documented oilfields include Kress City (and its derivative fields Kress City S, Kress City SW, Kress City SE, and Kress City E) in the north, McKamie NE in the northeast, and Mars Hill and McKamie-Patton in the south parts of the Property.

With respect to the Smackover Formation reservoir production, a summary of the oil and gas wells drilled, and their well status, is presented in Figures 5.3 and 5.4, respectively. Most of the wells within the boundary of the Property are now abandoned. Active and/or completed well occur in the southernmost part of the TETRA Property.

Produced water, or brine, of the Jurassic Smackover Formation in south-central Arkansas brine was originally produced as a waste by-product of petroleum production. Geochemical analysis of the wastewater brine by the AGS demonstrated that bromine occurred in abnormally high concentrations (Arkansas Geological Survey, 2021a, 2021b). Upon further exploration and technological development, the first commercial recovery of bromine from Smackover Formation brine occurred in Union County in 1957, and Br-brine production has been continued throughout southern Arkansas since that time.

Figure 5.1 Summary of Jurassic Smackover Formation petroleum production in the Gulf Coast region. Source: Moore (1997).

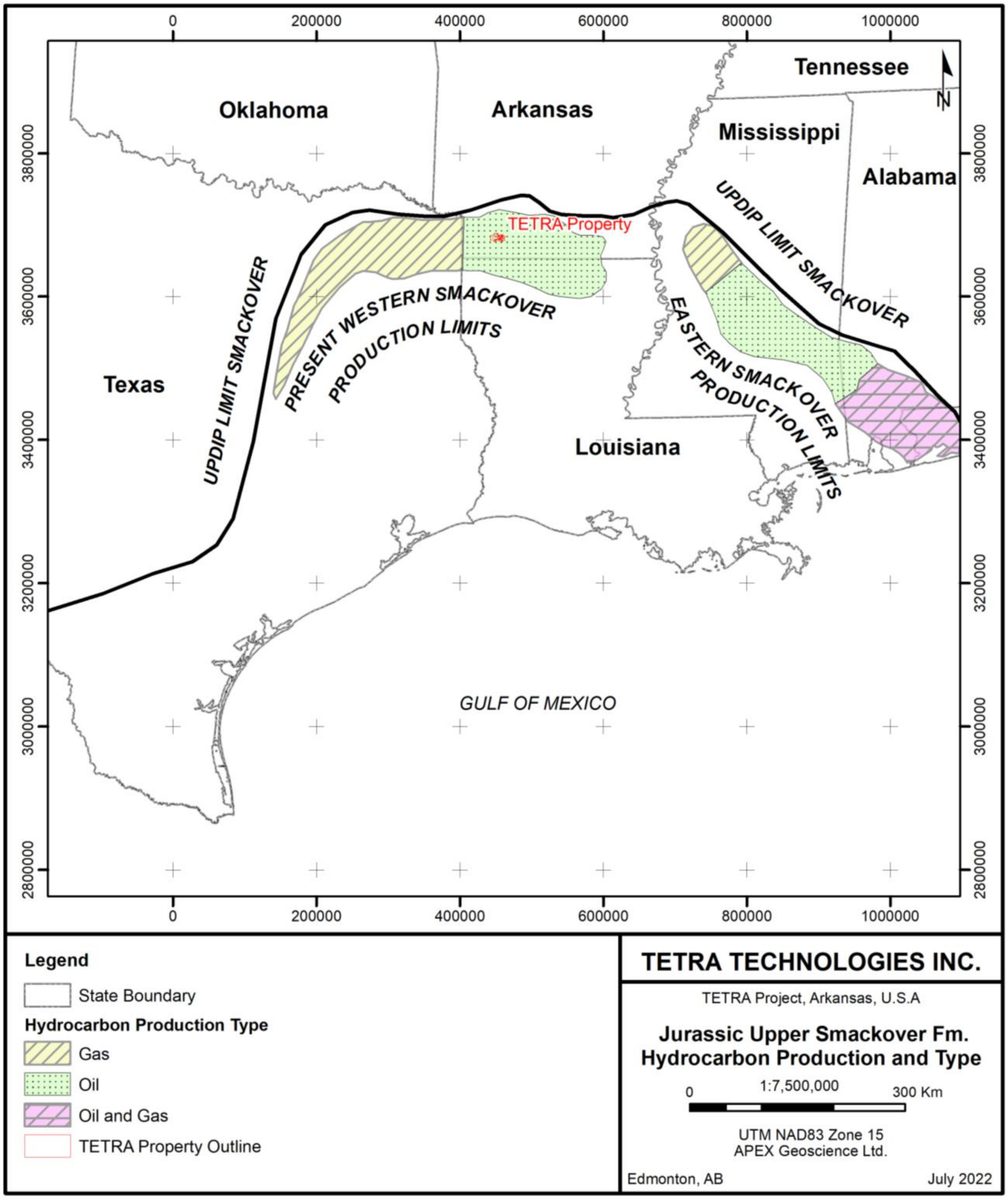


Figure 5.2 Overview of oil and gas fields in the general TETRA Property area. Source: Vestal (1950) and **Troell and Robinson (1986).**

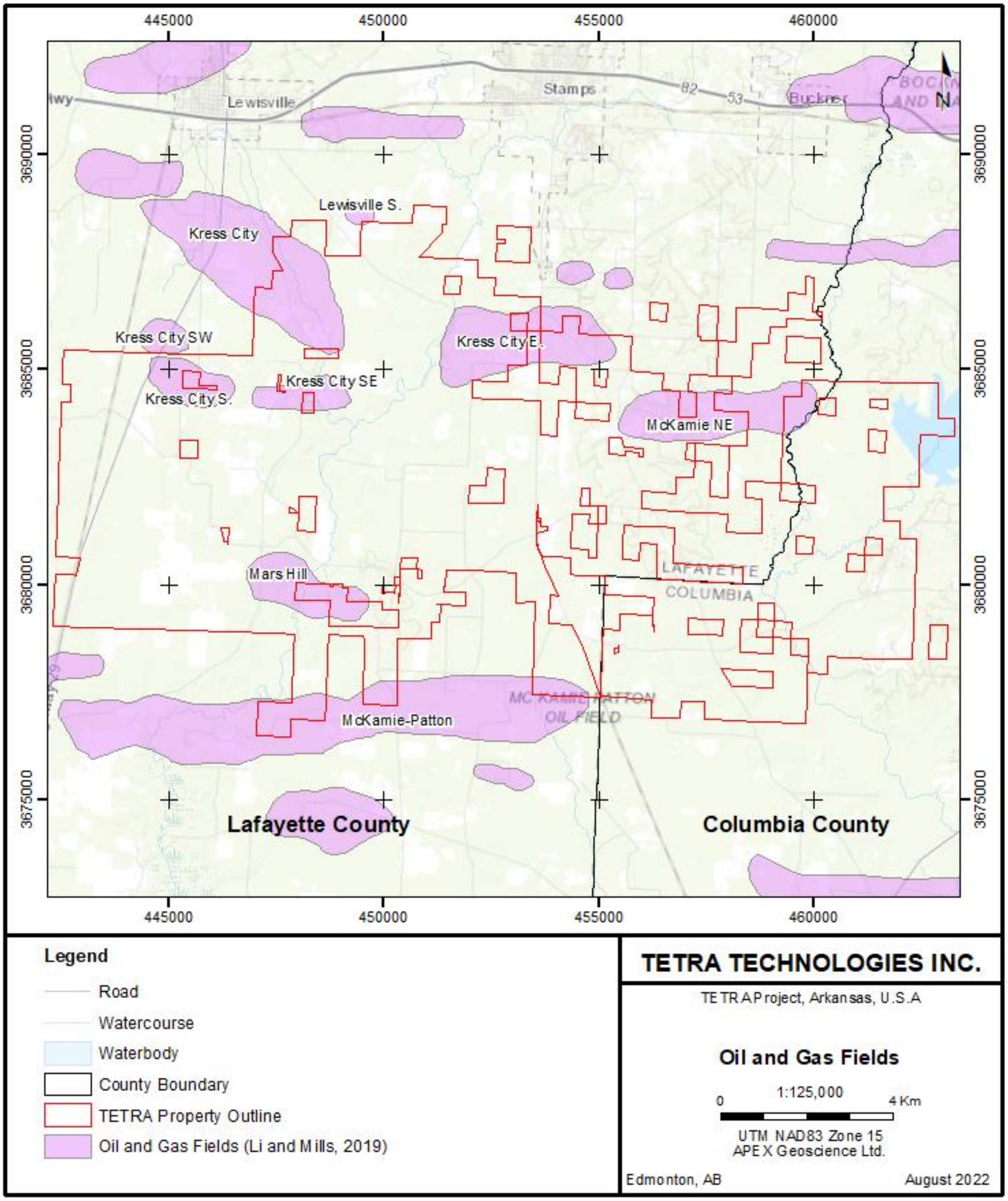


Figure 5.3 Overview of oil and gas well locations in the general TETRA Property area. Source: Arkansas Oil and Gas Commission (2021).

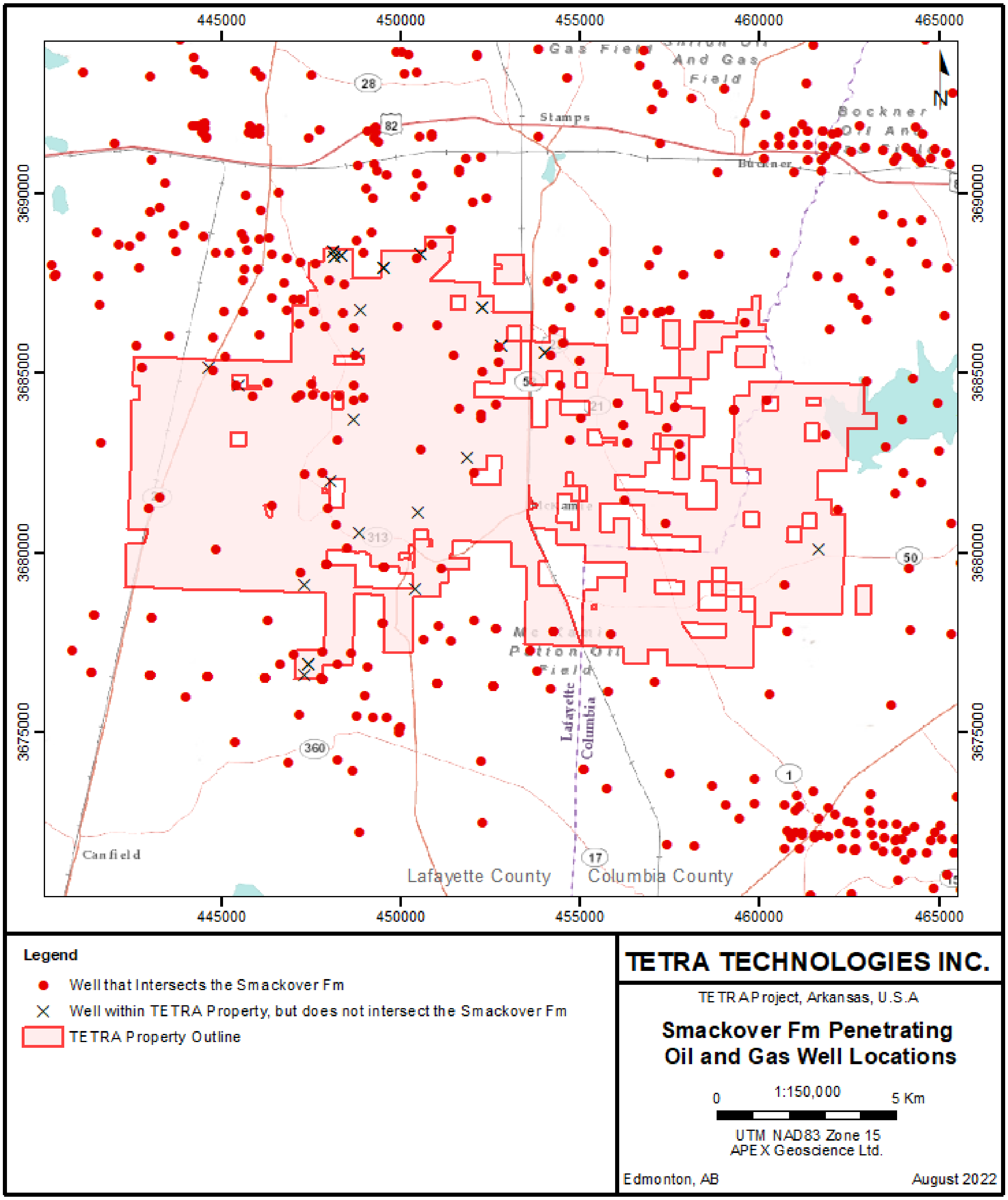
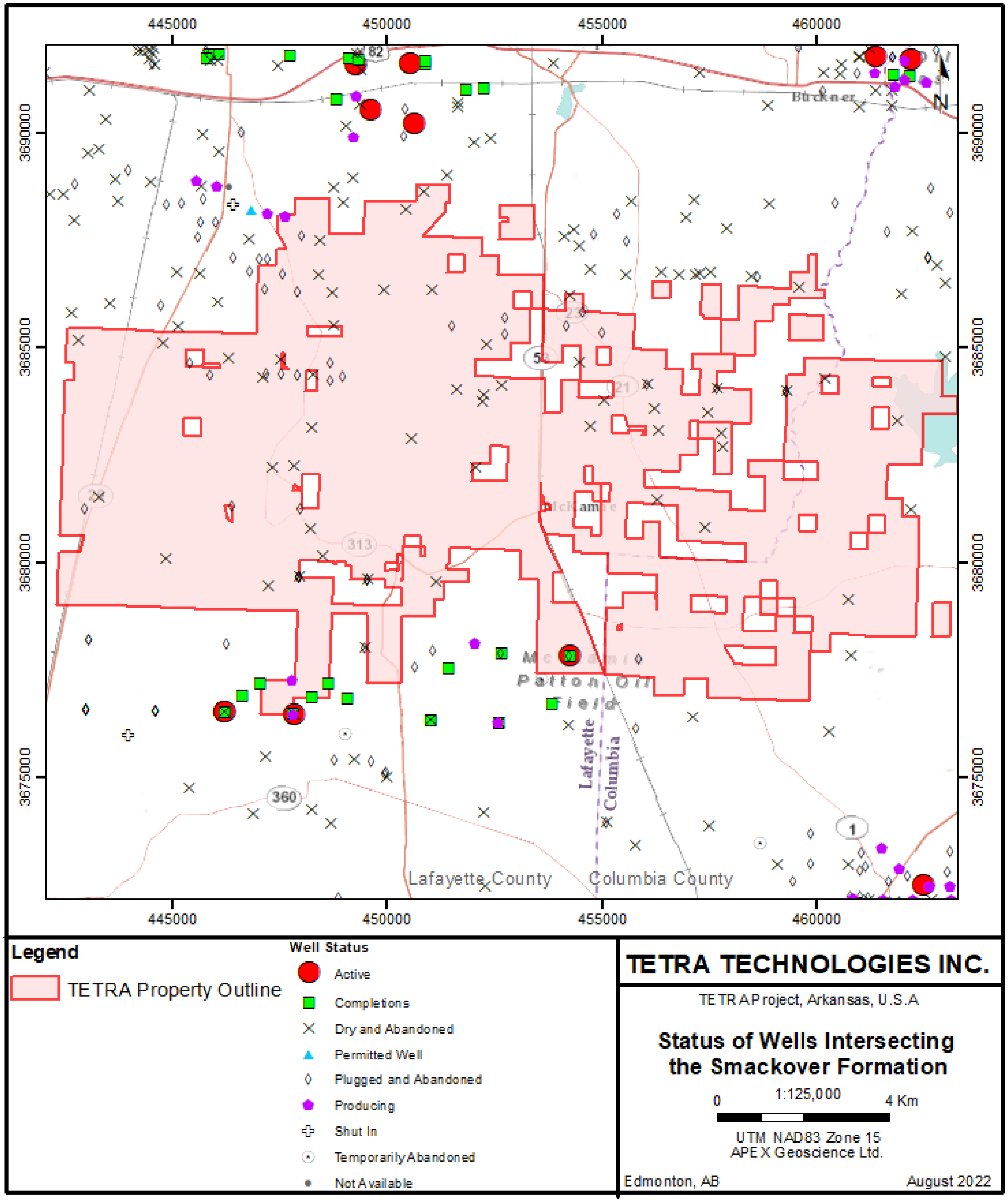


Figure 5.4 Status of wells that are known to have penetrated the Smackover Formation. Source: Arkansas Oil and Gas Commission (2021).



Presently, bromine from Smackover Formation brine is produced in Union and Columbia counties, contributes significantly to the local and state economy, and employs over 1,000 people. The Br-brine production is led by 2 active bromine producers in southern Arkansas include Albemarle Corporation and LANXESS.

Albemarle Corporation operates 2 Br-brine plants near Magnolia, AR (Columbia County), along with satellite plants in Union County. In 2007, Albemarle had capacity to produce 148,000 tons of bromine per year (Albemarle Corporation, 2021a). LANXESS operates 3 plants in the vicinity of El Dorado, AR (Union County). In 2007, LANXESS had the capacity to produce 130,000 tonnes of bromine per year.

Arkansas is acknowledged as a world leading producer of bromine with Albemarle and LANXESS bromine companies accounting for a large percentage of world bromine production capacity. For example, during 2020, Albemarle Corporation produced approximately 74,000 metric tons of bromine at its Magnolia facilities for products used in fire safety solutions and other specialty chemicals applications such as chemical synthesis, oil and gas well drilling and completion fluids, mercury control, water purification, beef and poultry processing and various other industrial applications (Albemarle Corporation, 2021a).

5.2 Historical Smackover Formation Geochemical Bromine and Lithium Trends

This sub-section includes regional information that occurs in the general vicinity of the TETRA Property. In off-Property information instances, please know the QP has been unable to verify the information and that the information is not necessarily indicative to the mineralization on the Property that is the subject of the technical report.

The original analyses that led to the development of Arkansas's bromine industry was performed by Arkansas Geological Survey chemists on brines from 4 oilfields developed in the Smackover Formation. The analyses showed bromine concentrations ranging from 4,000 to 4,600 parts per million (ppm or described as mg/L in this technical report), or about 70 times the bromine concentration of normal ocean water (Arkansas Geological Survey, 2021a).

Since this discovery, and over the course of 60-years of production, known bromine and lithium concentrations in Smackover Formation brine are relative limited. Moldovanyi and Walter (1992) showed that bromine and lithium occur in abnormally high concentrations within H_2S-rich Smackover Formation brines across south-central Arkansas (Figures 5.5 and 5.6).

These authors suggested that 1) bromine enrichment was likely enhanced by halite recrystallization in fluids that were already enriched in Br from seawater evaporation, and 2) despite the largely uniform and homogeneous geochemical nature of the Smackover reservoir, regional trends in brine geochemistry suggest fault systems such as the South Arkansas, or State Line fault system, can have an important role in controlling chemical heterogeneities in Smackover Formation brine.

Figure 5.5 Regional Smackover Formation bromine-brine values from the USGS National Produced Waters Geochemical Database. Source: USGS National Produced Waters Geochemical Database (from Blondes et al., 2016). The H_2S-rich belt and fault zones are from Moldovanyi and Walter (1992). The outline of the TETRA Property is shown in context with the Albemarle and LANXES Br-brine properties.

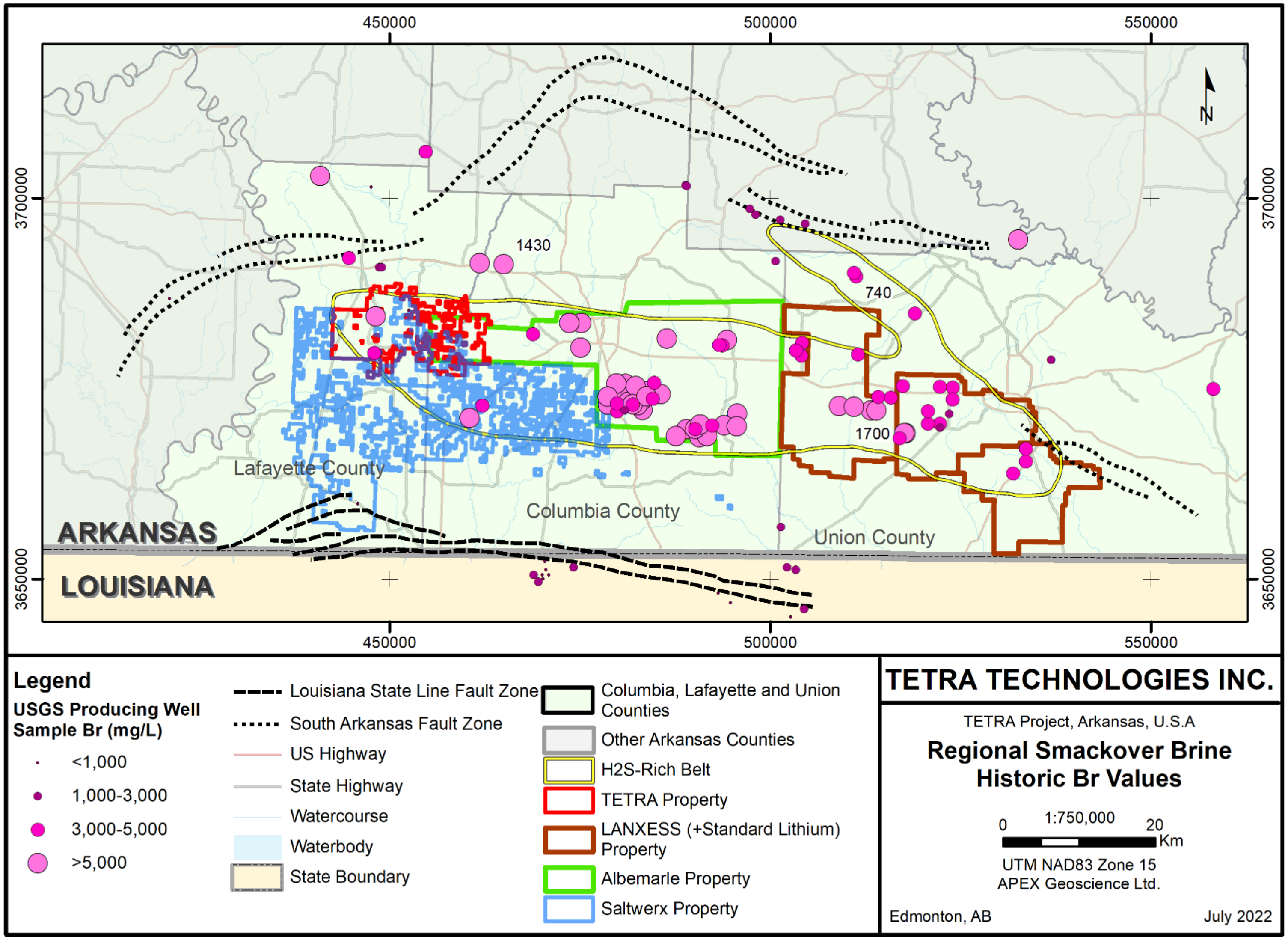
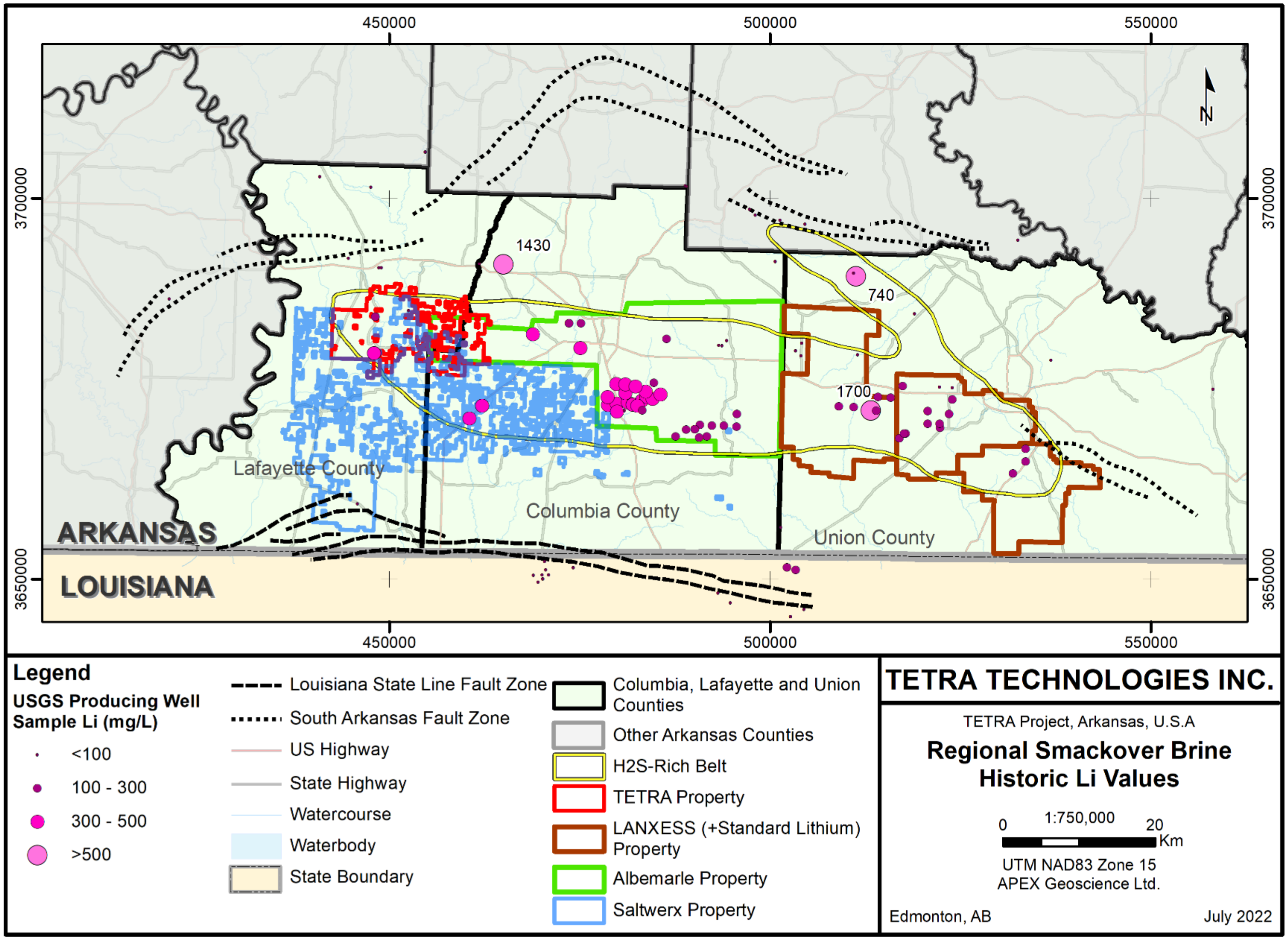


Figure 5.6 Regional Smackover Formation lithium-brine values from the USGS National Produced Waters Geochemical Database. Source: USGS National Produced Waters Geochemical Database (from Blondes et al., 2016). The H_2S-rich belt and fault zones are from Moldovanyi and Walter (1992). The outline of the TETRA Property is shown in context with the Abermarle and LANXES Br-brine properties.



It should be noted that brine near the South Arkansas fault system, which is located south of the TETRA Property, has the lowest bromine concentrations (mean of 1,810 mg/L Br, Moldovanyi and Walter, 1992).

The association of elevated boron and alkali metals (Li, K, Rb), coupled with a general lack of clastic sediments in the Upper Smackover Member suggest that the brine is mixing with deeper-seated waters that have been geochemically modified by siliciclastic diagenesis at higher temperatures (Walter et al., 1990). Regional gradients of H_2S, B, Li, K, and Rb suggest these fluids may have migrated into the Smackover reservoirs along segments of the South Arkansas fault system in Lafayette County and have subsequently mixed with Smackover brine (Moldovanyi and Walter, 1992).

A compilation of publicly available, historical bromine and lithium geochemical analytical results within and adjacent to the TETRA Property is presented in Table 5.1, and Figures 5.7 and 5.8 (Moldovanyi and Walter, 1992; Breit and Otton, 2002; Blondes et al., 2016; and Standard Lithium Ltd., 2018).

The off-Property bromine and lithium values include:

- 1,935 to 6,575 mg/L Br with a mean of 4,435 mg/L Br (n=8 historical analyses). The highest off-Property bromine values occur northeast of the Property and are lowest to the northwest (Table 5.1, Figure 5.7).

- 46 to 1,430 mg/L Li with a mean of 339 mg/L Li (n=8 historical analyses). The next highest lithium value is 363 mg/L Li suggesting the 1,430 mg/L Li value is an outlier in this dataset. The highest off-Property lithium values occur to the southeast, and like bromine, lithium is lowest to the northwest (Table 5.1, Figure 5.8).

The within TETRA Property bromine and lithium values include:

- 3,752 to 6,856 mg/L Br with a mean of 5,372 mg/L Br (n=10 historical analyses; Table 5.1, Figure 5.7).

- 132 to 461 mg/L Li with a mean of 340 mg/L Li (n=12 historical analyses; Table 5.1, Figure 5.8).

Bromine values are relatively consistent with higher values apparent in the northwest portion of the Property. In contrast to bromine, the higher lithium values occur in the southern part of the Property. This observation could correlate with the observations of Moldovanyi and Walter (1992) in which bromine decreases, and lithium increases, toward the State Line Fault System. Bromine decrease is related to meteoric recharge within the fault system, while lithium increases because the fault system mobilizes deep-seated, geochemically modified brine. The QP also hypothesises that there are geological entities in play (e.g., faults, anticlinal structures, Louann Salt evaporite uplift/diapirs) that divide low and high lithium values between the north and south parts at the TETRA Property, respectively. Further work is required to understand the Li-brine contrast at the Property.

Table 5.1 Historical and publicly available bromine and lithium geochemical analytical results that occur within, or adjacent to, the TETRA Property.

A) Historical Smackover Formation brine geochemistry within the Tetra Property

Original source ID	Latitude	Longitude	Total well depth (m)	County	Oilfield	Well name	Formation	Br (mg/L)	Li (mg/L)	Relation to Tetra Property	Source
1	33.2980	-93.5570	2,580	Lafayette	Kress City	Habelyan 1	Smackover	6,856.0	187.0	On Property	Moldovanyi and Walter (1992)
2	33.2980	-93.5570	2,580	Lafayette	Kress City	Purser 2	Smackover	5,746.0	132.0	On Property	Moldovanyi and Walter (1992)
4	33.2550	-93.5590	2,747	Lafayette	Mars Hill	Cornelius 1	Smackover	4,276.0	423.0	On Property	Moldovanyi and Walter (1992)
5	33.2550	-93.5590	2,756	Lafayette	Mars Hill	Cornelius 2	Smackover	3,752.0	370.0	On Property	Moldovanyi and Walter (1992)
MKP-20-1B	33.2324	-93.5515	2,885	Lafayette	McKamie Patton	McKamie Patton 20	Smackover	5,940.0	347.0	On Property	Standard Lithium, 2018
MKP-20-1B	33.2324	-93.5515	2,885	Lafayette	McKamie Patton	McKamie Patton 20	Smackover	/	352.0	On Property	Standard Lithium, 2018
MKP-20-1	33.2324	-93.5515	2,885	Lafayette	McKamie Patton	McKamie Patton 20	Smackover	4,680.0	265.0	On Property	Standard Lithium, 2018
MKP-20-1B	33.2324	-93.5515	2,885	Lafayette	McKamie Patton	McKamie Patton 20	Smackover	/	302.0	On Property	Standard Lithium, 2018
MKP-21	33.2262	-93.5603	2,860	Lafayette	McKamie Patton	McKamie Patton 21	Smackover	6,400.0	461.0	On Property	Standard Lithium, 2018
MKP-48 (MKP-21 dup)	33.2262	-93.5603	2,860	Lafayette	McKamie Patton	McKamie Patton 21	Smackover	6,360.0	439.0	On Property	Standard Lithium, 2018
MKP-21	33.2262	-93.5603	2,860	Lafayette	McKamie Patton	McKamie Patton 21	Smackover	4,750.0	380.0	On Property	Standard Lithium, 2018
MKP-48 (MKP-21 dup)	33.2262	-93.5603	2,860	Lafayette	McKamie Patton	McKamie Patton 21	Smackover	4,960.0	425.0	On Property	Standard Lithium, 2018
~~3000973~~	~~33.3060~~	~~-93.5100~~	~~2,477~~	~~Lafayette~~	~~Kress City East~~	~~T. H. Owens A-1~~	~~Smackover Lime~~	~~6.0~~	~~0.3~~	~~On Property~~	~~Breit and Otton (2002)~~
							Count	10	12		
							Minimum	3,752.0	132.0		
							Maximum	6,856.0	461.0		
							Mean	**5,372.0**	**340.3**		
							Standard Deviation	977.7	97.9		
							RSD%	18.2	28.8		

B) Historical Smackover Formation brine geochemistry adjacent to the Tetra Property

Original source ID	Latitude	Longitude	Total well depth (m)	County	Oilfield	Well name	Formation	Br (mg/L)	Li (mg/L)	Relation to Tetra Property	Source
3000759	33.3606	-93.3765	2,236	Columbia	Buckner	Johnson B-1	Smackover Lime	5,569.0	1,430.0	Off Property (NE)	Breit and Otton (2002)
3000760	33.3614	-93.4107	2,212	Columbia	Buckner	Waters #1	Smackover Lime	6,575.0	86.0	Off Property (NE)	Breit and Otton (2002)
6	33.1780	-93.4240	2,635	Columbia	Dorch. Maced.	Jarnigan 1	Smackover	5,339.0	364.0	Off Property (SE)	Moldovanyi and Walter (1992)
7	33.1930	-93.4060	2,630	Columbia	Dorch. Maced.	Paxton 4	Smackover	4,913.0	338.0	Off Property (SE)	Moldovanyi and Walter (1992)
8	33.1930	-93.4060	2,625	Columbia	Dorch. Maced.	Tisdale 2	Smackover	4,718.0	316.0	Off Property (SE)	Moldovanyi and Walter (1992)
3000725	33.3564	-93.5522	2,227	Lafayette	Lewisville	C. A. Beasley Et Al 1	Smackover	2,322.0	62.0	Off Property (NW)	Breit and Otton (2002)
3000728	33.3565	-93.5487	3,429	Lafayette	Lewisville	Gladys Moore 1	Smackover	1,935.0	46.0	Off Property (NW)	Breit and Otton (2002)
3000729	33.3672	-93.5954	2,621	Lafayette	Lewisville West	Thomas 1	Smackover	4,112.0	72.0	Off Property (NW)	Breit and Otton (2002)
							Minimum	1,935.0	46.0		
							Maximum	6,575.0	1,430.0		
							Mean	**4,435.4**	**339.3**		
							Standard Deviation	1,492.1	431.5		
							RSD%	33.6	127.2		

Figure 5.7 Historical and publicly available bromine data within, and adjacent to, the TETRA Property. Source: Blondes et al. (2016) and Standard Lithium (2018).

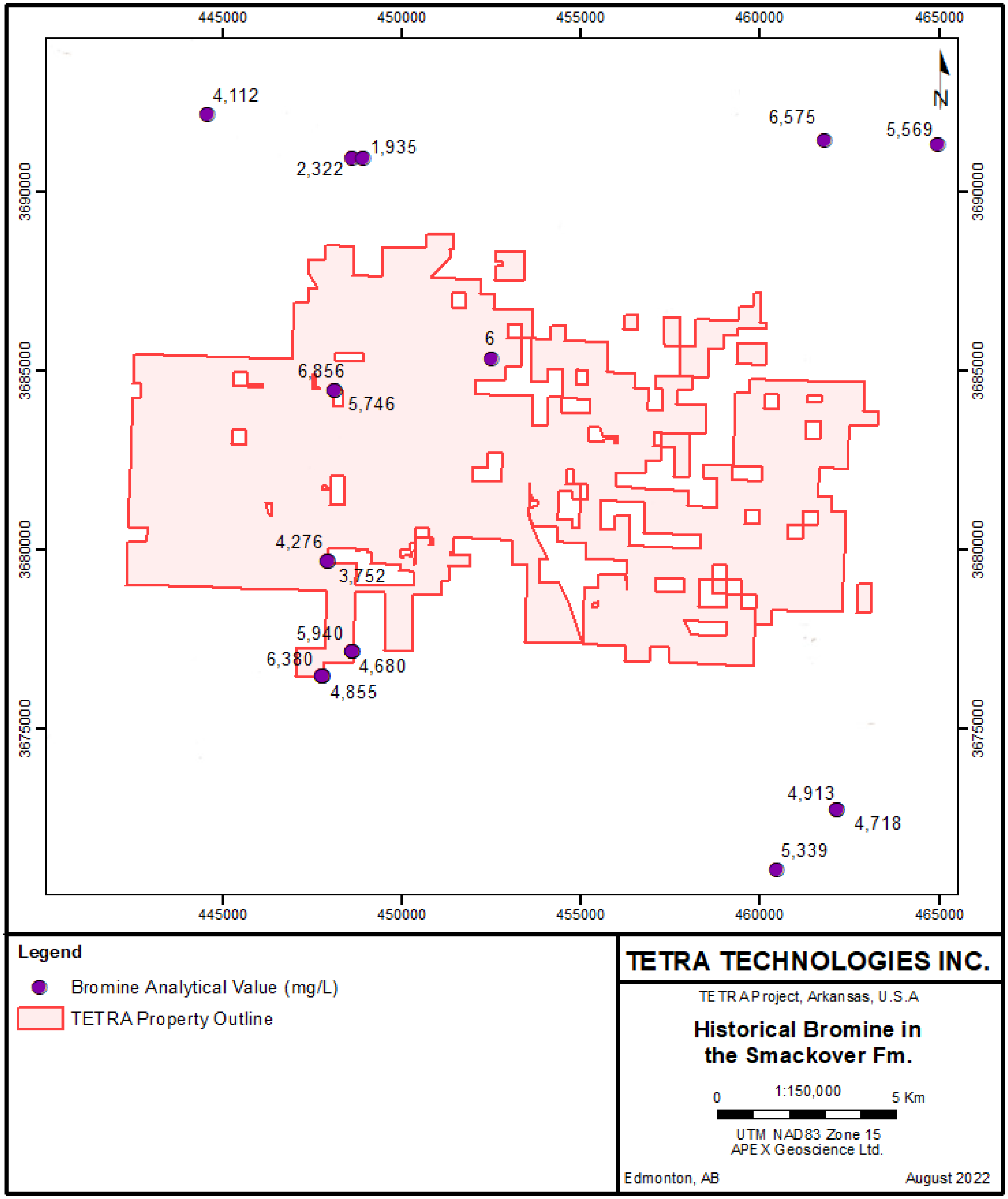
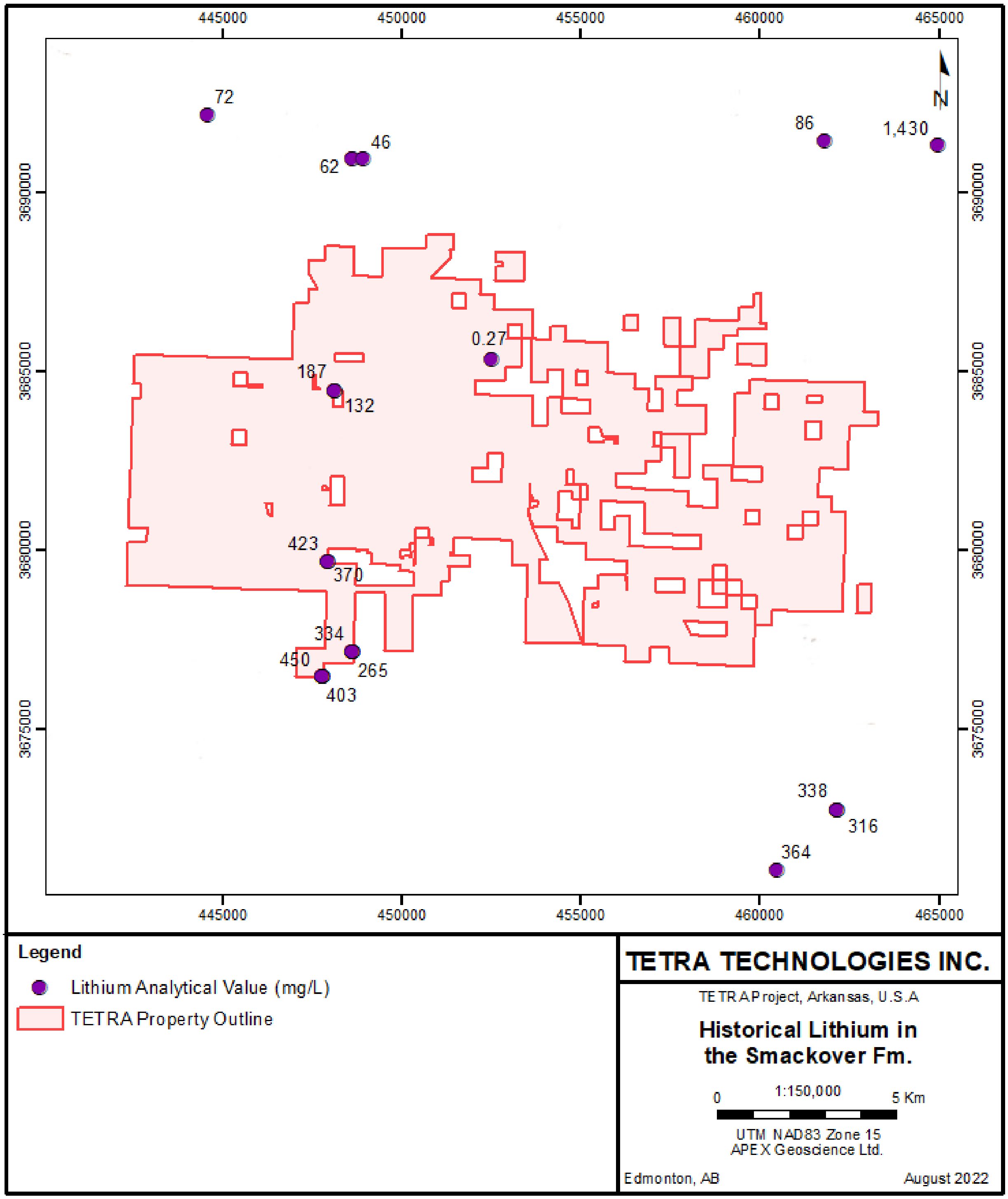


Figure 5.8 Historical and publicly available lithium data within, and adjacent to, the TETRA Property. Source: Blondes et al. (2016) and Standard Lithium (2018).



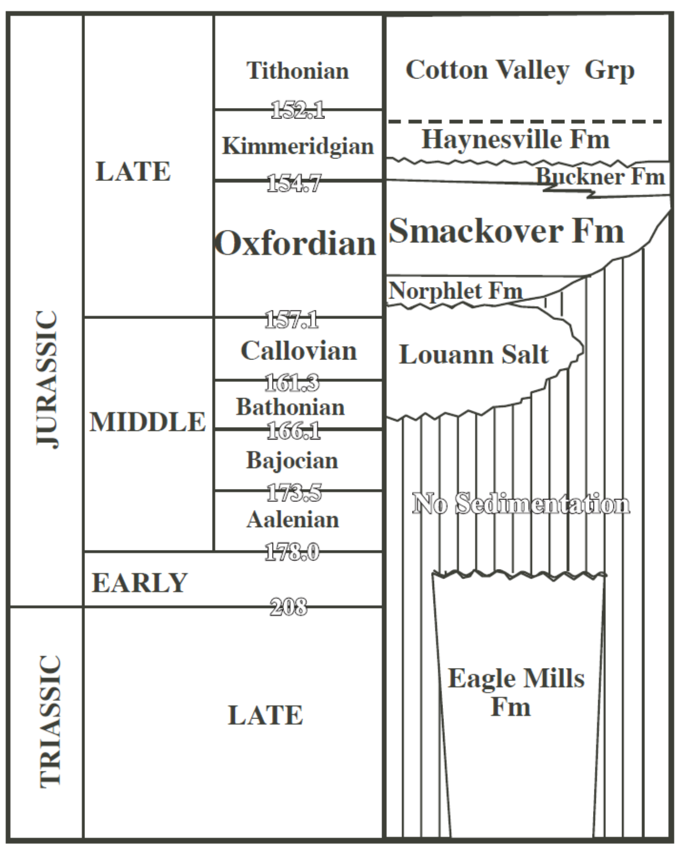
6 Geological Setting, Mineralization, and Deposit Types

6.1 Regional Geology

The Gulf of Mexico Basin (GMB) represents one of the most thoroughly studied geological basins in the world, in large part because of hydrocarbon production associated with the Jurassic Smackover Formation, which is the focus of this technical report. The GMB was formed largely due to tectonic events that developed a series of low-lying grabens with varying amounts of accommodation space across the basin prior to Mesozoic sediment deposition (Salvador, 1987). The low-lying grabens, southern extent of the Appalachian Mountains, and formation of salt – filling grabens, forming domes and faults, and removal/migration features – controlled sediment distribution as marine water invaded the basin during the Jurassic.

The earliest Mesozoic sediments deposited in the basin were the late Triassic nonmarine red beds of the Eagle Mills Formation, which unconformably overlies Paleozoic age sediments, and is unconformably overlain by sediments of varying age from middle Jurassic to Late Cretaceous (Table 6.1).

Table 6.1 Stratigraphic table of the Late Triassic to Late Jurassic formations of the northern United States Gulf Coast. Source: Heydari and Baria (2005).



The Eagle Mills Formation was followed by a period of non-deposition until the start of evaporite formation during the Callovian. The thickness of the salt sequences of the Louann Salt and Werner Anhydrite formations varies and is estimated to have been as thick as 10,000 feet (3,000 m) in some locations of the GMB and absent in others (Salvador, 1987). The Norphlet Formation unconformably overlies the Werner/Louann sequence and ranges in thickness from 10 to 60 feet (3-1.8 m) in the west-central part of the GMB and thickens to more than 1,300 feet (400 m) in the eastern part of the basin (Wade and Moore, 1993).

The Norphlet Formation is overlain by the carbonate rocks of the Oxfordian Jurassic Smackover Formation and/or the Smackover directly overlies Paleozoic basement rocks along the rim of the GMB. The Smackover is thickest, up to 1,000 feet (300 m), in the center of the GMB and thins along the basin margins and paleo-highs where it averages 50 to 300 feet (15-90 m). Smackover Formation deposition encompasses 5 U.S. states including from west to east: Texas, Oklahoma, Arkansas, Louisiana, and Missouri (Figure 6.1)

The Smackover Formation is generally considered to be a classic carbonate ramp developed along the northern margins of a series of interior salt basins resulting from initial Gulf of Mexico rifting. Smackover reservoir facies are dominated by shoreface ooidal grainstone (Moore, 1997).

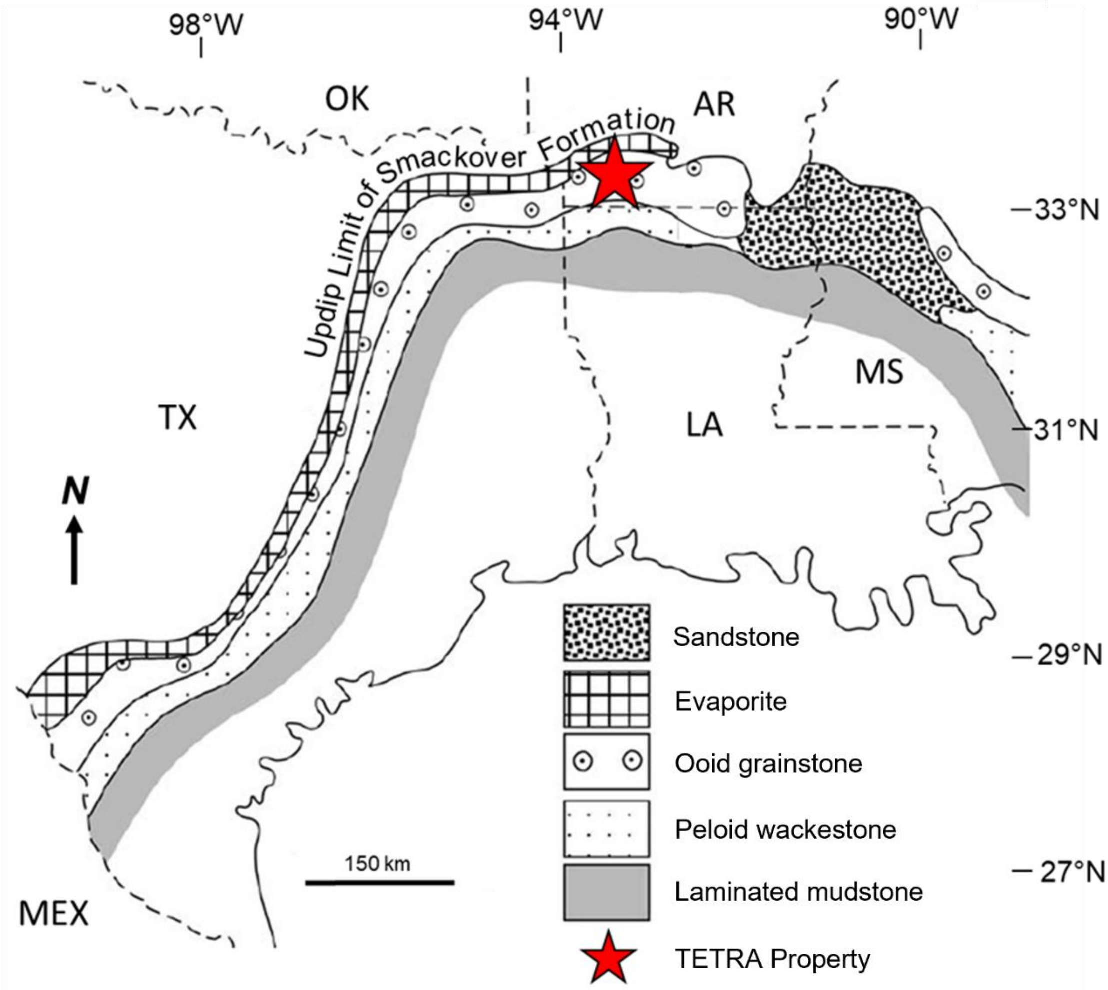
The Smackover is overlain by the Haynesville Formation shale or blanket red beds and evaporites of the Buckner Formation, the latter of which is a distinct geological unit in comparison to the Haynesville Formation. The Buckner can be 1,200 feet thick in low-lying areas and thins to its zero edge along the basin margins (Figure 6.2; Dickinson, 1968; Wade and Moore, 1993). The Buckner and Haynesville formations for an aquitard on top of the Smackover Formation.

Overall, the Smackover-Buckner-Haynesville sequence is generally considered as a time equivalent facies, formed as a typical ramp complex with the lower Smackover deposited under basinal conditions, the upper Smackover, a high energy shoreline, the Buckner deposited in a coastal sabkha, and the Haynesville representing equivalent siliciclastic continental environments (Moore, 1997).

The Upper Jurassic to Lower Cretaceous Cotton Valley Group overlies the aquitard and is composed from top to bottom of Bossier shale, a massive complex of Terryville sandstone and Schuler Formation sandstone, Knowles limestone, and an upper massive sandstone complex of Calvin sandstone (Bartberger et al., 2002). The Cotton Valley Group represents a current reservoir of interest for oil and gas exploration and production in the vicinity of TETRA Property.

At surface, the exposed regional bedrock and surficial geology of the TETRA Property is characterized by Late Pleistocene alluvial terrace clastic sedimentary rocks with linear north-south trending strings of Holocene alluvium and Middle Eocene sand, clay, or mud (Figure 6.2).

Figure 6.1 Regional map of Smackover Formation lithofacies belts in the U.S. Gulf Coast basin. Source is Handford and Baria (2007), who modified the work of Ahr (1973) and Bishop (1968). The approximate location of the TETRA Property is denoted with a red star.

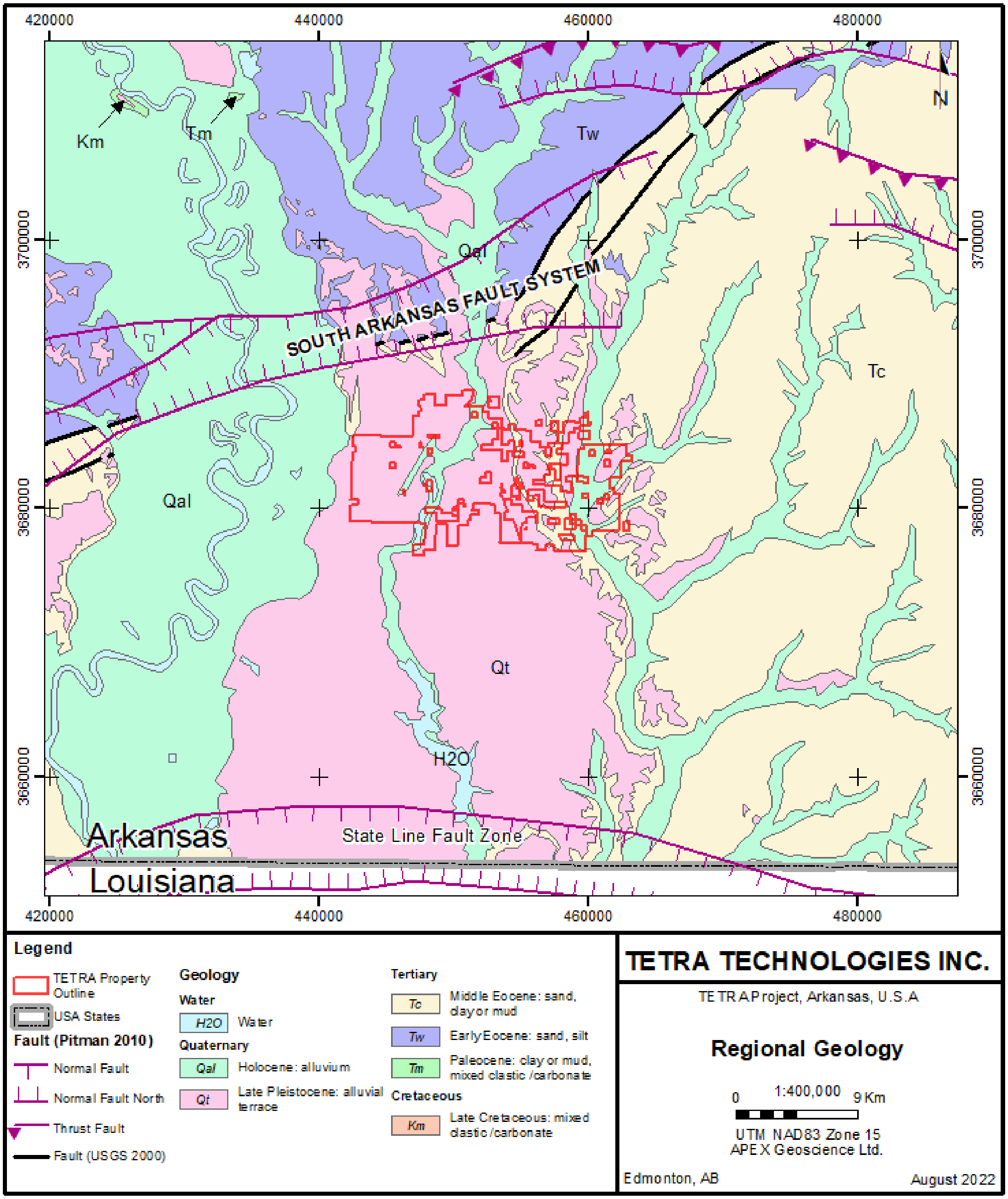


With respect to structural geology, the State Line Fault complex occurs directly south of the TETRA Property (Figure 6.2). The State Line Fault complex is associated with salt tectonics during the Smackover-Buckner formations and younger strata deposition. The Smackover Formation reservoir rocks dip to the southwest across southern Arkansas, likely in relation to the State Line Fault complex (Troell and Robinson, 1987).

6.2 Property Geology

The Smackover Formation has been subject to many investigations that address the unit's stratigraphy, lithofacies and depositional environment (e.g., Ahr, 1973; Akin and Graves, 1969; Baria *et al.,* 1982; Bishop, 1971, 1973; Budd and Loucks, 1981; Moore and Druckman, 1981; Harris and Dodman, 1982; Moore, 1984; Troell and Robinson, 1987; Marcini et al., 2008).

Figure 6.2 Bedrock geology in the TETRA Property area. Arkansas Geological Survey (2021).



During the Oxfordian Age, a major marine transgression deposited the Smackover Formation in a distally steepened ramp setting (Salvador, 1987; Mancini et al., 2008). The ramp was modified by tectonically controlled paleotopographic highs commonly caused by diapiric movement from the underlying salt (Amy et al., 1995).

The Smackover Formation has been divided into three units as summarized in Figure 6.3 and in the text below:

1. The Upper Smackover Member: An upper, clean, ooidal grainstone that forms the main reservoir rock type of the region due to its high porosity and is also known as the Reynolds interval.

2. The Middle Smackover Member: Is composed of brown, dense, laminated, pelletal, lime-mudstone and fossiliferous lime-wackestone and packstone. Locally the upper portion of this unit is also pelletoid and oolitic (Dickinson, 1968).

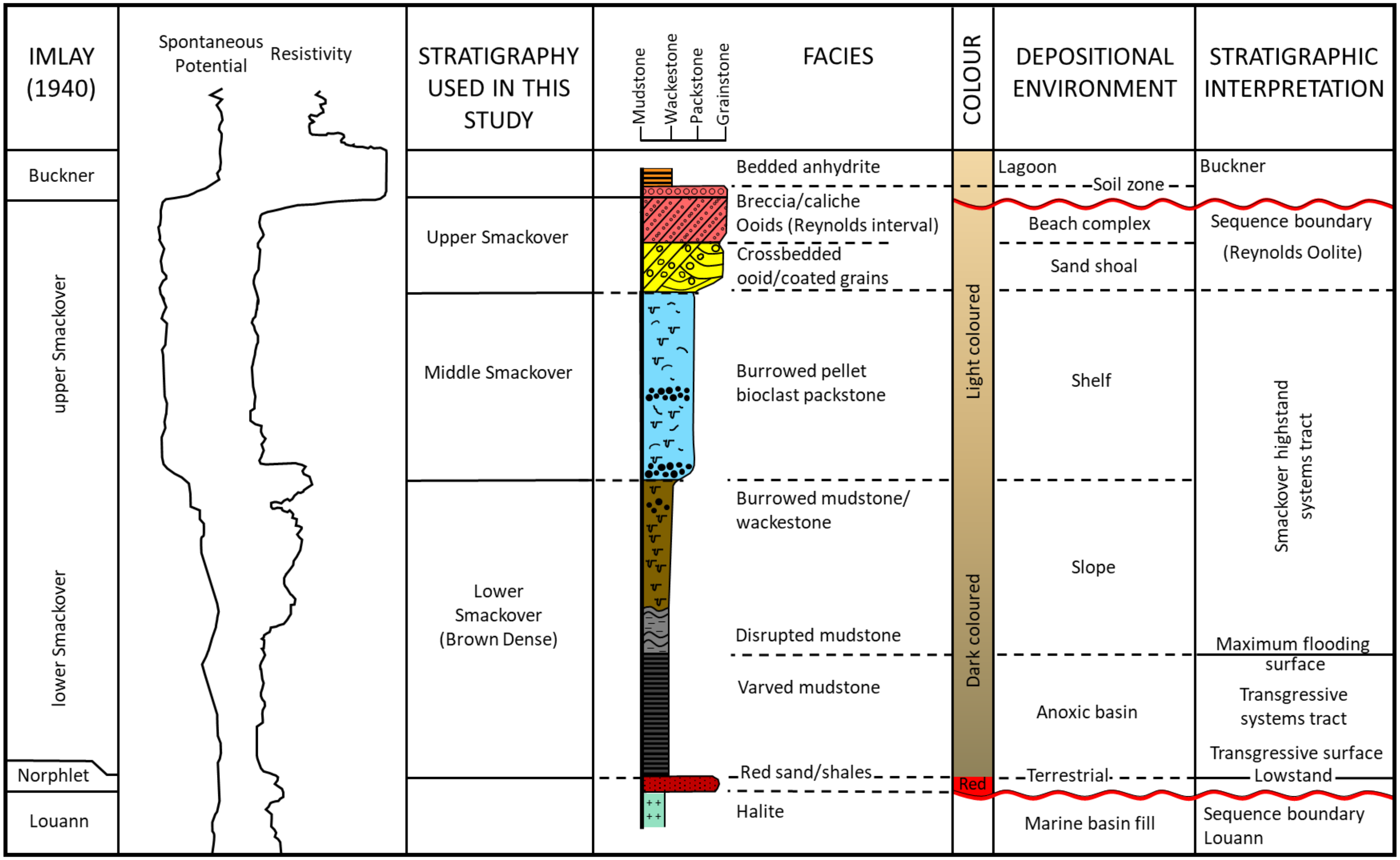
3. The Brown Dense: A Lower Smackover Member unit comprised of dark-brown, fine-grained, laminated, argillaceous, lime-mud sequence (Dickinson, 1968; Moore and Druckman, 1981; Troell and Robinson, 1986).

The Upper Smackover Member, which includes the highly porous Reynolds interval, formed in an ooidal beach complex and/or sand shoal that is dominated by grain-supported carbonate rocks (e.g., grainstone, packstone). The Middle Smackover Member formed within a carbonate shelf high-stand systems tract. The Lower Smackover Member transitions from a slope environment to an anoxic deep marine basin.

Consequently, the basal section of the Middle Smackover/Lower Smackover Member (Brown Dense) and the overlying Buckner/Haynesville evaporite/mudstone form aquitards that sandwich the – clean, porous, Upper Smackover, and uppermost Middle Smackover, members. This aquifer, and in particular, the Upper Smackover Member, forms the main oil, gas, and brine reservoir rock of the region due to its high porosity and permeability. The mineral resources assessed in this technical report focuses on the Upper Smackover Member.

Numerous authors suggest the producing zone of the Upper Smackover Member generally has an average thickness of about 200 feet thick (61.5 m; Bishop, 1971; Aiken and Graves, 1969; Moore and Druckman, 1981; Wade, 1993; Mancini, 2003; Okoye, 2017). The thickness of the Upper Smackover Member, however, varies and is inversely related to the thickness of the Middle Smackover Member (Breaux, 2020). The Upper Smackover is thickest along the up-dip limits and across paleohighs and thins toward the basin centers and is absent in deeper parts of the basin (Benson, 1988). Generally, the Reynolds interval lime-grainstone within the Upper Smackover Member maintains a thickness of 90 to 120 m (300 to 400 feet) across southern Arkansas (Aiken and Graves, 1969) and reaches a maximum thickness of almost 300 m (1,000 feet) near the Arkansas-Louisiana state line (Moore and Druckman, 1981).

Figure 6.3 Stratigraphic division, facies, and depositional environments of the Jurassic Smackover Formation.



6.3 Mineralization

The Smackover Formation bromide- and lithium-rich brines are slightly acidic brines of the Ca-Na-Cl type and typically contain 250,000 to 450,000 mg/L Total Dissolved Solids (TDS). The historical, within TETRA Property, concentrations of bromine range between 3,750 and 6,860 mg/L Br (mean of 5,372 mg/L Br). Lithium concentrations range between 132 and 461 mg/L Li (mean of 340 mg/L Li). These values are substantially higher than seawater bromine and lithium, which includes 65 mg/L Br and 0.1 mg/L Li (e.g., https://web.stanford.edu/group/Urchin/mineral.html) and therefore, defines the term mineralization within this confined-aquifer Br- and Li-brine deposit type.

Mineralization is further defined by the analytical results of a TETRA's 2022 exploration program in which the Company sampled 7 Upper Smackover Member brine samples from well MKP A-47. The results yielded 1) bromine ranges from 4,550 mg/L to 6,000 mg/L Br with an average of 5,350 mg/L Br, and 2) lithium from 461 mg/L to 489 mg/L Li with an average of 473 mg/L Li.

The Br- and Li-brine mineralization occurs within the Upper Smackover Member. During 2022, TETRA drilled and sampled Upper Smackover Member brine from the MKP A-47 well (see Section 9, Exploration). A cross-section through the McKamie-Patton oilfield is shown in Figure 6.4 to demonstrate the lateral continuity of the Upper Smackover Formation in relation to well MKP A-47.

6.4 Deposit Types

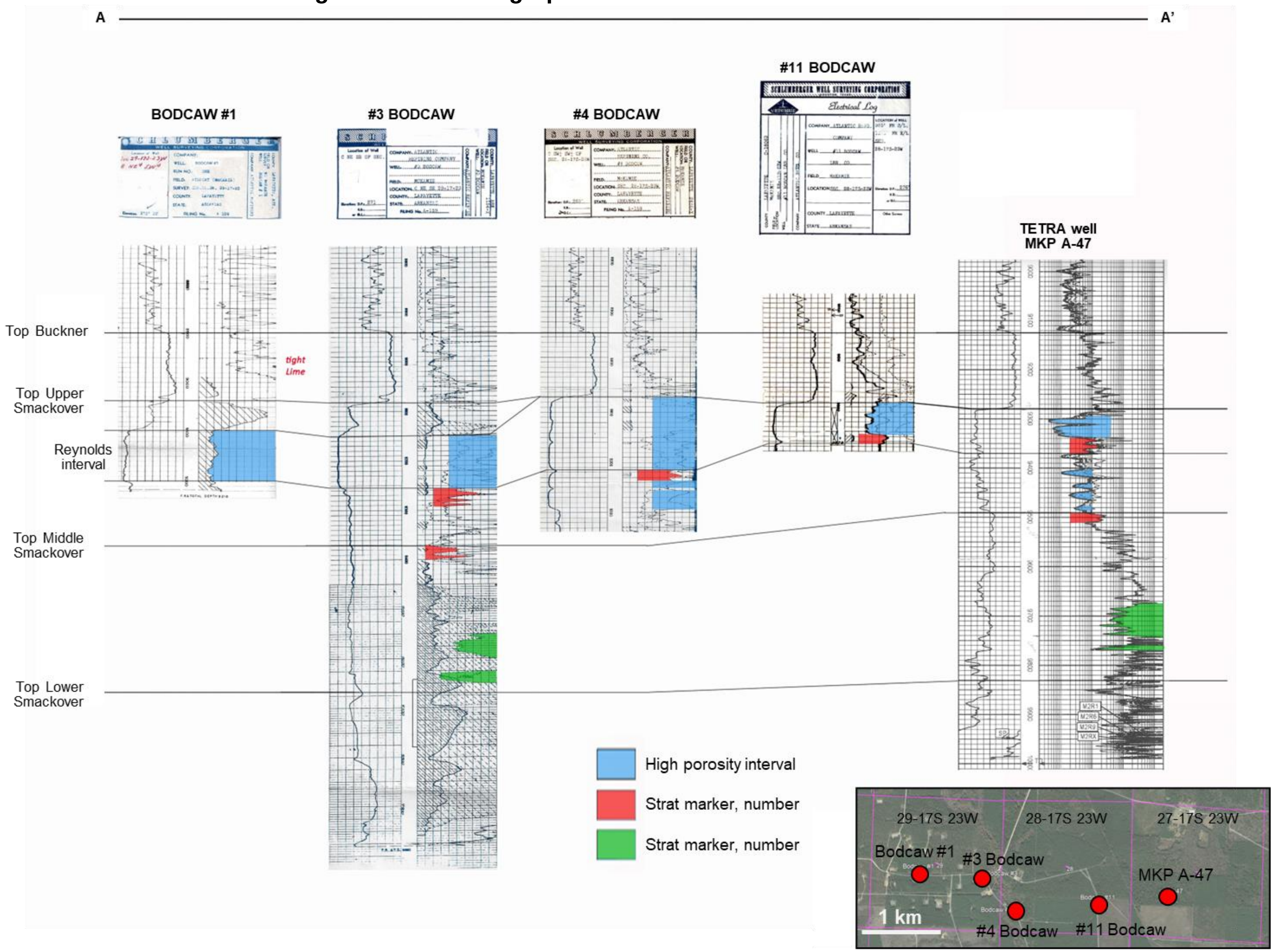
6.4.1 Bromine-Brine

Bromine is a chemical element with the symbol Br and atomic number 35. Bromine is found as 2.5 ppm in the Earth's crustal rocks, and then only as bromide salt. Bromine is significantly more abundant in the oceans (65 mg/L Br), resulting from long-term leaching. Salt lakes and brine wells may have higher bromine concentrations.

A wide variety of organo-bromine compounds are used in industry including brominated flame retardants, photographic emulsions, high-density drilling fluids, dyes (such as Tyrian purple and the indicator bromothymol blue), pharmaceuticals, anti-knock compounds for leaded gasoline, disinfectants, water-treatment compounds, and zinc–bromine batteries are hybrid flow batteries used for stationary electrical power backup and storage from household scale to industrial scale (Price et al., 1988). Some are prepared from bromine and others are prepared from hydrogen bromide, which is obtained by burning hydrogen in bromine.

The element is liberated by halogen exchange, using chlorine gas to oxidise Br^- to Br_2. This is then removed with a blast of steam or air and is then condensed and purified. Presently, bromine is transported in large-capacity metal drums or lead-lined tanks that can hold hundreds of kilograms or even tonnes of bromine. Laboratory production is unnecessary because bromine is commercially available and has a long shelf life.

Figure 6.4 Stratigraphic cross-section through the McKamie-Patton oilfield to show the lateral continuity of the top o the Upper Smackover Member. See Figure 7.2 for stratigraphic marker definitions.



Commercially the element is extracted from brine pools, mostly in the U.S., Israel, and China. Bromine is present in abnormally high concentrations in salt brines of the Smackover Formation (Oxfordian, Upper Jurassic) in south-central Arkansas. In fact, Arkansas ranks first in the world in the production of bromine. Bromine, along with petroleum and natural gas, is one of the top three minerals produced in Arkansas. Columbia County and Union County, which is directly east of Columbia County, is home to the largest bromine reserve in the United States (Arkansas Geological Survey, 2021).

6.4.2 Lithium-Brine

Brine associated with some of the world's oilfields and/or geothermal fields are known to contain anomalous concentrations of Li and are considered potential sources for large tonnages of Li (Garrett, 2004; Tahil, 2007). The Li-brine reservoir, or aquifer, occurs in sedimentary basins at or near the contact with the crystalline basement. In Arkansas, this typically occurs at depths of >2,000 m beneath the Earth's surface in deep-seated, pressurized aquifers of the Smackover Formation. The aquifers are typically confined in that the aquifer is bound by aquitards, but in some instances, several aquifers can commingle within a larger confined aquifer system.

The high Ca and Br content of these brines suggest they are concentrated seawater dolomitization brines with elevated concentrations of Li (typically along with K, Br, B, I, and other trace elements). Because of the aquifer depth, the brine is typically accessed by existing infrastructure such as oil and gas and/or geothermal facilities. Hence the deposit type presents a unique co-product opportunity.

Early studies proposed a source related to connate water (original sea water) that was altered by diagenesis with selective membrane-filtration of lithium (Billings et al., 1969). Geochemical and isotopic data were used to suggest that any viable lithium-source models should invoke direct mobilization of silicate-bearing fluids from either the crystalline basement or the immature siliciclastic material deposited above the basement, to the Devonian Beaverhill Lake and Leduc aquifers (Eccles and Berhane, 2011).

6.4.3 Exploration Tactics

Geological concepts being applied in the investigation and/or exploration of deep-seated, confined Br-brine Li-brine deposits include a compilation and review of historical oil and gas (or geothermal) geochemical fluid data (if available), and target selection of deep-seated, porous, large-scale, often reef-associated aquifers. Conventional brine assay samples (typically 1-2 litres) are then collected from produced water sample points within the existing oil and gas, or geothermal, infrastructure (e.g., wellhead, separator unit, pipelines, and reinjection points).

Traditional recovery of Li-from-brine – as conducted in South America – utilized solar evaporation to beneficiate the brine to higher levels of lithium prior to finalizing products such as lithium chloride and lithium carbonate. Solar evaporation is not a viable option in regions such as Canada or as part of oil and gas hydrocarbon/brine production circuits, and hence, mini-bulk brine samples are collected for mineral processing test work using evolving technologies that are able to recover lithium from the brine using a quicker, or rapid, extraction technology.

Brine sample quantities of 20 liters to 1,000 litres are applicable in bench-scale test work prior to expanding the operation to the pilot plant, and potential commercial application stage.

7 Exploration

7.1 TETRA 2022 Exploration and Production Well

During 2022, TETRA formed an agreement with Mission Creek Resources, LLC to drill a 10,000-foot (3,048 m) deep, vertical (-90° dip), oil and gas well within the southern portion of the TETRA Property. The well is currently owned and operated by Mission Creek Resources, LLC. The objectives of TETRA's exploration program at the TETRA Property, and at well MKP A-47, was to collect Upper Smackover Member aquifer brine: 1) for geochemical assay testing to verify historical bromine and lithium values, and 2) to conduct mineral processing test work related to the recovery of bromine and lithium from the Smackover brine toward defining reasonable prospects of potential economic extraction.

The well name is MKP A-47 and is located approximately 300 feet (91 m) north of the center of the southwest quarter of section 27 of Township 17S and Range 23W (Figure 7.1; Table 7.1). In decimal degrees, the well is located at 33.235137709 Latitude and -93.477684453 Longitude. As of the Effective Date of this technical report, the AOGC lists the well status as spudded and the well type as oil – production (on July 18, 2022). Presently, there is no production data available.

TETRA conducted downhole electrical wireline geophysical surveys at well MKP A-47 including gamma-ray, spontaneous potential, borehole temperature, matched resolution resistivity (at 2 feet resolution), and density, neutron, and acoustic porosity. The TETRA-interpreted results compare well with historical and neighboring wireline log data and validate 1) the stratigraphy of the Upper, Middle, and Lower Smackover members in relation to regional, historical, stratigraphic marker horizons (see cross-section in Section 6.4), and 2) increased porosity and permeability within the Upper Smackover Member (Figure 7.2).

Well MKP A-47 was drilled to an end-of-hole depth at 10,000 feet (m). The top surface of the Upper Smackover Member was intersected at a depth of approximately 9,280 feet (2,828.5 m). The basal surface of the Reynolds interval within the Upper Smackover Member was intersected at a depth of approximately 9,370 feet (2,856.0 m). The top surface of the Middle Smackover Member was intersected at a depth of approximately 9,490 feet (2,892.6 m). The top surface of the Lower Smackover Member at approximately 9,830 feet (2,996.2 m; Figure 7.2).

Figure 7.1. Location of TETRA's well MKP A-47 in relation to other historical Smackover Formation penetrating wells.

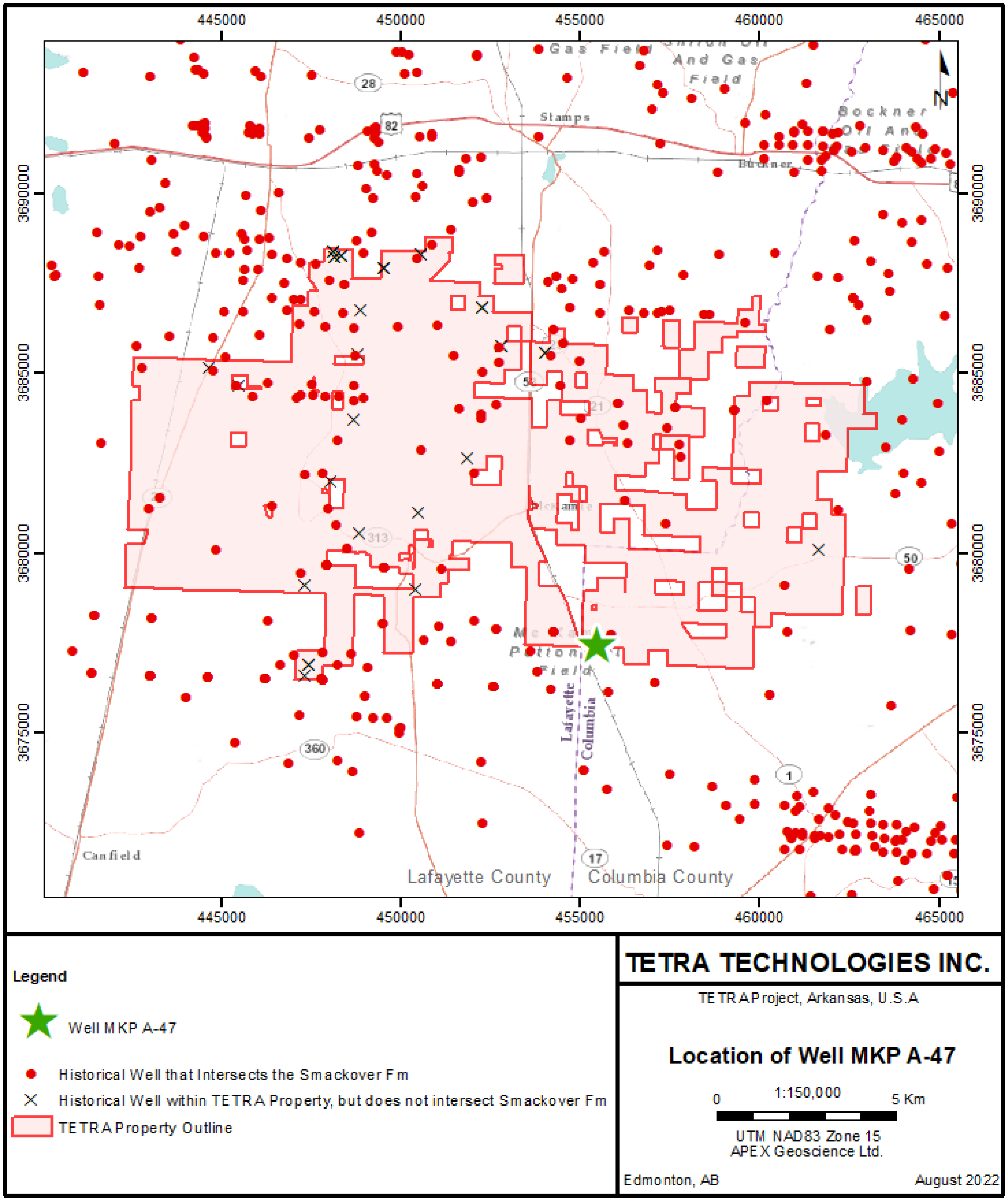


Table 7.1. Arkansas Oil and Gas Commission description of well MKP A-47.

Well MKP A-47			
Well Name	McKamie Patton Smackover Unit	**County, State**	Columbia, Arkansas
Well No	A-47	**Field**	McKamie Patton
Well ID	MKP A-47	**Longitude**	-93.477684453
Well Type	Oil - Production	**Latitude**	33.235137709
API Well Number	03-027-12133-00-00	**Section**	27
Well Status	Spudded	**Footage N/S**	1659 S
Status Date	02-21-2022	**Footage E/W**	1502 W
Operator	Mission Creek OPCO, LLC	**Range**	23 W
Permit Number	48255	**Township**	17 S

7.2 TETRA Brine Sampling Assay Program and Geochemical Results

During 2022, TETRA collected a total of 8 original Smackover Formation brine samples from well MKP A-47. The samples were collected at 3 separate perforation windows, which correlates to different depths within the well bore (Figure 7.2). The perforation windows allowed TETRA to collect representative brine from the Upper Smackover Member (Figure 7.2, Table 7.2).

The samples were collected during April 2022 and are labelled as TTI A47 G2A-S, TTI A47 G3-S, and TTI A47 G4-S. The brine samples were couriered to two separate labs, ACZ and WetLab for geochemical assay analytical work. A complete description of the sampling procedure, security, analysis, and Quality Assurance – Quality Control is presented in Section 8.

The analytical results are presented in Table 7.2. An outlier Br and Li analytical result was observed. A single sample, TTI-A47-G4-S, which was analyzed at ACZ, yielded significantly lower Br (1,850 mg/L Br) and Li (403 mg/L Li) in comparison to the other sample results and its counterpart duplicate sample analyzed at WetLab (5,800 mg/L Br and 477 mg/L Li). The outlier sample is discussed in further detail in Section 8.4.4. The outlier sample TTI-A47-G4-S (ACZ assay only) is not included in the following analytical summary.

The bromine concentrations of the 7 analyses range between 4,550 and 6,000 mg/L Br with an average of 5,350 mg/L Br (Table 7.2, Figure 7.3).

For this report, data quality is assessed using average percent relative standard deviation (also known as the % coefficient of variation), or average RSD% as an estimate of precision or reproducibility of the analytical results. The RSD% is calculated using the formula: *RSD% = standard deviation/mean x 100*. Average RSD% values below 30% are considered to indicate very good data quality; between 30 and 50%, moderate quality and over 50%, poor quality.

Figure 7.2. Wireline log from the MKP A-47 well with stratigraphic picks, perforation windows and brine sample locations, the designated Br- and Li-brine resource areas. Stratigraphic markers: 1 – base of the primary producing Reynolds interval at the McKamie-Patton oilfield; 2 – base of the Upper Smackover Member; 3 – regional Middle Smackover Member marker (if the well does not penetrate Louann Formation evaporite).

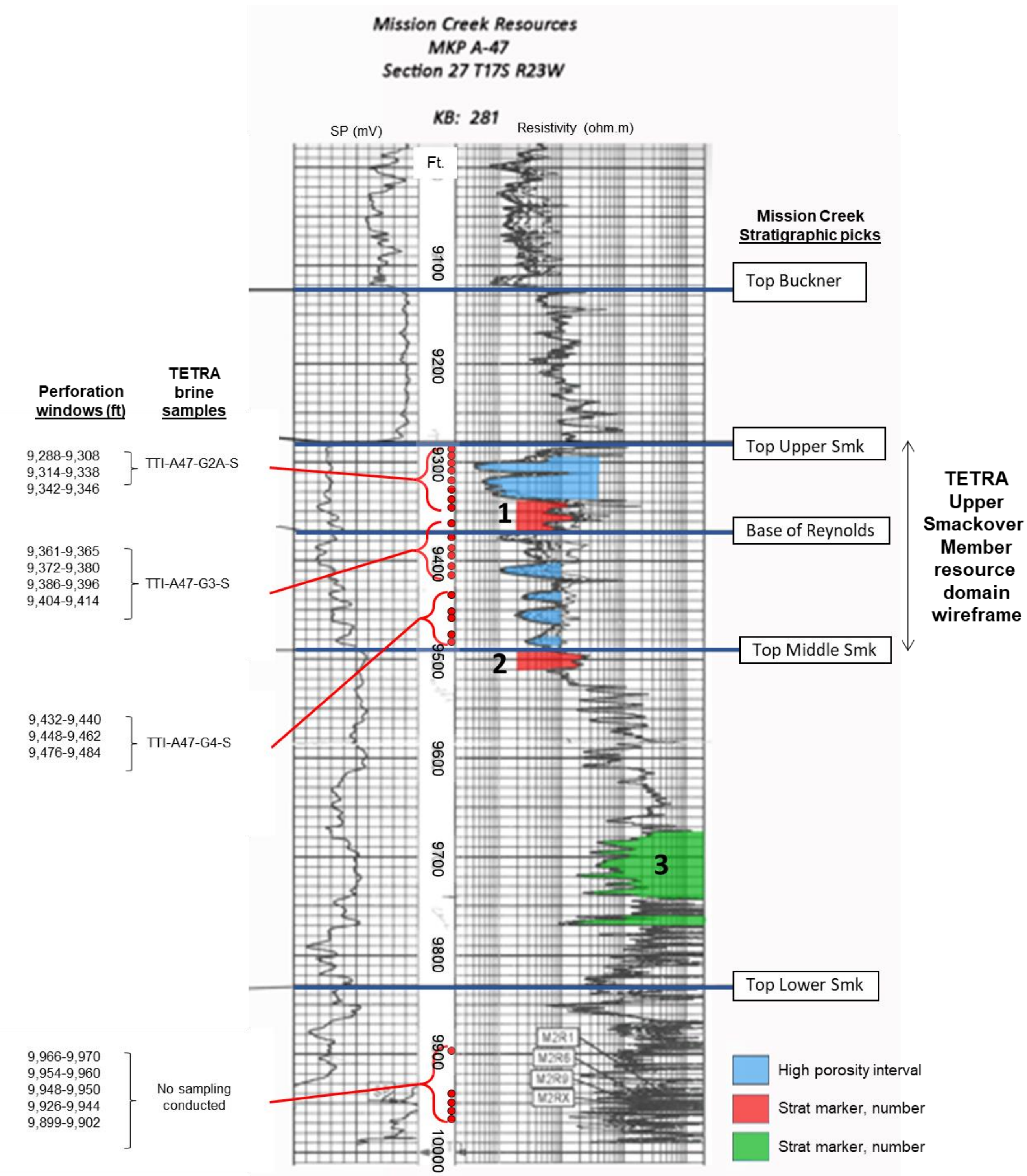
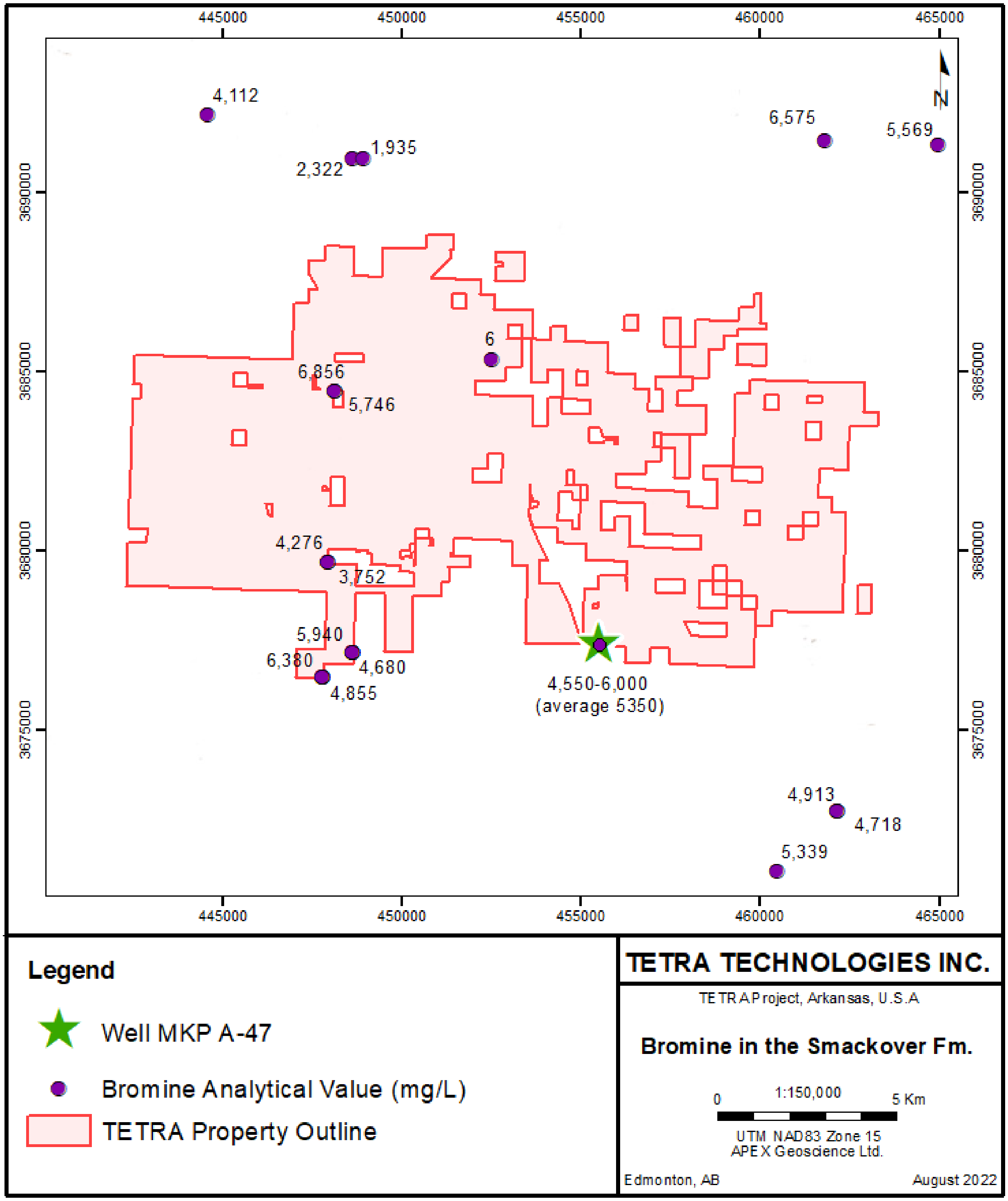


Table 7.2. Select analytical results of TETRA's Smackover brine sampling program at MKP A-47. The bromine and lithium values for sample TTI-A47-G4-S (analyzed at ACZ) are not recommended as per QP discussion in Sections 7 and 8.

Sample ID	Perforation horizons (feet)	Stratigraphic horizon	Lab	B (mg/L)	Ba (mg/L)	Br (mg/L)	Cl (mg/L)	Ca (mg/L)	Co (mg/L)	Fe (mg/L)	Pb (mg/L)	Li (mg/L)	Mg (mg/L)	Mn (mg/L)	K (mg/L)	Na (mg/L)
TTI-A47 G2A-S	9,288-9,308 and 9,314-9,338	Upper Smackover (Reynolds interval)	ACZ	288	49.3	4,550	197,000	43,800	0.16	173	0.08	479	2,750	52.0	6,230	74,800
TTI-A47-G3-S	9,361-9,365; 9,372-9,380; 9,386-9,396; and 9,404-9,414	Upper Smackover	ACZ	330	55.0	5,010	193,000	37,100	0.11	17	0.23	474	2,830	50.8	6,590	78,000
TTI-A47-G3-S Rep	9,361-9,365; 9,372-9,380; 9,386-9,396; and 9,404-9,414	Upper Smackover	ACZ	323	52.9	5,290	192,000	36,700	0.11	48.8	0.14	461	2,820	52.1	6,430	76,700
TTI-A47-G4-S	9,432-9,484	Upper Smackover	ACZ	316	59.3	~~1,850~~	74,300	36,900	0.10	123	0.13	~~403~~	2,740	54.2	5,880	78,700
TTI-A47-G4-S (Re-analyzed)	9,432-9,484		ACZ	/	/	~~<5~~	<0.4	/	/	/	/	~~522~~	/	/	/	/
TTI-A47-G2A-S	9,288-9,308 and 9,314-9,338	Upper Smackover (Reynolds interval)	WetLab	316	53.5	5,000	196,000	44,300	<2.0	<20	<2.0	465	3,120	55.7	6,900	87,800
TTI-A47-G3-S	9,361-9,365; 9,372-9,380; 9,386-9,396; and 9,404-9,414	Upper Smackover	WetLab	333	42.8	5,800	205,000	39,400	<0.20	18.9	0.36	467	2,540	47.7	6,820	88,600
TTI-A47-G3-S Rep	9,361-9,365; 9,372-9,380; 9,386-9,396; and 9,404-9,414	Upper Smackover	WetLab	348	46.2	6,000	207,000	40,500	<0.20	77.2	0.35	489	2,650	49.8	7,160	87,200
TTI-A47-G4-S	9,432-9,484	Upper Smackover	WetLab	326	45.7	5,800	206,000	38,400	<0.20	201	0.27	477	2,340	52.4	6,930	86,900
Minimum (all data)				288	42.8	1,850	74,300	36,700	0.10	17	0.08	403	2,340	47.7	5,880	74,800
Maximum (all data)				348	59.3	6,000	207,000	44,300	0.16	201	0.36	522	3,120	55.7	7,160	88,600
Average (all data)				323	50.6	**4,913**	183,788	39,638	0.12	94	0.22	**471**	2,724	51.8	6,618	82,338
StDev (all data)				17	5.5	1,332	44,635	3,023	0.03	74	0.11	31	228	2.5	421	5,784
RSD% (all data)				5.4	10.9	**27.1**	24.3	7.6	22.0	78.1	49.5	**6.6**	8.4	4.8	6.4	7.0
Minimum (minus TTI A47 G4-S via ACZ)				288	42.8	4,550	192,000	36,700	0.105	17	0.0824	461	2,340	47.7	6,230	74,800
Maximum (minus TTI A47 G4-S via ACZ)				348	55	6,000	207,000	44,300	0.158	201	0.364	489	3,120	55.7	7,160	88,600
Average (minus TTI A47 G4-S via ACZ)				323	49	**5,350**	199,429	40,029	0.1	89	0.2	**473**	2,721	52	6,723	82,857
StDev (minus TTI A47 G4-S via ACZ)				19	4.6	534	6,399	3,038	0.0	79	0.1	10	247	2.5	322	6,042
RSD% (minus TTI A47 G4-S via ACZ)				5.7	9.4	**10.0**	3.2	7.6	23.5	88.8	47.2	**2.0**	9.1	4.8	4.8	7.3

[1] Sample TTI A47 G4-S was re-analyzed for Br, Cl, and Li at ACZ using different dilutions. The results of the reanalysis are discussed in Section 8.

Figure 7.3. Summary of the Well MKP A-47 Smackover Formation brine sample bromine analytical results in relation to the historical bromine geochemical results.



The RSD% of the 7 ACZ and WetLab bromine analyses is 10%, which represents very good data quality. If the outlier sample, TTI-A47-G4-S, which was analyzed at ACZ, is included the RSD% increases to 27% - further support to not include the analytical result in this discussion.

Figure 7.3 shows that the bromine analytical results of the 7 Smackover brine samples collected by TETRA correlate well with the historical within- and off-Property Smackover bromine-brine results presented in Section 5.2. For example,

- The TETRA analytical results yield between 4,550 and 6,000 mg/L Br with an average of 5,350 mg/L Br.

- The within Property historical bromine analytical results yield between 3,752 to 6,856 mg/L Br with a mean of 5,372 mg/L Br.

Hence, TETRA has validated the historical Smackover Formation bromine data such that the historical data can be implemented with confidence into the bromine resource estimations presented in this technical report.

With respect to lithium, the concentrations of the 7 TETRA analyses range between 461 and 489 mg/L Li with an average of 473 mg/L Li (Table 7.2, Figure 7.4). The RSD% of the 7 ACZ and WetLab lithium analyses is 2%, which represents very good data quality. A comparison between the TETRA and historical analytical results shows that the TETRA average lithium is higher than the historical within-Property results. For example,

- The TETRA analytical results yield between 461 and 489 mg/L Li with an average of 473 mg/L Li.

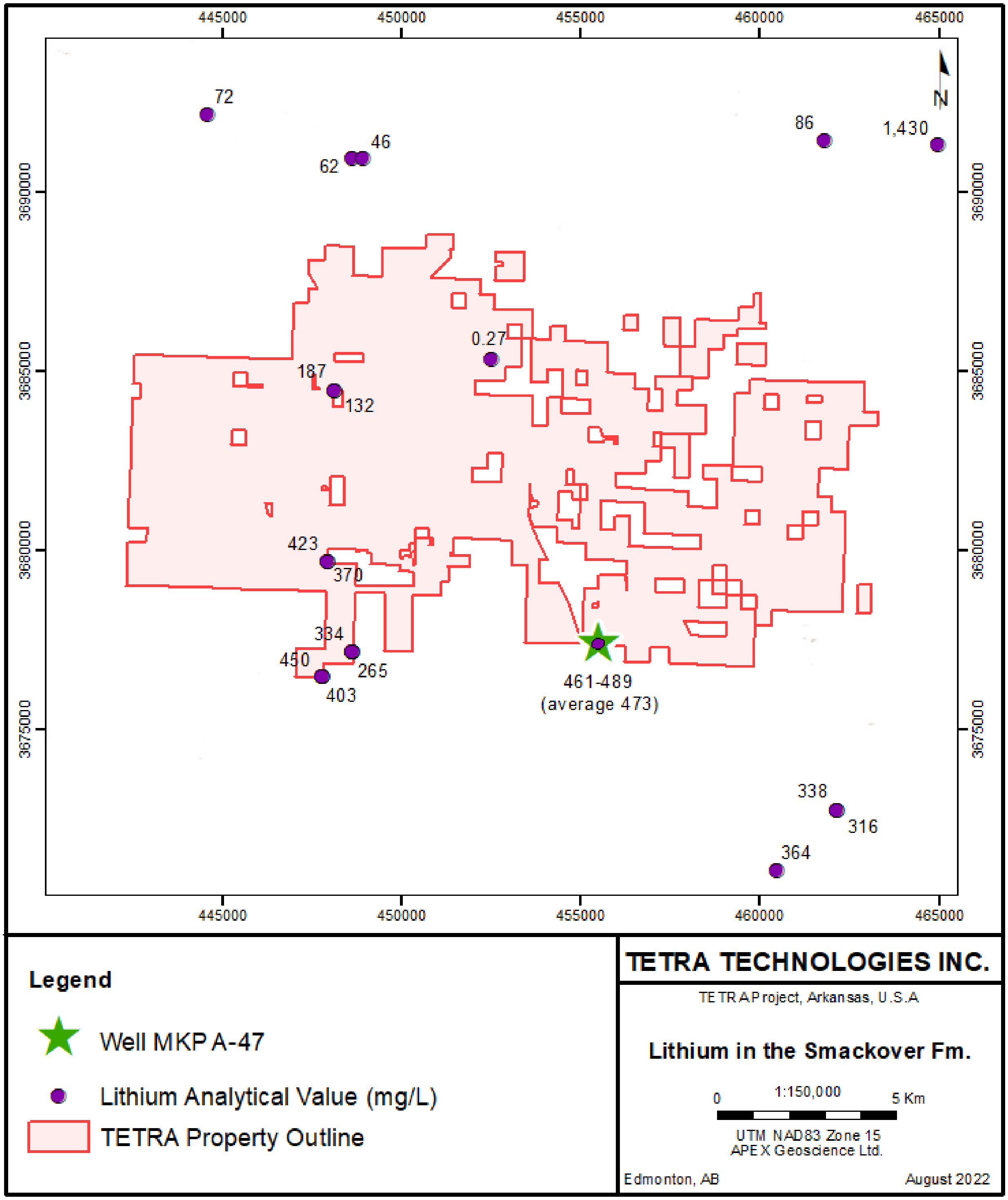
- The within Property historical lithium analytical results yield between 132 to 461 mg/L Li with a mean of 340 mg/L Li.

Note: The historical Smackover brine lithium analytical results are dependent on the spatial location of the sample. Figure 7.4 shows that Smackover brine in the northern part of the Property has considerably lower Li-brine (132 to 187 mg/L Br) in comparison to the southern part of the Property (265 to 450 mg/L Li).

The QP theorizes that the variation in lithium from the southern to the northern portions of the TETRA Property are related to geological properties; a theory that was expressed in the Standard Lithium resource model and estimations (Standard Lithium, 2018, 2022).

Nevertheless, the Smackover Formation in the southern portion of the TETRA Property appears to contain elevated Li-brine. Hence, TETRA has validated the historical Smackover Formation lithium data such that the southern property historical data can be implemented with confidence into the lithium resource estimations presented in this technical report.

Figure 7.4. Summary of the Well MKP A-47 Smackover Formation brine sample lithium analytical results in relation to the historical lithium geochemical results.



With respect to a comparison between the Upper Smackover Member (Reynolds interval) and the lower portion of the Upper Smackover Member samples:

- Bromine is slightly higher in the lower portion of the Upper Smackover Member brine (5,010 to 6,000 mg/L Br; n=5) in comparison to the Reynolds interval brine (4,550 to 5,000 mg/L Br; n=2).

- Lithium is nearly identical between the lower portion of the Upper Smackover Member and Reynolds interval brine with an average of 474 mg/L Li and 472 mg/L Li (n=5 and 2 analyses, respectively).

Other observations of the TETRA geochemical dataset are that the Smackover brine contains:

- Elevated sodium values of between 74,800 mg/L and 88,600 mg/L Na with an average of 82,857 mg/L Na.

- Elevated calcium values of between 36,7000 mg/L and 44,300 mg/L Ca with an average of 40,029 mg/L Ca.

- Elevated chlorine values of between 192,000 mg/L and 207,000 mg/L Cl with an average of 199,429 mg/L Cl.

- Elevated boron values of between 288 mg/L and 348 mg/L B with an average of 323 mg/L B.

- Magnesium values of between 2,340 mg/L and 3,120 mg/L Mg with an average of 2,721 mg/L Mg.

- Potassium values of between 6,230 mg/L and 7,160 mg/L K with an average of 6,723 mg/L K.

- Low barium (average 49 mg/L Ba), cobalt (average 0.1 mg/L Co), iron (average 89 mg/L Fe), lead (average 0.2 mg/L Pb), and manganese (average 2.5 mg/L Mn).

- Apart from Fe, Pb and Co, the RSD% value of the select geochemical results presented in Table 7.2 show good data reproducibility with RSD% of 10% or less.

7.3 TETRA Brine Mini-Bulk Sampling for Mineral Processing Test Work

During the 2022 Smackover brine sampling program, and in addition to the assay samples, TETRA collected an additional 3,456 gallons (13,083 litres) of Smackover brine was collected into thirty 1-litre bottles, one 5-gallon sample bottle (19 litres), nine 1-gallon sample bottles (34 litres) and thirteen 1,000-litre totes for mineral processing test work at the TETRA Innovation Group - TETRA Technologies, Inc. in Conroe, TX. TETRA's mineral processing test work is described in Section 10.

7.4 Hydrogeological Characterization Study

TETRA commissioned Hydrogeological Consultants Limited (HCL) to conduct a hydrogeological characterization study of the Smackover Formation underlying the TETRA Property.

The Smackover Formation has been divided into three informal units: Upper, Middle, and Lower Smackover members. The upper part of the Upper Smackover Member is commonly referred to as the Reynolds interval, which is primarily an oolite grainstone that has the highest permeability and porosity of the Smackover units and has historically been the most economical of the units. The middle part of the Smackover is composed of laminated pelletal fine-grained limestone and fossiliferous lime-wackestone. The base of the Smackover Formation is the Brown Dense, which is a fine-grained laminated varved lime-mud sequence (Dickinson, 1968).

The Smackover Formation has been a prolific producer of oil and gas since the 1920s. Many hydrocarbon wells have penetrated the Smackover Formation, and various studies have characterized the hydrogeological properties of the Smackover Formation. Most data focus on the Reynolds interval, as fewer hydrocarbon wells were drilled deep enough to penetrate the middle part of the Smackover Formation and fewer still penetrated the base of the Smackover Formation.

There is no regulatory requirement in Arkansas to submit data collected during hydrocarbon well drilling or production. TETRA has not yet collected any of its own hydrogeological data at the TETRA Property; therefore, the hydrogeological data are limited to historically published reports and studies and represent primarily data that were obtained from analytical work conducted on core sample.

7.4.1 Effective Porosity

The map shown in Figure 7.5 shows the various regional porosity types of the Smackover Formation, with oomoldic-calcite cemented-type porosity underlying the northern portion of the TETRA Property, and oomoldic with preserved primary-type porosity underlying the southern portion of the Property.

Table 7.3 summarizes a significant amount of porosity data for the Smackover Formation near the TETRA Property. The largest number of samples in the dataset are from hydrocarbon wells in the McKamie-Patton Pool, which partially underlies the southern portion of the TETRA Property. These data were from Schauer (1957), which identified 1,767 core analyses that had an average effective porosity of 14.2% and were reported to be from the Reynolds interval.

Figure 7.5 Regional porosity type distribution of the Upper Smackover Member in the Gulf Coast Region. Source: Moore (1997).

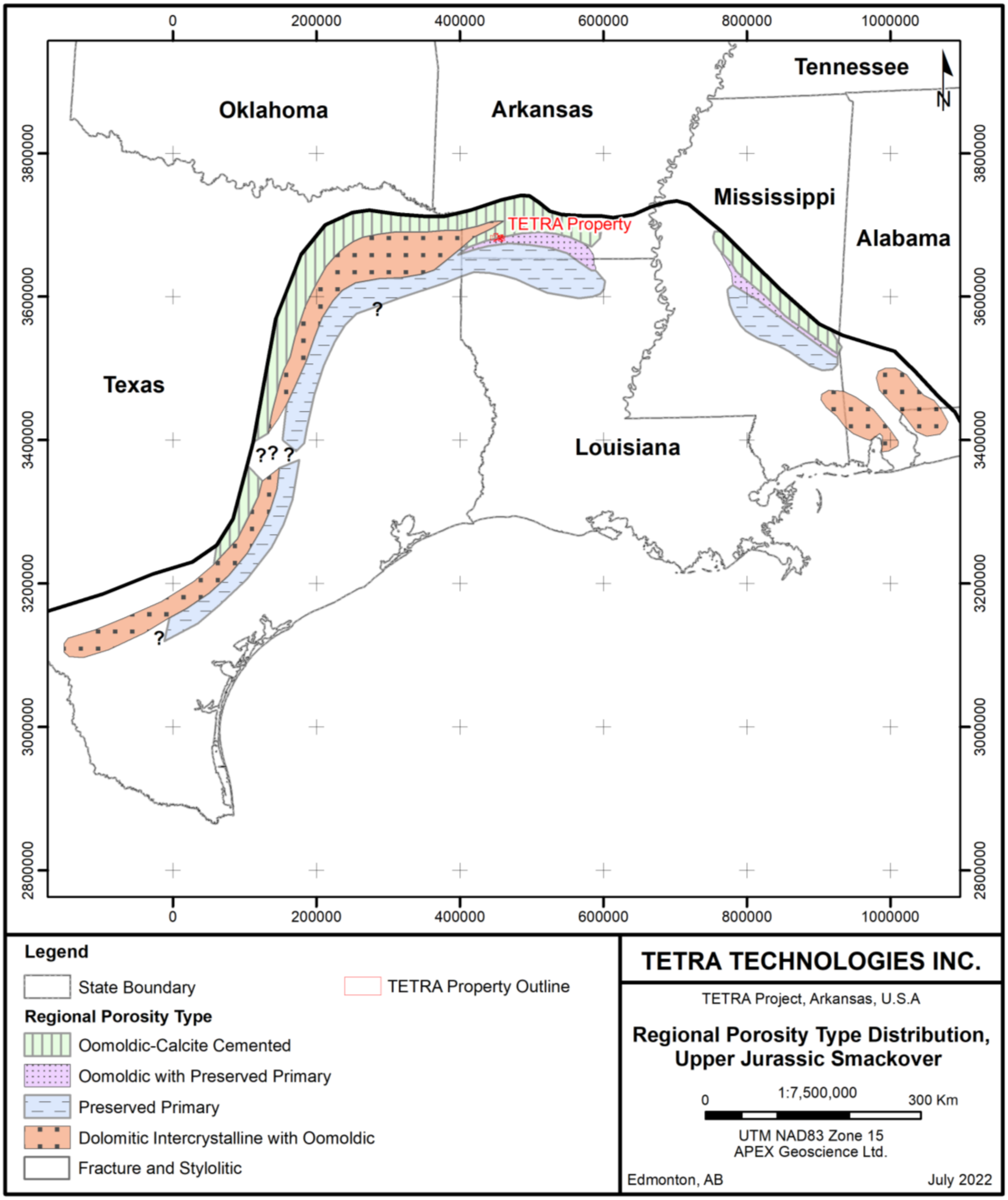


Table 7.3 Porosity data from Smackover Formation (after Manger, 1963).

Field Name	Geounit	Distance to TETRA Property	Approximate Depth (m)	Number of Core-Analysis Samples	Minimum Effective Porosity (%)	Maximum Effective Porosity (%)	Average Effective Porosity (%)
Cairo Field	Reynolds Member	45 km East	2,377	N/A	N/A	N/A	17
Dorcheat Pool	Reynolds Member	70 km East	2749 - 2,771	N/A	2	20	12
Schuler Field	Reynolds Member	45 km East	2,332 - 2,365	N/A	N/A	23	16.7
Various Fields	Reynolds Member		2,210 - 2,332	4	16.4	20	18
Various Fields	Smackover Formation		2,393	150	0	23.9	14.5
McKamie-Patton Pool	Smackover Formation	Overlaps with TETRA Property	2,835	1,767	N/A	N/A	14.2
McKamie-Patton Pool	Smackover Formation	Overlaps with TETRA Property	2,780- 2,860	14	0	16.4	7.5

N/A - Not Available

Additionally, 14 core-plug samples from the McKamie-Patton Pool were reported to have an average effective porosity of 7.5% (Manger, 1963); there is no distinction made for these data in terms of the member units of the Smackover Formation.

Another study that was published in 1944 reviewed porosity data for the Dorcheat Pool, the Schuler Field, and the McKamie-Patton Pool (Bruce, 1944). The data collected from these fields are within the Reynolds interval of the Smackover Formation; the data from this study are summarized in Table 7.4.

Bliefnick and Kaldi (1996) stated that the Smackover Formation in the Walker Creek Field has an average effective porosity of 11%. The Walker Creek Field is approximately 40 km south of the TETRA Property.

There were 782 core-analysis samples that were collected from 19 hydrocarbon wells near the TETRA Property; the average effective porosity for these samples was 8.1% (Eccles, et al., 2019). The results for the 782 core analyses are summarized in Table 7.5.

Data were also reviewed for 515 core analysis samples that were collected from 11 hydrocarbon wells within the TETRA Property; the average effective porosity for these samples was 10.2% (Eccles, et al., 2019). The effective porosity measurements for the 515 core analyses samples are summarized in Table 7.6.

Based on the available historical porosity data for the Smackover Formation directly underlying the TETRA property, the Upper Smackover Member is likely to have effective porosity values of approximately 10%. The published porosity data for the Smackover Formation indicate higher porosity values; however, these data are for fields that do not underlie the TETRA property, apart from a portion of the McKamie-Patton Pool. Higher porosity may be present underlying the southern portion of the TETRA property within the McKamie-Patton Pool.

Table 7.4 Porosity data from Smackover Formation (after Bruce, 1944).

Field Name	Number of Core-Analysis Samples	Average Effective Porosity (%)
Dorcheat Pool	23	14
Schuler Field	15	18
McKamie-Patton Pool	17	17

Table 7.5 Core-analysis samples with porosity near the TETRA Property (after Eccles, et al., 2019).

Hydrocarbon Well ID	Number of Core-Analysis Samples	Continuously Cored Interval (m)	Continuously Cored Interval (feet)	Minimum Effective Porosity (%)	Maximum Effective Porosity (%)	Average Effective Porosity (%)
Elrod Reeves	34	5	16.5	1.8	15.7	8.7
Grace 1	8	2.1	7	2.9	19.5	12.7
Groce 1	61	6.1	20	1.7	22.3	8.4
Stephens Estate 1	16	4.4	14.5	3.8	10.8	7.6
Robert Stevens 1	15	4	13	3.6	18.8	11.3
Andrew Nix 1	36	5.5	18	1.3	15.7	8
Reeves 1	20	4.1	13.5	7.4	15.8	11.8
Strange 1	18	2.7	9	1	9.4	3.5
Elsie Shurtleff 1	5	3.7	12	0.7	2.7	1.6
Eddy Horton 1	42	7.9	26	0.2	11.3	4.6
Renfro Longion and Lewis 1	62	17.4	57	5.4	28.5	17.9
Byrd 1	8	13.7	45	2.5	16.4	8
Dickson 3	34	6.6	21.5	2.1	19.4	12.4
Moore Estate 1	70	10.5	34.5	0.8	12.8	3.4
MKP#2	101	30.5	100	1.2	19.3	7
MKP#4	136	41.8	137	1.5	16	6.4
MKP#5	108	43.6	143	1.9	20.4	12.4
Oliver Layne 1	5	1.2	4	1.4	6.1	2.6
Longino 1	3	0.6	2	3.9	11	6.5
Total	**782**	**211.4**	**693.5**		**Average**	**8.1**

7.4.2 Permeability

Table 7.7 summarizes a significant amount of permeability data for the Smackover Formation near the TETRA Property. The largest number of samples in the dataset are from hydrocarbon wells in the McKamie-Patton Pool, which partially underlies the southern portion of the TETRA Property. These data were from Vestal (1950), which identified 277 hydrocarbon wells from which core-analysis samples had been analyzed; the average permeability of these core samples was 868 millidarcys (mD)

Table 7.6. Core samples with porosity within the TETRA Property (after Eccles, et al., 2019)

Hydrocarbon Well ID	Number of Core-Analysis Samples	Continuously Cored Interval (m)	Continuously Cored Interval (feet)	Minimum Effective Porosity (%)	Maximum Effective Porosity (%)	Average Effective Porosity (%)
Lester 1	34	13.1	43	1.2	17.4	5.1
Carter Moore 1	45	13.9	45.5	1.8	22.5	14.3
Lowery 1	47	9	29.5	0.7	14	5.5
Cornelius 1	13	2.4	8	1.3	9.2	4.3
Vera Dixon 1	44	6.4	21	0.9	26.7	10.1
Neal Ellis 1	64	18.6	61	1.9	24.5	18.3
Big Six Oil Company	21	6.1	20	1.2	17.6	11.9
Fina McGoogan 1	28	10.5	34.5	1.4	14.6	6.7
MKP#17	113	41.8	137	4	31	13
MKP#19	106	43.6	143	1.9	20.4	12.4
Total	**515**	**165.4**	**542.5**		**Average**	**10.2**

Additionally, core samples from 35 hydrocarbon wells in the McKamie-Patton Pool were reported to have an average permeability of 675 mD (Vestal, 1950); there is no distinction made for these data in terms of the member units of the Smackover Formation.

Another study that was published in 1944 reviewed porosity and permeability data for the Dorcheat Pool, the Schuler Field, and the McKamie-Patton Pool (Bruce, 1944). The data collected from these fields are within the Reynolds interval of the Smackover Formation; data from this study are summarized in Table 7.8.

Bliefnick and Kaldi (1996) stated that the Smackover Formation in the Walker Creek Field has an average absolute permeability of 30 mD. The Walker Creek Field is approximately 40 kilometres south of the TETRA Property.

There were 515 core analysis samples that were collected from 11 hydrocarbon wells on the TETRA Property; the average permeability for these samples was 53.3 mD (Eccles, et al., 2019). The results for the 515 core analysis samples are summarized in Table 7.9. As part of another core-sampling program that was conducted near the TETRA Property, 1,110 core analysis samples were collected from 22 hydrocarbon wells; the average permeability for these samples was 64.6 mD (Eccles, et al., 2019). The results for the 1,110 core analysis samples are summarized in Table 7.10.

Based on the available recent permeability data for the Smackover Formation underlying the TETRA Property, the Smackover Formation is likely to have permeability values less than 210 mD, with an average of 53.3 mD. The published permeability data for the Smackover Formation indicate higher permeability values; however, these data are for fields that do not underlie the TETRA Property, except for the McKamie-Patton Pool. Higher permeability values may be present underlying the southern portion of the TETRA Property within the McKamie-Patton Pool.

Table 7.7 Permeability Data from Smackover Formation (after Vestal, 1950).

Field Name	Geounit	Distance to TETRA Property	Number of Hydrocarbon Wells with Core Analysis	Minimum Permeability (mD)	Maximum Permeability (mD)	Average Permeability (mD)
Calhoun Field	Smackover Formation	30 km southeast	4	N/A	N/A	1,450
Buckner Field	Smackover Formation	20 km northeast	29	N/A	N/A	50
Dorcheat Field	Smackover Formation	70 km east	95	N/A	N/A	200
Mount Holly Field	Smackover Formation	60 km northeast	14	N/A	N/A	500 – 1,100
Schuler Field	Reynolds Member	45 km east	100	N/A	N/A	1,200
Snow Hill Pool	Smackover Formation	87 km northeast	N/A	N/A	N/A	1,700
McKamie-Patton Pool	Smackover Formation	Overlaps with TETRA Property	35	N/A	N/A	675
					Average	**868**

Table 7.8 Permeability Data from Smackover Formation (after Bruce, 1944).

Field Name	Number of Core-Analysis Samples	Average Permeability (mD)
Dorcheat Pool	23	155
Schuler Field	15	1,500
McKamie-Patton Pool	17	400

Table 7.9 Core Samples with Permeability on the TETRA Property (after Eccles, et al., 2019).

Hydrocarbon Well ID	Number of Core-Analysis Samples	Continuously Cored Interval (m)	Continuously Cored Interval (feet)	Minimum Permeability (mD)	Maximum Permeability (mD)	Average Permeability (mD)
Lester 1	34	13.1	43	0	43	2.6
Carter Moore 1	45	13.9	45.5	0	270	45.5
Lowery 1	47	9	29.5	0	1,368	93.7
Cornelius 1	13	2.4	8	0	3.7	0.3
Vera Dixon 1	44	6.4	21	0	76	3.3
Neal Ellis 1	64	18.6	61	0	115	13.3
Big Six Oil Company	21	6.1	20	0	24	3.6
Fina McGoogan 1	28	10.5	34.5	0	259	15.2
MKP#17	113	41.8	137	0	2,330	146.1
MKP#19	106	43.6	143	0	2,590	209
Total	**515**	**165.4**	**542.5**		**Average**	**53.3**

Table 7.10 Core-Analysis Samples with Permeability Near the TETRA Property (after Eccles, et al., 2019).

Hydrocarbon Well ID	Number of Core-Analysis Samples	Continuously Cored Interval (m)	Continuously Cored Interval (feet)	Minimum Permeability (mD)	Maximum Permeability (mD)	Average Permeability (mD)
Elrod Reeves	34	5	16.5	0	173	33.5
Grace 1	8	2.1	7	0	412	133.1
Groce 1	61	6.1	20	0	168	30.4
Stephens Estate 1	16	4.4	14.5	0	4	0.3
Robert Stevens 1	15	4	13	0	250	55.6
Andrew Nix 1	36	5.5	18	0	90	6.2
Reeves 1	20	4.1	13.5	0	56	9.8
Strange 1	18	2.7	9	0	0	0
Elsie Shurtleff 1	5	3.7	12	0	0	0
Eddy Horton 1	42	7.9	26	0	111	3
Renfro Longion and Lewis 1	62	17.4	57	0	2,670	198.1
Byrd 1	8	13.7	45	0	675	126.9
Dickson 3	34	6.6	21.5	0	198	34.5
Moore Estate 1	70	10.5	34.5	0	4.08	0.3
Oliver Layne 1	5	1.2	4	0	0	0
Longino 1	3	0.6	2	0.8	37	13.5
MKP#2	101	30.5	100	0	30	1.4
MKP#4	136	41.8	137	0	1,765	108.6
MKP#7	161	48.5	159	0	5,980	227.7
MKP#8	69	67.1	220	0	2,292	180.2
MKP#10	106	36.9	121	0	2,730	113.5
MKP#23	100	58.8	193	0	997	144.1
Total	**1,110**	**379**	**1,243.5**		**Average**	**64.6**

7.4.3 Transmissivity and Storativity Assessment

The Upper Smackover Member zone acts as a confined aquifer; therefore, the specific storage of the aquifer can be calculated using the compressibility of the brine in the aquifer, the compressibility of the aquifer, the density of the brine, the force applied by gravity, and the porosity of the aquifer. The formula for specific storage (S_s) from Kruseman and de Ridder (1994) is as follows:

$$S_s = \rho g (\alpha + n\beta)$$

Where:

ρ = density of the brine, Mass/Length^3 (M/L^3)

g = gravitational force, Force/L^3

α = compressibility of the aquifer, L^2/Force

n = porosity

β = compressibility of the brine, L^2/Force

The density of the brine was measured to be 1.2 grams per cubic centimetre (g/cm^3) during a 2018 brine sampling program at the TETRA Property (Eccles, et al., 2019). The aquifer compressibility and brine compressibility of 2.63×10^{-11} metres squared per Newton (m^2/N) and 6.59×10^{-11} m^2/N, respectively, were taken from literature on the Smackover Formation (Earlougher, 1977). The effective porosity is 10%, as determined in Section 7.4.1 of this report. The specific storage is therefore estimated to be 3.87×10^{-7} m^{-1}.

Storativity is a dimensionless measure of the volume of water that will be discharged from an aquifer per unit area of the aquifer and per unit reduction in hydraulic head. In the absence of water-level drawdown data, the storativity of the aquifer can be calculated by multiplying the average aquifer thickness of 200 feet (61.5 m) by the previously calculated specific storage of 3.87×10^{-7} m^{-1}. The storativity of the Smackover aquifer is estimated to be 2.4×10^{-5}.

The hydraulic conductivity of the aquifer (K) was estimated using a formula from Fetter (1988):

$$K = K_i (\rho g/\mu)$$

Where:
K_i = permeability of the aquifer, L^2
ρ = density of the brine, M/L^3
g = gravitational force, Force/L^3
μ = dynamic viscosity of the brine, Mass/(Time × Length) [M/(T·L)]

The average permeability of the aquifer was determined to be 53.3 millidarcies (mD) in Section 7.4.2 of this report. The density of the brine was measured to be 1.2 g/cm^3 (Eccles, et al., 2019). With a temperature of 70°C for the Upper Smackover Member and a brine density of 1.2 g/cm^3, the dynamic viscosity of the brine is determined to be 1.4 centipoise (Cabot Corporation, 2014). Using these parameters and the formula above, the average hydraulic conductivity of the Upper Smackover Member is 4.4×10^{-7} metres per second (m/s).

The transmissivity of the aquifer can be determined by multiplying the hydraulic conductivity by the thickness of the aquifer; using a hydraulic conductivity of 4.4×10^{-7} m/s and an average aquifer thickness of 200 feet (61.5 m), the average transmissivity of the Upper Smackover Member is 2.3 m^2/day.

7.4.4 Hydrogeological Summary

Various studies have characterized the hydrogeological properties of the Smackover Formation, but most data focused on the Upper Smackover Member – and more specifically – the Reynolds interval, as fewer hydrocarbon wells were drilled deep enough to penetrate the middle and lower parts of the Smackover Formation.

The Smackover Formation hydrogeology characterization study relied on historical data. An assessment of QA-QC procedures employed in the acquisition of the historical data was not possible. However, it is the QPs opinion that the porosity and permeability core plug measurements utilized standard and appropriate laboratory techniques. In addition, the well wireline density and resistivity logs represent standard geophysical tools in the oil and gas industry and provide appropriate downhole assessments of porosity and permeability in relation to stratigraphy (gamma-ray measurements).

Based on the available historical data for the Smackover Formation underlying the TETRA Property, the Upper Smackover Member is likely to have an average effective porosity of 10%, and permeability values that are less than 210 mD, with an average of 53.3 mD.

The published data for the Smackover Formation indicate higher porosity and permeability values; however, these data are for oilfields that do not underlie the TETRA Property, apart from the McKamie-Patton Pool. The QP notes, therefore, that higher porosity and permeability may be present underlying the southern portion of the TETRA Property within the McKamie-Patton Pool.

In the absence of water-level drawdown data, the storativity of the aquifer can be calculated by multiplying the average aquifer thickness (200 feet, or 61.5 m) by the calculated specific storage of 3.87×10^{-7} m^{-1}. The thickness of the Upper Smackover Member is reasonable and correlates with historical descriptions of the Smackover Formation and with the wireline logs in well MKP A-47, which was drilled by TETRA. Hence, the storativity of the Upper Smackover Member aquifer is estimated to be 2.4×10^{-5}.

The transmissivity of the aquifer can be determined by multiplying the hydraulic conductivity by the thickness of the aquifer. Using the calculated hydraulic conductivity of 4.4×10^{-7} m/s and an average aquifer thickness of 200 feet (61.5 m), the average transmissivity of the Upper Smackover Member is estimated to be 2.3 m^2/day.

To conclude and in the QPs opinion, the confined aquifer units within the Upper Smackover Member constitutes an aquifer of interest at the TETRA Property. The regional hydrogeological characteristics of the Smackover Formation were determined via analysis of historical core samples and well logs and demonstrate that the Upper Smackover Member has reservoir and hydrogeological properties sufficient for reasonable prospects of potential economic extraction of native brine.

As the project evolves, it is advised that TETRA conduct new porosity and permeability core plug measurements to provide additional confidence in the historical values and conduct pressure surveys toward the development of a formation-water model as part of the next phase of aquifer assessment and potential development.

8 Sample Preparation, Analyses and Security

During TETRA's 2022 Smackover Formation brine sampling program at the MKP A-47 well, a total of 17 brine and QA-QC samples were collected, or prepared, and couriered to ACZ and WetLab (Table 8.1). The text that follows describes the sample preparation, security, analytical work, and QA-QC protocols adopted during the sampling program as performed by TETRA.

Table 8.1 Description of Smackover brine samples collected at MKP A-47.

Sample ID	Perforation horizon	Date collected	No. of jugs	Laboratory	Sample type
TTI-A47-G2A-S	9,288-9,308 and 9,314-9,338	April 18, 2022	1	ACZ	Original sample
TTI-A47-G3-S	9,361-9365; 9,372-9,380; 9,386-9,396; and 9,404-9,414	April 21, 2022	2	ACZ	Original and duplicate samples
TTI-A47-G3-S	9,361-9365; 9,372-9,380; 9,386-9,396; and 9,404-9,414	April 21, 2022	1	AGAT	Sample colected for independent analysis by the QP
TTI-REV1B	/	/	1	ACZ	Sample Standard
TTI-REV-2B	/	/	1	ACZ	Sample Standard
TTI-3-REV1A	/	/	1	ACZ	Sample Standard
TTI-BW	/	/	1	ACZ	Blank sample
TTI-A47-G2A-S	9,288-9,308 and 9,314-9,338	April 18, 2022	1	WetLab	Original sample
TTI-A47-G3-S	9,361-9365; 9,372-9,380; 9,386-9,396; and 9,404-9,414	April 21, 2022	2	WetLab	Original and duplicate samples
TTI-REV1B	/	/	1	WetLab	Sample Standard
TTI-REV-2B	/	/	1	WetLab	Sample Standard
TTI-3-REV1A	/	/	1	WetLab	Sample Standard
TTI-BW	/	/	1	WetLab	Blank sample
TTI A47 G4-S	9,432-9,484	May 1 2022	1	ACZ	Original sample
TTI A47 G4-S	9,432-9,484	May 1 2022	1	WetLab	Original sample

8.1 Sample Preparation

Of the 17 samples collected, a total of 6 'original' samples were collected with the remaining 11 samples utilized for QA-QC work.

The sample collection was completed, on behalf of TETRA, by GBMc & Associates from Bryant, AR (with guidance from Galvanic Energy, LLC from Oklahoma City, OK). GBMc & Associates are an environmental consulting company with experience in hydrological studies and regulatory compliance. Galvanic Energy is a privately held exploration company with experience in geologic and reservoir properties of oil and gas plays.

A series of wireline logs were completed to ensure the brine perforation window depths were completed within the Smackover Formation. Density and chloride tests were conducted to further establish that the well was pumping Smackover Formation brine. A sufficient volume of Smackover Formation brine was pumped prior to the sampling process to ensure representative samples were collected.

Observations of the brine during the sampling program was that the Smackover brine contained minimal hydrocarbons (<3%) and sediment (<1%).

The assay samples were collected by extracting brine directly from the well MKP A-47 wellhead. The brine was placed directly from the wellhead into eight 250 mL sample bottles with screw-on caps (n=2-litres). Four sample bottles were couriered to both ACZ and WetLab.

In addition to the assay samples, a total of approximately 3,456 gallons (13,083 litres) of Smackover brine was collected into thirty 1-litre bottles, one 5-gallon sample bottle (19 litres), nine 1-gallon sample bottles (34 litres) and thirteen 1,000-litre totes for mineral processing test work at the TETRA Technology Centre for Testing.

Once the fluid was settled, and in all cases, only a very thin film of oil was observed in the sample bottles and totes, attesting to the high brine to oil ratio. The 1-litre assay jugs were labelled using TETRA's procedure and the sample identification, date, and time of sample collection was recorded.

TETRA collected brine samples at designated sampling intervals, or perforation points, to test the bromine and lithium contents at different well depth intervals. The procedure described above was followed at each the 3 perforation windows in which Smackover brine was collected.

8.2 Sample Security

Once the sampling program at each perforation window was completed, the sample bottles were checked to verify the label information and that the sample bottles were properly closed. The sample bottles were stored in a cooler, which was sealed for courier shipping to the laboratories.

GBMc & Associates (with guidance from Galvanic Energy, LLC) coordinated the physical collection and transportation of samples to the local courier company for rush delivery to ACZ Laboratories in Steamboat Springs, CO; and WetLab in Sparks, NV. The laboratories were instructed to confirm receipt of the samples and provide a statement pertaining to the condition of the samples upon receipt. Signed Chain of Custody forms were received for all samples. The samples were then coded into the respective laboratories sample stream for analysis.

8.3 Analytical Methodologies

ACZ (www.acz.com) is in Steamboat Springs, Colorado (2773 Downhill Drive, Steamboat Springs, CO 80487). They specialize in the analysis of trace level contaminants in water, soil, sediment, sludge, waste, biota, and tissue. ACZ Laboratories has over 40 years of experience serving the oil, gas, and energy industries. ACZ is a NELAP accredited (Utah) and has conformed with the 2016 TNI Standard. They also have State certifications for: Alaska, Arizona, Arkansas, California, Colorado, Idaho, Michigan, Montana, Nevada, New Mexico, Oklahoma, Oregon, South Carolina, Texas, and Washington. ACZ has accreditation by law in accordance with the Arkansas Code Ann. § 8-2-201 et seq., the State Environmental Laboratory Accreditation Program Act.

The analytical techniques employed by ACZ are described as follows.

- Anions by chromatography: Anions of interest, which include bromide (Br-), chloride (Cl-), fluoride (F-), and sulphate (SO42-) were analyzed by ACZ's analytical code: M300.0 ion chromatography. The aqueous sample, carried in potassium hydroxide concentrate (KOH) eluent, is transported through a series of ion exchangers in which the anions of interest are separated based on the rate at which they migrate through. A conductivity cell then measures the electrical conductivity of sample ions. The calibrated range is two orders of magnitude, and the range used for each anion is based on a 25 µL sample loop (Bromide 0.25-5 mg/L; Fluoride 0.25-5 mg/L; Chloride 2.5-100 mg/L; Sulfate 2.5-100 mg/L). Dilution factors for bromine were generally 2,000. The minimum detection limit for bromine is 100 mg/L Br.

- Trace Metals by ICP-AES and ICP-MS: The samples were prepared using total hot plate digestion (EPA M200.2). Using analytical code EPA M200.7 ICP-AES, ACZ analyzed the following elements: B, Ca, Fe, K, Li, Mg, and Na. Using analytical code EPA M200.8 ICP-MS, ACZ analyzed the following elements: Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Sn, Th, Ti, U, V, and Zn. Dilution factors were generally 50. The minimum detection limit for lithium is 0.4 mg/L Li.

- In addition to ion chromatography and trace metals by ICP, ACZ analyzed total phosphorous by semi-automated colorimetry using auto ascorbic acid digestion (EPA M365.1).

Western Environmental Testing Laboratory (WetLab) has three locations in Nevada. TETRA couriered their brine samples to Sparks, Nevada (475 E. Greg St, Sparks, NV 89431). WetLab specializes in soil, hazardous waste, and water analysis. WetLab has State certifications for Nevada, California, Idaho, and Wyoming, and are on the Bureau of Reclamation's master list of approved laboratories.

Primary to this technical report and initial mineral resource estimation, the analytical techniques involved routine water analysis, determination of bromine by ion chromatography and total metals by ICP-AES and ICP-MS. The techniques employed by WetLab are described as follows.

- Routine water analysis: Includes determination of total hardness (SM 2340B), pH (SM 4500-H+ B), temperature at pH (SM 2550B), total dissolved solids (SM 2540C), and electrical conductivity (SM 2510B). Anions were measured by chromatography using cod EPA 300.0 and included Cl-, F, and SO_4^{2-}.

- Ion-Chromatography (EPA M300.0) method: Describes the determination of bromide, chloride, chlorite, fluoride, and sulfate via the process described in the previous text. The calibrated range is two orders of magnitude, and the range used for each anion is based on a 25 µL sample loop. A bromine dilution factor of 2,000 was implemented where the target analyte exceeded the calibration range. The minimum "reporting limit", which is "minimum 3x the minimum detection limit" for bromine is 300 mg/L Br.

- Trace Metals by ICP-AES (EPA 200.7). Sample preparation utilized EPA 200.2, total metals digestion for brine. The following elements were reported by ICP-AES: Al, Ba, B, Ca, Cd, Cr, Co, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, Sr, and Zn. A dilution factor of 20 was used for lithium. The minimum "reporting limit", which is "minimum 3x the minimum detection limit" for bromine is 10 mg/L Li.

The QP Smackover brine sample was analyzed for 1) trace elements at AGAT Laboratories in Edmonton, AB, and 2) bromine at the Saskatchewan Research Council (SRC) in Saskatoon, SK. AGAT is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. and/or Standards Council of Canada. The SRC is accredited in accordance with ISO/IEC 17025:2017.

At AGAT, a total of 27 metallic elements were analyzed as total metals by ICP-OES after an acid digestion procedure. The minimum limit of detection for lithium at AGAT is 1.0 mg/L Li. At the SRC (via AGAT), bromine was analyzed by CP-MS (Chm-522) using an Agilent 7900 ICP-MS. This method follows Standard Methods for the Examination of Water and Wastewater, Part 3125, APHA-AWWA-WEF; without modification.

8.4 Quality Assurance – Quality Control

The QA-QC program conducted by TETRA at the MKP A-47 well sampling program consisted of:

- A total of 2 duplicate samples, in which a single duplicate pair of samples was analyzed at both ACZ and WetLab.
- A total of 6 sample standards, 3 of which were analyzed at both ACZ and WetLab.
- A total of 2 blank samples, in which a single blank sample was analyzed at both ACZ and WetLab.
- A total of 8 Laboratory check samples, in which case 4 duplicate brine samples were analyzed at both ACZ and WetLab.
- A total of 2 samples were re-analyzed at ACZ upon TETRA's request.
- A single sample was collected, and couriered, to the QP in Edmonton, AB, Canada for independent analysis at a laboratory locale to the QP.

8.4.1 Duplicate Samples

Two sets of duplicate samples were created in association with sample TTI-A47-G3-S, which was sampled at perforation window depths of 9,361-9,365; 9,372-9,380; 9,386-9,396; and 9,404-9,414 feet. Four individual samples, labelled TTI-A47-G3-S and TTI-A47-G3-S Rep were couriered to ACZ and WetLab for analyses.

The analytical results of the duplicate pairs are presented in Table 8.2 and have excellent analytical reproducibility with Br and Li RSD% values of 3.8% and 2.0% (ACZ) and 2.4% and 3.3% (WetLab), respectively.

Table 8.2 Comparison of the duplicate samples.

Sample ID	Lab	B (mg/L)	Ba (mg/L)	Br (mg/L)	Cl (mg/L)	Ca (mg/L)	Co (mg/L)	Fe (mg/L)	Pb (mg/L)	Li (mg/L)	Mg (mg/L)	Mn (mg/L)	K (mg/L)	Na (mg/L)
TTI-A47-G3-S	ACZ	330	55	5,010	193,000	37,100	0.105	17	0.234	474	2,830	50.8	6,590	78,000
TTI-A47-G3-S Rep	ACZ	323	52.9	5,290	192,000	36,700	0.11	48.8	0.135	461	2,820	52.1	6,430	76,700
	Average	327	54	5,150	192,500	36,900	0.11	33	0.18	468	2,825	51	6,510	77,350
	StDev	4.9	1.5	198.0	707.1	282.8	0.00	22.5	0.07	9.2	7.1	0.9	113.1	919.2
	RSD%	1.5	2.8	3.8	0.4	0.8	3.3	68.3	37.9	2.0	0.3	1.8	1.7	1.2
TTI-A47-G3-S	WetLab	333	42.8	5,800	205,000	39,400	<0.20	18.9	0.364	467	2,540	47.7	6,820	88,600
TTI-A47-G3-S Rep	WetLab	348	46.2	6,000	207,000	40,500	<0.20	77.2	0.346	489	2,650	49.8	7,160	87,200
	Average	341	45	5,900	206,000	39,950	/	48	0.36	478	2,595	49	6,990	87,900
	StDev	10.6	2.4	141.4	1414.2	777.8	/	41.2	0.01	15.6	77.8	1.5	240.4	989.9
	RSD%	3.1	5.4	2.4	0.7	1.9	/	85.8	3.6	3.3	3.0	3.0	3.4	1.1

8.4.2 Sample Standards

To further evaluate brine analytical accuracy, TETRA conducted a laboratory comparison using a certified Sample Standards for bromine and lithium as prepared by Inorganic Ventures in Christiansburg, VA. Inorganic Ventures is accredited to ISP 17034, General Requirements for the Competence of Reference Material Producers, ISO/IEC 17025, General Requirements for the Competence of Testing, and Calibration Laboratories, and is a ISC 9001 registered manufacturer. Three separate certified Sample Standards were prepared for TETRA:

- TTI-REV1B: Multi-analyte standard with lithium content of 500 ± 2.1 mg/L Li.
- TTI-REV2B: Multi-analyte standard with lithium content of 310 ± 1.3 mg/L Li.
- TTI-3-REV1A: Bromine standard with 6,750 ± 30.0 mg/L Br.

A total of 6 certified Sample Standards were inserted into the sample stream by TETRA; 2 Li and 1 Br Sample Standards were sent to both ACZ and WetLab. The analytical results of the Sample Standards are presented in Table 8.2 and Figure 8.1. The combined Inorganic Ventures, ACZ and WetLab RSD%'s for the 6,750 mg/L bromine Sample Standard is 6.3% (Table 8.2). The combined Inorganic Ventures, ACZ and WetLab RSD%'s for the 310 mg/L and 500 mg/L lithium Sample Standards are 9.4% and 8.4%, respectively (Table 8.3). All Sample Standard analytical results plot within two standard deviations of the certified Sample Standard bromine and lithium values (and the analytical mean; Figure 8.1).

It is concluded that there is good data quality for TETRA's 2022 bromine- and lithium-brine analytical results and at both independent laboratories. The laboratories used by TETRA are within error of the certified Sample Standards, and therefore, the analytical data presented are suitable for reporting purposes and for use in maiden mineral resource estimations reported in this technical report.

8.4.3 Blank Samples

A single Sample Blank composed of bottled water was inserted into the sample stream and yielded bromine and lithium analytical results at below the minimum limit of detection. This is an accurate result as the Sample Blank contained no bromine or lithium.

8.4.4 Laboratory Check Samples

Four sets of laboratory-check samples were analyzed at ACZ and WetLab. The lab check analytical results are presented in Figure 8.3. The results show that the ACZ bromine results has a wider range of bromine values (1,850 to 5,290 mg/L Br; RSD% is 38%) in comparison to WetLab (5,000 to 6,000 mg/L Br; RSD% is 8%).

Table 8.2 Sample Standard analytical results.

Standards	Lab [1]	Li (mg/L)	Li error (mg/L)
TTI-REV1B	Inorganic Ventures	500	± 2.1
TTI-REV1B	WetLab	588	
TTI-REV1B	ACZ	527	
	Minimum	500	
	Maximum	588	
	Average	538.3	
	Standard deviation	45.1	
	RSD%	8.4	

Standards	Lab [1]	Li (mg/L)	Li error (mg/L)
TTI-REV2B	Inorganic Ventures	310	± 1.3
TTI-REV2B	WetLab	370	
TTI-REV2B	ACZ	323	
	Minimum	310	
	Maximum	370	
	Average	334.3	
	Standard deviation	31.6	
	RSD%	9.4	

Standards	Lab [1]	Br (mg/L)	Br error (mg/L)
TTI-3-REV1A	Inorganic Ventures	6,750.00	± 30
TTI-3-REV1A	WetLab	6,000	
TTI-3-REV1A	ACZ	6,650	
	Minimum	6,000	
	Maximum	6,750	
	Average	6,466.7	
	Standard deviation	407.2	
	RSD%	6.3	

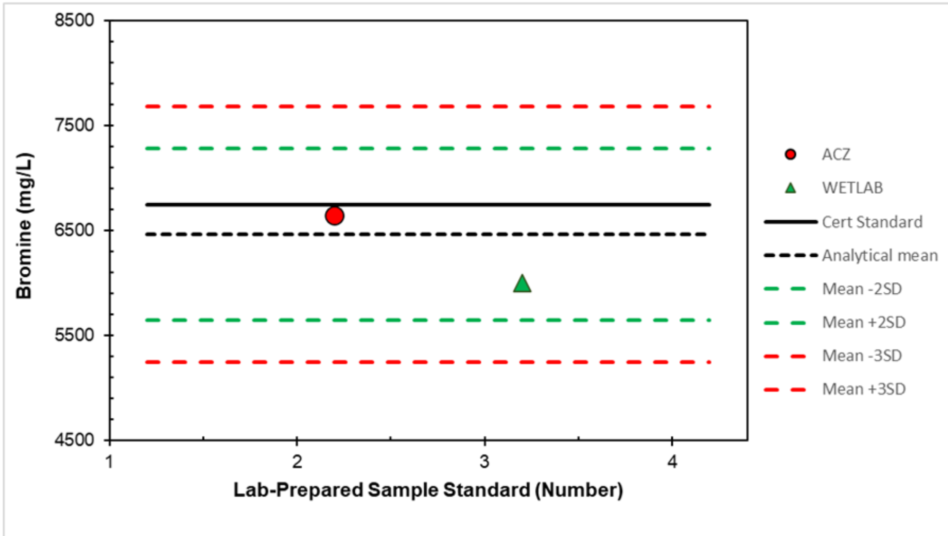
[1] Inorganic Ventures prepared the certified sample standards

The same variation in lab data is noted for lithium, where the ACZ analytical results have a wider range (403 to 479 mg/L Li; RSD% is 8%) in comparison to WetLab (465-489 mg/L Li; RSD% is 2%). The main reason for the discrepancy between the ACZ and WetLab analytical results is related to the analysis of TETRA sample TTI-A47-G4-S. At ACZ, this sample initially yielded 1,850 mg/L Br and 403 mg/L Li, which is significantly lower than the measured values at WetLab (5,800 mg/L Br and 477 mg/L Li), and in comparison, to the TETRA dataset in general (see Section 7.2).

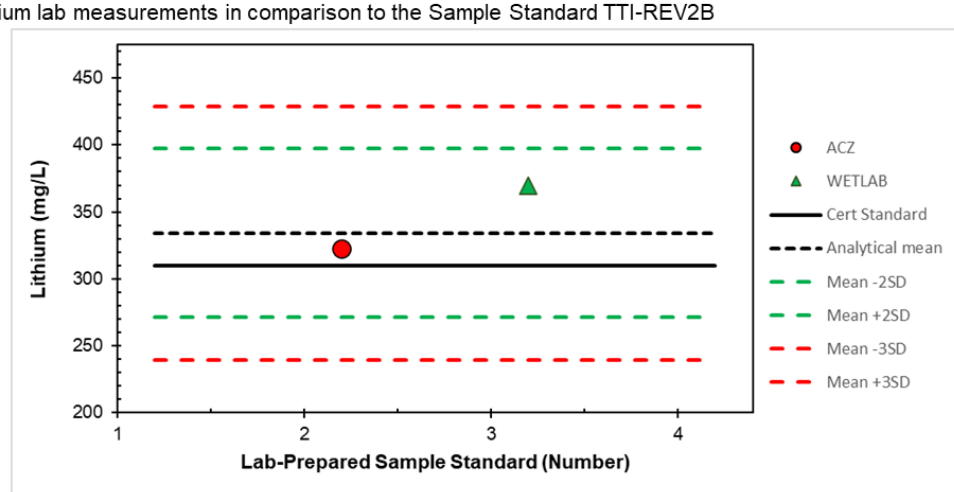
Accordingly, TETRA reanalyzed sample TTI-A47-G4-S at ACZ. The re-run analysis yielded <5 mg/L Br and 522 mg/L Li. Upon further investigation of the laboratory certificates by the QP, it was noticed that the re-run analysis used similar analytical equipment, but employed different dilution factors, and therefore, minimum limits of detection (Table 8.3). Hence, and in the QPs opinion, the initial analysis, and the re-run analysis, on brine from sample TTI-A47-G4-S at ACZ are not reliable. The QP is not sure why the analyses are rogue; possibilities include sample contamination in the field or at the lab, or erroneous analyses? To conclude, the WetLab analysis on sample TTI-A47-G4-S is considered more reliable for the mineral resource estimation process.

Figure 8.1 Bromine and lithium lab measurements in comparison to the sample standards.

A) Bromine lab measurements in comparison to the Sample Standard TTI-3-REV1A



B) Lithium lab measurements in comparison to the Sample Standard TTI-REV2B



C) Bromine lab measurements in comparison to the Sample Standard TTI-REV1B

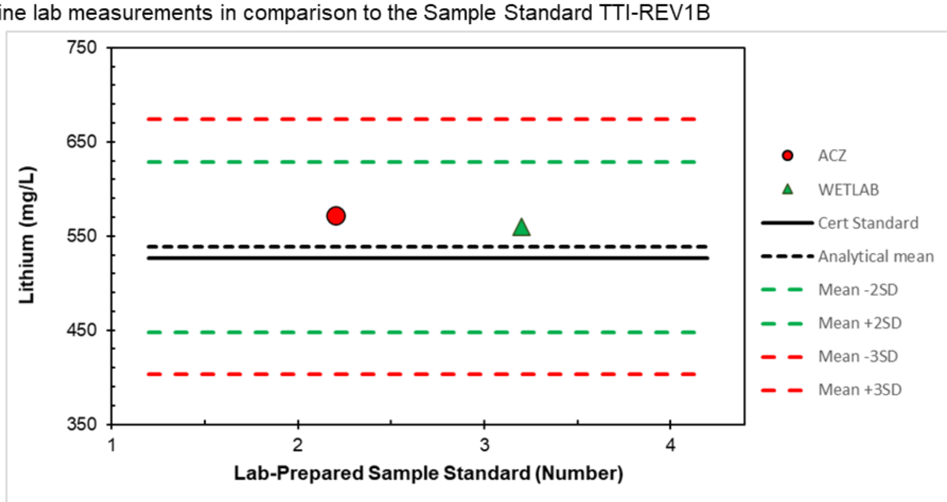


Figure 8.3 Laboratory bromine and lithium analytical comparison.

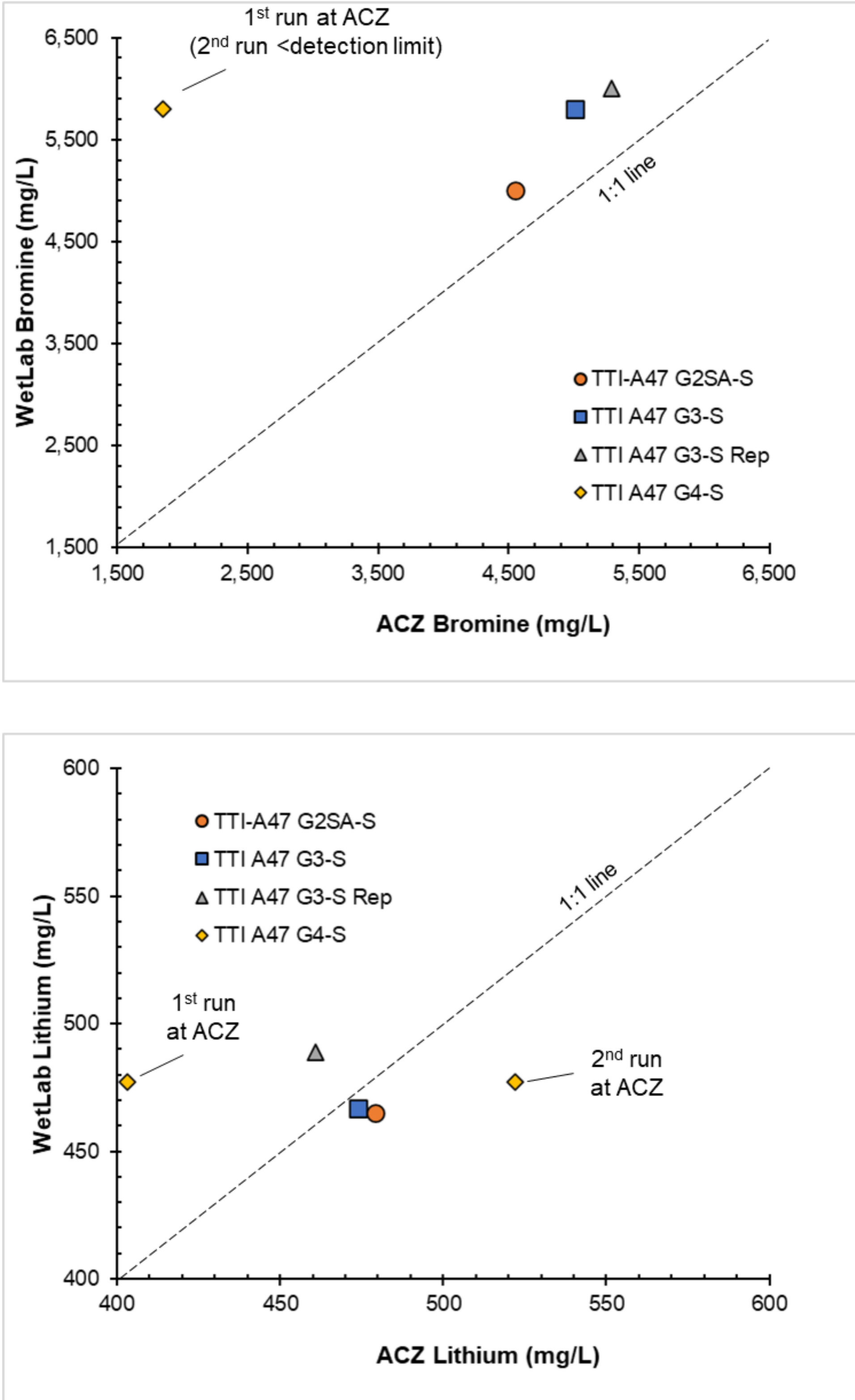


Table 8.3 Comparison of bromine and lithium analytical work conducted on brine sample TTI-A47-G4-S.

Sample ID	Lab	Analytical notes	Br (mg/L)	Br dilution factor	Minimum detection limit	Cl (mg/L)	Cl dilution factor	Minimum detection limit	Li (mg/L)	Li dilution factor	Minimum detection limit
TTI-A47-G4-S	ACZ	Original sample analysis	1,850	2,000	100	74,300	2,000	800	403	500	4.00
TTI-A47-G4-S	ACZ	Reanalyzed sample analysis	<5	100	5.00	1	1	0.40	522	20	0.16
TTI-A47-G4-S	WetLab	Original sample analysis	5,800	2,000	300	206,000	2,000	2,000	477	20	2.00

8.5 Adequacy of the Sample Collection, Preparation, Security and Analytical Procedures

Apart from a single Smackover brine sample (TTI-A47-G4-S), which was analyzed at ACZ, the QP has reviewed the sample preparation, security, analytical procedures, QA-QC and found no significant issues or inconsistencies that would cause one to question the validity of the data. The brine sample TTI-A47-G4-S was also analyzed at WetLab, which in contrast to ACZ, produced valid analytical results. Hence, the QP is generally satisfied with the adequacy of the procedures as implemented by TETRA.

Areas for improvement within TETRA's present QA-QC protocol include 1) bolstering the number of duplicate samples, sample standards, and blank samples, and 2) randomizing sample IDs of the original and QA-QC samples. With respect to the latter recommendation, the QP observed that duplicate pairs submitted by TETRA to the laboratories had the same sample IDs and are therefore not randomized within the analytical sample stream (e.g., the samples TTI-A47-G3-S and TTI-A47-G3-S Rep represent one duplicate pair).

Lastly, if future re-run analyses are required, TETRA should follow the same analytical protocols that were used in the initial analyses to make valid comparisons in the analytical results.

The QP acknowledges that the analytical methods carried out by the laboratories is standard and routine in the field of brine geochemical analytical test work. All work conducted has been done using accepted standard protocols, and generally accepted practices and methods. The analytical results of the duplicate pairs, certified sample standards, and sample blanks show that the analytical work has a high degree of repeatability and accuracy.

To conclude, it is the QP's opinion that TETRA's Smackover Formation aquifer brine analytical results produced from these laboratories provides reasonable and sufficient data for the mineral resource estimation work presented in this technical report.

9 Data Verification

TETRA's Br- and Li-brine TETRA Property represents an early-stage exploration project. The primary datasets evaluated by the QP in the preparation of this geological introduction technical report include publicly available oil and gas well data, and historical brine geochemical data related to the general TETRA Property area. A personal site inspection was completed by Mr. McGowen P.E. on April 18, 2022.

9.1 Stratigraphic 3-D Model Verification Procedure

The volume of the Upper Smackover Member underlying the TETRA Property was calculated by creating a 3-D model and wireframing the Smackover Formation aquifer domain. The QP utilized oil and gas well data from the AOGC and Arkansas Geological Survey Information Circular IC-14, which includes an electronic reprint of Vestal (1950) and a stratigraphic horizon pick file with 3,904 records.

During the QPs review of the top of Upper Smackover Member horizon picks, approximately 30 picks (<1%) were cited as being incorrect given the general flat and lateral continuity of the Upper Smackover surface (Figure 9.1). In these instances, the erroneous picks were removed from the dataset for the purpose of wireframing the Upper Smackover Member surface. It is the QPs opinion that this was the best course of action because it improved the overall wireframed surface, created a uniform 3D geological surface, and avoided an over-estimation in the aquifer volume.

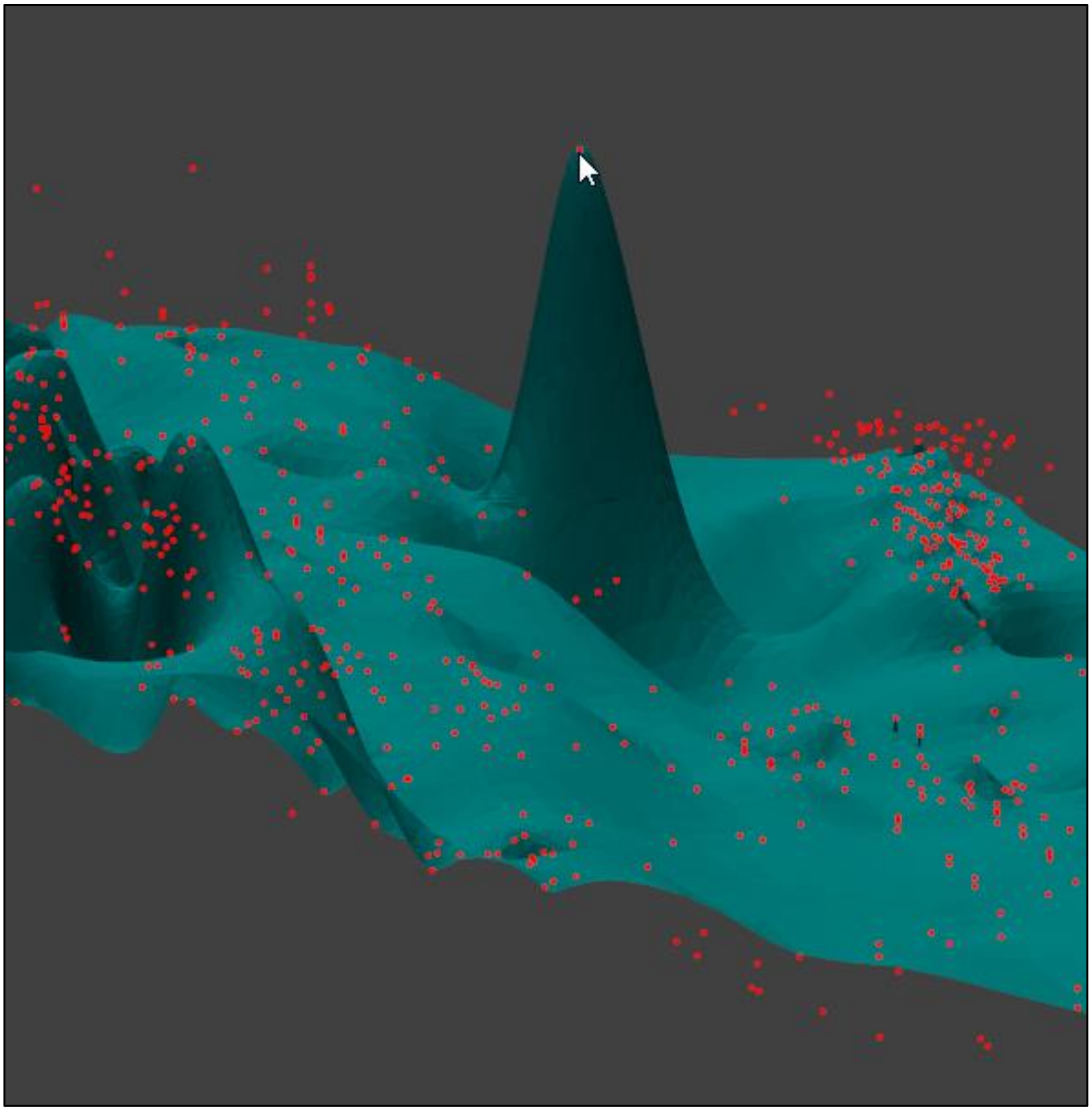
As a second data verification step, the QP compared the 3-D geological model against numerous stratigraphic and structural isopach studies of the Smackover Formation (e.g., Vestal, 1950; Moore and Druckman, 1981; Troell and Robinson, 1986; Wade et al., 1987; Pitman, 2010). There were no issues to indicate a discrepancy between the geological model created and the historical evaluations, and therefore the Upper Smackover Member surface generated is deemed appropriate and reliable by the QP for the context of this technical report.

9.2 Evaluation of Porosity

An Upper Smackover Member mean porosity of 9.0% was derived from historical work that includes porosity measurements on core plug samples (i.e., effective porosity in a confined aquifer that equivalent to specific yield). As a verification check, TETRA engaged an independent contractor, Hydrogeological Consulting Limited (HCL) from Edmonton, AB to complete a study on the hydrogeological characterization of the Smackover Formation aquifer at the TETRA Property.

The QP has reviewed and discussed the porosity review provided by HCL, and the QP is satisfied to take ownership of the porosity information in the context of preparing a mineral resource estimation. In the opinion of the QP, the average porosity reflects a conservative approach to define porosity of the Upper Smackover Member at this stage of the hydrogeological evaluation.

Figure 9.1 An example an erroneous Upper Smackover Member stratigraphic top horizon well pick. The red dots represent the three-dimensional location of the picks within, and adjacent to, the TETRA Property. The erroneous pick is highlighted with a white arrow.



9.3 Geochemical Data Verification Procedure

The QP has reviewed the known historical and TETRA-generated geochemical datasets associated with the general TETRA Property area. Apart from a single analysis, sample TTI-A47-G4-S (analyzed at ACZ), no discrepancies were observed in the dataset. The QP removed the single outlier analytical result from the dataset with respect to the resource estimation process. Minus this single outlier analytical result, the dataset yielded RSD% values of 10% and 2% for bromine and lithium, which corresponds to a good degree of repeatability of the analytical results.

In reviewing the brine geochemical data, the QP concludes that the historical and TETRA samples were collected in a methodology that is standard and applicable to bromine- and lithium-brine evaluation. The bromine and lithium were analyzed by ion chromatography and ICP-OES, respectively, which are standard analytical techniques and industry standards for the measurement of bromine- and lithium-in-brine.

9.4 Qualified Person Site Inspection

Mr. McGowen, P.E. performed a personal QP site inspection at the TETRA Property on April 18, 2022. The QP was able to verify the infrastructure at the property, the geological setting, and the mineralization that is the subject of this technical report. Accordingly, Mr. McGowen takes responsibility for the QP site inspection discussion presented in this Section. The QP observed:

- The MKP A-47 well site, which was accessed from Highway 371 North to Columbia Road 1, 7 miles (11.2 km) north of Taylor, Ark., then west on Columbia Road 1 for 6 miles (9.7 km) to the well.

- Drilling Permit applications and the well site inspection form to verify the drilling lease and unit acreage and the well drilling approval.

- Mission Creek Resources LLC oil and gas operations within the McKamie-Patton Field, which includes well MKP A-47, and a network of pipelines and facilities west of, and in conjunction with, the MKP A-47 well.

- The active well equipment at well MKP A-47, which included a mast and swabbing unit, to access the Smackover Formation aquifer brine (Figure 9.2).

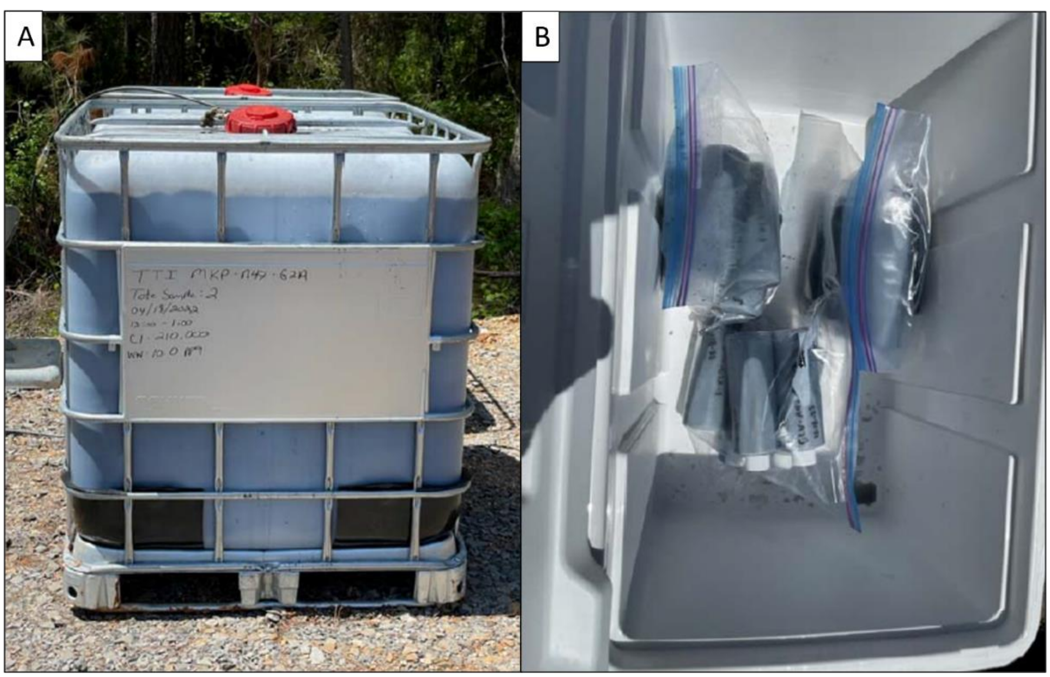
- The active brine sampling program in which Smackover Formation brine was being recovered from well MKP A-47. At the time of the personal inspection, TETRA was sampling Smackover brine from a perforation depth interval of 9,288 to 9,338 feet (2,831 to 2,846 m), which is equivalent to TETRA's brine sample TTI-A47-G2A-S.

- Verification of the collection of brine at wellhead by GBMc & Associates (as commissioned by TETRA to oversee the brine sampling program). Individual assay brine samples and 1,000-litre tote samples were observed. The samples were properly labelled with sample ID, tote number, date, time, and in-field measurements of the chlorine content (Figure 9.3).

- Geological information that included a top of Smackover structure map and a net Smackover pay isopach map intended to delineate best target locations to test the Smackover Formation brine.

Figure 9.6. Swab Unit on the MKP A-47 well location 4-18-22.

Figure 9.7. Water collection from well MKP A-47. A/ Tote Sample 2 4/18/22; B/ Collected water samples from Tote 2 4/18/22.



9.5 Independent Geochemical Analysis of TETRA's Smackover Brine

Mr. McGowen, P.E. collected a duplicate brine sample that correlates with TETRA's sample TTI-A47-G3-5 and couriered the sample to the senior author and QP of this technical report. The QP relabelled the sample to RE22-TT-TP001. The QP observed the brine sample physically contained minimal hydrocarbons (approximately 2%) and had no visually identifiable sediment. The brine sample smelled like other hypersaline, H_2S-laden deep subsurface brine samples that have been collected by the QP in Arkansas and other international locations.

The brine sample was delivered by the QP to AGAT Laboratories in Edmonton, AB where it was analyzed by ICP-OES for trace metals and split for bromine analysis at the Saskatchewan Research Council in Saskatoon, SK by ICP-MS (see Section 8.3).

The independent analytical results of sample RE22-TT-TP001 are presented in Table 9.1 and yielded 5,500 mg/L Br and 390 mg/L Li. Hence, the QP was able to independently analyze and validate the bromine- and lithium-brine mineralization at the TETRA Property in southern Arkansas.

Table 9.1 presents a comparison between the TETRA analytical results of sample TTI-A47-G3-5 and the QP analytical results of RE22-TT-TP001. The comparison shows:

- Bromine values are nearly identical between the TETRA results (5,010 to 6,000 mg/L Br; n=4 analyses) and the QP result (5,500 mg/L Br). The percent variation between the averaged TETRA analyses and the QP analytical result is 0.5%.

- The QP analyzed lithium (390 mg/L Li) is lower than the TETRA analytical results (461 to 489 mg/L Li; n=4 analyses) with a percent variation of 21% (Table 9.1).

9.6 Limitations

The historical, deep Smackover Formation wells were typically drilled as vertical wells (-90°). Given the depth of these wells, horizontal deviation of the well more than likely occurred. In some cases, surface and downhole well coordinates are provided but most of the historical records does not include directional survey information.

Because the main oil and gas reservoir target is situated within the Upper Smackover Member (i.e., Reynolds), most of the wells were not drilled deeper and less stratigraphic information is available at depth. For example, in comparison to over 3,900 Upper Smackover Member surface horizon picks in the general TETRA Property region, there are significantly fewer stratigraphic picks for the Middle Smackover Member (approximately 20 well picks) and Lower Smackover Member (approximately 5 well picks). This information is summarized in Section 11 where the 3D geological model is described. Hence, the lowermost Middle Smackover Member surface within the 3D geological model has a lower level of confidence in comparison to the Upper Smackover Member surface.

Table 9.1 Comparison of the QP-analyzed versus TETRA-analyzed bromine and lithium contents of the Smackover Formation brine at the TETRA Property.

Sample ID	Well name	Lab	Br (mg/L)	Li (mg/L)
RE22-TT-TP001 (Duplicate of TTI-A47-G3-5)	MKP A-47	SRC	5,500	/
RE22-TT-TP001 (Duplicate of TTI-A47-G3-5)	MKP A-47	AGAT	/	390
TTI-A47-G3-S	MKP A-47	ACZ	5,010	474
TTI-A47-G3-S Rep	MKP A-47	ACZ	5,290	461
TTI-A47-G3-S	MKP A-47	WetLab	5,800	467
TTI-A47-G3-S Rep	MKP A-47	WetLab	6,000	489
	TETRA analytical result averages		5,525	473
	QP analytical results		5,500	390
	Percent variation between the TETRA averaged results and the QPs analytical results (%)		**0.5**	**21.2**

9.7 Adequacy of the Data

The senior author and QP has reviewed the adequacy of the information presented in this technical report, including historical oil and gas well information and geochemical data, and new geochemical data related to TETRA's 2022 exploration program. The QP has found no significant issues or inconsistencies that would cause one to question the validity of the data. The information is reasonable, has been validated by TETRA, and the QP is satisfied to include the stratigraphic information and geochemical data within the resource estimation process presented in this technical report and in accordance with S-K 1300.

10 Mineral Processing and Metallurgical Testing

During the 2022 Smackover brine sampling program, and in addition to the assay samples, TETRA collected an additional 3,456 gallons (13,083 litres) of Smackover brine into thirty 1-litre bottles, one 5-gallon sample bottle (19 litres), nine 1-gallon sample bottles (34 litres) and thirteen 1,000-litre totes. The brine is representative of the Smackover Formation aquifer brine that is being assessed in this technical report. The brine is currently being evaluated for the extraction of bromine and lithium at the TETRA Innovation Group in Conroe, TX. The TETRA Innovation Group (TIG) is a division of TETRA Technologies, Inc and specializes in completion fluid test solutions and API 13J Testing of Heavy Brines, which is intended for the use of manufacturers, service companies, and end users of heavy brines.

The analytical work presented in this section was completed by TIG. The discussion and data were reviewed, independently, by the QP who advocates that the data and information presented are both reasonable and within the industry standards of publicly available Br- and Li-brine extraction technologies. As such, the QP takes responsibility of the information presented in Section 10 within the context of this technical report.

10.1 Bromine Mineral Processing and Metallurgical Testing

The intent of this section is to discuss TETRA's bromine-brine test work results to date and proposed bromine-brine production plans. Tests have been conducted on brine obtained from TETRA's test well MKP A-47 drilled within the TETRA Property.

Based on historical and public data, bromine has been successfully recovered from Smackover Formation brine in Columbia, Lafayette, and Union counties. In fact, bromine from Smackover brine has been produced, economically, for more than 50-years in southern Arkansas.

Brine test results indicate that apart from higher calcium, chloride, lithium, potassium, and sodium, and lower magnesium, the Smackover Formation brine from well MKP A-47 is geochemically comparable to the brine that is currently in bromine production by companies other than TETRA (Table 10.1).

It is reasonable, therefore, to assume that the Smackover Formation brine aquifer underlying TETRA's acreage is hydrogeologically connected to the laterally continuous Smackover Formation brine aquifer in Columbia and Union counties with similar chemical and physical characteristics.

Table 10.1 Geochemical comparison between Smackover Formation brine collected from TETRA's well MKP A-47 and Smackover brine at the LANXESS bromine production plants.

		TETRA (this report)		LANXESS Bromine Plants					
Element	Unit	ACZ (n=4 avg)	WetLab (n=4 avg)	Central [1]	West [1]	South [1]	TETRA Feed [2]	LISTR-2 Feed [2]	South Arkansas Br range (mg/L) [3]
Barium (Ba)	mg/L	54	47	3.15	10	6.74	11	13	
Boron (B)	mg/L	314	331	132	146	168	176	193	
Bromine (Br)	mg/L	4,950	5,650	/	/	/	/	/	4,000 to 4,600
Calcium (Ca)	mg/L	38,625	40,650	31,917	35,029	36,171	35,900	34,950	
Chloride (Cl)	mg/L	194,000	203,500	160,000	183,290	172,290	-	-	
Lithium (Li)	mg/L	484	475	130	154	200	152	210	
Magnesium (Mg)	mg/L	2,785	2,663	2,795	2,973	2,676	3,540	2,920	
Potassium (K)	mg/L	6,283	6,953	1,852	2,403	2,513	2,260	2,295	
Sodium (Na)	mg/L	77,050	87,625	60,900	67,730	66,470	70,200	67,100	
Strontium (Sr)	mg/L	/	2,763	1,813	2,149	2,161	2,180	2,105	
Sulphate (SO4)	mg/L	/	<3,000	<2,000	<2000	<2000	390	-	

[1] Averages of up to 7 sampling events (Standard Lithium Ltd., 2019)
[2] Testing feed brine derived from the LANXESS Operations (Standard Lithium Ltd., 2019)
[3] Average bromine values in Smackover Formation brine (Arkansas Geological Survey, 2022).

10.1.1 Overview

Evaluation of bromine production technologies resulted in a planned process flowsheet presented in Figure 10.1 and in the text that follows. The process plan uses available technology for oil and gas processing to drill and produce the brine from brine supply wells as well as install an optimized pipeline gathering system to route the brine to the new production facility.

Any future TETRA production facility would use standard chemical processing technologies but will be custom tailored to bromine production from Smackover Formation brine using proprietary TETRA process design. Once the bromine is removed from the brine, the brine would be transported to a lithium extraction process discussed in Section 10.2 below. After lithium processing the brine will be neutralized and reinjected into the Smackover Formation through an optimized pipeline network to injection wells providing reservoir pressure maintenance and balance.

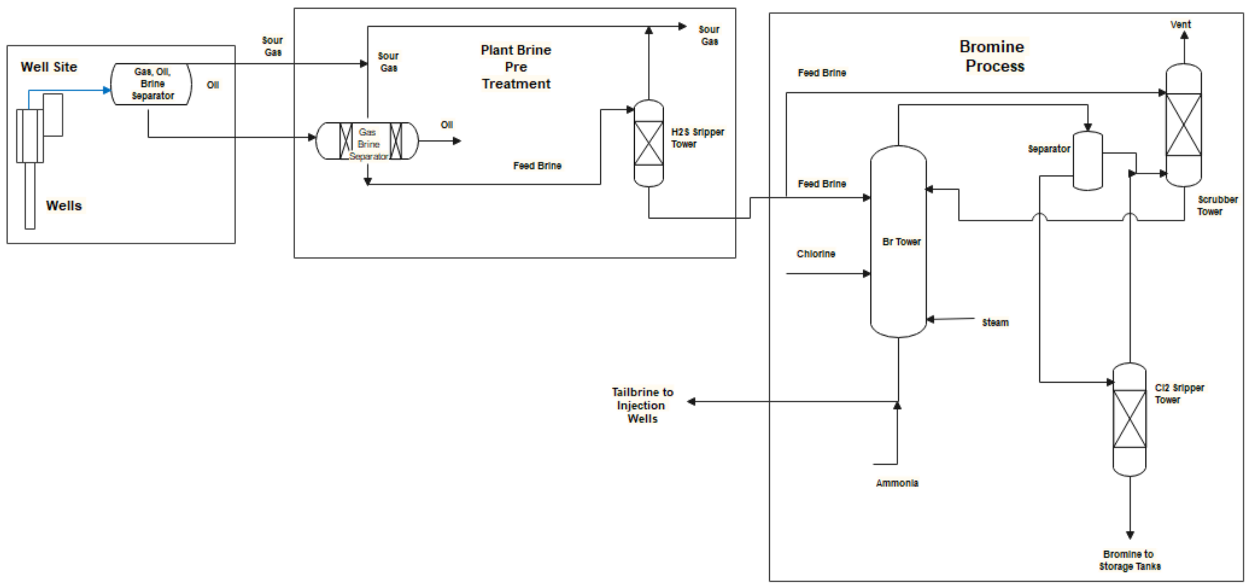
10.1.2 Proposed Brine Supply Wells and Pipeline Network to the Production Facility

The locations of the brine supply and injection wells will use computerized 3D software reservoir modeling input with geologic data from TETRA's studies resulting in a planned layout of supply and injection wells. The layout will optimize production, injection, and overall bromide recovery from the reservoir to achieve a potential production plan. The design of the supply wells will be based on standard drilling and completion technology enhanced with TETRA proprietary design features to improve production rates, metallurgical longevity, electrical submersible pump installation and operation factors, and well bore maintenance.

Each supply well will contain equipment to separate the oil and sour gas from the approximately 230° F brine (at the well head) using instrumentation for process control with remote telemetry data transmission to the production facility for overall optimized control of the entire brine supply well network.

The insulated feed brine pipeline network to the production facility will use TETRA proprietary construction materials to minimize maintenance issues, environmental releases, and increase longevity. The pipeline network will be insulated to minimize heat loss which reduces the energy requirements of the bromine production process thus minimizing the carbon footprint of the entire bromide recovery operation. The separate sour gas pipeline will be constructed to meet hydrogen sulfide pipeline regulations. Each brine supply well will connect with the brine and sour gas pipeline network to carry the separated brine and sour gas to the proposed production facility. Any potential oil production will be separated and stored at each well site.

Figure 10.1 Simplified and proposed TETRA bromine production process flowsheet.



10.1.3 Feed Brine Pre-Treatment at the Production Facility

The incoming feed brine from the supply wells will first go through a brine, oil, gas separator to separate any entrained oil and gas from the feed brine stream. The hydrogen sulfide will then be stripped from the feed brine using steam stripping under vacuum in a packed column. The stripped H_2S will be combined with the sour gas stream from the supply wells and sent to reinjection wells strategically located in the brine fields. Materials of construction will be optimized based on TETRA's internal knowledge of brine chemistry and corrosion. This will result in maximized service factor and minimized maintenance costs.

10.1.4 TETRA's Proposed Bromine Production Process

The pretreated 210° F feed brine will enter a packed bromine reaction and stripping column designed to efficiently react the bromide with chlorine and then steam strip the bromine from the brine. The TETRA process design uses the hot feed brine to minimize steam requirements and overall energy requirements. Proprietary energy recovery methods are used to maximize heat recovery from the de-brominated brine. The de-brominated tail brine will be neutralized with ammonia to a pH of 4-4.5 and pumped to the tail brine system.

Chlorine would be purchased on the open market or be produced on site using co-product salt from TETRA's California operations substantially reducing the overall cost of chlorine as a raw material. Granular salt will be shipped to the TETRA site where the solid will be diluted into a feed stream and pumped into a Chlor-Alkali unit. The Chlor-Alkali unit will produce both Caustic Soda and Chlorine, which will become a feed stock for the bromine separation process.

The produced bromine is condensed and sent to two bromine purification packed distillation columns to remove residual water, chlorine, and organics. The purified bromine is stored for shipment by truck to TETRA's West Memphis Facility, AR.

Vent gas from the bromine purification columns along with non-condensable gases from the bromine reaction/stripping column will be scrubbed in a packed column using feed brine as the scrubbing media before venting to the atmosphere. For upset conditions due to storms, electrical power failures, etc., a packed vent scrubber with circulating caustic as the scrubbing media will be available for the brine vent scrubber to switch into. Any bromine vapors will be captured in the caustic vent scrubber thus preventing releases to the environment.

The bromine production process uses a multitude of materials of construction including titanium, tantalum, ceramic, glass lined steel, Teflon, Kynar, and fiberglass. TETRA's proprietary process know-how uses each material of construction in a way to minimize capital costs and maintenance costs while maximizing service factor, maximizing personnel safety, and minimizing environmental impacts.

The production facility will include natural gas steam boilers, a water well, cooling tower, instrument air compressors and dryers, process water, and nitrogen as plant utilities.

The entire bromine process will be computer controlled and integrated with the supply and injection wells' control systems. The chlorine, ammonia, and steam raw material feeds will be ratio controlled real time to the incoming feed brine stream matching raw materials to feed streams. This will result in the entire process from supply well to injection wells being efficiently controlled to minimize energy consumption and maximize bromine recovery efficiency.

10.1.5 Pipeline Network from the Production Facility to the Injection Wells

The tail brine system consists of an integrated network of pipelines to send the neutralized tail brine to injection wells strategically located in the reservoir acreage by the overall reservoir design plan. The injection plan is the key to maintaining the Smackover Formation bottom hole pressures (both static and flowing), reservoir pore pressure, and reservoir pore volume replacement to maintain fluid level and brine saturation level.

While the injection wells are like the supply wells in that they are drilled into the Smackover Formation, the similarity ends there. The drilling techniques, materials of construction, design and operation of the surface equipment all use proprietary TETRA technology which will optimize well bore life and minimize well maintenance costs.

10.1.6 Other Processing Factors or Deleterious Elements

The brine compositions across the Smackover Formation in Columbia, Union, and Lafayette counties while slightly different are relatively simple chloride brines and no deleterious elements that could impact the process flowsheet outlined here are expected.

10.1.7 Discussion of Results

TETRA will disclose bromine test production results as they become available and are considered material by the Company.

10.2 Lithium Mineral Processing and Metallurgical Testing

10.2.1 TETRA's Proposed Lithium Carbonate Production Process

The intent of this section is to discuss TETRA's lithium minerals test work results to date and proposed lithium carbonate production plans. During 2022, lithium-based laboratory and pilot mineral processing tests have been conducted on Smackover Formation brine obtained from TETRA's well MKP A-47 drilled within the TETRA property.

Any future production of high battery grade lithium carbonate will depend on selective extraction of the lithium ion as lithium chloride from the feed brine in a cost-effective manner with minimal use of chemicals. To reduce the environmental footprint of beneficiation of the brine to higher contents of lithium through the utilization of multiple evaporation pools (i.e., traditional Li extraction in, for example, South America), the lithium extraction process should occur within the normal oil and gas brine cycle (i.e., the time between the brine being pumped to surface, removal of hydrocarbons, and then reinjection back down into the reservoir). This process is referred to as Direct Lithium Extraction (DLE).

Further concentration and polishing to remove other trace minerals (e.g., calcium, magnesium) is then required to produce a final eluate concentration of the lithium chloride, which is then precipitated to lithium carbonate through the addition of soda ash.

The DLE technology chosen, and being tested, by TETRA is based on adsorption/desorption using a proven, commercially available resin that is based on a robust polymer impregnated with a lithium aluminum intercalate that will adsorb and desorb lithium ions.

The resin system TETRA has chosen has been used successfully in commercial processes extracting Li from salar brines. This technology has several key advantages, in that the resin is very robust and can undergo many thousands of adsorption/desorption cycles without degrading. A significant reason for the longer life of this resin is that the desorption step uses water instead of acid as is used in ion exchange resins, which is another alternative technology that has been investigated for DLE. Ion exchange resins work by swapping a lithium ion (Li^+) for a proton (H^+). Utilizing adsorption/desorption resins as opposed to ion exchange resins also has the advantage of not requiring copious quantities of acid.

TETRA also intends to employ simulated moving bed (SMB) technology in which multiple columns are packed with resin to allow lithium to be adsorbed and desorbed at the same time making the entire DLE process fully continuous. Continuous chromatography is typically implemented through simulated moving bed technology.

The integration of adsorption and desorption of the lithium ions is analogous to continuous chromatography and can be accomplished with remarkably similar designs. Running the DLE process using SMB has the advantage of savings in equipment costs together with significant improvements in process performance and efficiency.

The underlying principle of continuous chromatography is a continuous process in which a fluid (brine) is contacted with a solid adsorbent phase (resin) in a counter-current manner. The practical implementation of this true counter current (TCC) unit is difficult due to the required movement of the solid resin. An equivalent unit can be made by redesigning the TCC unit with reference to an observer moving with the resin (solid phase) as shown in Figure 10.2.

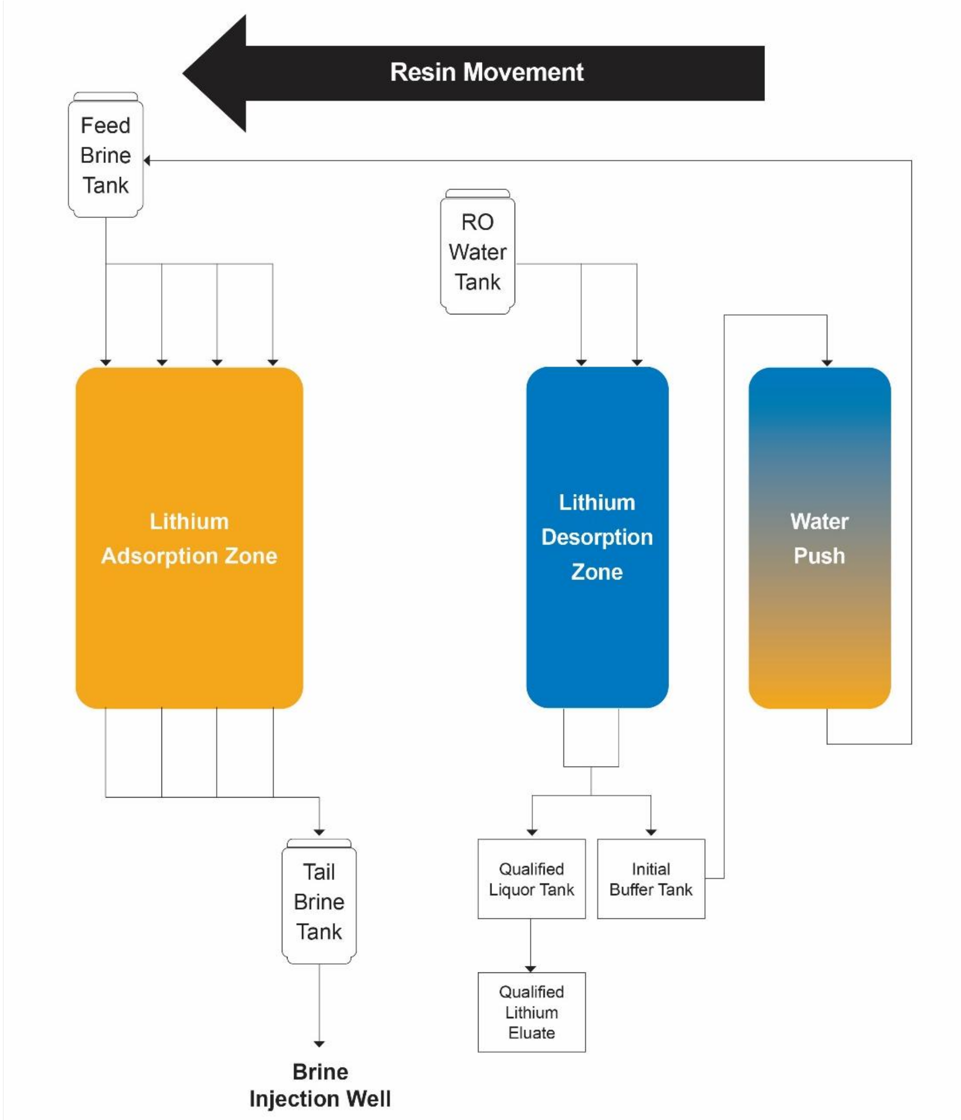
This leads to a SMB unit with a certain number of fixed resin beds connected in series to form a closed loop, in which the counter-current movement of the solid (resin) and liquid phase (brine) is simulated by periodically shifting the fluid inlets and outlets in the direction of the fluid flow. These columns are arranged in zones and the columns move from right to left as shown in the diagram which simulates the movement of resin.

A simulated bed cannot provide any separation or purification that cannot be done by simple single column purification. The distinct advantage of SMB in comparison to a simple single column purification unit is that the chromatographic purification allows for the potential production of copious quantities of highly purified material at a dramatically reduced cost.

TETRA's Closed Loop DLE process is designed to conserve the use of fresh water by recycling the brine that is extracted in the various stages to aid in maximizing Li recovery and recycling fresh water obtained from the reverse osmosis (RO) and vacuum membrane distillation (VMD) stages in the process.

TETRA intends to take the initial tail brine from the bromine plant after it has been neutralized and brought to a pH of 5-6 using ammonia as the feed for the DLE process. Any residual heat left in the brine from the bromine stripping column will improve the DLE kinetics. The resulting final tail brine – that has now had most of the lithium removed – will be reinjected back down into the Smackover Formation through an optimized pipeline network to injection wells providing reservoir pressure maintenance and balance.

Figure 10.2 Simplified representation of the Simulated Moving Bed Layout TETRA is using at the Pilot Unit.

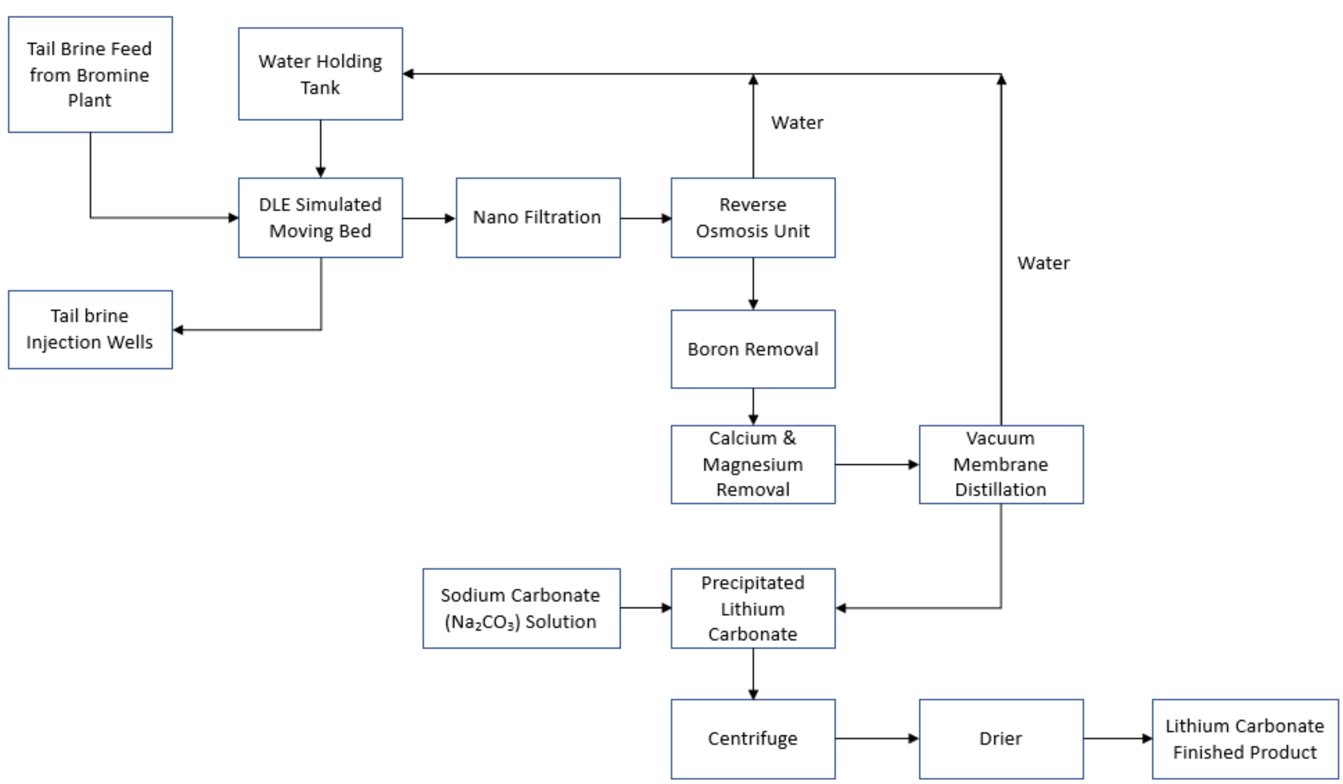


The Li eluate from the DLE process is very dilute with approximately 1g/L of lithium chloride (LiCl) plus minor amounts of monovalent cations such as sodium (Na^{+}) and potassium (K^{+}) as well as divalent cations like calcium (Ca^{2+}) and magnesium (Mg^{2+}) and smaller amounts of boron (B). Passing the Li^{+} eluate through a nano filtration step further reduces the divalent cations; followed by a reverse osmosis (RO) step to concentrate the brine to approximately 13% total dissolved solids (TDS). The fresh water from the RO unit will be recycled and used for desorbing more Li. The RO step will concentrate the impurities allowing a separate boron removal ion exchange column to further reduce the boron levels. A second ion exchange column will be used to selectively remove the remaining traces of Ca^{2+} and Mg^{2+} cations. Both the boron ion exchange and Ca/Mg ion exchange are in commercial use in various processes and TETRA has secured the correct resins for these two steps.

There will be a final concentration of the lithium chloride brine using vacuum membrane distillation. The fresh water from the vacuum membrane unit will be recycled and used for desorbing more lithium. Finally, soda ash (Na_2CO_3) will be added to the concentrated lithium chloride brine to precipitate lithium carbonate (Li_2CO_3). The lithium carbonate will then be isolated by centrifuge, dried, and packaged.

While the latter steps in TETRA's planned lithium carbonate plant are based on proven technology, the use of DLE technology to extract lithium from confined aquifer oil and gas, or geothermal, brines have yet to be commercially proven though there are plants based on solar evaporation ponds that have successfully used adsorption/desorption DLE technology. Realizing that all brines have different profiles with various impurities that can affect the DLE process, TETRA has completed preliminary laboratory testing on the Smackover brine and is continuing pilot plant work to prove out the chosen DLE process.

Figure 10.3: Proposed TETRA lithium carbonate production process flow diagram.

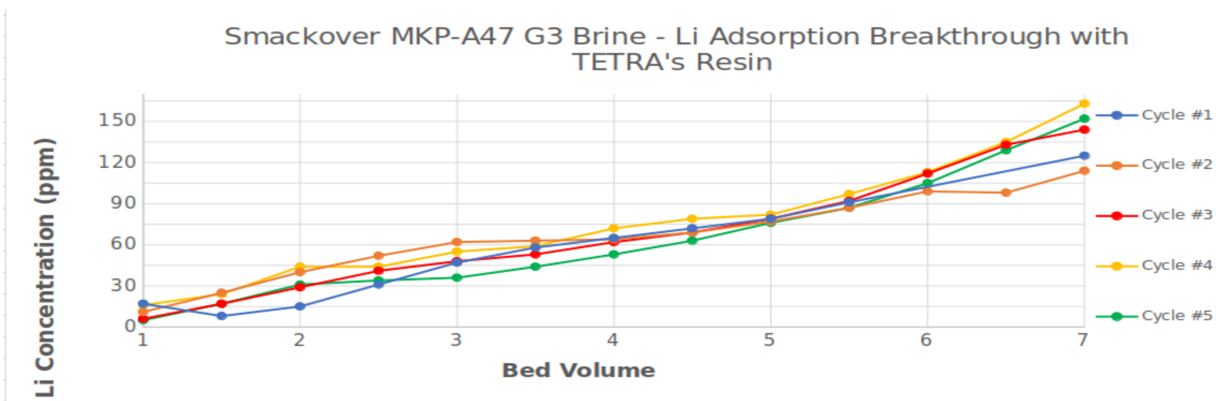


10.2.2 TETRA's Direct Lithium Extraction Laboratory Test Work Results

initial TETRA-led laboratory evaluation of the DLE technology was performed using a single column packed with TETRA's chosen DLE resin with brine being fed by a peristaltic pump into the column. This work was done at ambient temperature, but it is known that the kinetics for this DLE process are improved by running with a hotter brine in the 60°C to 80°C range. Nonetheless, the data obtained by initial column experiments at ambient temperature shows fast adsorption and desorption and excellent selectivity.

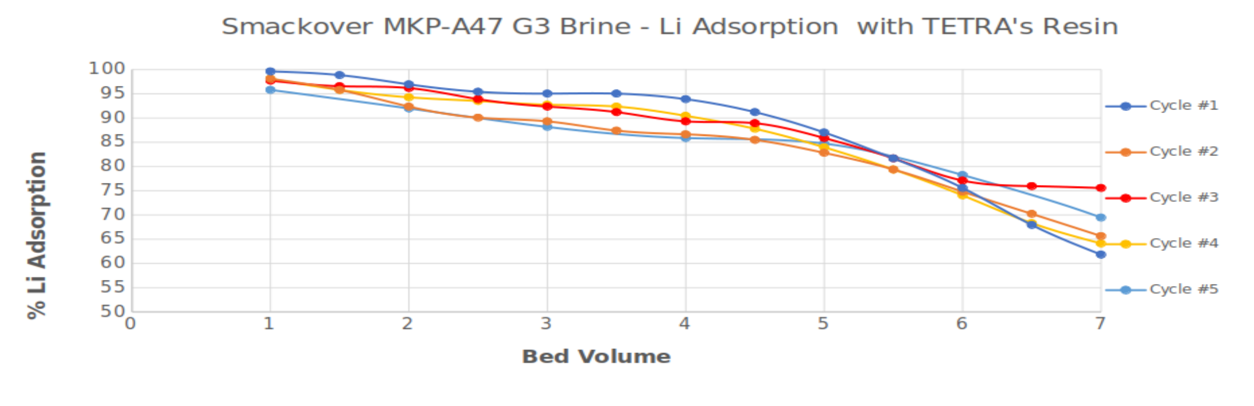
The packed column was stabilized by adding the Smackover Formation feed brine to the column and allowing gravity to feed and collect the eluate. After stabilization, seven further bed volumes of brine were fed into the column, and the Li concentration was measured in the eluate at each half bed volume as shown in Figure 10.4. The figure shows how the resin is adsorbing the Li^+ and tracks the progression of lithium breakthrough. Lithium breakthrough is the point at which the Li^+ concentration in the eluate begins to increase as the resin saturates. Complete lithium breakthrough is the point at which the Li^+ concentration in the eluate matches the Li^+ concentration in the feed brine, indicating 100% saturation.

Figure 10.4 Adsorption eluate Li^+ concentration versus bed volume pumped.



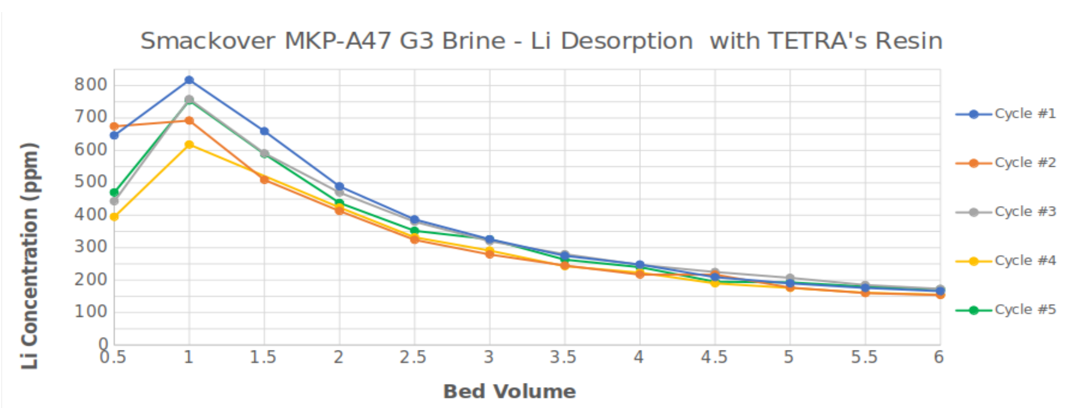
As more bed volumes pass through the column, the resin becomes more saturated with extracted lithium. The saturation level is tracked by comparing the Li^+ concentration in the current cycle's tail brine to the Li^+ concentration in the feed brine. The difference between the two values gives the saturation level or adsorption capacity of the resin. Figure 10.5 shows the progression of the resin's saturation with Li^+ by tracking the adsorption capacity of the resin over time. By 7 bed volumes the lithium adsorption capacity is down to 40% which means that approximately 60% of the Li^+ has already been adsorbed.

Figure 10.5 Li^+ adsorption capacity versus bed volume pumped



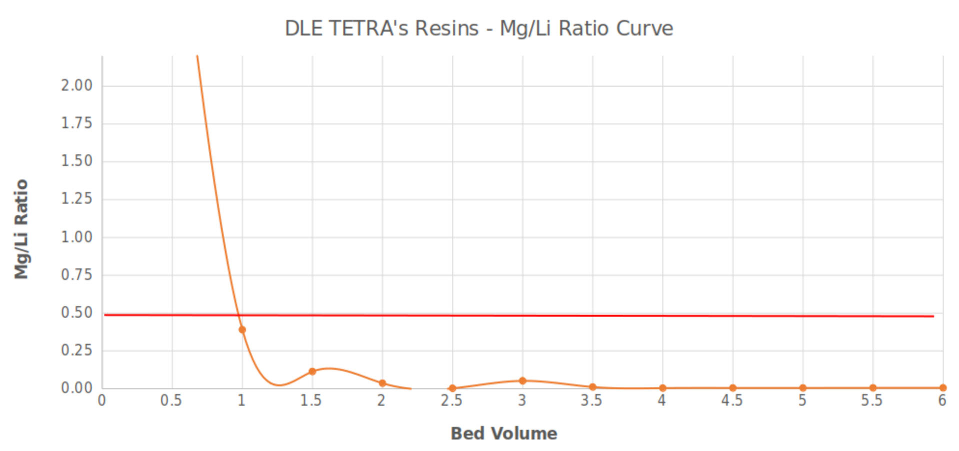
After the resin's adsorption capacity reaches approximately 40% (after 7 bed volumes), the process was switched from adsorption to desorption to regenerate the resin for the next cycle of adsorption. Figure 10.6 shows the Li^+ desorption curves for the first 5 cycles as water is passed through the column. The figure demonstrates that the Li^+ reached a maximum of 600 to 800 ppm (after 1 bed volume), and that after approximately 6 bed volumes most of the lithium has been desorbed. Some residual Li^+ must remain in the resin to stabilize it for a longer lifespan.

Figure 10.6 Desorption eluate Li^+ concentration versus bed volume pumped.



Another key factor in evaluating the effectiveness of a DLE resin is the Mg^{2+} to Li^+ ratio. Mg^{2+} is a smaller cation than Ca^{2+} and it is much harder to separate from Li^+ than Ca^{2+}. Ideally for better product quality the Mg/Li ratio needs to be < 0.5 after the first bed volume and Figure 10.7 shows this is the case.

Figure 10.7 Mg^{2+} to Li^{+} ratio in eluate brine versus bed volume pumped.



The key to the DLE process is the removal of unwanted cations. Table 10.2 shows that the TETRA test work has extremely efficient removal rates for Na^{+}, K^{+}, Ca^{2+}, and Mg^{2+}, and sufficient boron (B) removal rates.

TETRA has demonstrated in the lab that exceptionally good separation of lithium chloride from other ions in our Smackover tail brine is indeed possible using its resin of choice.

Table 10.2 Unwanted ion removal efficiency summary.

	Desorption (Cycle Number 5)				
	Na	**Ca**	**Mg**	**K**	**B**
Original (ppm)	65,292	30,033	2,211	4,474	243
After 2 Bed Volume (ppm)	439	164	16	0	67
% Removal	99.3	99.45	99.28	100	72.43

10.2.3 Initial Pilot Plant Testing Using a Simulated Moving Bed

Pilot Plant DLE test data is being produced and collected by TETRA using a multiple-column SMB packed with TETRA's resin and Smackover MKP A-47 feed brine. The unit is typically run continuously for one week to let the unit reach equilibrium. All work has been completed at ambient temperature and a pH of 5-6 for feed brine.

The analytical results for Day 15 are presented in Table 10.3 and shows the feed brine, tail brine composite, which now has 8 ppm of Li^{+}, and the desired Li^{+} eluate composite drum with 938 ppm of Li^{+}. The pilot unit configuration and flow rates are continually being optimized and it is expected that TETRA will achieve higher levels of Li^{+} in the eluate as the trial runs progress.

Table 10.3 Pilot Plant data summary.

Sample day	Sample	Li (ppm)	Mg (ppm)	Ca (ppm)	Na (ppm)	K (ppm)	B (ppm)
/	**Feed Brine**	360	2,360	32,478	66,905	5,188	291
Day 15	**Tail Brine Composite**	8	2,255	36,986	78,935	6,005	119
Day 15	**Li Eluate Composite**	938	30	382	598	44	87

10.2.4 Further Lab and Pilot Testing

The Li eluate from the piloted DLE process will be approximately 1g/L of lithium chloride (LiCl) plus minor amounts of monovalent cations such as Na^+ and K^+ as well as divalent cations like Ca^{2+} and Mg^{2+} and smaller amounts of B. TETRA plans to pass this material through a nanofiltration pilot unit and will be investigating the percentage removal of divalent cations by analyzing the permeate and concentrate from the unit. We have identified and are working with a suitable vendor who specializes in nanofiltration membranes.

The permeate from the nano filtration unit will then be passed through a RO unit to further concentrate the brine. Again, TETRA has identified a vendor and will have a pilot unit in place to complete this work and will incorporate the results into Front End Engineering packages and models. The fresh water from the RO unit will be recycled and used for desorbing more Li.

The RO step to concentrate the brine will not only concentrate the Li but will also concentrate the impurities. Here TETRA plans to feed the concentrated brine through an ion exchange bed to remove boron, which will first be done in the lab before scaling up to a pilot unit. Eluate from the boron filter will then be fed to an ion exchange resin that will remove the final traces of calcium and magnesium. Both ion exchange resins have been selected from vendors for these two additional steps as this is well known proven technology.

Final concentration will be done using vacuum membrane distillation (VMD) and TETRA has also identified a vendor for this technology and will be piloting this process using the brine from the polishing ion exchange columns. VMD will allow us to concentrate the final LiCl brine in a cost-effective manner and the water from this process will be recycled to use for lithium desorption.

Finally, the polished concentrated LiCl solution will have soda ash added to precipitate Lithium Carbonate which will be filtered by centrifuge, dried and then packaged. TETRA will pilot each of these unit operations to obtain an overall yield for the entire process.

10.3 Potential Mineral Processing Risks and Uncertainties at this Stage of the Project

As with any other Greenfields initiative, there are risks associated at each stage of project development. TETRA is actively identifying risks as they emerge and incorporating risk mitigation into its project development strategy in both daily workstreams and broader work programs. A summary of the risks and uncertainties at this stage of the project, along with mitigation actions, includes:

- Presently, there are no commercial operations that extract lithium from deep confined aquifer brine deposits. While DLE technology is evolving, it may take several years of development until production is possible, during which time the economic viability of production may change.

- Variations in brine chemistry may prevent consistent bromine and lithium end products. TETRA will continue to experiment with brine chemistries to ensure the DLE process is robust enough to compensate for any potential changes in the Smackover Formation brine chemistry.

- Scaling issues associated with introducing larger volumes of brine within the DLE process (i.e., laboratory and pilot testing to a commercial operation). TETRA will continue to experiment with brine volume throughput in DLE Pilot Plant to understand and resolve potential issues.

- While market conditions for battery grade lithium are currently robust and indicate continued strong demand there could be market volatility that results in deceased demand for battery grade lithium. While this seems unlikely at present, TETRA will continue to monitor market dynamics and continually evaluate economic viability of the proposed DLE process.

10.4 Opinion of the Qualified Person

10.4.1 Bromide Processing Conclusion and Recommendations

It is the QP of this sub-section's opinion knowing and having experience in the South Arkansas brine and bromine production industry, that there is reasonable likelihood that bromine can be commercially produced from the Smackover Formation brine at the TETRA Property in Lafayette County Arkansas, given the proper level of funding, time, and resources. TETRA's process flowsheet and design information presented has the potential to produce bromine in the proposed area using the existing extensive infrastructure including rail, power, water, pipelines, existing Smackover formation wells, improved paved roads, and available labor.

The following items are recommended for more transparency of the proposed process flowsheet and its associated performance: 1) collect additional brine samples for further analytical processing and pilot plant work, and 2) consider Modifying Factors toward the development of a Preliminary Economic Assessment.

While TETRA has recently collected bulk samples of Smackover Formation brine from well MKP A-47, which is representative of the brine underlying the TETRA Property, the Company has yet to produce bromine mineral processing test work results. Hence this subsection relies on, and presents, information related to flowsheets and processes related to the QPs knowledge of historical bromine-brine extraction in various parts of the world, and toward future mineral processing test work. This work is likely to be conducted at TETRA facilities, and the QP recommends TETRA consider check labs to validate and improve the confidence level of important steps in the bromine recovery process.

The decision to put a mineral project into production is the responsibility of the issuer. To reduce this risk and uncertainty, the QP recommends the issuer make its production decision based on economic valuation through a Preliminary Feasibility Study or a comprehensive Feasibility Study. Having said this, the ultimate demonstration of economic viability of a mineral deposit may be satisfied by actual profitable production as a function of market conditions such as product specification and demand.

10.4.2 Lithium DLE Processing Conclusion and Recommendations

It is the QP opinion that the adequacy of data resulting from the SMB pilot testing presented in this sub-section is valid within the evolving field of DLE. While the DLE technology has yet to be applied commercially to confined aquifer brine deposit types, the resin-based adsorption/desorption system TETRA has chosen has been used successfully in commercial processes extracting Li from the salar brine deposit type. In addition, TETRA's adsorption/desorption DLE technological test work is currently being used by other brine companies as a conventional industry practice toward the development of this technology within other confined aquifer brine deposits.

Experimental work conducted by TETRA has shown that deleterious elements such as Na^+, K^+, Ca^{2+}, Mg^{2+}, and B can be successfully removed in columnar testing. Beneficiation of the brine feed to an eluate composite liquor has increased Li^+ from 360 ppm Li to 938 ppm Li during the current pilot testing efforts.

Recommendations include:

- Perform further test work to achieve lithium recovery percentages that assimilate current values required to produce battery grade LCE prior to the proposed reinjection of the brine.
- Perform further test work with larger quantities of brine from different test wells to optimize adsorption recovery.
- Perform laboratory and pilot testing for proposed lithium carbonate production process (downstream of the DLE SMB process; see Figure 10.3).

11 Mineral Resource Estimates

11.1 Introduction

Three-dimensional (3D) modelling, statistical analysis, and resource estimations for TETRA's bromine- and lithium-brine resource estimations were prepared by Mr. Eccles P. Geol. and Mr. Black, P. Geo. of APEX (under the direct supervision of Mr. Eccles). Mr. Eccles reviewed the 3D block model used to estimate total *in situ* brine, the statistical analysis, and the calculated resource estimation. The workflow was completed using the commercial mine planning software MICROMINE (v 21.0).

Spatially, the mineral resource models and estimation processes are constrained into 2 distinct resource areas as presented in Figure 11.1 and defined as follows:

1. The maiden TETRA Br-brine resource estimate area within a proposed brine unitisation area that encompasses the entire TETRA Property. The bromine resource area encompasses all 1,004 individual mineral leases that encompass 41,528 gross acres and 31,355 net acres. The bromine resource area includes the Main Lease Area, S-SW Lease, and S-SE Lease sub-property areas as presented in Section 3.2.

2. The maiden TETRA Li-brine resource area is within a proposed brine unitisation area defined by the S-SE Leases sub-portion of the TETRA Property (see Section 3.2) that is comprised of 112 individual mineral leases that encompass 5,100 gross acres and 3,682 net acres.

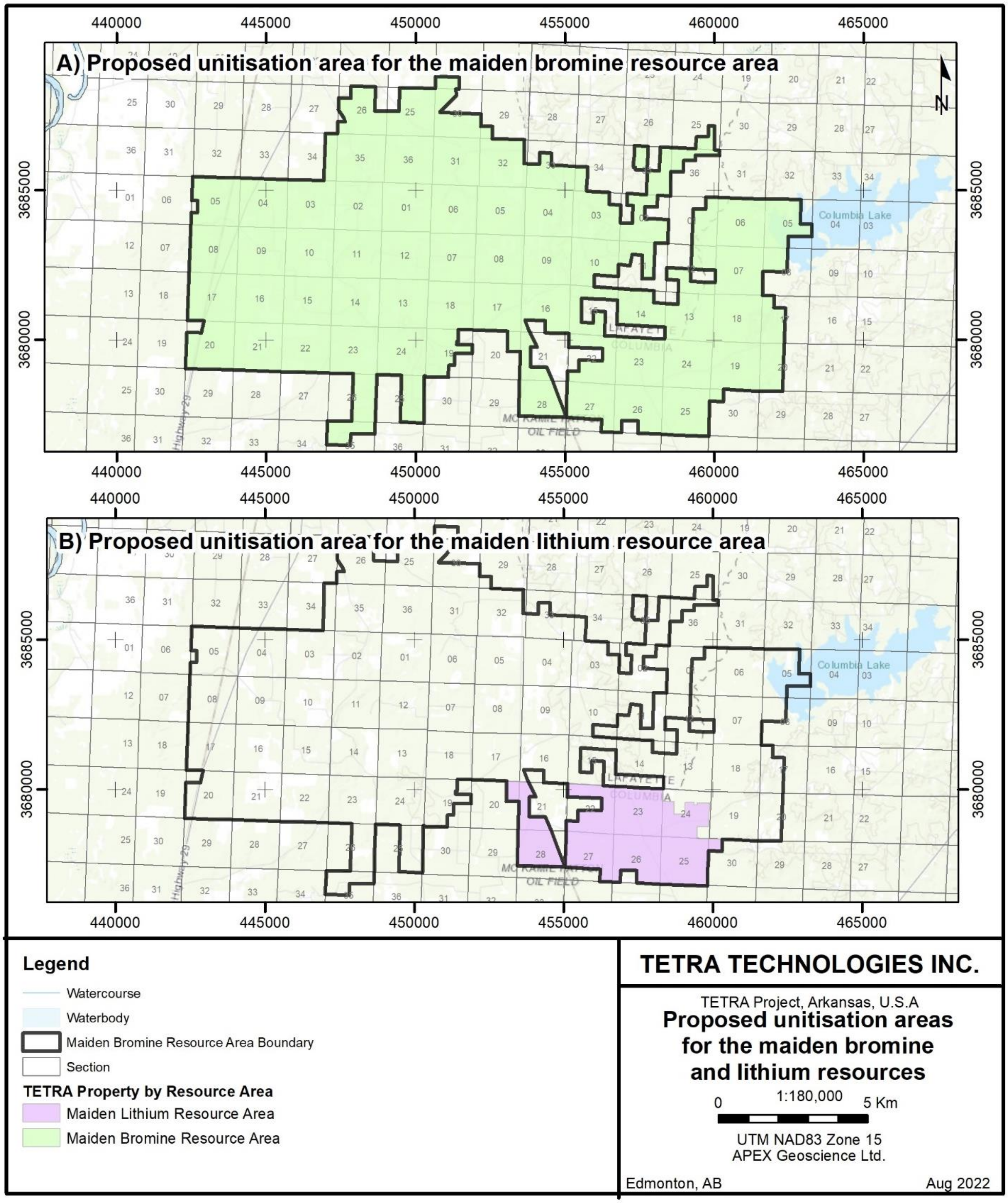
Stratigraphically, the mineral resource models and estimation processes is confined to the Upper Smackover Member of the Smackover Formation.

Note 1: With respect to bromine, TETRA holds the rights to explore, produce and extract bromine from brine underlying the entire TETRA Property pursuant to brine leases from the various landowners.

Note 2: With respect to lithium, TETRA acquired the S-SE Leases and holds the rights to explore, produce and extract all minerals (including lithium) from brine within this leasehold area – and the maiden TETRA Li resource estimate encompasses this area.

Note 3: Further to lithium, TETRA has granted Standard Lithium an option to acquire the rights to produce and extract lithium within the Main Lease and S-SW Lease areas. The option period is valid to 2027 subject to annual payments. As of the Effective Date of this technical report, Standard Lithium has not yet exercised its option to acquire the rights to produce and extract lithium. Because TETRA owns the underlying rights to all minerals within the Main Lease and S-SW Lease areas, the lithium mineral resource prepared by Standard Lithium is important to TETRA and therefore the Standard Lithium Ltd. (2021) resource table is reiterated in Section 21.

Figure 11.1 Spatial configuration of the maiden TETRA bromine-brine (green, A), and TETRA-lithium-brine resource areas (purple, B).



Note 4: The Main Lease Area includes some interspersed leases (n=23) in which TETRA holds brine rights including lithium that are not subject to the option agreement between TETRA and Standard Lithium. Because these leases are interspersed among the brine leases subject to the option agreement, and are not contiguous, TETRA has not attempted to document Li resources in the ‘island’ leases (only bromine).

Note 5: At the Effective Date of this technical report, TETRA has not initiated a brine unitisation application process with the AOGC. As part of the maiden mineral resource estimation process, and in the QPs opinion, it is reasonable to estimate the potential integrated bromine- and lithium-brine resources on the basis that the TETRA leasehold area would be unitised as part of any future production scenario in accordance with the Arkansas Brine Statute.

The mineral resources presented in this section were prepared in accordance with the U.S. Securities and Exchange Commissions (SEC’s) final disclosure rules for mining company issuers (Regulation S-K subpart 1300, or S-K 1300). The Effective Date of the mineral resources is 15 September 2022.

11.2 Resource Estimation Steps

Critical steps in the determination of the TETRA bromine- and lithium-brine resource estimations include:

- Definition of the proposed unitised brine production unit area and the geology and geometry of the Upper Smackover Member resource domain.
- Definition of the average porosity within the Upper Smackover Member resource domain.
- Determination of the lithium-in-brine concentration in the Upper Smackover Member resource domain.
- Definition of the pore space volume of brine in the Upper Smackover Member resource domain.
- Demonstration of reasonable prospects of eventual economic extraction.
- Estimate of the in-situ lithium resources of the Upper Smackover Member resource domain using the relation:

  Lithium Resource = Total Volume of the Brine-Bearing Aquifer x Average Effective Porosity x Percentage of Brine in Pore Space x Average Concentration of Lithium in the Brine.

11.1 Geological Data

Apart from analytical results obtained during TETRA's 2022 brine sampling program, most of data utilized in the mineral resource estimates is historical in nature. Historical data that includes well data, stratigraphy, hydrogeology, and geochemical results was derived from publicly available sources (e.g., AOGC, USGS databases and academia). The data were validated by the QP and as part of TETRA's exploration program.

11.1.1 AOGC Well Data

A compilation of all regional oil and gas wells that were historically drilled in the general TETRA Property area was completed by the QP to create Smackover Formation surfaces during the preparation of the 3D resource model used in this technical report. The regional well database file consists of over 7,000 wells.

Note that not all the AOGC wells contain lithological information including whether the well penetrated the top of the Smackover Formation. In addition, the AGS Information Circular IC-14 includes an electronic reprint of Vestal (1950) that includes several hundred electric logs, driller's logs, well cuttings, and a stratigraphic pick file with 3,904 records.

11.1.2 Hydrogeological Data

A regional hydrogeological assessment of the Smackover Formation is presented in Section 7.4. These data were used to estimate the average porosity and permeability of the Smackover Formation in the determination of the brine volume within the aquifer. The historical core analyses were obtained through the Shreveport Petroleum Data Association (SPDA). Where available, mud logs were used to obtain stratigraphic information and downhole rock properties such as porosity and permeability.

With respect to effective porosity and permeability, regional datasets incorporated:

- 1,767 core analyses from the Reynolds interval (Schauer, 1957).
- 14 core-plug measurements from the McKamie-Patton Pool (Manger, 1963)
- Summarized core porosity and permeability measurements from the Walker Creek Field, which is approximately 40 km south of the TETRA property (Bliefnick and Kaldi, 1996).
- Core sample measurements from 35 hydrocarbon wells in the McKamie-Patton Pool (Vestal, 1950).
- 515 core analysis samples that were collected from 11 hydrocarbon wells on the TETRA property (Standard Lithium Ltd., 2018).

- Porosity core measurements (n=782) from 19 hydrocarbon wells and permeability measurements (n=1,110) from 22 wells near the TETRA property (Standard Lithium Ltd., 2018).

11.1.3 Geochemical Data

The QP compiled historical (version 2.3; Blondes, 2019) and TETRA's 2022 brine sampling program analytical work. These data were used to estimate the average bromine and lithium concentrations of the Smackover Formation aquifer brine in the resource estimation process. The resulting geochemical dataset consists of:

- 10 and 12 historical bromine and lithium analyses, respectively, within-Property historical values and 8 historical bromine and lithium analyses adjacent to the Property values.

- 8 'original' geochemical analyses associated with TETRA's 2022 brine sampling program at the MKP A-47 well.

11.2 Quality Assurance – Quality Control

Mr. McGowen, P.E. performed a personal QP site inspection at the TETRA Property on April 18, 2022, and can verify, through independent observation, TETRA's 2022 brine sampling program at the MKP A-47 well. A summary of the brine sampling program and analytical results is presented in Section 7.

Mr. McGowen collected a brine sample and couriered it to the senior author and QP who was able to independently analyze and validate the bromine- and lithium-brine mineralization at the TETRA Property.

The senior author and QP has reviewed the adequacy of the historical information presented in this technical report, including oil and gas well data and geochemical data, and found no significant issues or inconsistencies that would cause one to question the validity of the data. The QP is satisfied to include the information and data as presented in this technical report.

While there is a minimal number of historical and TETRA collected and analyzed geochemical sample data, the QA-QC protocol adopted by TETRA during their 2022 exploration program helped the senior author evaluate and validate the overall geochemical dataset.

Based on senior authors previous experience and research of confined aquifer lithium-brine deposits, and sampling and analytical protocols, the QP is satisfied to include these data in the mineral resource modelling, evaluation and estimations as presented in this Technical Report.

11.3 Definition of the Resource Estimation Domain

A single resource domain, which is hereafter referred to as the Upper Smackover resource domain, is presented stratigraphically in Figure 11.2. The domain encompasses the high porosity zones within the Upper Smackover Member including the unit often referred to as the highly porous Reynolds interval. The Upper Smackover resource domain was utilized in both the TETRA Br-brine and the TETRA Li-brine resource estimations.

At well MKP A-47 the thickness of the Upper Smackover Member is 210 feet (64 m). In this technical report, the QP utilizes a conservative Upper Smackover resource domain that is 200 feet (61.5 m) in thickness as extrapolated below the top surface of the Upper Smackover Member. The modelling of the domain is discussed in detail in the text that follows.

A summary of the historical well log stratigraphic horizon top picks from oil and gas wells is illustrated for the Upper, Middle and Lower Smackover members in Figures 11.3, 11.4 and 11.5, respectively. The contrast between horizon pick points is further summarized as follows:

- Top of the Upper Smackover Member is defined by 3,904 regional picks with 87 picks occurring within TETRA's leases and 105 picks within the general TETRA Property.
- Top of the Middle Smackover Member is defined by 21 regional picks with 1 pick, and a further 4 picks, occurring within, or adjacent to, the TETRA Property.
- Top of the Lower Smackover Member is defined by 5 regional picks with none of the picks occurring within the TETRA Property.

To resolve this conundrum from a resource domain wireframing perspective, the QP has utilized 1) the 5 wells that contain top of Middle Smackover Member picks in concert with 2) knowledge that the high porosity zones within all the Upper Smackover Member and the upper portion of the Middle Smackover Member is approximately 200 feet (61 m) thick. This thickness is an industry standard in southern Arkansas and the QP has personally verified the thickness of the Upper/Middle Smackover units in various parts of the south Arkansas basin.

Consequently, the basal wireframe of the Upper Smackover resource domain – which is equivalent to the top surface of the Middle Smackover Member – was created by calculating an average domain thickness of 200 feet (61 m) below the top of Upper Smackover Member. This was deemed to be the most accurate way to extend the wireframe to depth because of the limited control on the top of the Middle Smackover Member via oil and gas drilling.

Figure 11.2 Stratigraphic terminology and vertical (stratigraphic) dimensions of the Upper Smackover resource domain used in this report. Stratigraphic markers: 1 – base of the primary producing Reynolds interval at the McKamie-Patton oilfield; 2 – base of the Upper Smackover Member; 3 – regional Middle Smackover Member marker (if the well does not penetrate Louann Formation evaporite).

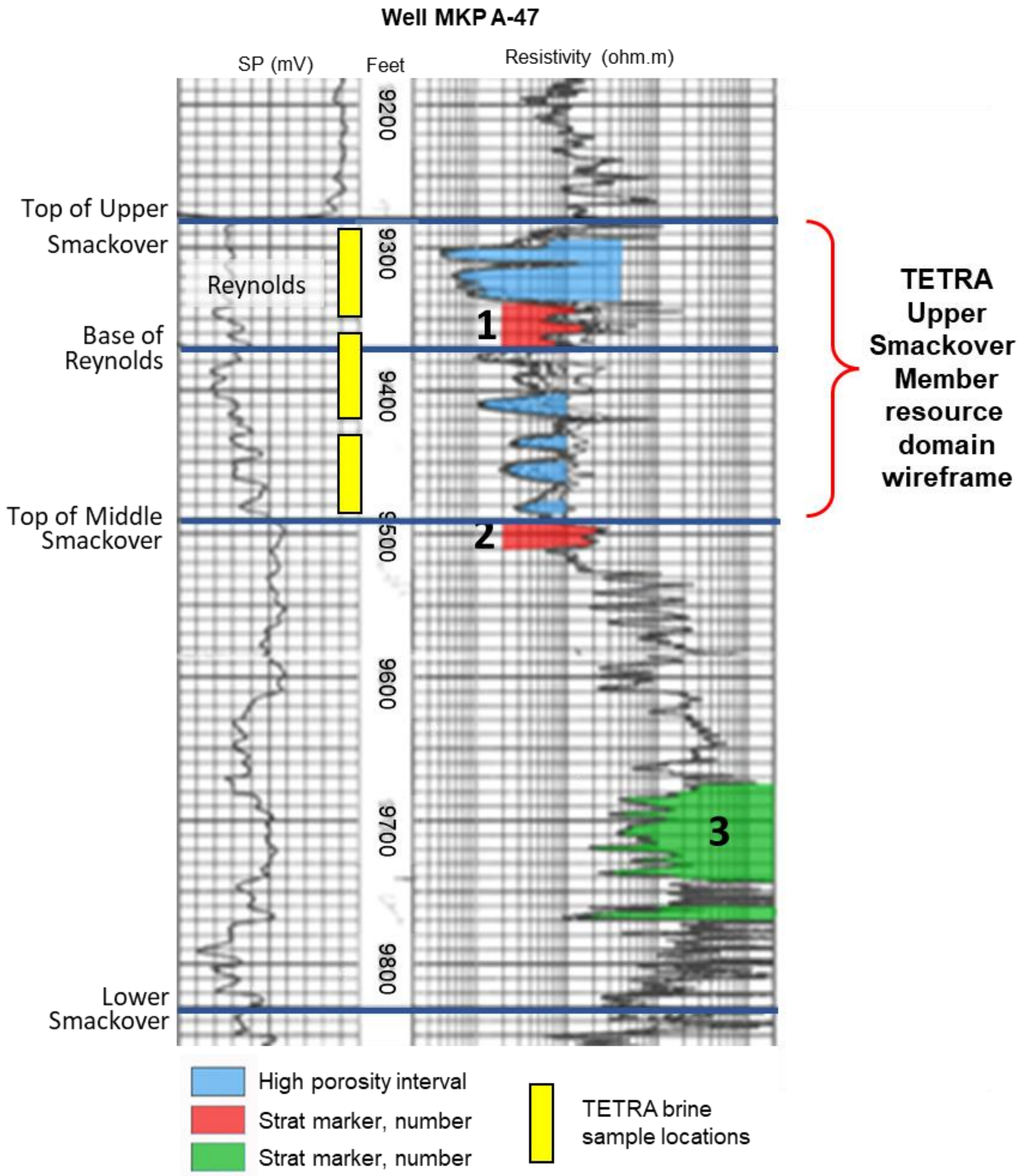


Figure 11.3 Oil and gas wells that have penetrated the Upper Smackover Member in the TETRA Property area. Source: Arkansas Oil and Gas Commission (2021).

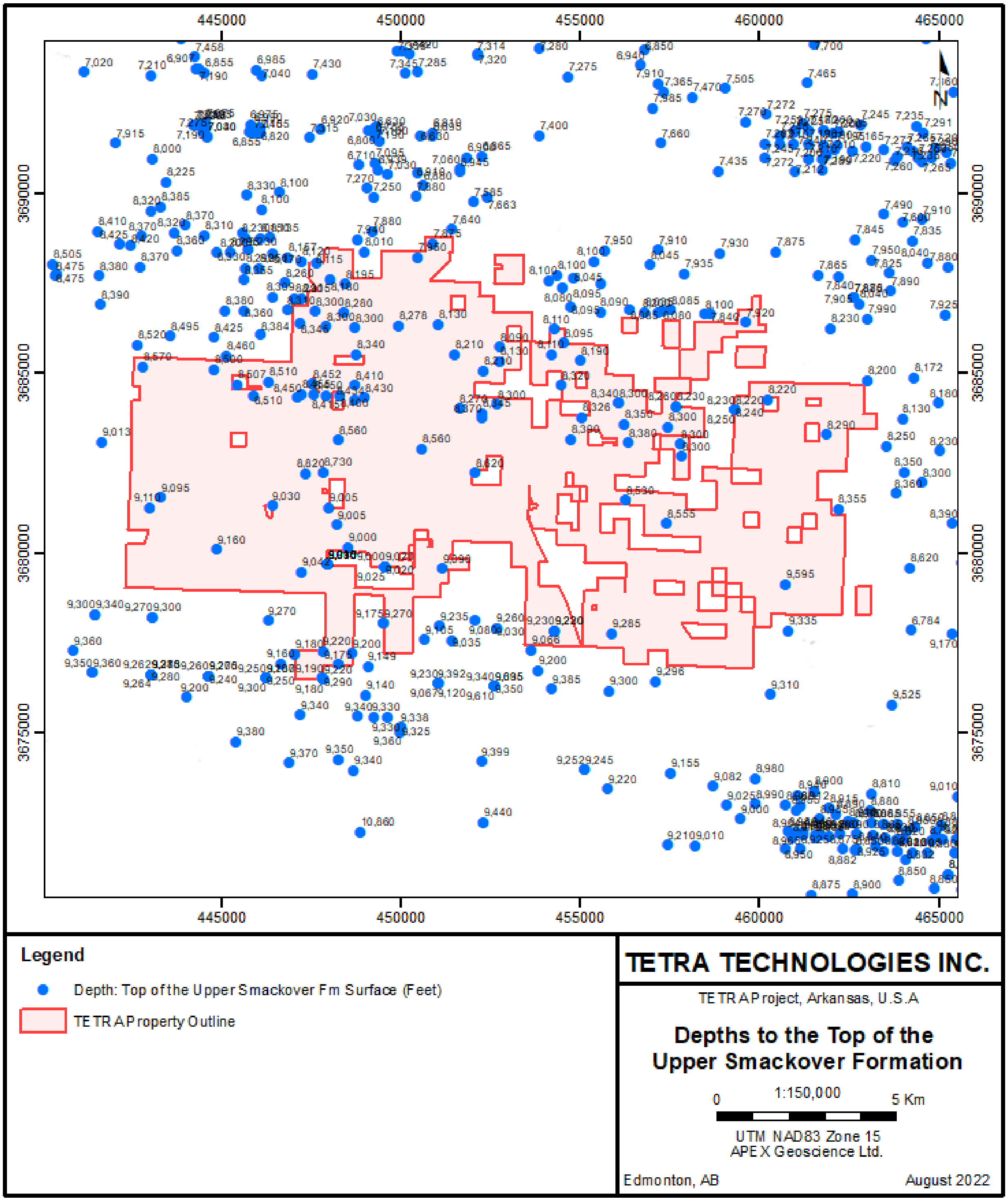


Figure 11.4 Oil and gas wells that have penetrated the Middle Smackover Member in the TETRA Property area. Source: Arkansas Oil and Gas Commission (2021).

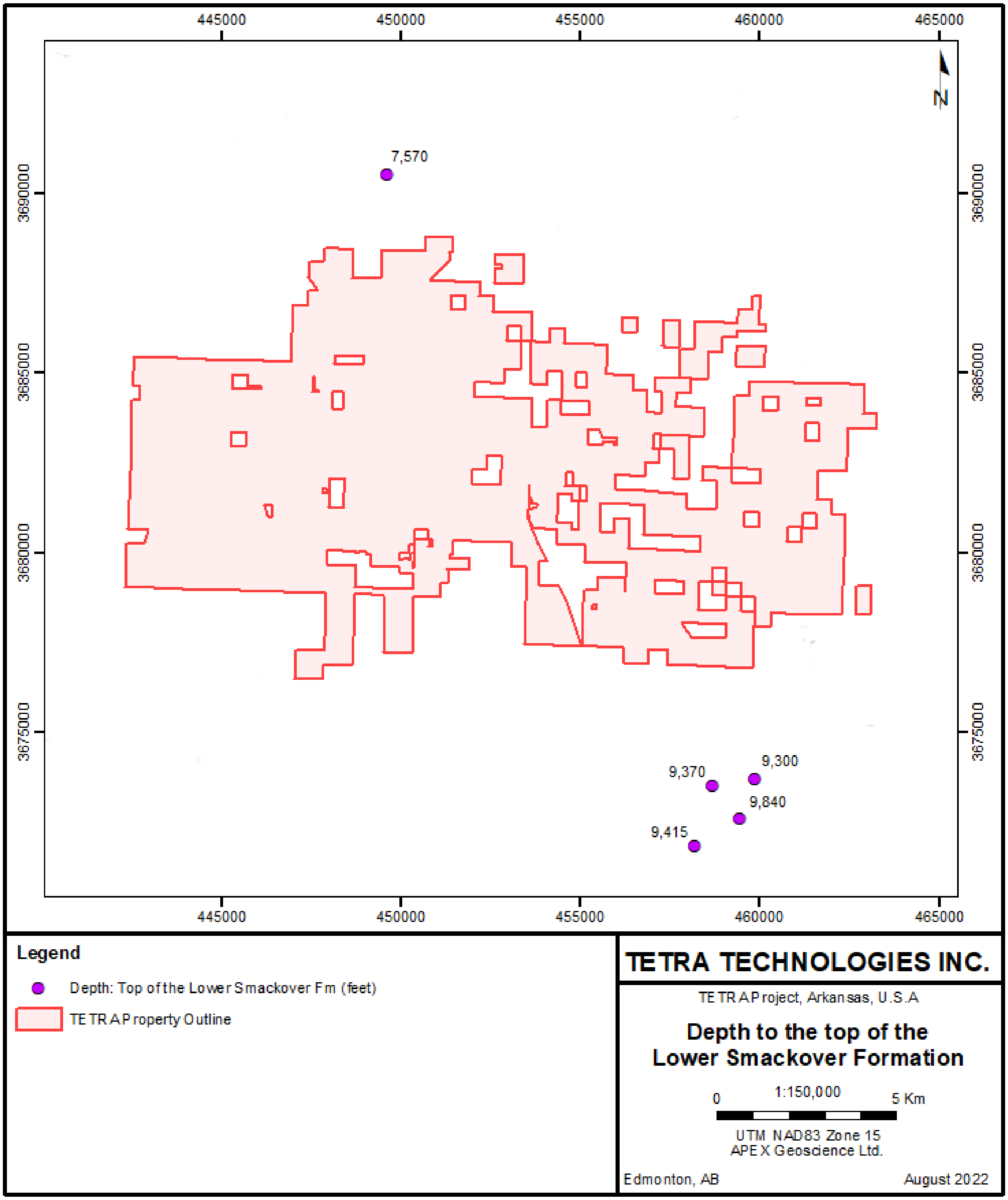
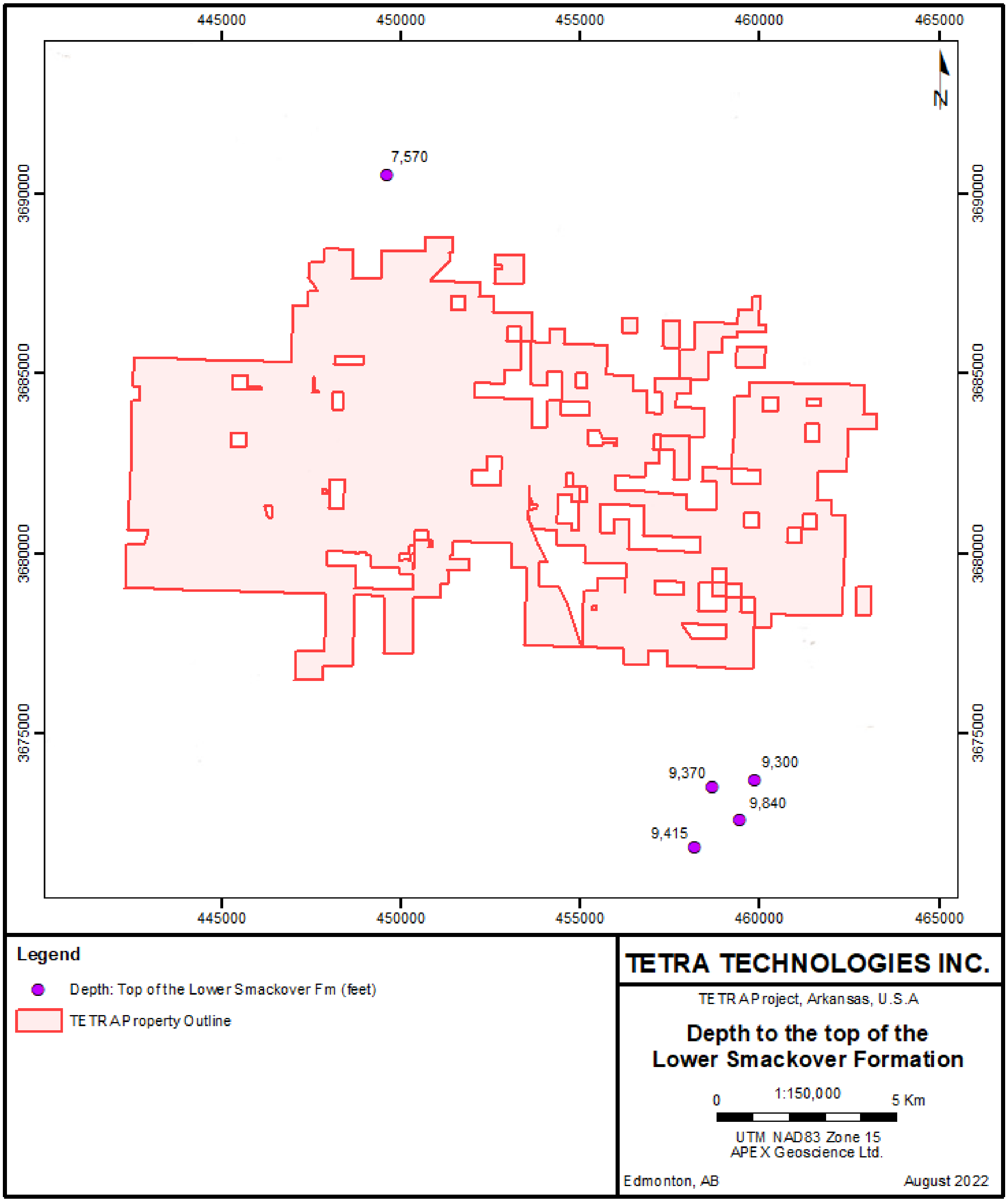


Figure 11.5 Oil and gas wells that have penetrated the Lower Smackover Member in the TETRA Property area. Source: Arkansas Oil and Gas Commission (2021).



11.3.1 Three-Dimensional Geological Model

The Upper Smackover Member surface grid file was generated using a combination of 1) AOGC well data, 2) the top of Smackover Formation isopach of Vestal (1950), and 3) the review and interpretation of wireline log data in well MKP A-47 by TETRA.

The geological model, and Upper Smackover resource domain, is reliant on the construction of the Upper Smackover Member surface. That is, the subsurface Smackover Formation model is reliant on historical oil and gas wells – and because the Smackover reservoir pay zone is in the Upper Smackover Member, most of the wells in the TETRA Property do not penetrate deeper than the Upper Smackover.

The Lower Smackover was not wireframed because of the lack of well data (Figure 11.5) and because the lower portion of the Middle Smackover Member and Lower Smackover Member (or Brown Dense unit) has lower brine volume opportunities in comparison to the ooidal grainstone of the Upper Smackover Member.

The Upper Smackover resource domain wireframes were extrapolated beyond the TETRA Property outline to utilize those stratigraphic top horizon picks that occur adjacent to the property and to provide a higher level of confidence in the overall regional stratigraphy. The wireframes were then clipped to the outline of the TETRA proposed unitisation boundaries as defined for the bromine- and lithium-brine resource areas.

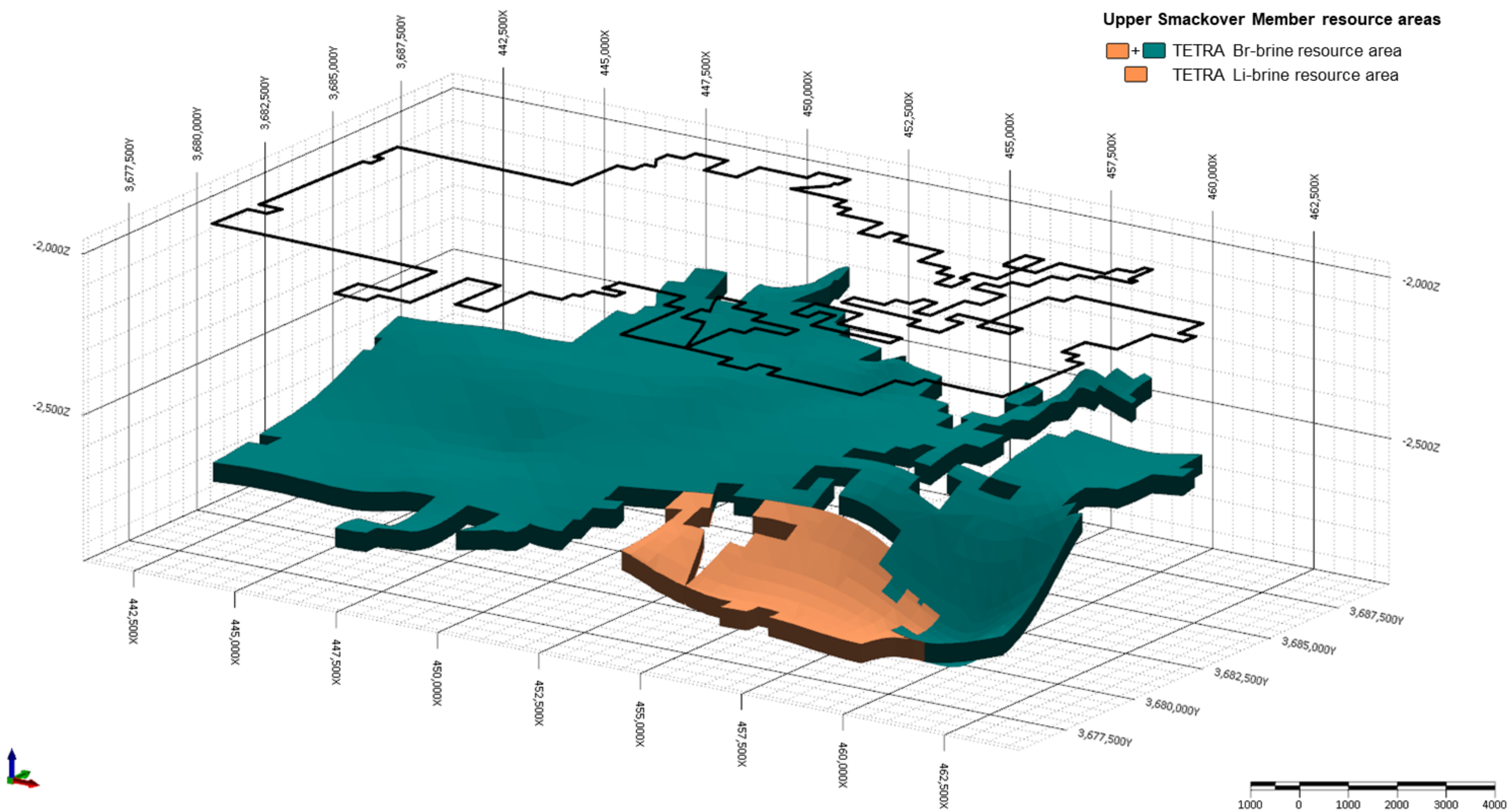
An oblique view and cross-section example of the TETRA Property Upper Smackover resource domain wireframe is presented in Figure 11.6. The Upper Smackover Member resource domain occurs underneath the entire TETRA Property at depths of between -9,541 and -7,451 feet (-2,908 and -2,2271 m) beneath the Earth's surface. The Upper Smackover resource domain wireframe stratigraphically dips downward in the southernmost part of the Property and particularly in the southeast corner of the TETRA Property.

11.3.2 Estimation of Aquifer and Brine Volume

Using the Upper Smackover Member wireframe, the aquifer volume was estimated for the Upper Smackover resource domain using the following criteria and assumptions:

- The surface grids wireframes were converted to 3-D wireframe solids.
- The 3-D solids were clipped to the extents of the Br- and Li-brine resource areas.
- Rather than applying the net brine lease percentages, the mineral resources were calculated assuming 100% interest to the brine via the formation of brine production units.

Figure 11.6 Oblique view of the three-dimensional geological model created for the Upper Smackover Member resource domain at the TETRA Property. Vertical exaggeration is 7-times. The TETRA bromine resource area encompasses the green and orange areas. The TETRA lithium resource area is in orange.



APEX Geoscience Ltd.

The aquifer volumes underlying the TETRA Property within the Upper Smackover Member of the proposed resource unitisation areas is summarized as:

- The maiden TETRA Br-brine resource area underlying the entire TETRA Property has an Upper Smackover Member domain aquifer volume of 2.171 miles^3, or 9.049 km^3.

- The maiden TETRA Li-brine resource area underlying the S-SE portion of the Property has an Upper Smackover Member domain aquifer volume of 0.234 miles^3, or 0.977 km^3.

The brine volume is calculated for the Br- and Li-brine resources by multiplying the aquifer volume (in km^3) times the average porosity for each domain, times the percentage of brine assumed within the pore space. An Upper Smackover Member average porosity of 9.0% was derived by HCL from historical work that includes porosity measurements on core plug samples (i.e., effective porosity in a confined aquifer that equivalent to specific yield).

A brine pore space volume of 98% was used as the Upper Smackover Member represents a mature oil and gas reservoir that produces high fluid modal abundances of brine in comparison to hydrocarbons.

The brine volumes underlying the TETRA Property within the Upper Smackover Member of the proposed resource unitisation areas is summarized as:

- The maiden TETRA Br-brine resource area underlying the entire TETRA Property has an Upper Smackover Member domain brine volume of 0.213 miles^3, or 0.887 km^3.

- The maiden TETRA Li-brine resource area underlying the S-SE portion of the Property has an Upper Smackover Member domain brine volume of 0.023 miles^3, or 0.096 km^3.

11.3.3 Depiction of the Mean Bromine and Lithium Concentrations

A summary of the historical and publicly available bromine and lithium geochemical analyses of Smackover Formation brine that occurs within, and adjacent to, the TETRA Property is presented in Section 5.2. The within-Property bromine- and lithium-brine geochemical data are presented in Table 11.1 and include:

- Bromine analytical results that range between 3,752 mg/L and 6,856 mg/L Br with an average of 5,350 mg/L Br.

- Lithium analytical results – in the southern portion of the Property – range between 265 mg/L and 461 mg/L Li with an average of 376 mg/L Li.

Table 11.1 Summary of geochemical data evaluated in this study to calculate average bromine and lithium concentrations for the mineral resource estimations.

A) TETRA 2022 Smackover brine geochemical results

Sample ID	Well name	Br (mg/L)	Li (mg/L)
TTI-A47 G2A-S	MKP A-47	4,550	479
TTI-A47-G3-S	MKP A-47	5,010	474
TTI-A47-G3-S Rep	MKP A-47	5,290	461
TTI-A47-G2A-S	MKP A-47	5,000	465
TTI-A47-G3-S	MKP A-47	5,800	467
TTI-A47-G3-S Rep	MKP A-47	6,000	489
TTI-A47-G4-S	MKP A-47	5,800	477
	Average	**5,350**	**473**

B) Historical within-property Smackover brine geochemical result

Sample ID	Well name	Br (mg/L)	Li (mg/L)
1	Habelyan 1	6,856.0	187 [1]
2	Purser 2	5,746.0	132 [1]
4	Cornelius 1	4,276.0	423.0
5	Cornelius 2	3,752.0	370.0
MKP-20-1B	MKP 20	5,940.0	347.0
MKP-20-1B	MKP 20	/	352.0
MKP-20-1	MKP 20	4,680.0	265.0
MKP-20-1B	MKP 20	/	302.0
MKP-21	MKP 21	6,400.0	461.0
MKP-48 (MKP-21 dup)	MKP 21	6,360.0	439.0
MKP-21	MKP 21	4,750.0	380.0
MKP-48 (MKP-21 dup)	MKP 21	4,960.0	425.0
	Average	**5,372**	**376**

[1] Grey shaded lithium values are removed from this assessment because the QP theorizes lithium in the northern part of the property is influenced by different geological conditions in comparison to the southern part of the property (and the subject of TETRA's Li-brine resource area).

C) Qualified Person independent analytical results

Sample ID	Well name	Br (mg/L)	Li (mg/L)
RE22-TT-TP001 (Duplicate of TTI-A47-G3-5)	MKP A-47	5,500	390

D) Summary analytical results

	Br (mg/L)	Li (mg/L)
Count (all data)	18	17
Minimum (all data)	3,752	265.0
Maximum (all data)	6,856	489.0
Average (all data) [2]	**5,370.6**	**416.2**
Standard deviation (all data)	814.9	68.1
RSD% (all data)	15.2	16.4

[2] Recommended average Br and Li values for use in the resource estimations.

Based on TETRA's 2022 brine sampling and assay analytical program of the Upper Smackover Member from well MKP A-47, bromine ranges from 4,550 mg/L and 6,000 mg/L Br (average 5,350 mg/L Br) and lithium ranges from 461 mg/L and 489 mg/L Li (average 473 mg/L Li). Hence, the QP concluded that 1) TETRA had validated the historical geochemical data acquired from within the TETRA Property, and 2) the historical data are suitable for use in the resource estimation process. Finally, the QP independent analysis of a Smackover brine sample from MKP A-47 yielded 5,500 mg/L Br and 376 mg/L Li.

Collectively, the bromine and lithium geochemical results yield average concentrations of 5,370.6 mg/L Br (n=18 analyses) and 416.2 mg/L Li (n=17 analyses; Table 11.1). To further assess the quality of the analytical results, the data is assessed using average percent coefficient of variation, or average RSD%, as an estimate of precision or reproducibility of the analytical results. The RSD% of the bromine and lithium data is 15% and 16%, respectively, which is an indication of chemical homogeneity of these elements within the Smackover domain.

To conclude, the QP recommends using the average bromine and lithium values of 5,370.6 mg/L Br and 416.2 mg/L Li for use in the mineral resource estimations presented in this technical report.

11.4 Top Cuts and Capping

No top cuts or capping of upper limits have been applied to the bromine or lithium assay values or are deemed to be necessary. In the authors experience, confined brine deposits typically do not exhibit the same extreme values as precious metal deposits. Historical and TETRA-derived bromine values are consistent throughout the TETRA Property and Br-brine resource area. Historical and TETRA-derived lithium values are consistent within the S-SE Lease resource area being evaluated by TETRA.

11.5 Marketing Conditions and Pricing

11.5.1 Bromine

Bromine is one of the leading mineral commodities, in terms of value, produced in southern Arkansas where 2 bromine companies (Albemarle Corporation and LANXESS AG) account for a large percentage of world production capacity (USGS, 2021). Other significant bromine companies include ICL Group Ltd. (Israel) and Tosoh Corporation (Japan), among others.

The leading global applications of bromine include brominated flame retardants, and intermediates and industrial uses, and a variety of other applications, including drilling fluids and industrial water treatment. U.S. apparent consumption of bromine in 2019 was estimated to be greater than that in 2018. Key drivers for the growth of the bromine market include the increasing 1) use of bromine in mercury emission mitigation in coal-fired power plants, 2) demand for flame retardants due to stringent fire safety framework, and

3) the emergence of large-scale zinc-bromine batteries that are used in power utility applications in various sectors.

In contrast, challenges for growth of the bromine market include toxicological effects associated with bromine, the emergence of non-halogenated flame retardants, and fluctuations in oil & gas prices. Global consumption of bromine and bromine compounds decreased in 2020 due to the global COVID-19 pandemic.

The USGS Commodity Profile for bromine shows the price (average value imports including cost, insurance, and freight) have steadily improved between 2016 and 2020 from USD$2.19 to USD$2.40 dollars per kilogram (USGS, 2021, 2022). For the quarter ending December 2021, North America bromine prices were observed to be modest as U.S. significantly invested in oil and gas drilling activities. Bromine FOB bulk prices in USA reached USD$4,580 per MT in late-December (ChemAnalyst, 2022). The global bromine market is projected to grow from USD$3.3 billion in 2021 to USD$4.1 billion by 2026, at a CAGR of 4.5% from 2021 to 2026 (Markets and Markets, 2022). The market growth is driven by the increasing demand for bromine in flame retardants, oil & gas drilling, PTA synthesis, mercury emission control, and water treatment & biocides.

Lastly, zinc-bromine flow batteries usage is increasing in special power utility applications to support large infrastructures including utilities, commercial and industrial, residential, electric vehicle charging grid, military, and telecommunications (Global Newswire, 2021). The global commercial and industrial sector is growing due to new compounding technologies that can increase product efficiency and investment by various government bodies in the research and development sector, both of which are expected to have a positive future impact on the commercial and industrial application of zinc-bromine.

11.5.2 Lithium

Historical (pre-2000s) uses for lithium include glass and ceramics, grease, air conditioning; pharmaceuticals to treat bi-polar disorder; and specialised aluminum-lithium alloys. Growth in the lithium industry post-2000 resulted from the rapidly increased adoption of rechargeable lithium-ion batteries in personal electronics (e.g., cell phones, laptops, etc.).

Current growth forecasts for lithium usage over the coming 15 to 30 years relate to the increasing use of lithium-ion batteries (and future derivations therefrom) in:

Transportation, which includes a global revolution from gas vehicles to fully electric, or plug-in hybrid cars, bikes, commercial trucks, busses, etc.

Stationary storage application requirements which relate to the increasing penetration of intermittent renewable energy sources into many regulated electric grids, and the desire to store excess electric generation, for use later in the day to balance generation and demand.

In 2022, it's looking like the electric vehicle market will be a big factor in how the lithium market unfolds. Alongside electric vehicles, the general push for decarbonization and sustainable energy practices will also guide the lithium market to see prices and interest increase from producers, investors, and consumers.

Given the 2021 volume of mergers and acquisitions, some experts forecast some relief to the supply-side pressure of the lithium industry, however, lithium supply will most likely still see a deficit in 2022.

The pricing of lithium chemicals is somewhat opaque, as lithium is not a tradeable commodity, and there is no current trading reference price that is publicly available. Lithium chemicals are typically sold in private supply contracts between producer and industrial user, and these contracts are for a specific chemical composition, and are set for a period that may vary between weeks to several years (though generally for between 3 months to 1 year).

Platts assessed lithium carbonate at $33,800/mt Dec. 31, 2021, up 432.3% from a year earlier (S&P Global, 2022). Lithium hydroxide prices were assessed at $31,700/mt on the same day, up 252.2% from a year earlier. The prices reflect the spot value of battery grade material on a CIF North Asia basis, referring to deliveries to the main ports of China, Japan, and South Korea. Lithium carbonate, however, is normalized to deliveries at the Shanghai port. The price of lithium is forecasted to follow the same trajectory from 2021 (International Battery Metals, 2022).

11.6 Initial Assessment and Reasonable Prospects for Economic Extraction

There are reasonable prospects of economic extraction of bromine and lithium from Upper Smackover Member brine at the TETRA Property's confined aquifer brine deposit type setting. Contentions to support this statement include:

- Site infrastructure and resources: The TETRA Property is situated within a major oil and gas district with sufficient legislation and regulations, current energy resource operations (wells, pipeline networks, and facilities), power sources, road infrastructure, and energy-experienced personnel.

- In-Place Brine Regulators: Arkansas is an established brine producing State that has established 'production units' such that Smackover Formation brine in southern Arkansas can be derived within a set acreage to provide an efficient regulatory structure and protect the correlative rights of all mineral interest owners.

- Aquifer dimensions: The Late Jurassic Smackover Formation forms a widespread, relatively uniform carbonate unit that spans 6 south-southeast U.S. States. The top of the Upper Smackover Member was defined in this 3D resource model by utilizing publicly available surface top horizon pick data from throughout the Property region.

- Brine access: During 2022, TETRA drilled well MKP A-47 from within the boundaries of the Property for lithium and bromine assay testing, and mineral processing test work.

- Brine composition: Compilation of historical and TETRA-generated bromine and lithium geochemical results yield average concentrations of 5,370.6 mg/L Br (n=18 analyses) and 416.2 mg/L Li (n=17 analyses).

- Hydrogeological characterization: Based on the historical data, the Upper Smackover Member at the Property is likely to have an average effective porosity of 10%, and permeability values that are less than 210 mD, with an average of 53.3 mD. Higher porosity and permeability may be present underlying the southern portion of the TETRA Property within the McKamie-Patton Pool. The storativity and average transmissivity of the Smackover aquifer is estimated at 2.4×10^{-5} and 2.3 m^2/day. To conclude and in the QPs opinion, the confined aquifer units within the Upper Smackover Member constitutes an aquifer of interest at the TETRA Property.

- Fluid flow: Companies other than TETRA have produced brine from the Smackover Formation aquifer to generate bromine for over 5 decades in 3 separate counties of southern Arkansas (Union, Columbia, and Lafayette).

- Bromine recovery extraction technology: Bromine has been historically produced from Smackover Formation brine in southern Arkansas for over 50-years by brine company's other than TETRA. Because the TETRA Property Smackover brine has similar physical and chemical attributes to the brine that has historically been used to produce bromine, TETRA's process flowsheet and design information has the potential to produce bromine in the proposed area using the existing extensive infrastructure.

- Lithium recovery extraction technology: TETRA is developing a resin-based adsorption/desorption Direct Lithium Extraction technology that employs Simulated Moving Bed (SMB) methodologies in which multiple columns are packed with resin to allow lithium to be adsorbed and desorbed at the same time to make the extraction process fully continuous. Experimental work conducted by TETRA – and on brine derived from the test well MKP A-47 – has shown that deleterious elements such as Na^+, K^+, Ca^{2+}, Mg^{2+}, and B can be successfully removed in columnar testing. Beneficiation of the brine feed to an eluate composite liquor has increased Li^+ from 360 ppm Li to 938 ppm Li during the current pilot testing efforts.

- Environmental factors: There are no known environmental conditions that would affect TETRA's ability to conduct exploration work to acquire brine samples for assaying or mineral processing test work.

- Product value: Numerous countries have political and societal ambitions to reduce carbon emissions and transition their economies to renewable energy. Battery and critical metal markets favouring lithium and zinc-bromine are anticipated to have continued, and even increased, demand. The potential of rapid extraction technological development invites opportunities to consider production from low concentration, but large source, confined aquifer brine deposits.

TETRA Property is an early-stage exploration project, and a Preliminary Economic Assessment has yet to be completed. An initial mineral resource assessment is presented in this technical report.

To conclude, this technical report was prepared by a multi-disciplinary team that include geologists, hydrogeologists, and chemical engineers with relevant experience in the geology of the Smackover Formation, brine geology/hydrogeology, and brine processing.

Based on an evaluation of aquifer dimensions, brine access, brine composition, fluid flow, recovery extraction technologies, environmental factors, and political and societal ambitions to reduce carbon emissions and transition their economies to renewable energy, there is collective agreement that the TETRA bromine- and lithium-brine project has reasonable prospects for economic extraction. The senior author and QP takes responsibility for this statement.

11.7 Cutoff

TETRA's bromine- and lithium-brine project is an early-stage exploration project. The QP recommends cutoff values of 250 mg/L Br and 50 mg/L Li in this initial mineral resource assessment. These cutoff values represent, and provide some flexibility, for the lowest grade, or quality, of mineralized brine and are comparable with other confined aquifer brine projects, both internationally and within the Smackover Formation aquifer brine in southern Arkansas. Comparative cutoff assessments include:

- Albemarle Corporation disclosed 3,071 MT of proven and probable bromine mineral reserves at its Magnolia operation (southern Arkansas and adjacent to the TETRA Property) using an estimated economic cutoff grade for reserve reporting purposes of 250 mg/L bromine with a bromine price ranging from $4,570 to $8,300 per MT (Albemarle Corporation, 2021b). The concentration of bromine at the Magnolia site varies based on the physical location of the field with maximum values of over 6,000 mg/L Br.

- Albemarle also used an estimated economic cutoff grade for the Silver Peak NV project of 56 mg/L Li (Albemarle Corporation, 2021b), which includes additional assumptions such as recovery factors, pumping rates, operating, and sustaining capital costs.

- Advanced and publicly disclosed DLE lithium projects that are focused on brine from geothermal, salar, oilfield, and evaporite host aquifers have average lithium concentrations of between 75 mg/L and 400 mg/L Li (Warren, 2021) and use a minimum reported cutoff of 37 mg/L or 50% of the lithium grade (MacMillan et al., 2021).

- Standard Lithium Ltd. used cutoff of 100 mg/L Li and 50 mg/L Li at its LANXESS South (53 mg/L Li to 299 mg/L Li) and West Arkansas lithium projects (132 mg/L to 423 mg/L Li) in Union and Columbia-Lafayette counties (Dworzanowski et al., 2019; Mielke et al., 2021).

To conclude, and ultimately, any specific petroleum or geothermal fluid will require a best-fit extraction process, or combination of processes, based on fluid composition and physical and chemical requirements related to the extraction technology and the management of the reservoir. And this will have direct impact on the cutoff employed.

Hence, the QP recommends that the cutoff values continue to be evaluated as TETRA advances their bromine- and lithium-brine project along with the lithium DLE recovery process. It is possible that adjusted cutoffs are implemented in future technical reports that have higher levels of technological development and resource/reserve classification.

11.8 Mineral Resource Classification

The TETRA Property bromine- and lithium-brine resource estimations is classified as an 'inferred mineral resource' in accordance with guidelines established by S-K 1300. By definition,

> *"An inferred mineral resource is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. The level of geological uncertainty associated with an inferred mineral resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an inferred mineral resource has the lowest level of geological confidence of all mineral resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability, an inferred mineral resource may not be considered when assessing the economic viability of a mining project and may not be converted to a mineral reserve."*

It is the opinion of the QP that the project requires further detail to elevate the resource to a higher classification level. This work includes expanded access to Smackover Formation brine, additional brine sampling and assaying, and ongoing brine processing test work toward the development of 1) a bromine extraction pilot plant, and 2) modern rapid lithium extraction technology.

11.9 Resource Estimates

The Effective Date of the TETRA bromine- and lithium-brine resource estimations is 15 September 2022. Spatially, the mineral resource models and estimation processes are constrained into 2 distinct resource areas:

1. The maiden TETRA Br-brine resource estimate area within a proposed brine unitisation area that encompasses the entire TETRA Property, or all 1,004 individual mineral leases that are comprised of 41,528 gross acres and 31,355 net acres.

2. The maiden TETRA Li-brine resource area is within a proposed brine unitisation area defined by the S-SE Leases sub-portion of the TETRA Property that is comprised of 112 individual mineral leases that encompass 5,100 gross acres and 3,682 net acres.

Stratigraphically, the mineral resource models and estimation processes is confined to the Upper Smackover Member domain which extends to a depth of 200 feet (61 m) below the top surface of the Upper Smackover Member and Smackover Formation. The calculated volume of rock, or aquifer volume underlying the TETRA Property within the proposed unitisation areas is summarized as:

- The maiden TETRA Br-brine resource area underlying the entire TETRA Property has an Upper Smackover Member domain aquifer volume of 2.171 $miles^3$, or 9.049 km^3.

- The maiden TETRA Li-brine resource area underlying the S-SE portion of the Property has an Upper Smackover Member domain aquifer volume of 0.234 $miles^3$, or 0.977 km^3.

Using an average effective porosity of 10%, and a global average modal abundance of brine in the Upper Smackover Member pore space percentage of 98%, the following brine volumes were calculated:

- The maiden TETRA Br-brine resource area underlying the entire TETRA Property has an Upper Smackover Member domain brine volume of 0.213 $miles^3$, or 0.887 km^3.

- The maiden TETRA Li-brine resource area underlying the S-SE portion of the Property has an Upper Smackover Member domain brine volume of 0.023 $miles^3$, or 0.096 km^3.

Average bromine and lithium values of 5,370.6 mg/L Br and 416.2 mg/L Li were used in the resource estimation calculations. The brine resources were estimated using cutoff values of 250 mg/L Br and 50 mg/L Li.

Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into a mineral reserve. The in-situ bromine- and lithium-brine inferred resources are globally (totally) estimated within the proposed TETRA Property unitisation areas and the Upper Smackover Member as follows:

1. The maiden inferred TETRA Br-brine resource underlying the entire TETRA Property is estimated to contain 5,250,000 short tons (4,763,000 metric tonnes) of elemental bromine (Table 11.2).

2. The maiden inferred TETRA Li-brine resource underlying the S-SE portion of the Property is estimated to contain 44,000 short tons (40,000 metric tonnes) of elemental lithium (Table 11.3).

Using a conversion factor of 5.323 to convert elemental Li to Li_2CO_3, or Lithium Carbonate Equivalent (LCE), the maiden inferred TETRA Li-brine resource is estimated to contain 234,000 short tons LCE (212,000 metric tonnes LCE).

Table 11.2 Maiden TETRA Br-brine resource estimation presented as global (total) resource within the Upper Smackover Member underlying the entire TETRA Property.

Reporting parameter	Upper Smackover Member (entire TETRA Property)
Aquifer volume (miles^3)	2.171
Aquifer volume (km^3)	9.049
Brine volume (miles^3)	0.213
Brine volume (km^3)	0.887
Average bromine concentration (mg/L)	5,370.6
Average effective porosity (%)	10.0
Total elemental Br resource (short tons)	5,250,000
Total elemental Br resource (metric tonnes)	4,763,000

Note 1: Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into a mineral reserve. The estimate of mineral resources may be materially affected by geology, environment, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.
Note 2: Weight in short tons (2,000 lbs or 907.2 kg) and metric tonnes (1,000 kg or 2,204.6 lbs).
Note 3: Tonnage numbers are rounded to the nearest 1,000 unit.
Note 4: In a confined aquifer (as reported herein), the average effective porosity of 10% is a proxy for specific yield.
Note 5: Resource estimations were completed and reported using cutoffs of 250 mg/L Br and 50 mg/L Li.

Table 11.3 Maiden TETRA Li-brine resource estimation presented as global (total) resource within the Upper Smackover Member underlying the South-Southeast sub-portion of the TETRA Property.

Reporting parameter	Upper Smackover Member (S-SE Leases Sub-Property)
Aquifer volume (miles^3)	0.234
Aquifer volume (km^3)	0.977
Brine volume (miles^3)	0.023
Brine volume (km^3)	0.096
Average lithium concentration (mg/L)	416.2
Average effective porosity (%)	10.0
Total elemental Li resource (short tons)	44,000
Total elemental Li resource (metric tonnes)	40,000
Total LCE (short tons)	234,000
Total LCE (metric tonnes)	212,000

Note 1: Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into a mineral reserve. The estimate of mineral resources may be materially affected by geology, environment, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.
Note 2: Weight in short tons (2,000 lbs or 907.2 kg) and metric tonnes (1,000 kg or 2,204.6 lbs).
Note 3: Tonnage numbers are rounded to the nearest 1,000 unit.
Note 4: In a confined aquifer (as reported herein), the average effective porosity of 10% is a proxy for specific yield.
Note 5: Resource estimations were completed and reported using cutoffs of 250 mg/L Br and 50 mg/L Li.
Note 6: To describe the resource in terms of the industry standard, a conversion factor of 5.323 is used to convert elemental Li to Li_2CO_3, or Lithium Carbonate Equivalent (LCE).

**** Items 12 to 19 of S-K 1300 are not included in this technical report ****
**** TETRA's TETRA Property is not an advanced project ****

20 Adjacent Properties

This section discusses mineral-brine properties that occur outside of the TETRA Property. In some cases, the QP has been unable to verify information pertaining to mineralization on the adjacent properties, and therefore, the QP and TETRA advocate that the information is not necessarily indicative of the mineralization on the TETRA Property that is the subject of this technical report.

The first commercial recovery of bromine from Smackover Formation brine occurred in Union County in 1957, and Br-brine production has continued in southern Arkansas since that time in Union and Columbia counties. The Br-brine production is led by 2 active bromine producers that include Albemarle Corporation and LANXESS (Figure 20.1).

Albemarle Corporation operates 2 Br-brine plants near Magnolia, AR. Albemarle's Magnolia North and South plants are fed by a network of brine production wells in Columbia County. During 2020, Albemarle Corporation produced approximately 74,000 metric tons of bromine at its Magnolia facilities (Albemarle Corporation, 2021a). Albemarle announced the company will double capacity for brine extraction by 2025 at a cost of $30 million to $50 million (Albemarle Corporation, 2021c).

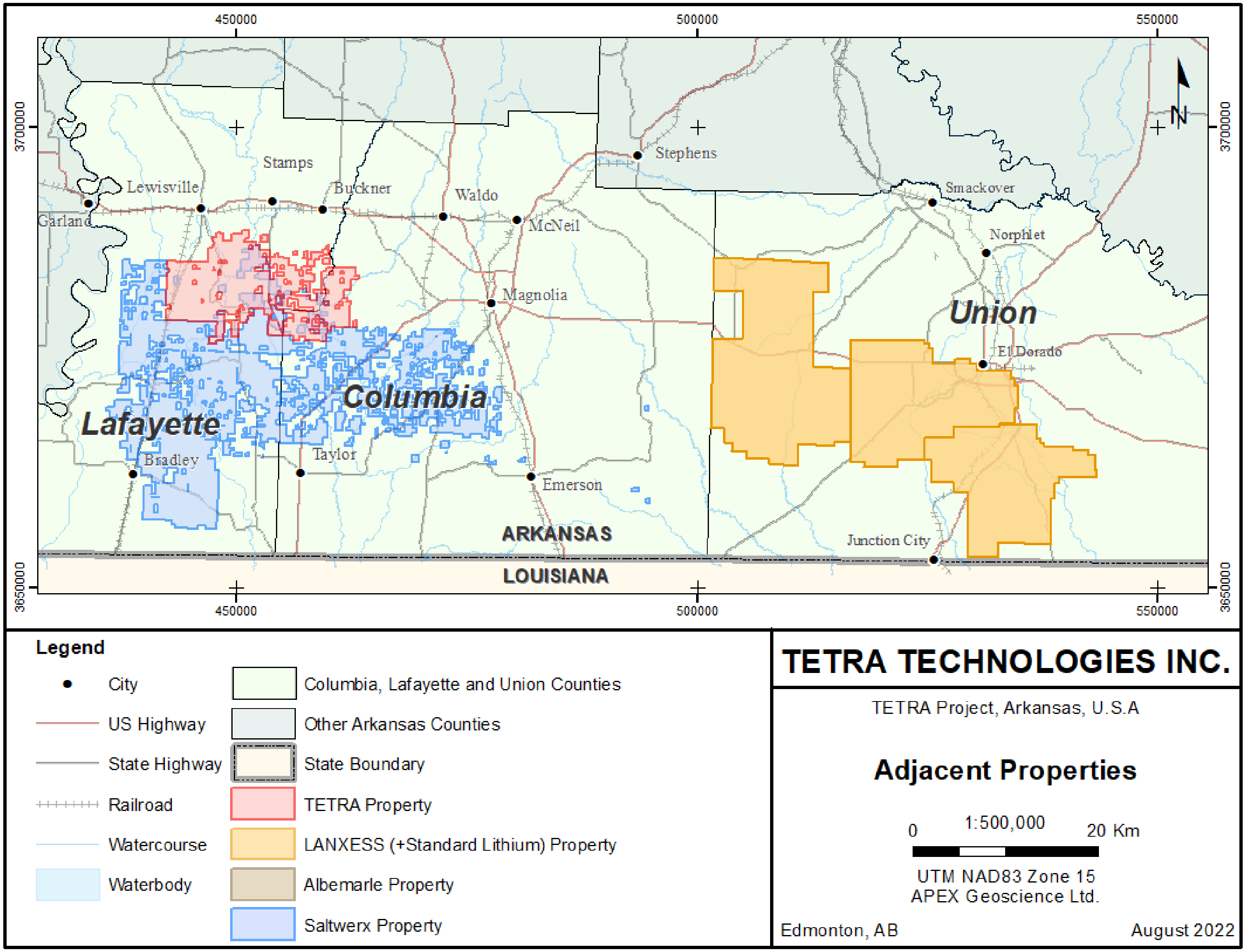
Albemarle is also one of the world’s leading manufacturers of lithium. Albemarle currently operates unconfined brine deposits in Chile (Salar de Atacama) and the U.S. (Clayton Valley, NV) and has a 49% share in Talison Lithium Limited in Greenbushes, Western Australia with access to spodumene resources. Albemarle is investigating DLE technologies such as absorption, but to the bet of the QPs knowledge, has yet to produce lithium from the Smackover Formation in Arkansas (e.g., Magnolia Reporter, 2021b).

LANXESS operates 3 Br-brine plants near El Dorado, AR (Union County). In 2007, LANXESS had the capacity to produce 130,000 tonnes of bromine per year. In addition to bromine, LANXESS entered the battery chemistry business with electrolyte production for lithium-ion batteries in Leverkusen, Germany (LANXESS, 2021).

LANXESS (through a lithium agreement with Standard Lithium Ltd.) has also expressed interest in producing lithium from the southern Arkansas Smackover Formation. Standard Lithium Ltd. recently announced an agreement with LANXESS Corporation toward the development of the first commercial lithium project in Arkansas, which is to be constructed at an operational Lanxess El Dorado facility (Standard Lithium Ltd., 2022). Standard Lithium Ltd.’s DLE process, known as LiSTR has the potential to reduce the recovery time of extracting lithium from brine.

Galvanic Energy, LLC, a privately held exploration company in Oklahoma City, OK employs innovative, proprietary discovery methods to identify natural resources essential to the US renewable energy sector. The company has completed well testing, reservoir modeling, and inferred mineral resource estimations on its approximately 120,000-acre lithium-brine prospect in southern Arkansas (Galvanic Energy, LLC, 2022). The property is located directly south of the TETRA Property.

Figure 20.1 Adjacent properties to the TETRA Property in southern Arkansas.



Finally, and because of a 2017 option agreement between TETRA and Standard Lithium, TETRA has granted Standard Lithium an option to acquire the rights to produce and extract lithium from a portion of TETRA's total brine leasehold. The option period is valid for a period of 10-years subject to Standard Lithium's annual payments. Standard Lithium has not yet exercised its option to acquire the rights to produce and extract lithium. To summarize the option area within the context of this technical report, the Standard Lithium option area is defined as the Main Lease Area and the South-Southwest Lease Area as presented in Section 3.2.

21 Other Relevant Data and Information

TETRA's maiden Br-brine resource estimate encompasses the entire TETRA Property. In comparison, TETRA's maiden Li-brine resource estimate encompasses the S-SE Lease sub-portion of the TETRA Property.

With respect to lithium and the remaining Main Lease and S-SW Lease sub-areas within the TETRA Property, TETRA has granted Standard Lithium an option to acquire the rights to produce and extract lithium within these sub-portions of the TETRA Property (i.e., the Main Lease and S-SW Lease areas). The option period is valid to 2027 subject to annual payments. Standard Lithium has not yet exercised its option to acquire the rights to produce and extract lithium. Standard Lithium calls the optioned property the SW Arkansas Lithium Project.

Because TETRA owns the underlying rights to all brine-related minerals within the TETRA Property, the lithium mineral resource prepared by Standard Lithium is material to TETRA. Accordingly, the Standard Lithium Ltd. (2021) resource table is reiterated in the text that follows as part of the disclosure presented in this technical report.

Using a cutoff of 50 mg/L Li, the SW Arkansas Lithium Project resource estimate is classified as 'inferred' in accordance with the Canadian Institute of Mining (CIM) definition standards. The total (global) in-situ Inferred lithium brine resource is estimated as a total (global) in-situ Inferred lithium brine resource that is predicted to include 248,000 short tons (225,000 metric tonnes) of elemental lithium, or 1,318,000 short tons (1,195,000 metric tonnes) of LCE.

Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into a mineral reserve. The estimate of mineral resources may be materially affected by geology, environment, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.

The SW Arkansas inferred lithium-brine resource estimation was estimated using a proposed unitised resource area in consideration of two separate resource areas (the North and South resource areas), and within the Upper and Middle Smackover formations. The average thickness of the resource domains and lithium concentration within the North and South resource areas was approximately 197 and 207 feet (60 m and 63 m), and 160 mg/L and 399 mg/L Li, respectively.

Additional information pertaining to the Standard Lithium SW Arkansas resource estimates can be viewed in Standard Lithium Ltd. (2021), which is available at www.sedar.com.

22 Interpretation and Conclusions

22.1 TETRA's 2022 Exploration and Mineral Processing Work

During 2021, TETRA announced the completion of a 2021 geological introduction technical report on its bromine- and lithium-brine project in southern Arkansas (TETRA Technologies, Inc., 2021b). The assessment included conceptual exploration targets of the bromine-brine and lithium-brine potential within the Smackover Formation aquifer. To advance the exploration targets to the mineral resource classification stage, TETRA completed the following work activities during 2022:

- Drilled an oil and gas permitted vertical well, MKP A-47, to depth of 10,000 feet (3,048 m) to acquire Upper Smackover Member brine within the boundaries of the TETRA Property.

- Collected representative Upper Smackover Member brine samples for assay testing to validate the historical brine geochemistry and to obtain a greater understanding of the distribution of the bromine and lithium concentrations within the Smackover Formation brine underlying the TETRA Property.

- Conducted stratigraphic and hydrogeological studies to validate the geological domain boundaries and hydro-parameters of the Upper Smackover Member.

- Conducted mineral processing test work to explore and develop the bromine and lithium extraction processes.

22.1.1 Smackover Formation Brine Geochemical Sampling Program

In the second quarter of 2022, TETRA commissioned an independent geological consulting firm to drill an exploratory well in the S-SE Lease sub-area of the TETRA Property. TETRA collected representative Upper Smackover Member aquifer brine at 3 separate perforation windows within the well, which correlate to different sample depths within the well bore and the Upper Smackover Member stratigraphy. A total of 8 original Upper Smackover Member brine samples were collected along with an additional 9 samples for QA-QC confirmation testing.

The brine samples were couriered to two separate, independent, and accredited laboratories. Of the 8 original samples, a single outlier Br and Li analytical result analyzed at ACZ was observed (sample TTI-A47-G4-S) that yielded significantly lower Br (1,850 mg/L Br) and Li (403 mg/L Li) in comparison to 1) the other sample results, and 2) its counterpart sample that was analyzed at WetLab, which had more representative analytical results (5,800 mg/L Br and 477 mg/L Li). The ACZ outlier sample was re-analyzed, using similar analytical equipment, but the lab employed different dilution factors. Hence, the initial analysis, and the re-run analysis, from the ACZ analyzed sample TTI-A47-G4-S is considered not reliable by the QP.

Subsequently, the bromine concentrations of the remaining 7 original Upper Smackover Member sample analyses range between 4,550 and 6,000 mg/L Br with an average of 5,350 mg/L Br. This dataset has an average percent relative standard deviation of 10% which represents very good data quality.

With respect to lithium, the concentrations of the 7 original Upper Smackover Member sample analyses range between 461 and 489 mg/L Li with an average of 473 mg/L Li. The average percent relative standard deviation of the dataset is 2%, which represents very good data quality.

As a result of TETRA's brine sampling program, the Company has validated the historical Smackover Formation bromine- and lithium-brine data. Brine from the Upper Smackover Member within well MKP A-47, yielded

- Similar bromine results in comparison to the historical analytical work that was conducted throughout the TETRA Property.

- The highest recorded lithium values within the Upper Smackover Member, which may indicate uniquely elevated Li-brine within the southernmost portion of the TETRA Property and the McKamie-Patton oilfield reservoir.

22.1.2 Stratigraphic and Hydrogeological Assessments

TETRA conducted downhole electrical wireline geophysical surveys at well MKP A-47 including gamma-ray, spontaneous potential, borehole temperature, matched resolution resistivity (at 2 feet resolution), and density, neutron, and acoustic porosity. The TETRA-interpreted results compare well with historical and neighboring wireline log data and validate 1) the stratigraphy of the Upper, Middle, and Lower Smackover members in relation to regional, historical, stratigraphic marker horizons, and 2) increased porosity and permeability within the Upper Smackover Member.

A regional hydrogeological assessment was completed by HCL on behalf of TETRA. Based on the historical data, the Upper Smackover Member within the Property is likely to have an average effective porosity of 10%, and permeability values that are less than 210 mD, with an average of 53.3 mD. Higher porosity and permeability may be present underlying the southern portion of the TETRA Property within the McKamie-Patton oilfield. The storativity and average transmissivity of the Smackover Formation aquifer is estimated at 2.4×10^{-5} and 2.3 m^2/day.

To conclude and in the QPs opinion, the confined aquifer units within the Upper Smackover Member constitutes an aquifer of interest at the TETRA Property. Especially given knowledge that:

1. Petro-operators have historically produced brine (since the 1920s) from the Smackover Formation aquifer as waste production water associated with hydrocarbon production in 3 separate counties of southern Arkansas (Union, Columbia, and Lafayette counties).

2. Brine-operators have historically produced bromine (since 1957) from the Smackover Formation brine in Union and Columbia counties.

22.1.3 2022 Mineral Processing Test Work

With respect to bromine extraction from the Smackover Formation brine, it is the Qualified Person's opinion that there is reasonable likelihood that bromine can be commercially produced based on: 1) knowledge that bromine has been historically produced from Smackover Formation brine in southern Arkansas for over 50-years by brine company's other than TETRA, 2) the TETRA Property Smackover brine has similar physical and chemical attributes to the brine that has historically been used to produce bromine in Union and Columbia counties, 3) TETRA's previous experience in filtration technologies associated with produced oil and gas waste production water, 4) the proposed bromine-extraction process flowsheet and design information being evaluated by TETRA, and 5) the existing infrastructure at the TETRA Property including rail, power, water, pipelines, existing Smackover formation wells, improved paved roads, and available labor.

During 2022, TETRA conducted lithium-based laboratory and initial pilot mineral processing tests on Smackover Formation brine obtained from the test well drilled within the TETRA property (well MKP A-47). TETRA is developing a resin-based adsorption/desorption Direct Lithium Extraction technology that employs Simulated Moving Bed (SMB) methodologies in which multiple columns are packed with resin to allow lithium to be adsorbed and desorbed at the same time to make the extraction process fully continuous. Experimental work conducted by TETRA has shown that deleterious elements such as Na^{+}, K^{+}, Ca^{2+}, Mg^{2+}, and B can be successfully removed in columnar testing. Beneficiation of the brine feed to an eluate composite liquor has increased Li^{+} from 360 ppm Li to 938 ppm Li during the current pilot testing efforts.

22.1.4 Qualified Persons Opinion on TETRA's 2022 Exploration and Mineral Processing Work

It is the QP's opinion that the exploration work conducted by TETRA is reasonable and within the standard practice of bromine- and lithium-brine evaluations within the deep-seated confined aquifer deposit type setting. This contention is based on 1) the QP's site inspection and independent verification of Br- and Li-brine mineralization, 2) a review of TETRA's QA-QC sampling protocol and results, 3) a review of the geochemical analytical results in conjunction with the laboratory certificates and historical results, 4) a comparison between TETRA's MKP A-47 well wireline logs and historical well logs, and 5) the compilation and comparison of historical hydrogeological parameters from core plug measurements, in which effective porosity is equivalent to specific gravity.

With respect to mineral processing statemen, the QP of this sub-section's opinion knowing and having experience in the South Arkansas brine and bromine production industry, that there is reasonable likelihood that bromine can be commercially produced from the Smackover Formation brine at the TETRA Property in Lafayette County Arkansas, given the proper level of funding, time, and resources. TETRA's process flowsheet and design information is reasonable and within current Br-brine industry production standards.

It is the QP opinion that the adequacy of data resulting from the SMB pilot testing presented in this sub-section is valid within the evolving field of DLE. While the DLE technology has yet to be applied commercially to confined aquifer brine deposit types, the resin-based adsorption/desorption system TETRA has chosen has been used successfully in commercial processes extracting Li from the salar brine deposit type. In addition, TETRA's adsorption/desorption DLE technological test work is currently being used by other brine companies as a conventional industry practice toward the development of this technology within other confined aquifer brine deposits.

It is the QP's opinion that TETRA's 2022 Smackover Formation exploration results at the TETRA Property – as presented and discussed herein – provides reasonable and sufficient data for the mineral resource geological modelling and estimation work conducted in this technical report.

22.2 Mineral Resource Estimations

TETRA's mineral resource estimations were prepared in accordance with the U.S. Securities and Exchange Commissions (SEC's) final disclosure rules for mining company issuers (Regulation S-K subpart 1300, or S-K 1300). The Effective Date of the mineral resources is 15 September 2022.

The technical report was prepared by a multi-disciplinary team that include geologists, hydrogeologists, and chemical engineers with relevant experience in the geology of the Smackover Formation, brine geology/hydrogeology, and Br- and Li-brine processing. There is collective agreement that the TETRA bromine- and lithium-brine project at the TETRA Property has reasonable prospects for economic extraction of lithium from brine, and the senior author and QP takes responsibility for this statement.

Spatially, the mineral resource models and estimations are constrained into 2 distinct resource areas:

1. The maiden TETRA Br-brine resource estimate area is within a proposed brine unitisation area that encompasses the entire TETRA Property.

2. The maiden TETRA Li-brine resource area is within a proposed brine unitisation area defined by the S-SE Leases sub-portion of the TETRA Property.

Stratigraphically, the Upper Smackover Member domain wireframe is defined by an average domain thickness of 200 feet (61 m) below the well documented uppermost surface of the Upper Smackover Member.

The estimation calculation used an average Upper Smackover Member porosity of 9.0% and a brine pore space volume of 98%. No top cuts or capping of upper limits have been applied to the bromine or lithium assay values or are deemed to be necessary. However, a single outlier Br and Li analytical result that yielded significantly lower Br and Li was removed from the analytical dataset because the result 1) was blatantly different than all other analytical results, 2) a counterpart sample analyzed at different laboratory yielded results that correlated well with all other analytical results, and 3) the average percent relative standard deviation improved without the outlier data result. Hence, the estimation used average bromine- and lithium-brine analytical results of 5,370.6 mg/L Br (n=18 analyses) and 416.2 mg/L Li (n=17 analyses).

The TETRA Br- and Li-brine resource estimates are classified as Inferred Mineral Resources and are presented as a total (or global value) of the Upper Smackover Member aquifer brine underlying TETRA's Property. Cutoff values of 250 mg/L Br and 50 mg/L Li were used in the mineral resource assessments.

Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into a mineral reserve.

The *in-situ* inferred bromine- and lithium-brine resources are globally (totally) estimated within the proposed TETRA Property unitisation areas and the Upper Smackover Member as follows:

1. The maiden inferred TETRA Br-brine resource underlying the entire TETRA Property is estimated to contain 5,250,000 short tons (4,763,000 metric tonnes) of elemental bromine (see Table 11.2).

2. The maiden inferred TETRA Li-brine resource underlying the S-SE portion of the Property is estimated to contain 44,000 short tons (40,000 metric tonnes) of elemental lithium (see Table 11.3).

Using a conversion factor of 5.323 to convert elemental Li to Li_2CO_3, or Lithium Carbonate Equivalent (LCE), the maiden inferred TETRA Li-brine resource is estimated to contain 234,000 short tons LCE (212,000 metric tonnes LCE).

22.3 Risks and Uncertainties

As with any early-stage exploration project there exists potential risks and uncertainties. TETRA will attempt to reduce risk/uncertainty through effective project management, engaging technical experts, and developing contingency plans.

Most brine companies are reliant on pre-existing oil and gas wells that are managed and operated by current petro-companies (or geothermal companies), and hence, there is some risk associated with a dependency on the petro-operation and continued brine access. As a mitigation strategy, TETRA could permit and drill their own wells or consider options such as purchasing the well, renting the operation of the well, etc. In addition, and as the project advances, TETRA will need to configure how many wells might be required to run any future successful commercial operation.

With respect to the mineral resource, the inferred Br- and Li-brine resource estimations presented in this technical report are subject to change as the project achieves higher levels of confidence in the spatial extent of the aquifers, mineralization, metals-from-brine recovery processes and technological development, and the appropriate cutoff value in relation to extraction results.

A limitation of the 3-D geological model is directly related to the number of data points, or wells with stratigraphic tops pick information. The average thickness of the Upper Smackover Member aquifer domain (200 feet, or 61 m) is considered by the QP to be reasonable for the maiden inferred mineral resource estimations presented. Additional complementary seismic profiles and stratigraphic horizon tops interpretation, and/or new drilling will undoubtedly improve the geological model and the brine aquifer domain volumes calculated within the individual wireframe(s). Similarly, additional core plug porosity and permeability measurements would help to improve the porosity data and level of confidence of the brine levels within the pore space.

The brine volume calculations presented in this technical report assume TETRA has 100% minerals interest to the Smackover Formation brine underlying the TETRA Property as part of a proposed unitised brine production unit. At the Effective Date of this technical report, TETRA has not initiated a brine unitisation application process with the AOGC. The proposed brine production unit area – and resource domain area – used in the resource estimation process is therefore subject to change as the TETRA bromine- and lithium-brine project evolves, and TETRA contemplates the economic viability of the project. I.e., A potential uncertainty may be related to any impact on the project's economics because of the final definition of the brine production unit boundary outline. In addition, annual adjustments to any future in-lieu royalty payments under the applicable Producer Price Index may influence the economics of the project.

Finally, there is no guarantee that the Company can successfully extract battery grade lithium from the Smackover Formation brine in a commercial capacity. The DLE extraction technology from brine related to confined aquifer deposit types is still at the developmental stage. There is also the risk that the scalability of any initial mineral processing bench-scale and/or demonstration pilot test work may not translate to a full-scale commercial operation.

23 Recommendations

The TETRA bromine- and lithium-brine project in southwest Arkansas is a project of merit. A two-phased program is recommended that continues to assess the Br- and Li-brine potential at the Property and defines work intended to increase the confidence level of the data and the extraction test work toward updated mineral resource estimation(s) and/or a Preliminary Economic Assessment scoping study.

The total estimated cost of Phase 1 and Phase 2 of the recommended exploration work, with a 10% contingency, is USD$10,411,500 (Table 23.1).

Phase 1 work recommendations include the following activities intended to advance the mineral resource potential of the Property and continue to refine the mineral processing technologies:

- It is recommended that TETRA consider re-opening some historic oil and gas holes and/or drilling new well(s) to test Smackover Formation brine. At minimum of 5 wells should be targeted with the representative brine sampled for assay and mineral processing test work. The wells can be located either throughout the TETRA Property, or in a strategic area such as the Company's S-SE Lease area. The cost of this work is estimated at USD$7.5 million and assumes an estimated cost of approximately USD$1.5 million to drill a well (re-opening of existing wells would be less expensive but may also involve superfluous costs associated with maintenance of historically old wells).

  As part of any future well drilling program – and included in the USD$7.5 million cost estimate, it is advised that TETRA conduct 1) additional brine assay sampling, 2) additional brine sampling for mineral processing test work, 3) porosity and permeability core plug measurements, and 4) pressure surveys. The resulting data is intended to provide additional geological confidence in the project and acquire data that can be implemented in the development of a formation-water model as part of the next phase of aquifer assessment and potential development.

- TETRA should conduct ongoing mineral processing test work that includes 1) adjustments to the initial benchtop extract process, 2) develop additional confidence in the development of DLE technology, and 3) take the concentrate to a lithium hydroxide form to evaluate the brine and the lithium extraction process to produce battery grade lithium product. The estimated cost of ongoing bench-scale mineral processing test work is USD$300,000.

- As part of TETRA's plan to advance the bromine- and lithium-brine project, the QP recommends TETRA considers and advances the Company's understanding of modifying factors such as marketing information, statutory and regulatory legal matters, environmental baseline studies, commission or plans to engage mine planning participants, government factors, socio-economic factors, and remediation/reclamation plans. The cost of this work is estimated at USD$125,000.

The Phase 2 work recommendations are subject to the positive results of the Phase 1 work initiatives. Phase 2 work recommendations include the following activities intended to refine the bromine- and lithium-brine recovery processes and conduct a Preliminary Economic Assessment:

- Refinement of the bromine- and lithium-brine recovery process flowsheet toward the development and construction of a demonstration pilot plant. The work should include discussion of proposed mining methods, geotechnical and hydrogeological models relevant to mine plans, proposed mineral processing methods, equipment characteristics and specifications, infrastructure, and plant design. The cost of this work is estimated at USD$1,250,000.

- Community consultation and environmental studies. Lafayette and Columbia counties are interested in renewable energy, and it is recommended that TETRA talk with community leaders and provide educational sessions to the public. The Company should also be aware of any sensitive species restrictions associated with the Property area and follow the guidelines if any future exploration causes ground disturbance. The estimated cost of the community consultation and environmental work is USD$40,000.

- Preparation of technical reporting and disclosure that is in accordance with S-K 1300. The estimated cost for an updated mineral resource estimation and/or a Preliminary Economic Assessment technical report is USD$250,000.

Table 23.1 Future work recommendations.

Phase	Description	Cost estimate (USD$)	Sub-Total (USD$)
Phase 1	Target wells (including suspended wells) and/or drill new wells in other parts of the TETRA Property for brine sample collection for assay testing and mineral processing test work.	$7,500,000	
	Ongoing extraction columnar test work and refinement of the bromine and lithium recovery process.	$300,000	
	Consideration and advancement of modifying factors such as marketing information, statutory and regulatory legal matters, environmental matters, commission or plans to engage mine planning participants, government factors, and socio-economic factors.	$125,000	$7,925,000
Phase 2	Planning and development of the bromine and lithium recovery process flowsheet toward development of a demonstration pilot plant.	$1,250,000	
	Community consultation and environmental studies.	$40,000	
	Resource estimation updates (if necessary) and Preliminary Economic Assessment technical reporting.	$250,000	$1,540,000
		Sub-total	$9,465,000
		10% contingency	$946,500
		Total	**$10,411,500**

24 References

Ahr, W. M. (1973): The carbonate ramp – an alternative to the shelf model. Gulf Coast Association of Geological Societies Transactions, v. 23, p. 221–225.

Albemarle Corporation (2020): Albemarle selected by U.S. Department of Energy for lithium research projects; News Release, September 2, 2020, < Available on July 27, 2021 at: https://investors.albemarle.com/news-releases/news-release-details/albemarle-selected-us-department-energy-lithium-research >.

Albemarle Corporation (2021a): Annual Report form 10K; Albemarle Corporation Annual Report, December 31, 2020, 300 p.

Albemarle Corporation (2021b): Form 10-K; United States Securities and Exchange Commission, For the fiscal year ended December 31, 2021 < Available on May 2, 2022 at: https://investors.albemarle.com/static-files/1695ee57-b1eb-4b62-bb56-530f328cc0dd >.

Albemarle (2021c): Albemarle to double US lithium output; News Release dated January 13, 2001, < Available on 19 July 2021 at: https://cen.acs.org/energy/energy-storage-/Albemarle-double-US-lithium-output/99/web/2021/01 >.

Alkin, R.H. and Graves, R.W. (1969): Reynolds oolite of southern Arkansas; The American Association of Petroleum Geologists, Bulletin v. 53, no. 9, p. 1909-1922.

Amy, J. P., Schmitz, D. W., and Baria, L. R. (1995): Distribution of illite and mixed-layered illite in the Smackover Formation of the Manila Embayment of southwest Alabama (Wilcox, Clarke, and Monroe Counties): Gulf Coast Association of Geological Societies Transactions, v. 45, p. 13-20.

Arkansas Geological Survey (2021a): Bromine; Arkansas Department of Energy and Environment, Arkansas Geological Survey, < Available on July 18, 2021 at: https://www.geology.arkansas.gov/minerals/industrial/bromine-brine.html >.

Arkansas Geological Survey (2021b): Brine Resources; Arkansas Department of Energy and Environment, Arkansas Geological Survey, < Available on July 18, 2021 at: https://web.archive.org/web/20150906130508/http://www.geology.ar.gov/energy/brine_resources.htm >.

Arkansas Oil and Gas Commission (2021): Arkansas Department of Energy and Environment; Arkansas Oil and Gas Commission, Interactive website, < Available on July 14, 202 at: http://www.aogc.state.ar.us/default.aspx?aspxerrorpath=/default.aspx >.

Baria, L. R., Stoudt, D. L., Harris, P. M. and Crevello, P. D. (1982): Upper Jurassic reefs of Smackover Formation, United States Gulf Coast. American Association of Petroleum Geologists Bulletin, v. 66, p. 1449–1482.

Bartberger, C.E., Dyman, T.S. and Condon, S.M. (2002): Is There a Basin-Centered Gas Accumulation in Cotton Valley Group Sandstones, Gulf Coast Basin, USA? U.S. Geological Survey Bulletin 2184-D, 43 p.

Bliefnick, D. M., and J. G. Kaldi. 1996. Pore Geometry: Control on Reservoir Properties, Walker Creek Field, Columbia and Lafayette Counties, Arkansas. American Association of Petroleum Geologists Bulletin, Vol. 80, No. 7, p. 1027–1044.

Bishop, W. F. (1971): Geology of a Smackover stratigraphic trap. American Association of Petroleum Geologists Bulletin, v. 55, p. 51–63.

Bishop, W. F. (1973): Late Jurassic contemporaneous faults in north Louisiana and south Arkansas. American Association of Petroleum Geologists Bulletin, v. 57, p. 566–580.

Blondes, M.S., Gans, K.D., Rowan, E.L., Thordsen, J.J., Reidy, M.E., Engle, M.A., Kharaka, Y.K. and Thomas B. (2016): U.S. Geological Survey National Produced Waters Geochemical Database v2.2 (PROVISIONAL) Documentation; USGS Energy Resources Program: Produced Waters, 16 Feb 2016, < Available on 14 July 2018 at: https://archive.org/stream/USGSProducedWatersV2.2c/USGS%20Produced%20Waters%20Database%20v2.2%20Documentation_djvu.txt >.

Breaux, A.K. (2020): Facies Characterization of the Upper, Middle, and Lower Smackover Member Encountered in the Palmer #1 Caraland 26-9 Well, Manila Embayment, Southwest Alabama; M.Sc. Thesis, University of Louisiana, 85 p.

Breit, G.N., and Otton, J.K. (2002): USGS produced waters database: US Department of the Interior, Geological Survey.

Bruce, W. A. 1944. A Study of the Smackover Limestone Formation and the Reservoir Behavior of Its Oil and Condensate Pools. Society of Petroleum Engineers. Transactions of the American Institute of Mining, Metallurgical, and Petroleum Engineers, Vol. 155, No. 01, p. 88–119. Paper No. SPE-944088-G.

Budd, D. A. and Loucks, R. G. (1981): Smackover and lower Buckner formations, south Texas. Depositional systems on a carbonate ramp. Bureau of Economic Geology, The University of Texas at Austin, Report of Investigations, 112 p.

Cabot Corporation (2014): Formate Technical Manual, Chemical and Physical Properties; Section A4: Viscosity of Formation Brines. 17 p.

ChemAnalyst (2022): Market Overview: Bromine price trend and forecast; For the quarter ending March 2022, < Available on July 25, 2022 at: https://www.chemanalyst.com/Pricing-data/bromine-1125 >.

Dickinson, K. A. (1968). Upper Jurassic Stratigraphy of Some Adjacent Parts of Texas, Louisiana, and Arkansas. Geological Survey Professional Paper 594-E. Shorter Contributions to General Geology.

Drilling Edge (2021): Arkansas oil and gas summary based on March 2021 production, < Available on 20 July 2021 at: www.drillingedge.com/arkansas >.

Dworzanowski, M., Eccles, D.R., Kotowski, S., Molnar, R. (2019): Preliminary Economic Assessment of LANXESS Smackover Project, Standard Lithium; NI 43-101 Technical Report; p. 230.

Earlougher, R.C., Jr. (1977): Advances in Well Test Analysis. Henry L. Doherty Series; Society of Petroleum Engineers of AIME. 272 p.

Eccles, D.R., Molnar, R., and Rakhit K. (2019): Geological Introduction and Maiden Inferred Resource Estimate for Standard Lithium Ltd.'s Tetra Smackover Lithium-Brine Property in Arkansas, United States. Lafayette and Columbia Counties, Arkansas, U.S.; Technical report repared for Standard Lithium Ltd., 159 p.

Eccles, D.R. (2021): S-K 1300 Technical Report, Geological Introduction to TETRA Technologies, Inc.'s Bromine- and Lithium-Brine Property in Arkansas, United States; Technical report prepared on behalf of TETRA Technologies, Inc. with an effective date of 31 July 2021, 87 p.

Fetter, C.W. (1988): Applied Hydrogeology; Fourth Edition. Prentice-Hall Inc. Upper Saddle River, New Jersey. 592 p.

Galvanic Energy, LLC (2022): Galvanic's lithium prospect among most prolific in North America; News Release dated July 12, 2022, < Available on July 25, 2022 at: https://galvanicenergy.com/news/galvanics-lithium-prospect-among-most-prolific-in-north-america >.

GlobeNewswire (2021): Zinc-bromine batteries: Global Market to 2026; New York, Aug. 10, 2021, Reportlinker.com announces the release of the report "Zinc-Bromine Batteries: Global Market to 2026", < Available on July 25, 2022 at: https://www.reportlinker.com/p06127792/?utm_source=GNW >.

Handford, C. R., & Baria, L. R. (2007). Geometry and seismic geomorphology of carbonate shoreface clinoforms, Jurassic Smackover Formation, north Louisiana. Geological Society, London, Special Publications, 277(1), 171-185.

Harris, P.M. and Dodman, C.A. (1982): Jurassic evaporites of the U.S. Gulf Coast: the Smackover-Buckner contact; In: Handford, C. R., R. G. Loucks, and G. R. Davies (eds.), Depositional and diagenetic spectra of evaporites -- a core workshop: Society of Economic Paleontologists and Mineralogists Core Workshop 3, p. 174-192.

International Battery Metals (2022): Lithium Market Forecast 2022; February 3, 2022, < Available on July 25, 2022 at: https://www.ibatterymetals.com/insights/lithium-market-forecast-2022 >.

Kruseman, G.P., and de Riddler, N.A. (1994): Analysis and Evaluation of Pumping Test Data. Second Edition; ILRI Publication No. 47, 372

LANXESS (2021): LANXESS enters battery chemistry business: electrolyte production for lithium-ion batteries in Leverkusen, Germany; IR News, March 30, 2021, < Available on 19 July 2021 at: https://lanxess.com/en/Investors/News-and-Events/News/2021/03/30/06/38/LANXESS-enters-battery-chemistry-business >.

MacMillan, G., Williams, D.B., Pattison, S., Vorster, W. and Owen, G. (2021): Preliminary Economic Assessment Clearwater Lithium Project; Technical report prepared for E3 Metals Corp., 169 p.

Magnolia Reporter (2021a): TETRA Technologies ramping up its part of South Arkansas lithium production; Magnolia Reporter, January 22, 2021, < Available on July 18, 2021 at:

http://www.magnoliareporter.com/news_and_business/local_news/article_a1f0c3fc-5b0f-11eb-93b0-0bc9a56d8938.html >.

Magnolia Reporter (2021b): Albemarle expanding bromine production to meet demand, management pushes Columbia County lithium down the road; Magnolia Reporter, August 15, 2021, < Available on July 25, 2022 at: http://www.magnoliareporter.com/news_and_business/lafayette_county/article_534461de-fb58-11eb-a213-0313f6619662.html >.

Mancini, E.A., Aharon, P., Goddard, D.A., Horn, M. and Barnaby, R. (2008): Basin analysis and petroleum system characterization and modelling, interior salt basins, central and eastern Gulf of Mexico, Part 3: tectonic / depositional history, resource assessment; Adapted from Final Report, issued June 30, 2008, for period May 1, 2003 to April 30, 2008, prepared for U.S. Department of Energy, for DOE Award Number DE-FC26-03NT15395 and available at Texas A&M University (http://berg-hughes.tamu.edu/research/sedimentary-basin-analysis-studies).

Manger, G. E. 1963. Porosity and Bulk Density of Sedimentary Rocks. Geological Survey Bulletin 1144-E. Contributions to Geochemistry. Prepared partly on behalf of the U.S. Atomic Energy Commission.

Markets and Markets (2022): Bromine market by derivative (organobromine, clear brine fluids, hydrogen bromide), application (flame retardants, oil & gas drilling, PTA synthesis, water treatment& biocides, HBR flow batteries) & region - Global forecast to 2026; < Available on July 25, 2022 at: https://www.marketsandmarkets.com/Market-Reports/bromine-market-42782196.html?gclid=EAIaIQobChMI24D1md7B9wIVSgutBh14nAAhEAMYASAAEgJhq_D_BwE >.

Mielke, E., Eccles, D.R., Shikaze, S., Hunt, T., Breur, R., and Molnar (2021): Preliminary Economic Assessment of SW Arkansas Lithium Project; Technical report prepared for Standard Lithium Ltd., 216 p.

Moldovanyi, E.P. and Walter, L.M. (1992): Regional trends in water chemistry, Smackover Formation, southwest Arkansas: Geochemical and physical controls; The American Association of Petroleum Geologists, Bulletin, v. 76, no. 6., p. 864-894.

Moore, C. (1997): Sequence Stratigraphic Framework of Upper Jurassic Oxfordian Smackover Equivalents illustrated by the Humble McKean #12 core, Buckner Field, southern Arkansas, Central Gulf of Mexico, USA; CSPG-SEPM Joint Convention with the participation of the Global Sedimentary Geology Program and the Geological Survey of Canada, 12 p.

Moore, C.H. and Druckman (1981): Burial diagenesis and porosity evolution, Upper Jurassic Smackover, Arkansas, and Louisiana; The American Association of Petroleum Geologists, 1981, p. 597-628.

Moore, C. H. (1984): The upper Smackover of the Gulf rim: depositional systems, diagenesis, porosity evolution and hydrocarbon production; In: W. P. S. Ventress, D. G. Bebout, B. F. Perkins, and C. H. Moore (eds.), The Jurassic of the Gulf rim: Gulf Coast Section SEPM, 3rd Annual Research Symposium, Program and Abstracts, p. 283–307.

Okoye, E.E. (2017): Comparing the Depositional Environment of the Upper Smackover Formation In Southwestern Clark Formation In Southwestern Clarke County e County, Mississippi, Mississippi And Brooklyn/ Little Cedar Creek Field, Alabama; University of Mississippi, MSc. Thesis, 82 p.

Pitman (2010): Reservoirs and Petroleum Systems of the Gulf Coast; AAPG Datapages Inc., < Available on 14 July 2021 at: https://www.datapages.com/gis-map-publishing-program/gis-open-files/geographic/reservoirs-and-petroleum-systems-of-the-gulf-coast >.

Price, D., Iddon, B. and Wakefield, B.J. (1988): Bromine Compounds: Chemistry and Applications; New York: Elsevier Science Ltd., 422 p.

S&P Global (2022): Commodities 2022: China's lithium markets to face supply squeeze; S&P Global Commodity Insights: Electrical Power, Energy Transition, and metals; January 25, 2022, < Available on July 25, 2022 at: https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/energy-transition/012522-commodities-2022-chinas-lithium-markets-to-face-supply-squeeze >.

Salvador, A. (1987): Late Triassic-Jurassic paleogeography and origin of Gulf of Mexico Basin; American Association of Petroleum Geologists Bulletin, v. 71, 419-451.

Schauer, Jr., P. E. 1957. Fractional Balance Evaluation of Pressure Maintenance, Smackover Line Gas Condensate Reservoir, McKamie-Patton Field, Arkansas. Society of Petroleum Engineers. Transactions of the American Institute of Mining, Metallurgical, and Petroleum Engineers, Vol. 210, No. 01, p. 108–113. Paper No. SPE-699-G.

Standard Lithium Ltd. (2018): Geological introduction and Maiden Inferred Resource Estimate for Standard Lithium Ltd.'s TETRA Smackover Lithium-Brine Property in Arkansas, United States; Technical Report prepared for Standard Lithium Ltd. by Eccles, D.R., Molnar, R. and Rakhit, K. with an Effective Date of February 28, 2019, 159 p., < Available on July 21, 2021 at: www.sedar.com >.

Standard Lithium Ltd. (2019): Preliminary Economic Assessment of LANXESS Smackover Project; Technical Report prepared for Standard Lithium Ltd. by Dworzanowski, M., Eccles, D.R., Kotowski, S., and Molnar, R. with an Effective Date of August 1, 2019, 230 p., < Available on July 26, 2022 at: www.sedar.com >.

Standard Lithium Ltd. (2021): Preliminary Economic Assessment of SW Arkansas Lithium Project; Technical Report prepared for Standard Lithium Ltd. by Mielke, E., Eccles, D.R., Molnar, R., Shikaze, S., Hunt, T., and Breur, R. with an Effective Date of November 20, 2021, 216 p., < Available on July 21, 2022 at: www.sedar.com >.

Standard Lithium Ltd. (2022): Standard Lithium and Lanxess finalize plan for first commercial lithium project in Arkansas; News Release dated July 25, 2022, < Available on April 20, 2022 at: https://www.standardlithium.com/investors/news-events/press-releases/detail/113/standard-lithium-and-lanxess-finalize-plan-for-first >.

Stroud, Hubert B., and Gerald T. Hanson. Arkansas Geography: The Physical Landscape and the Historical-Cultural Setting. Little Rock: Rose Publishing Company, 1981.

TETRA Technologies, Inc. (2021a): TETRA Technologies announces executive role to lead initiatives on key mineral resources and low carbon energy; TETRA Technologies, Inc. News Release, January 19, 2021, Available on July 25, 2022 at: http://ir.tetratec.com/2021-01-19-TETRA-Technologies-Announces-Executive-Role-To-Lead-Initiatives-On-Key-Mineral-Resources-And-Low-Carbon-Energy >.

TETRA Technologies, Inc. (2021b): TETRA Technologies, Inc. announces preliminary exploration lithium and bromine targets from TETRA's Arkansas Smackover Formation leases; News Release, August 2, 2021, Available on July 26, 2022 at: https://ir.tetratec.com/2021-08-02-Tetra-Technologies,-Inc-Announces-Preliminary-Exploration-Lithium-And-Bromine-Targets-From-Tetras-Arkansas-Smackover-Formation-Leases >.

Troell, A. R. and Robinson, J. D. (1987): Regional stratigraphy of the Smackover limestone (Jurassic) in south Arkansas and north Louisiana, and the geology of Chalybeat Springs oil field. Gulf Coast Association of Geological Societies Transactions, v. 37, p. 225–262.

University of Arkansas (2009): Describing the economic impact of the oil and gas industry in Arkansas; Produced for the AIPRO by the Center for Business and Economic Research, University of Arkansas, 72 p.

US Climate Data (2021): Climate Magnolia – Arkansas; US Climate Data 2021 | version 3.0 | by Your Weather Service, < Available on 18 July 2021 at: https://www.usclimatedata.com/climate/magnolia/arkansas/united-states/usar0351 >.

Vestal, J.H. (1950, reprinted 1965): Petroleum Geology of the Smackover Formation of Southern Arkansas; Arkansas Geological Survey, Information Circular IC-14, < The electronic dataset of total Smackover tops was obtained on July 16, 2021 at: https://www.geology.arkansas.gov/publication/information-circulars/IC-14-information-circular.html >.

Wade, W.J., R. Sassen, and E.W. Chinn (1987): Stratigraphy and source potential of the Smackover Formation in the northern Manila embayment, southwest Alabama, G ulf Coast Association of Geological Societies Transactions, v. 37, p. 277-285.

Wade, W. J., and C. H. Moore (1993): Jurassic sequence stratigraphy of southwestern Alabama; Gulf Coast Association of Geological Societies Transactions, v. 43, p. 431-444.

Walter, L.M., Moldovanyi, E.P. and Land, L.S. (1990): Boron isotopic composition of subsurface brines (Smackover Formation, southwest Arkansas): Implications for chemical evolution and migration; Geological Society of America 1990 Annual Meeting Abstracts with Programs, p. A6.

Warren, I. (2021): Techno-economic analysis of lithium extraction from geothermal brines; National Renewable Energy Laboratory; Technical Report NREL/TP-5700-79178, 48 p.

United States Geological Survey (2021): Mineral Commodity Summaries 2021; USGS Numbered Series; p. 202. < Accessed July 25, 2022 at: https://pubs.usgs.gov/periodicals/mcs2021/mcs2021.pdf >.

United States Geological Survey (2022): Mineral Commodity Summaries 2022; USGS Numbered Series; p. 202. < Accessed July 25, 2022 at: https://doi.org/10.3133/mcs2022 >.

25 Reliance on Information Provided by the Registrant

The senior author of this technical report is not qualified to provide an opinion or comment on issues related to legal agreements, royalties, permitting and environmental matters, and therefore, disclaim certain portions associated with Section 3, Property Description.

The senior author has not attempted to verify the legal status of the Property. The legal and survey validation of the leases and brine rights is not in the QPs expertise, and Mr. Eccles relies completely on TETRA’s third-party contractual land-persons. The lease information, which included land descriptions, land titles, net and gross acreage, lease expiry dates, and brine deeds was provided to the QP by TETRA’s Management team during May to July 2021, and again during May to July 2022. This information is summarized in Sections 3.1, 2.3, 3.6, and 3.7.

The senior author relies discussion with TETRA’s Management team and legal counsel on issues related to the bromine- and lithium-brine exploration, production, and extraction rights at the TETRA Property. These discussions took place during July 2022 and are summarized in Sections 3.4 and 3.5.

The senior author relies on verbal information provided by TETRA’s Management team during the preparation of this technical report (May-July 2022) regarding permitting and the environmental status of the Property. This information was generally validated through on-line governmental regulation documents and is summarized in Section 3.8.

26 Certificate of Authors

I, **D. Roy Eccles**, P. Geol., do hereby certify that:

1. I, D. Roy Eccles, am the Chief Operating Officer and a Senior Consultant with APEX Geoscience Ltd., #100 11450 – 160^{th} Street, Edmonton, AB, Canada, T5M 3Y7.
2. I graduated with a B.Sc. and M.Sc. in Geology from the universities of Manitoba and Alberta in 1986 and 2004.
3. I am and have been registered as a Professional Geologist with the Alberta Association of Professional Engineers and Geoscientists (APEGA, 74150) since 2003, and Newfoundland and Labrador Professional Engineers and Geoscientists (PEGNL, 08287) since 2015.
4. I have worked as a geologist for more than 35 years since my graduation from university and have been involved in all aspects of lithium-brine exploration, valuation, and resource estimations in confined brine aquifer settings in western Canada, southern United States, central Europe, and other international destinations.
5. I have read the definition of Qualified Person set out in U.S. Securities and Exchange Commissions final disclosure rules for mining company issuers Regulation S-K subpart 1300 (S-K 1300) and certify that by reason of my education, affiliation with a professional association, and past relevant work experience, I fulfill the requirements to be a Qualified Person for the purposes of S-K 1300.
6. Apart from Sections 7.4, 10, and 9.4, I am responsible all items of the "*S-K 1300 Technical Report, Maiden inferred bromine- and lithium-brine resource estimations for TETRA Technologies, Inc.'s TETRA Property in Arkansas, United States*", with an effective date of 15 September 2022 (the "Technical Report"). I have not visited the TETRA Property on behalf of TETRA Technologies, Inc.
7. I have read S-K 1300, and the Technical Report has been prepared in compliance with that instrument and form.
8. To the best of my knowledge, information and belief, the Technical Report contains all relevant scientific and technical information that is required to be disclosed, to make the Technical Report not misleading.
9. I am independent of TETRA Technologies, Inc.
10. I prepared, or was involved in, 3 previous technical reports as an independent geological consultant at the TETRA Property. One on behalf of TETRA Technologies, Inc. (Eccles, 2021) and two on behalf of Standard Lithium Ltd. (Eccles et al., 2019; Mielke et al., 2021). Complete references for these reports are presented in Section 24.
11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files or their websites.

Effective date: 15 September 2022
Signing date: 15 September 2022
Edmonton, Alberta, Canada

D. Roy Eccles, M.Sc., P. Geol.

PROFESSIONAL GEOLOGIST ALBERTA
D. ROY ECCLES
15 SEP 2022

PERMIT TO PRACTICE
APEX GEOSCIENCE LTD.
RM SIGNATURE:
RM APEGA ID #: 74150
DATE: 15 SEP 2022
PERMIT NUMBER: P005824
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

I, **James (Jim) Touw**, P. Geol., do hereby certify that:

1. I am a Senior Hydrologist with Hydrogeological Consulting Ltd., #17740 - 118 Avenue NW, Edmonton, Alberta, T5S 2W3.
2. I graduated with a B.Sc. in Geology from the University of Alberta in 1983.
3. I am and have been registered as a Professional Geologist with the Association of Professional Engineers and Geoscientists of Alberta (APEGA) since 1992 and with the Engineers & Geoscientists of British Columbia since 2016.
4. I have worked as a geologist and hydrogeologist for more than 30 years since my graduation from university and have been involved in mineral exploration and hydrology in Alberta, Northwest Territories and British Columbia.
5. I have read the definition of Qualified Person set out in U.S. Securities and Exchange Commissions final disclosure rules for mining company issuers Regulation S-K subpart 1300 (S-K 1300) and certify that by reason of my education, affiliation with a professional association, and past relevant work experience, I fulfill the requirements to be a Qualified Person for the purposes of S-K 1300.
6. I am responsible for sub-section 7.4 of the "*S-K 1300 Technical Report, Maiden inferred bromine- and lithium-brine resource estimations for TETRA Technologies, Inc.'s TETRA Property in Arkansas, United States*", with an effective date of 15 September 2022 (the "Technical Report"). I have not visited the TETRA Property.
7. I have read S-K 1300, and the Technical Report has been prepared in compliance with that instrument and form.
8. To the best of my knowledge, information and belief, the Technical Report contains all relevant scientific and technical information that is required to be disclosed, to make the Technical Report not misleading.
9. I am independent of TETRA Technologies, Inc.
10. I have not had any prior involvement with the TETRA Property that is the subject of the Technical Report.
11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files or their websites.

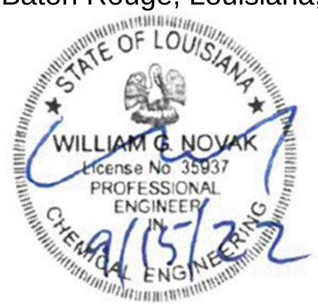
Effective date: 15 September 2022
Signing date: 15 September 2022
Edmonton, Alberta, Canada

Jim Touw, B.Sc., P. Geol.

I, **William Novak**, P.E., do hereby certify that:

1. I am a Process Consultant with Hargrove Engineers and Constructors, 4150 S. Sherwood Forest Blvd., Baton Rouge, LA 70816, United States.
2. I graduated with a B.Sc. in Chemical Engineering from the Louisiana State University in 2003.
3. I am and have been registered as a Professional Engineer in the State of Louisiana (#35937) since 2011.
4. I have worked as a Professional Engineer for more than 16 years since my graduation from university and have experience in designing, engineering, and managing chemical projects within the petrochemical, plastics, and pulp and paper industries, and in the separation, optimization, and purification of solids such as bromine.
5. I have read the definition of Qualified Person set out in U.S. Securities and Exchange Commissions final disclosure rules for mining company issuers Regulation S-K subpart 1300 (S-K 1300) and certify that by reason of my education, affiliation with a professional association, and past relevant work experience, I fulfill the requirements to be a Qualified Person for the purposes of S-K 1300.
6. I am responsible for Section 10 of the "*S-K 1300 Technical Report, Maiden inferred bromine- and lithium-brine resource estimations for TETRA Technologies, Inc.'s TETRA Property in Arkansas, United States*", with an effective date of 15 September 2022 (the "Technical Report"). I have not visited the TETRA Property.
7. I have read S-K 1300, and the Technical Report has been prepared in compliance with that instrument and form.
8. To the best of my knowledge, information and belief, the Technical Report contains all relevant scientific and technical information that is required to be disclosed, to make the Technical Report not misleading.
9. I am independent of TETRA Technologies, Inc.
10. I have not had any prior involvement with the TETRA Property that is the subject of the Technical Report.
11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files or their websites.

Effective date: 15 September 2022
Signing date: 15 September 2022
Baton Rouge, Louisiana, United States



William Novak, P.E.

I, **Robert McGowen**, P.E., do hereby certify that:

1. I am a Petroleum Engineer with Coutret and Associates Inc., at 401 Edwards Street, Suite 810, Shreveport, LA. 71101.
2. I graduated with a BS degree in Petroleum Engineering from Texas A&M University in May of 1978.
3. I am and have been registered as a Professional Engineer with the state of Arkansas since May 1985.
4. I have worked as a reservoir engineer for more than 40 years since my graduation from Texas A&M University.
5. I have read the definition of “Qualified Person”, as set out in Securities and Exchanges Commission’s disclosure rule S-K 1300. By reason of my education, affiliation with a professional association and past relevant work experience, I fulfill the requirements to be a “Qualified Person” for the purposes of S-K 1300. My technical experience in relation to the mineralization and the commodity discussed in this technical report includes work experience for 20 years in South Arkansas Reynolds Smackover Brine Reservoirs.
6. I prepared, and accept, responsibility for item 9.4 in “*S-K 1300 Technical Report, Maiden inferred bromine- and lithium-brine resource estimations for TETRA Technologies, Inc.’s TETRA Property in Arkansas, United States*”, with an effective date of 15 September 2022 (the “Technical Report). I performed a personal site inspection at the TETRA Property and the MKP A-47 well on April 18, 2022, verifying TETRA Technology Inc.’s land position, infrastructure, geology, and mineralization.
7. I have read S-K 1300, and the Technical Report has been prepared in compliance with that instrument and form.
8. To the best of my knowledge, information and belief, the Technical Report contains all relevant scientific and technical information that is required to be disclosed, to make the Technical Report not misleading.
9. I am independent of TETRA Technologies, Inc.
10. I have not had any prior involvement with the TETRA Property or the MKP A-47 well other than the personal site inspection on April 18, 2022.
11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files or their websites.

Effective date: 15 September 2022
Signing date: 15 September 2022
Shreveport, Louisiana, United States

Robert McGowan, P.E.