



THIS RESEARCH REPORT EXPRESSES SOLELY OUR OPINIONS. We are short sellers. We are biased. So are long investors. So is Standard Lithium. So are the banks that raised money for the Company. If you are invested (either long or short) in Standard Lithium, so are you. Just because we are biased does not mean that we are wrong. Use BOC Texas, LLC's research opinions at your own risk. This report and its contents are not intended to be and do not constitute or contain any financial product advice. Investors should seek their own financial, legal and tax advice in respect of any decision regarding any securities discussed herein. You should do your own research and due diligence before making any investment decisions, including with respect to the securities discussed herein. We have a short interest in Standard Lithium's stock and therefore stand to realize significant gains in the event that the price of such instrument declines. Please refer to our full disclaimer located on the last page of this report

COMPANY: Standard Lithium Ltd. | NYSE AMEX: SLI
INDUSTRY: Direct Lithium Extraction

PRICE (AS OF CLOSE
11/17/2021)

USD 9.87

MARKET CAP

USD 1.46 BN

Standard Lithium Ltd. ("Standard Lithium" or the "Company") is a former penny stock whose shares soared 3,000% in the past two years on a favorable commodities cycle and a wave of investor euphoria for electric vehicles and their component parts.

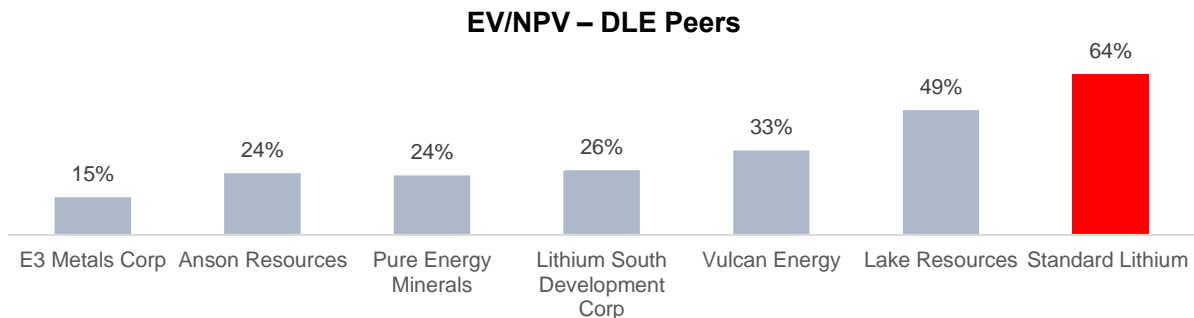
Standard Lithium generates zero revenues. Its valuation is predicated on the claim that its direct lithium extraction ("DLE") technology can achieve 90% recovery rates in extracting battery grade lithium from the tail brine at its Demonstration Plant situated on a bromine production facility in Arkansas.

Standard Lithium has told investors that the technology has already achieved "proof of concept" and that its Demonstration Plant is a success. Yet undisclosed to investors, production records filed by Standard Lithium with the Arkansas regulator indicate that **actual recovery rates are far lower than projected by the Company**, indicating that the Demonstration Plant is extracting far lower quantities of lithium than should be the case. The data also shows that recovery rates are getting substantially worse the more brine is processed, suggesting the pilot facility has negative scale. In short, we think this regulatory data is a smoking gun which indicates that the technology is neither economically viable nor scalable. Standard Lithium's absurd valuation rests solely on the viability of this Demonstration Plant, making this data, in our opinion, near fatal to the Company's NPV projections and therefore its stock price.

- 1. Arkansas Regulatory Filings Indicate Lithium Recovery Rates Far Less than Forecasted.** Standard Lithium has repeatedly claimed that its DLE technology will achieve 90% recovery rates at its Demonstration Plant, built on the LANXESS AG ("LANXESS") (FRA: LXS) bromine facility in Southern Arkansas. Yet undisclosed to investors, production data submitted by Standard Lithium to the Arkansas Oil & Gas Commission (the "AOGC") appears to show that the Demonstration Plant, which has been operating for 18 months, is barely achieving a fraction of this projected recovery rate. We calculate that in the past 12 months, based on the data, the Demonstration Plant achieved an average lithium recovery rate of just 13%. The data also indicates that the Demonstration Plant is displaying negative scale, with recovery rates substantially worse the longer the plant operates and the more brine it processes. We corroborated our analysis with an expert in DLE. In our opinion, this data suggests that the technology is neither economically viable nor scalable.
- 2. Why Hasn't the Demonstration Plant Produced More Lithium Carbonate?** Standard Lithium claims that it has already produced "large quantities" of battery-grade lithium carbonate from the Arkansas brine. Yet according to the Arkansas regulatory records, the Demonstration Plant has produced just 66 pounds of lithium carbonate to date – or USD 900 worth. For context, the Demonstration Plant has been operational since May 2020 and is supposed to produce 100–150 tonnes of lithium carbonate per year. The Demonstration Plant is permitted to operate for 18 months, so it is already well on its way to the end of its operating life. This begs the obvious question: if the Demonstration Plant is up and running and the technology is viable, why hasn't the Company produced any more than de minimis amounts of lithium carbonate? We think it is because, as the data suggests, the technology is neither as viable nor as scalable as the Company projects.
- 3. German Partner Denies that Technology Has Met "Proof of Concept."** Standard Lithium's valuation is predicated largely on its claim that its technology already achieved "proof of concept" in December 2020. This is critical because upon "proof of concept," LANXESS has agreed, as part of a potential 70/30 JV, to fund the construction of Standard Lithium's commercial flagship DLE project. Sell side analysts predicted in early 2021 that the formal JV announcement would be "imminent." It never came. LANXESS's CEO said in 2021 that proof of concept had yet to be achieved and that the "**extraction is not fully there where we would like it to be.**" Not only are such statements consistent with the Arkansas data, but directly contradict the Company's claims to investors that the critical "proof of concept" milestone has been reached.

4. **Chemicals Giant Albemarle Chose Not to Pursue DLE Project in Smackover.** In 2011, Albemarle Corporation (“[Albemarle](#)”) (NYSE:ALB) – a USD 34 billion multinational chemicals company – announced that it was developing proprietary technology to extract lithium from brine in the Smackover formation in southern Arkansas. However, Albemarle eventually chose not to pursue DLE in Arkansas because the operating costs and capital requirements were too onerous given the quality problems with the lithium extracted. We think this is consistent with Standard Lithium’s results to date. If Albemarle was unable to achieve economically viable lithium extraction in southern Arkansas in 10 years of trying, despite deeper technical expertise and a balance sheet 100x the size of the Company, we think it is highly unlikely that Standard Lithium has much more success.
5. **Classic Penny Stock.** Standard Lithium bears many of the hallmarks of a classic penny stock. Since 2017, the Company has raised more than USD 80 million (CAD 100 million) via dilutive equity issuances, causing its share count to soar 549%. Despite zero revenues and shareholder dilution, Standard Lithium has enriched management with generous consulting payments and equity grants. The Company is burning cash, prompting a "going concern" warning from its auditor and sell side predictions that further dilutive equity issuances are on the way.

Today, Standard Lithium, **despite zero revenues** and mere speculation that its technology will work as advertised, trades at 25x book value and 64% of the Company’s own ludicrous NPV projections. Even compared to other Lithium hype stocks, Standard Lithium is wildly overpriced.



Source: Capital IQ, Company Filings. Refers to post tax NPV

Ultimately, the bull narrative for the stock is that the Company’s unproven (and questionable) technology has already achieved “proof of concept,” yet the Arkansas data suggests that Standard Lithium is recovering far less lithium than it projects to investors. In our opinion, such data is a **smoking gun** indicating that the technology is neither economically viable nor scalable, which we think is near fatal for a zero-revenue story stock like Standard Lithium.

1. Arkansas Regulatory Filings Indicate Lithium Recovery Rates Far Less than Forecasted.

Standard Lithium's valuation is predicated on the claim that its technology can achieve high lithium recovery rates of 90% (vs 40%–60% for conventional processes).¹ Standard Lithium claims that it has successfully proven this technology at its Demonstration Plant, which has been operating “full-time” since May 2020 in Southern Arkansas. But undisclosed to investors, independent data submitted by Standard Lithium to the Arkansas regulator appears to show otherwise.

When Standard Lithium completed commissioning of its Demonstration Plant in May 2020, it claimed that one of the key features of the technology was that it increased Lithium recovery efficiencies to more than 90%. The Company repeated this claim at its ribbon cutting [ceremony](#) in September 2020.

Standard Lithium Completes Commissioning and Commences Full-time Operation of Its Lithium Extraction Demonstration Plant

KEY FEATURES OF THIS DISRUPTIVE TECHNOLOGY

- Produces lithium chloride (LiCl) directly from un-concentrated raw brine;
- Reduces recovery time from months to less than a day;
- Eliminates the massive environmental footprint of evaporation ponds;
- Returns virtually all water to the source aquifer;
- Not affected by weather conditions;
- Vastly increases recovery efficiencies to as much as >90%; and,
- Unlocks large-scale unconventional brine resources.

Source: [Standard Lithium Press Release May 2020](#)

Not only is this key to Standard Lithium's bull narrative, but it is also the key assumption underpinning the Company's lofty NPV forecasts. For example, Standard Lithium forecasts that its LANXESS Project is worth USD 989 million based on the assumption that it can recover 90% of the lithium from the brine.

Table 16-3 Annualized Production Summary (metric)

Plant	Volume of Raw Brine Processed from Wellfield Reserve (m ³ /y)	Li Concentration in Feed Brine (mg/L)	Lithium Carbonate product in Feedstock (tpy)	Lithium Chloride Brine Production (m ³ /y)	Li Recovery to Lithium Carbonate (%)	Li Concentration in Lithium Chloride Brine (mg/L)	LC Brine Recycle to Each Lithium Chloride Plant, (m ³ /y)	Li Concentration in Lithium Carbonate Recycle Brine (mg/L)	Final Lithium Carbonate Product (tpy)
South	9,878,443	205	10,780	306,342	90.0	5,949	259,200	2,080	9,700
West	10,339,150	166	9,136	304,420	90.0	5,074	252,800	2,080	8,200
Central	4,491,268	138	3,299	117,252	90.0	4,757	114,400	2,080	3,000
Total	24,708,861		23,215	728,014			24,708,861		20,900

Note: Conversion of m³ to gpm is 4.403.

Preliminary Economic Assessment of LANXESS Smackover Project 157

Source: [August 2019 NI 43 – 101 Technical Report](#): Preliminary Economic Assessment of LANXESS Smackover Project. Reproduced in Standard Lithium's [June 2021 Prospectus](#).

¹ Standard Lithium defines this as “final product” lithium recovery.

Standard Lithium built its Demonstration Plant to prove the viability and scalability of both its LANXESS Project and its technology. The Company spent over USD 26.7 million (CAD 33 million) building and operating the Demonstration Plant to date.²

Despite being in operation for 18 months, Standard Lithium has been coy about disclosing any details to investors regarding the performance of the plant, only claiming that testing at the plant has been “[successful](#).” We disagree.

The Arkansas Oil & Gas Commission (the “[AOGC](#)”) is the state-level regulatory body responsible for oil and gas related activities in Arkansas. Pursuant to its [operating permit](#), Standard Lithium must disclose the Demonstration Plant’s performance to the AOGC. Specifically, the order dictates that Standard Lithium must report the total quantities of tail-brine processed, and of lithium chloride and lithium carbonate produced from the Demonstration Plant **every quarter**.

ARKANSAS OIL AND GAS COMMISSION
301 NATURAL RESOURCES DRIVE
SUITE 102
LITTLE ROCK, ARKANSAS 72205

ORDER NO. 057-2018-10 **November 19 2018**

SOUTH BRINE UNIT & SOUTH EXPANSION BRINE UNIT
Union County, Arkansas

ORDER

Now, therefore, the Applicants' request for operation of a Pilot Plant to test the commercial viability of the extraction of Lithium from processed brine ("tail brine") produced from the Smackover Formation underlying certain lands within the South Unit and South Expansion Unit in Union County, Arkansas, is granted, subject to the following requirements:

1. The term of the Pilot Plant testing period shall not exceed 18 months once commencement of extraction begins. The Applicants shall inform Arkansas Oil and Gas Commission staff, in writing, of the commencement of operations at the Pilot Plant.
2. The Applicants shall file a quarterly report, within 15 days of the conclusion of each calendar quarter, which shall include the following information:
 - a. The total volumes of tail brine throughput at the Pilot Plant.
 - b. The minimum, maximum, and average concentrations of Lithium in the source tail brine.
 - c. The output of Lithium Carbonate, Lithium Chloride, and Lithium Hydroxide.
 - d. The disposition of volumes of Lithium Carbonate, Lithium Chloride, and Lithium Hydroxide produced and the disposition of volumes of Lithium Carbonate, Lithium Chloride, and Lithium Hydroxide sent to any user.
 - e. The volumes of Lithium Carbonate, Lithium Chloride, and Lithium Hydroxide that are stored on-site along with Applicant's estimate of the volume of each product it has determined to be unmarketable. Applicant will provide comment as to the standard it has used to determine marketability.
 - f. Any other information deemed necessary by the Director

Source: [AOGC](#)

Although difficult to find, the AOGC publishes these quarterly reports on its [website](#), making them publicly available for any investor to review. Because the government website is difficult to navigate, we think that these filings have not been widely read or understood by the market.

² As shown in Standard Lithium’s 2021 [Annual Report](#), the Company spent USD 20,771,220 (CAD 25,964,026) in construction costs, USD 2,211,310 (CAD 2,764,138) on subsequent additions and USD 3,676,924 (CAD 4,596,156) in pilot plant operating expenses.

OIL AND GAS COMMISSION

Online Payments | eReports | FAQ | Links | Owner

ABOUT US | DOCUMENT IMAGING | FAYETTEVILLE SHALE | FORMS & RULES | HEARINGS | **LITHIUM** | MAPS | OPERATORS | PIPELINES | REPORTS | LEASE & WELL DATA

Commission Hearing
Pilot Project
Statistical Data

Lithium from Brine - Quarterly Analysis

The following management's discussion and analysis ("MD&A") for Standard Lithium Ltd. was prepared as of the filing, and it should be reviewed in conjunction with the audited consolidated financial statements for the six months ended June 30, 2018. The financial statements have been prepared in accordance with the International Accounting Standards Board ("IASB"). All dollar figures are expressed in US dollars.

Quarterly Reports:

- Select a report year.
- Select a report from the folder.

2018
 2019
 2020
 2021

[Brine And Lithium Production Report.Pdf](#)

Source: [AOGC](#)

		2020		
		Q2	Q3	Q4
The total volumes of tail brine throughput at the Pilot Plant.	US gal	362,952	1,618,731	1,566,221
The minimum, maximum, and average concentrations of lithium in the source tail brine.	Minimum (mg/L)	194	184	194
	Maximum (mg/L)	223	215	249
	Average (mg/L)	210	202	225
The output of lithium carbonate, lithium chloride, and lithium hydroxide.	Lithium carbonate (lbs)	0	0	44
	Lithium chloride (US gal)	23,658	39,501	4,435
	Lithium hydroxide (lbs)	0	0	0
The disposition of volumes of lithium carbonate, lithium chloride, and lithium hydroxide produced/sent to any user. Applicant's estimate of the volume of each product it has determined to be unmarketable.	Lithium carbonate	No lithium carbonate produced.	No lithium carbonate produced.	44 lbs lithium carbonate produced off-site
	Lithium chloride	All lithium chloride sent for reinjection.	4,560 US gal sent off-site	All lithium chloride sent for reinjection.

Source: [AOGC](#)

		2021		
		Q1	Q2	Q3
The total volumes of tail brine throughput at the Pilot Plant.	US gal	733,854	1,702,835	2,176,775
The minimum, maximum, and average concentrations of lithium in the source tail brine.	Minimum (mg/L)	198	205	201
	Maximum (mg/L)	235	231	223
	Average (mg/L)	216	218	212
The output of lithium carbonate, lithium chloride, and lithium hydroxide.	Lithium carbonate (lbs)	0	22	0
	Lithium chloride (US gal)	8,005	8,866	8,983
	Lithium hydroxide (lbs)	0	0	0
The disposition of volumes of lithium carbonate, lithium chloride, and lithium hydroxide produced/ sent to any user. Applicant's estimate of the volume of each product it has determined to be unmarketable.	Lithium carbonate	No lithium carbonate produced.	22 lbs lithium carbonate produced placed into storage off-site	No lithium carbonate produced.
	Lithium chloride	All lithium chloride sent for reinjection.	5,280 US gal sent off-site	All lithium chloride sent for reinjection.

Source: [AOGC](#)

Given that the Demonstration Plant was commissioned in May 2020 (with a ribbon cutting in September 2020), we would expect the results to generally match the Company's claims, especially regarding the efficiency of the technology.

Yet the records show that in the last 12 months, Standard Lithium's Demonstration Plant processed 6.2 million gallons of raw brine, containing a total of 5.1 tonnes of lithium (based on the reported average concentration of 217 mg/L). From this, the data indicates that the Demonstration Plant produced **only** 30 thousand gallons of lithium chloride.

Lithium Production to Date at the Demonstration Plant

	Q2 20	Q3 20	Q4 20	Q1 21	Q2 21	Q3 21
Raw Brine Throughput (gallons)	362,952	1,618,731	1,566,221	733,854	1,702,835	2,176,775
<i>Average Li concentration (mg/L)</i>	210	202	225	216	218	212
Lithium Chloride Output (gallons)	23,658	39,501	4,435	8,005	8,866	8,983
<i>of which sent off site (gallons)</i>	-	4,560	-	-	5,280	-
Lithium Carbonate Produced (lbs)	-	-	44	-	22	-

Source: [AOGC](#)

The concentration of this lithium chloride is not included in the Arkansas data. However, in its June 2021 prospectus, Standard Lithium stated that the Demonstration Plant will produce lithium chloride at a "high" concentration of 3,000–5,000 mg/L.

17.1.2 Lithium Extraction Process

Figure 17-2 BFD of Lithium Extraction Process (Lithium Chloride Plant)

17.1.3 Lithium Adsorbent Stripping and Regeneration Process

Lithium loaded, and washed adsorbent is contacted with dilute hydrochloric acid in a stripping reactor. The stripping process generates lithium pregnant strip solution (PSS). The PSS is separated from the barren adsorbent in a thickener. The adsorbent is washed with fresh water in three (3) stages of counter-current decantation thickeners. The washed adsorbent is recycled back to the lithium loading stage. After washing, the PSS has a high ratio of lithium to the sum of the other dissolved metals and contains 3-5 g/L of lithium. This lithium chloride solution is sent to further purification.

Source: [August 2019 NI 43 – 101 Technical Report](#); Preliminary Economic Assessment of LANXESS Smackover Project. Reproduced in Standard Lithium's [June 2021 Prospectus](#).

This is in line with the concentration of the lithium chloride assumed in the Company's economic projections.

Table 16-3 Annualized Production Summary (metric)

Plant	Volume of Raw Brine Processed from Wellfield Reserve (m ³ /y)	Li Concentration in Feed Brine (mg/L)	Lithium Carbonate product in Feedstock (tpy)	Lithium Chloride Brine Production (m ³ /y)	Li Recovery to Lithium Carbonate (%)	Li Concentration in Lithium Chloride Brine (mg/L)	LC Brine Recycle to Each Lithium Chloride Plant, (m ³ /y)	Li Concentration in Lithium Carbonate Recycle Brine (mg/L)	Final Lithium Carbonate Product (tpy)
South	9,878,443	205	10,780	306,342	90.0	5,949	259,200	2,080	9,700
West	10,339,150	166	9,136	304,420	90.0	5,074	252,800	2,080	8,200
Central	4,491,268	138	3,299	117,252	90.0	4,757	114,400	2,080	3,000
Total	24,708,861		23,215	728,014			24,708,861		20,900

Note: Conversion of m³ to gpm is 4.403.

Preliminary Economic Assessment of LANXESS Smackover Project

157

Source: [August 2019 NI 43 – 101 Technical Report](#); Preliminary Economic Assessment of LANXESS Smackover Project. Reproduced in Standard Lithium's [June 2021 Prospectus](#).

Even if we assume that the concentration of the lithium chloride produced by the Demonstration Plant is at the top end of the Company's forecasted range, we calculate that the implied average recovery rate for the Demonstration Plant over the past 12 months was just 13%.

Demonstration Plant Recovery Rate Calculation

	Q2 20	Q3 20	Q4 20	Q1 21	Q2 21	Q3 21	TTM
Raw Brine Throughput (gallons)	362,952	1,618,731	1,566,221	733,854	1,702,835	2,176,775	6,179,685
Average Li Concentration (mg/L)	210	202	225	216	218	212	217
Li Content in Raw Brine (tonnes)	0.29	1.24	1.33	0.60	1.41	1.75	5.09
Lithium Chloride Output (gallons)	23,658	39,501	4,435	8,005	8,866	8,983	30,289
Average Li Concentration (mg/L)	5,949	5,949	5,949	5,949	5,949	5,949	5,949
Li Recovered in Lithium Chloride (tonnes)	0.53	0.89	0.10	0.18	0.20	0.20	0.68
% Lithium Recovery Rate	185% ³	72%	7%	30%	14%	12%	13%

Source: [AOGC Blue: Reported Number](#), [Red: BOC Assumption](#).

We assume a concentration of 5,949 mg/L for lithium chloride produced at the Demonstration Plant which is the concentration used in Standard Lithium's economic assessment and at the top end of the range for the plant.⁴

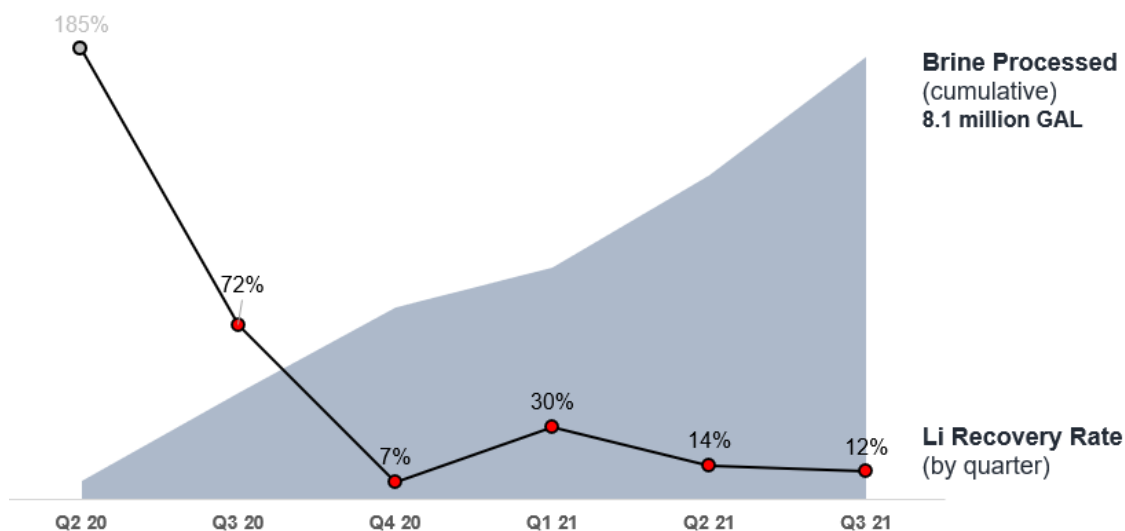
The entire purpose of the pilot facility is to show that the technology is scalable. **Yet, the data shows that as the Demonstration Plant has continued to operate, recovery rates have plummeted.** In Q3 2021, the Arkansas data

³ The implied recovery rate in Q2 2020, at the opening of the plant, using our concentration assumption (5949 mg/L) is 185%, which indicates that not only is our assumption is highly generous but also the actual concentration of lithium chloride recovered at the Demonstration Plant is far lower than assumed.

⁴ Patent [documents](#) indicate that the maximum concentration of lithium chloride produced by Standard Lithium's LiSTR technology during testing at its mini pilot plant was 4,500 mg/L. Based on this, we think that our concentration assumption is likely generous.

shows that the plant processed over 2 million gallons of brine yet generated only 8,983 gallons of lithium chloride. Despite processing **6x more** brine in Q3 2021 than Q2 2020, the data shows that Standard Lithium recovered **62% less lithium chloride**.

Demo Plant Lithium Recovery Rate vs Cumulative Brine Processed



Source: [AOGC](#), BOC Calculation

Not only does this undermine the viability of the technology but we think this data undermines the narrative that the technology is commercially scalable, as recovery rates appear to be decreasing as the Demonstration Plant processes more brine.

For an apples-to-apples comparison between the Company's projected 90% recovery rate and the Arkansas data, the only assumption we make is to give Standard Lithium the benefit of the doubt regarding the concentration of the lithium chloride extracted from the brine.

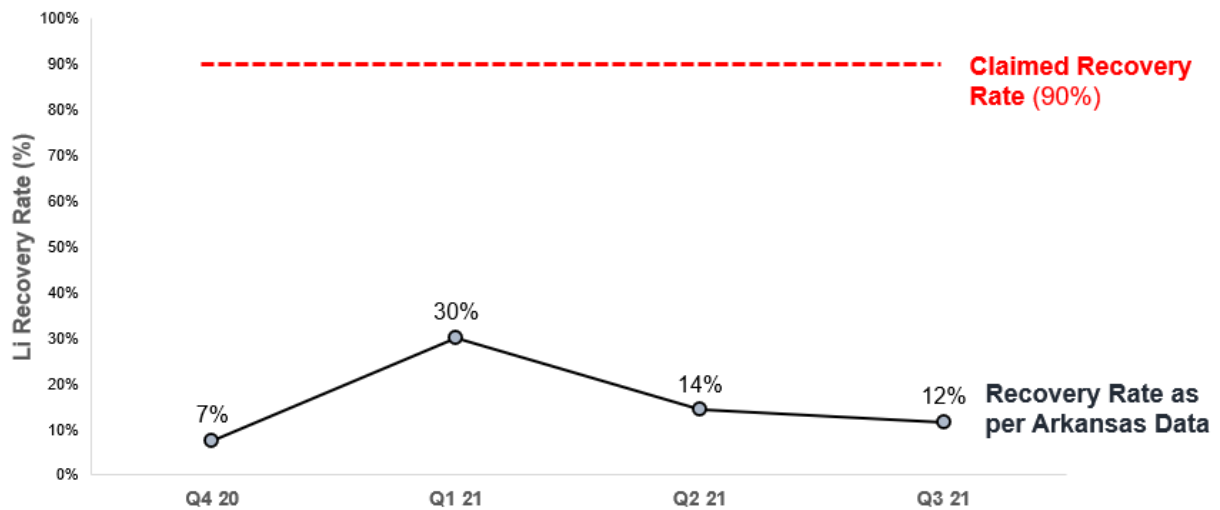
Lithium Recovery Rate: Claims vs. Arkansas Data for the Demo Plant

Per Annum	Economic Assessment (South Plant)	Demonstration Plant TTM
Raw Brine Processed (cbm)	9,878,443	23,393
Li Concentration (mg/L)	205	217
Li Content in Raw Brine (tonnes)	2,025	5.1
Lithium Chloride Produced (cbm)	306,342	115
Li Concentration (mg/L)	5,949	5,949
Li Content in Lithium Chloride Produced (tonnes)	1,822	0.7
% Recovery Rate	90%	13%

Source: [AOGC](#); [August 2019 NI 43 – 101 Technical Report](#); Preliminary Economic Assessment of LANXESS Smackover Project. Reproduced in Standard Lithium's [June 2021 Prospectus](#).

To verify our analysis, we submitted both the Arkansas data and the Company's technical reports to a DLE expert, who confirmed not only our calculations but also our conclusion that the Arkansas data indicated that the Demonstration Plant was falling far, far short of Standard Lithium's claims.

Demo Plant TTM Lithium Recovery Rate Arkansas Data vs. Company Claims



Source: [AOGC](#), BOC Calculation

We also spoke to a former Albemarle executive, who told us that the Demonstration Plant should be able to perform at least as well as the Company projects in its commercial scale forecasts. This is because as the process scales up, projects such as this typically become less efficient.

“What I would tell you is, in theory they ought to be able to do at least as well in the pilot plant as they expect to do commercially. I mean, that’s why you do a pilot plant, and sometimes a process like this is frankly easier to do on a smaller scale in terms of what you can do in terms of recovery and things like that. As you scale up you actually lose some efficiency as opposed to gaining some. I would tend to be skeptical of any numbers that say there is going to be a dramatic improvement between the pilot plant and commercial production.”

– **Former Albemarle Executive**

Standard Lithium cannot claim that the Demonstration Plant is in ramp up phase. The Demonstration Plant has been running full time since May 2020, meaning that it is now almost at the end of its two-year operating life as per the Company’s financial disclosures. In their operating permit, the AOGC actually stipulated that the plant should not run for more than 18 months.

1. **The term of the Pilot Plant testing period shall not exceed 18 months** once commencement of extraction begins. The Applicants shall inform Arkansas Oil and Gas Commission staff, in writing, of the commencement of operations at the Pilot Plant.

Source: [AOGC](#)

Standard Lithium’s NPV and stock price rest on the notion that it is able to achieve recovery rates of 90%. Yet the Arkansas records show that the Demonstration Plant is recovering far less lithium than forecasted. In our opinion, the results at the Demonstration Plant are a damning indictment of the viability of the project and the value of Standard Lithium’s technology.

2. Why Hasn't the Demonstration Plant Produced More Lithium Carbonate?

Standard Lithium claims that it has already produced large quantities of battery-grade lithium carbonate from the brine in Arkansas. Yet the AOGC data states that Standard Lithium has produced just 66 lbs of lithium carbonate in 18 months.

Company disclosures state that the Demonstration Plant is designed to produce an **equivalent production of 100–150 tonnes of lithium carbonate per year**.

Direct Lithium Extraction

The Company's first-of-its-kind in the world DLE Demonstration Plant is installed at LANXESS' South Plant facility near El Dorado, Arkansas. The Demonstration Plant utilizes the Company's proprietary "LiSTR" technology and is designed to continuously process an input tail brine flow of 50 gallons per minute (gpm; or 11.4 m³/hr) from the Lanxess South Plant, which is equivalent to an annual production of between 100-150 tonnes per annum of lithium carbonate.

Source: [Standard Lithium Press Release July 2021](#)

Between September 2020 and July 2021, Standard Lithium shipped bulk volumes of lithium chloride from its Demonstration Plant in Arkansas to its SiFT Plant in Vancouver for conversion to lithium carbonate. The first of these shipments was a 20,000-liter [shipment](#) of lithium chloride in September 2020. Standard Lithium claimed that it continued these shipments until border restrictions were lifted in July 2021 at which time it relocated the SiFT Plant from Vancouver to Arkansas.⁵

In the July 2021 press release announcing the relocation of the SiFT Plant, Standard Lithium's COO, Andy Robinson, told investors that the SiFT Plant's operations in Vancouver had been "extremely successful," and the plant had produced "**large volumes**" of lithium carbonate.

Robinson explicitly qualified that these large volumes of lithium carbonate were made using "lithium chloride made by the El Dorado Plant" (the Demonstration Plant) in Arkansas.

Dr. Andy Robinson, President and COO of Standard Lithium, commented, "Due to constraints imposed on our operations by the COVID-19 pandemic, we have, up until now, been running the SiFT Plant separately at a location in the Vancouver area. This work has been extremely successful, and we have produced large volumes of better-than battery quality lithium carbonate from lithium chloride concentrates made by the El Dorado Plant. We've also been reprocessing very large quantities of low-quality material sourced from existing South American brine producers, and have demonstrated that the SiFT technology can easily upgrade off-spec material in a single, simple step. We're now thrilled to move the SiFT Plant to El Dorado, which was always our plan, get the plant connected and running, and then operate the only continuous, 24/7 start-to-finish brine-to-carbonate plant in North America."

Source: [Standard Lithium Press Release July 2021](#)

If a plant designed to produce between 100–150 tonnes per annum of lithium carbonate has been operating since May 2020, then we would expect, as the Company claims, to see it produce "large volumes of lithium carbonate." But the Arkansas regulatory filings state that the Company has produced just 66 lbs, or USD 900 worth, of lithium carbonate to date from the Arkansas brine.⁶

⁵ Q3 2021 Interim Report MD&A Page 8.

⁶ Based on price per tonne of USD 30,000.

		2020		
		Q2	Q3	Q4
The disposition of volumes of lithium carbonate, lithium chloride, and lithium hydroxide produced/sent to any user. Applicant's estimate of the volume of each product it has determined to be unmarketable.	Lithium carbonate	No lithium carbonate produced.	No lithium carbonate produced.	44 lbs lithium carbonate produced off-site
	Lithium chloride	All lithium chloride sent for reinjection.	4,560 US gal sent off-site	All lithium chloride sent for reinjection.

		2021		
		Q1	Q2	Q3
The disposition of volumes of lithium carbonate, lithium chloride, and lithium hydroxide produced/sent to any user. Applicant's estimate of the volume of each product it has determined to be unmarketable.	Lithium carbonate	No lithium carbonate produced.	22 lbs lithium carbonate produced placed into storage off-site	No lithium carbonate produced.
	Lithium chloride	All lithium chloride sent for reinjection.	5,280 US gal sent off-site	All lithium chloride sent for reinjection.

Source: [AOGC](#)

Lithium Carbonate Production

	Q2 20	Q3 20	Q4 20	Q1 21	Q2 21	Q3 21
Raw Brine Throughput (gallons)	362,952	1,618,731	1,566,221	733,854	1,702,835	2,176,775
Lithium Chloride Output (gallons)	23,658	39,501	4,435	8,005	8,866	8,983
Lithium Chloride Sent Off Site (gallons)	-	4,560	-	-	5,280	-
Lithium Carbonate Produced (lbs)	-	-	44	-	22	-

Source: [AOGC](#)

Under the terms of its operating permit, Standard Lithium is required to report all outputs of lithium carbonate and lithium hydroxide produced from the brine. This is important because Arkansas law stipulates that brine processors have a duty to make royalty payments to the owner of the brine for any additional substances extracted.

ORDER

Now, therefore, the Applicants' request for operation of a Pilot Plant to test the commercial viability of the extraction of Lithium from processed brine ("tail brine") produced from the Smackover Formation underlying certain lands within the South Unit and South Expansion Unit in Union County, Arkansas, is granted, subject to the following requirements:

- The term of the Pilot Plant testing period shall not exceed 18 months once commencement of extraction begins. The Applicants shall inform Arkansas Oil and Gas Commission staff, in writing, of the commencement of operations at the Pilot Plant.
- The Applicants shall file a quarterly report, within 15 days of the conclusion of each calendar quarter, which shall include the following information:
 - The total volumes of tail brine throughput at the Pilot Plant.
 - The minimum, maximum, and average concentrations of Lithium in the source tail brine.
 - The output of Lithium Carbonate, Lithium Chloride, and Lithium Hydroxide.
 - The disposition of volumes of Lithium Carbonate, Lithium Chloride, and Lithium Hydroxide produced and the disposition of volumes of Lithium Carbonate, Lithium Chloride, and Lithium Hydroxide sent to any user.
 - The volumes of Lithium Carbonate, Lithium Chloride, and Lithium Hydroxide that are stored on-site along with Applicant's estimate of the volume of each product it has determined to be unmarketable. Applicant will provide comment as to the standard it has used to determine marketability.
 - Any other information deemed necessary by the Director

Source: [AOGC](#)

3. That Ark. Code Ann. § 15-76-315(c)(1) identifies the duty of a brine producer to make royalty payments to brine owners for additional substances extracted from brine.
4. That under Ark. Code Ann. § 15-76-315(c)(2), whether or not additional substances have been "profitably extracted from brine shall be determined by" the Commission.

Source: [AOGC](#)

The Arkansas filings state Standard Lithium produced 44 lbs of lithium carbonate offsite in 2020 and 22 lbs in 2021. To put that in context, that figure is less than 0.03% of the nameplate annual capacity of lithium carbonate at the Demonstration Plant.

Lithium Carbonate Produced from Lithium Chloride from Demonstration Plant

	Q2-20 - Q3-21	
	(tonnes)	(lbs)
Demonstration Plant Capacity (LCE)	100	220,400
Total Lithium Carbonate Produced to Date	0.03	66
Production % of Capacity	0.03%	0.03%

Source: Company filings, [AOGC](#)

Standard Lithium cannot claim that this is deliberate. Since September 2020, the Company has shipped significant volumes of lithium chloride to its SiFT Plant specifically for the purpose of converting to lithium carbonate.

Standard Lithium Ships First Large Volume of Lithium Chloride Product From Arkansas Facility

September 09, 2020 8:00am EDT [Download as PDF](#)

HIGHLIGHTS

- 20,000 liters of lithium chloride product shipped**
- Conversion to lithium carbonate will be done using conventional batch process and also proprietary SiFT process

EL DORADO, Ark., Sept. 09, 2020 (GLOBE NEWSWIRE) -- **Standard Lithium Ltd.** ("Standard Lithium" or the "Company") (TSXV: SLL) (OTCQX: STLHF) (FRA: S5L), an innovative technology and lithium project development company has shipped its first large volume of lithium chloride product from the Company's Direct Lithium Extraction (DLE) Demonstration Plant for final conversion to lithium carbonate.

Source: [Standard Lithium Press Release September 2020](#)

		2020		
		Q2	Q3	Q4
and lithium hydroxide produced/sent to any user. Applicant's estimate of the volume of each product it has determined to be unmarketable.	Lithium chloride	All lithium chloride sent for reinjection.	4,560 US gal sent off-site	All lithium chloride sent for reinjection.

Source: [AOGC](#)

Note: Arkansas filings show 4,560 gallons sent off site in Q3 2020, which corresponds to the Company's press release that 20,000 liters were shipped to Vancouver ($4,560 \text{ gal} / 0.264 = 17,261 \text{ liters}$).

The Arkansas data indicates that Standard Lithium produced just 66 lbs of lithium carbonate in total. Even at today's prices, that's less than USD 900 worth.⁷

The AOGC filings state that in total, Standard Lithium sent 9,840 gallons of lithium chloride off-site (37,248 liters) in the past 18 months. Assuming that this lithium chloride was of the concentration projected by the Company in its economic forecast, it should have contained enough lithium to produce more than 2,599 lbs of lithium carbonate, which is still a far cry from the 100–150 tonnes of lithium carbonate in annual production capacity which Standard Lithium initially claimed for the Demonstration Plant.⁸

The point is, Standard Lithium designed a plant to produce 100–150 tonnes of lithium carbonate per year. The Company claims that its extraction process is working well, and that it has produced significant quantities of lithium carbonate specifically from the Arkansas brine.

But according to the AOGC data, it has produced very little lithium carbonate using the Arkansas brine. And this is not for lack of trying. In our opinion, such meager recoveries are another data point indicating that the Company's technology is neither economically viable nor scalable.

⁷ Based on price per tonne of USD 30,000.

⁸ Lithium carbonate conversion based on an assumed lithium concentration of 5,949 mg/L and a conversion factor of 5.319 lithium to lithium carbonate equivalent.

3. German Partner Denies that Technology Has Met “Proof of Concept.”

Standard Lithium’s valuation is predicated largely on the Company’s claims that its technology has **already** achieved “proof of concept.”⁹ Yet the comments and actions of its proposed joint venture partner appear to directly contradict such claims, undermining both the status of Standard Lithium’s technology and the value of its projects.

Standard Lithium’s flagship project and the cornerstone of its USD 1.44 billion valuation is a contemplated joint venture with LANXESS which the Company claims is worth USD 989 million. The proposed 70/30 joint venture will be funded by LANXESS, but **only once** the technology has shown “proof of concept” at the Demonstration Plant.

Standard Lithium claims to have already achieved this milestone. In December 2020, Standard Lithium claimed that it had successfully completed “start-to-finish proof-of-concept” of its extraction and crystallization technology.

The image is a screenshot of a press release from Standard Lithium Ltd. dated December 03, 2020. The title is "Standard Lithium Successfully Completes Proof-of-Concept of Modern Lithium Extraction and Crystallisation Technology and Makes Better Than Battery Quality Lithium Carbonate". The release includes a "HIGHLIGHTS" section with three bullet points: ">99.9% purity lithium carbonate produced (aka '3 nines')", "Successful proof-of-concept of modern lithium processing technology", and "Start-to-finish direct extraction of lithium from brine in Arkansas; production of purified, concentrated intermediate; final conversion to high-purity battery quality lithium carbonate end-product". The main body of the text states: "VANCOUVER, British Columbia, Dec. 03, 2020 (GLOBE NEWSWIRE) – Standard Lithium Ltd. ('Standard Lithium' or the 'Company') (TSXV: SLL) (OTCQX: STLHF) (FRA: S5L), an innovative technology and lithium project development company is pleased to announce that it has successfully completed the start-to-finish proof of concept of its modern lithium processing technology. Successful operation of the technology at pre-commercial continuous scale has directly extracted lithium from brine in Arkansas and produced a purified, concentrated intermediate product (LiCl solution) which has been converted to better than battery quality lithium carbonate final product."

Source: [Standard Lithium Press Release Dec 2020](#)

The announcement prompted sell side analysts to initiate coverage on Standard Lithium, speculating that a formal joint venture announcement with LANXESS was “imminent.”¹⁰

Yet 11 months later and no such formal JV announcement has materialized, despite Standard Lithium continuing to reaffirm that it has achieved proof of concept, including in an [October 2021 Press Release](#) where Standard Lithium claimed to have “**done it at a large scale.**”

Critically, LANXESS appears to reject Standard Lithium’s claims that the project has already achieved “proof of concept.” On an August 2021 earnings call, LANXESS’s CEO reminded shareholders that LANXESS will only

⁹ Proof of concept is met when the economic feasibility has been proven by testing carried out at a pilot plant.

¹⁰ Cannacord Genuity initiation dated 11th January 2021.

provide capital for the extraction project once “proof of concept” is achieved, which according to LANXESS, **has still not happened.**

Matthias Zachert

CEO & Chairman of the Board of Management

Matthew, good to hear your voice. So Michael will address exceptionals, and I will pick up lithium. So on lithium, I mean in light of the fact that standard lithium is now also listed at the NASDAQ Stock Exchange. Of course, we have to be very humble on making any statements relating to other companies. This is at least the legal advice.

So I will share what can be legally shared. The structure on the joint venture, we have explained already in our Capital Markets event in November 2019. The equity share in this joint venture will be according to the underlying understanding of both parties between 60% and 70%. And this is the working assumption as we speak. And of course, we would only inject money once proof of concept from a full -- from our perspective is fully there in all aspects.

Source: LANXESS's Q2 2021 Results/IR Conference Call August 2021

On a call in May 2021, LANXESS's CEO went so far as to state that the “**extraction is not fully there where we would like it to be.**”

Matthias Zachert

CEO & Chairman of the Board of Management

Well, thank you on your questions, let me address them one by one. Step-by-step, we make further strides on lithium, of course, in the current environment, not as fast as we would like to, and all of you know about this. Now what we can say at this point in time, the pilot process and technology indeed brings up or brings out, that's the better English most likely, brings out lithium carbonates. So we are able, it seems to convert -- to, first of all, extract lithium out of the wells.

Second, to then convert lithium chloride into lithium carbonates with a relatively high purifications of 99.85%, which is battery-grade quality. And this is what we now see. However, the process, the new process on this extraction is not fully there where we would like it to be. We have still 2 areas where we will need to optimize from an engineering perspective, the process in terms of content of extraction and purification or waste reduction, better to say. And here our engineers need to work. How long this takes in order to get our entire process data in an area where we can then go full-scale, I cannot tell you yet here and it's simply my engineers to do the work, the ground work. But that's where we stand on lithium.

Source: LANXESS's Q1 2021 Results/ IR Conference Call May 2021

LANXESS's [own investor presentations](#) also appear to paint a decidedly more tempered view of the technology, referring to the LANXESS Project as a mere “**free option.**”

On recent a conference call in November 2021, just two weeks ago, LANXESS's CEO confirmed that there was no update.

Matthias Zachert

CEO & Chairman of the Board of Management

Yes, you're most welcome. So on your first question with 10 years, I will not embark on this because there is no point in commenting on the EUR 1 billion to EUR 1.5 billion CapEx that we spent and wasted on rubber. There is no point in looking into historic chapters. What I conveyed today is that we will increase -- we want to increase EBITDA in absolute terms, and we want to increase cash conversion in absolute terms, and that will be the focus.

As far as Standard Lithium is concerned, if there is something new that we can convey on technology, on agreements, et cetera, we will communicate it. Sometimes you can't because you are simply restricted due to the finalization of analysis, finalization of contractual agreements. And then you simply have to adhere to legal constraints, and for that very reason, I cannot provide an update at this point in time. Please wait until we have something further to communicate. If there is something that can be communicated, definitely, we will do that.

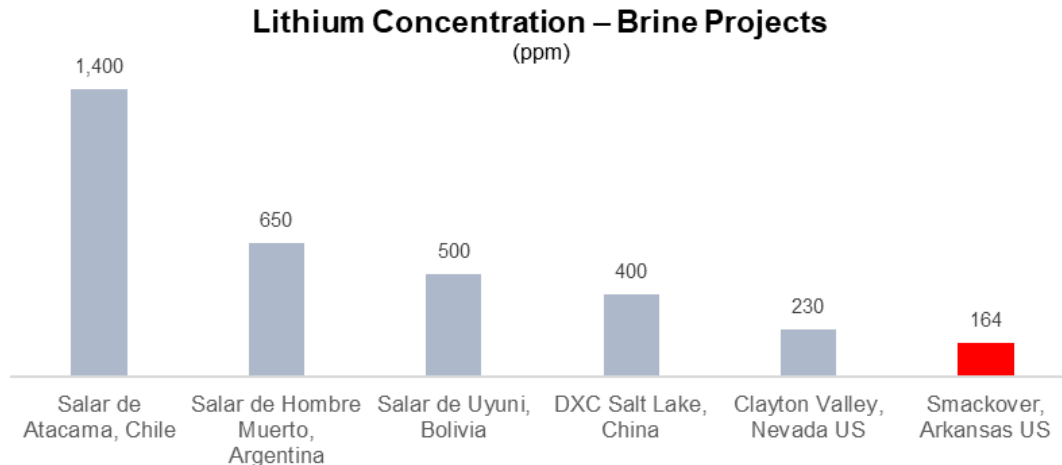
Source: LANXESS's November 5th, 2021 Special Call

Standard Lithium claimed to achieve “proof of concept” nearly a year ago. Yet its partner – a large German specialty chemical producer likely extremely familiar with the project – quite clearly does not consider this to be the case. Not only has it yet to agree funding, but comments from its CEO also clearly indicate that **the technology has not sufficiently progressed to reach this milestone.** This is consistent with the Arkansas regulatory filings, which show

that the Demonstration Plant is extracting far less lithium and producing far less lithium carbonate than the Company claimed would be the case.

4. Chemicals Giant Albemarle Chose Not to Pursue DLE Project in Smackover.

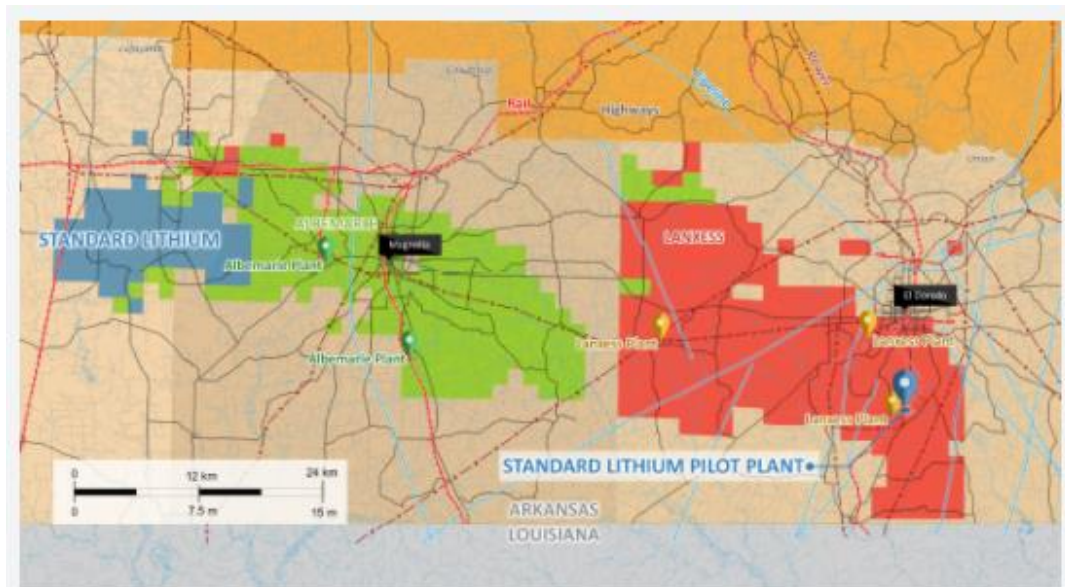
Attempts to extract the lithium via alternative methods stretch back decades, yet have not succeeded in Southern Arkansas because of the relatively poor concentration of Lithium in the Smackover compared to other geographies. Dow Chemical Corporation first [filed](#) a patent for extraction from Arkansas brines in 1979.



Source: [University of Texas 2018](#)

In 2011, Albemarle – a USD 34 billion multinational chemicals company – [announced](#) that it had developed a proprietary technology to extract lithium from Smackover brines at its southern Arkansas bromine production facilities.

For context, Albemarle is a large specialty chemicals company with brine leases in Arkansas located directly in the middle of Standard Lithium's two projects.



Source: [Standard Lithium](#)

Note: Albemarle's brine asset is shaded in green.

Albemarle launched its DLE project in the same location as Standard Lithium. Unlike Standard Lithium, Albemarle had far greater financial resources, technical expertise, and experience operating in the area. As an operator of bromine

facilities, it had a significant incentive to make DLE work, given its potential to generate profits from byproduct of Albemarle's existing bromine production operations.

Yet, in 2014, even amidst an uptick in the commodity price of lithium, Albemarle announced that the project costs – both capex and operating – were proving prohibitively high.

Luther C. Kissam
Former Director

No. I think the first thought that we had on the lithium technology, we were able to extract lithium from those brines in Magnolia and also to produce lithium carbonate. The issue that we had is the cost position both from a capital standpoint as well as from an operating standpoint, we couldn't be competitive in the marketplace, particularly with the brine producers, the FMCs, SQMs and Rockwoods of the world. So we went back to the drawing board and we developed a proprietary technology that we believe will allow us to reach those levels, both from a capital standpoint, as well as from an operating standpoint. We are revising right now, retrofitting the pilot plant that we have. And we believe by year end, we will either prove or disprove that technology and have quality samples for the lithium carbonate that we can ship to see if we meet the standard that we need to. So we're still hopeful on it. As I said before, some of these projects take a little longer than we have liked and been a little more difficult technologically. But we should have something by year end or the first quarter next year with regards to see if it works or not at the cost position we need it to work.

Source: Albemarle Investor Day 2014

When recently interviewed by a local Arkansas newspaper in August, Albemarle's President of Lithium and Chief Strategy Officer Eric Norris stated that oilfield brines – such as those used by Standard Lithium in Arkansas – produce lithium with quality problems. He also noted that direct extraction is more capital intensive and consumes a lot more water and energy – both of which are significant drawbacks to the economic viability of the process.

Norris outlined the drawbacks he sees with the DLE process.

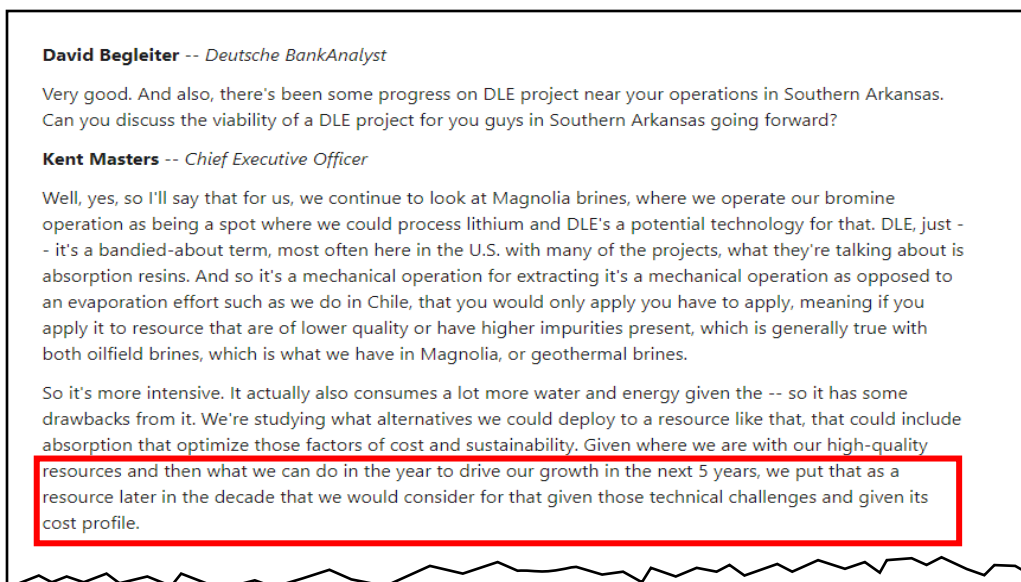
"With many of the (DLE) projects, they're talking about absorption resins and so it's a mechanical operation as opposed to an evaporation effort such as we do in Chile, that you would only apply if you have to apply, meaning you apply it to resources of lower quality or that have higher impurities present."

Oilfield brines – which would be the lithium source in Magnolia – would produce lithium with quality problems, Norris said.

"It's more capital intensive and actually consumes a lot more water and energy, so it has some drawbacks. We're studying what alternatives we could deploy to a resource like that, that could include absorption, that optimized those factors of cost and sustainability," Norris said.

Source: [Magnolia Reporter](#) August 2021 (Local Arkansas Newspaper)

When asked about lithium extraction in Arkansas on a recent earnings call, Albemarle's CEO indicated that Albemarle would most likely not consider revisiting the Arkansas lithium project until later in the decade, due to the "technical challenges" and "cost profile" involved.



Source: Albemarle Q2 2021 [Earnings Call](#)

We spoke to a former Albemarle executive who said that lithium extraction in Arkansas was unlikely to make sense even at today's high lithium prices.

Blue Orca: *Do you think it would make sense for Albemarle to revisit the project at today's prices?*

Former Albemarle Executive: *"[I]f you're going to really develop a [lithium] project, Arkansas is not the place to do it. You need a brine which is 500–600 ppm to really compete in the industry no matter what Our [lithium] recycling economics are better than going through this [lithium extraction] process."*

– **Former Albemarle Director**

Albemarle halted its DLE in southern Arkansas because the process was not economically viable, given the costs and the quality of lithium extracted from the brine.

If Albemarle passed on extracting DLE from brine at its bromine facility, we think it is highly unlikely that Standard Lithium would have any more success. Indeed, this tracks with the Arkansas regulatory filings, which show that the pilot plant is extracting far less lithium than it told investors to expect. Albemarle, it seems, knew best.

5. Classic Penny Stock.

Standard Lithium bears many of the hallmarks of a classic penny stock, with serial capital raising in the form of dilutive equity issuances which, despite generating zero revenues for the Company, have enriched management.

- **Dilutive Equity Issuances Used to Fund Cash Burn**

Since 2017, the Company has raised more than USD 80 million (CAD 100 million) via dilutive equity issuances, causing its share count to soar 549%.¹¹

Standard Lithium Shares Outstanding from 2017–2021

	Dec-16	Dec-17	Jun-18	Jun-19	Jun-20	Jun-21
Shares Outstanding (m)	21.8	61.0	73.5	87.6	105.5	141.2
% Cumulative Dilution		180%	238%	303%	385%	549%

Source: Company Financial Statements

The Company has already burned through nearly USD 60 million (CAD 74 million) of this, funding speculative pilot plant projects and generous payments to management.

Standard Lithium Cash Flows from 2017–2021

CAD M	12 mo ended	6 mo ended	12 mo ended	12 mo ended	12 mo ended	Cumulative
	Dec-17	Jun-18	Jun-19	Jun-20	Jun-21	
Cash Flows from Operations	(4.4)	(2.8)	(4.3)	(3.1)	(8.6)	(23.2)
Cash Flows from Investments	(3.4)	(7.6)	(13.4)	(16.2)	(10.6)	(51.2)
CFO + CFI	(7.8)	(10.4)	(17.6)	(19.3)	(19.2)	(74.4)
Cash Flows from Financing	11.6	19.8	11.0	16.6	43.1	102.1

Source: Company Financial Statements

Since 2017, Standard Lithium's handful of executives have received more than USD 3.8 million (CAD 4.7 million) in management fees and a further USD 9.68 million (CAD 12.1 million) in share-based payments. That's more than USD 1.6 million (CAD 2 million) per executive.

Standard Lithium Related Party Transactions by Type from 2017–2021

CAD M	12 mo ended	6 mo ended	12 mo ended	12 mo ended	12 mo ended	Cumulative
	Dec-17	Jun-18	Jun-19	Jun-20	Jun-21	
Management and Consulting Fees	0.6	0.5	1.1	0.9	1.5	4.7
Share-Based Payments	4.0	0.5	2.1	1.4	4.1	12.1
Total	4.7	1.0	3.2	2.3	5.6	16.8

Source: Notes to the Financial Statements: Related Party Transactions

The Company also supposedly spent USD 26.7 million (CAD 33 million) on its Demonstration Plant. Yet financial disclosures reveal that the salvage value of the plant as of next year is just USD 0.64 million (CAD 0.8 million).

- **Going Concern Warning from Auditor**

With Standard Lithium years away from generating revenue and an annual cash burn of USD 15.4 million (CAD 19 million), the Company's auditor appears to be concerned. In its most recent accounts, Standard Lithium's auditor expressed a going concern warning; a rare occurrence for a company with over USD 1.4 billion market capitalization.

¹¹ 22 million shares outstanding as of 2017. 141 million shares as of June 2021.

Material Uncertainty Related to Going Concern

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As described in Note 1 the Company has not generated revenue or cash flow from operations since inception. As at June 30, 2021, the Company has an accumulated deficit of \$68,617,507. These conditions raise substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 1. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Source: Standard Lithium Audited Consolidated Financial Statements for the year ended June 30, 2021

With a cash balance of just USD 18 million (CAD 23 million), the only way for Standard Lithium to avoid a liquidity crisis will be to dilute current shareholders. The sell-side forecasts that Standard Lithium will need to raise a further USD 200 million (CAD 250 million) in the coming years.

Figure 2: NAV Breakdown - as at Oct 1, 2021

	Disc. Rate	C\$ MMs	C\$/sh	%
Lanxess Project - South Arkansas	9.0%	522	\$3.17	45%
South-West Arkansas Lithium Project	10.0%	628	\$3.81	55%
Other		0	\$0.00	0%
Total Asset Level Cash Flows		1,150	\$6.99	100%
South-West Lithium Project - in-situ		0	\$0.00	
Cash & Equivalents		27	\$0.17	
Future Equity Issuances		250	\$1.52	
Working Capital (ex. Cash and Debt)		-1	(\$0.01)	
Total Debt		0	\$0.00	
Corporate SG&A	8.0%	-91	(\$0.55)	
Corporate tax adjustment	8.0%	0	\$0.00	
Net Asset Value		1,336	\$8.11	
Net Asset Value per share		\$8.11		

Share count as at October 1, 2021	139.7
Additional shares issued	24.9
Fully funded share count	164.7

Source: Company Reports, Canaccord Genuity estimates

Source: Canaccord Research Note, October 12, 2021

Yet this is likely an under-estimate. The recent assessment for Standard Lithium's TETRA Project estimated that the project would cost USD 870 million to fund. The supposed funding partner for its other project LANXESS, appears to be stalling.

Conclusion

Having soared 3,000% in the past two years, Standard Lithium's stock is now close to pricing in even its own highly dubious NPV projections. Today, the Company trades at an enterprise value of USD 1.44 billion, which is 64% of the combined post tax NPV for its two flagship projects, LANXESS and Tetra. By comparison, DLE peers trade at 15%–49% of their NPV's.

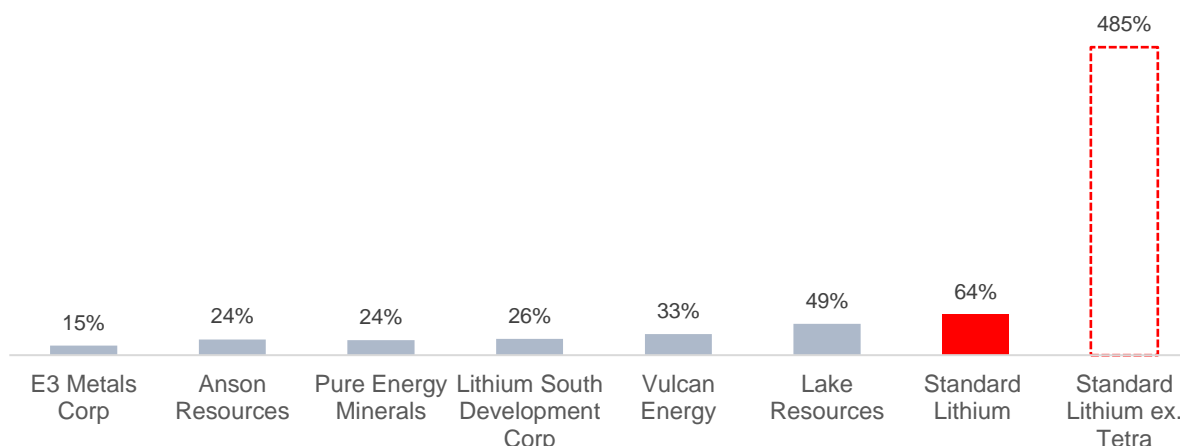
Standard Lithium NPV Projections

USDm	Post Tax NPV	% Ownership	PF Post Tax NPV
LANXESS	989	30%	297
Tetra	1,965	100%	1,965
Total post tax NPV			2,262

Source: Company Filings

For context, Standard Lithium paid a combined USD 8.5 million for its initial interests in these two projects. Today the Company values them at more than USD 2 billion.

EV/NPV – Listed DLE Peers



Source: Capital IQ, Company Filings. Refers to post tax NPV

And the comparison is also generous, since Standard Lithium's NPV is substantially inflated by its Tetra Project, which the Company recently announced but for which it has yet to publish a preliminary economic assessment. Excluding the Tetra project, Standard Lithium trades at an EV/NPV of 485%.

Ultimately, Standard Lithium is another ludicrously valued lithium story stock which trades on the notion, propagated by the Company, that its Lithium technology achieves a 90% efficiency rate and has already achieved "proof of concept." We think the independent data from the Arkansas regulator indicates compellingly that the technology is neither economically viable nor scalable.

DISCLAIMER

We are short sellers. We are biased. So are long investors. So is Standard Lithium. So are the banks that raised money for the Company. If you are invested (either long or short) in Standard Lithium, so are you. Just because we are biased does not mean that we are wrong. We, like everyone else, are entitled to our opinions and to the right to express such opinions in a public forum. We believe that the publication of our opinions about the public companies we research is in the public interest.

You are reading a short-biased opinion piece. Obviously, we will make money if the price of Standard Lithium stock declines. This report and all statements contained herein are solely the opinion of BOC Texas, LLC, a Texas limited liability company, and are not statements of fact. Our opinions are held in good faith, and we have based them upon publicly available evidence, which we set out in our research report to support our opinions. We conducted research and analysis based on public information in a manner that any person could have done if they had been interested in doing so. You can publicly access any piece of evidence cited in this report or that we relied on to write this report. Think critically about our report and do your own homework before making any investment decisions. We are prepared to support everything we say, if necessary, in a court of law.

As of the publication date of this report, BOC Texas, LLC (a Texas limited liability company) (along with or through our members, partners, affiliates) have a direct or indirect short position in the stock (and/or possibly other options or instruments) of the company covered herein, and therefore stands to realize significant gains if the price of such instrument declines. Use BOC Texas, LLC's research at your own risk. You should do your own research and due diligence before making any investment decision with respect to the securities covered herein. The opinions expressed in this report are not investment advice nor should they be construed as investment advice or any recommendation of any kind.

This report and its contents are not intended to be and do not constitute or contain any financial product advice as defined in the Australian Corporations Act 2001 (Cth). Because this document has been prepared without consideration of any specific clients investment objectives, financial situation or needs, no information in this report should be construed as recommending or suggesting an investment strategy. Investors should seek their own financial, legal and tax advice in respect of any decision regarding any securities discussed herein. At this time, because of ambiguity in Australian law, this report is not available to Australian residents. Australian residents are encouraged to contact their lawmakers to clarify the ambiguity under Australian financial licensing requirements.

Following publication of this report, we intend to continue transacting in the securities covered therein, and we may be long, short, or neutral at any time hereafter regardless of our initial opinion. This is not an offer to sell or a solicitation of an offer to buy any security, nor shall any security be offered or sold to any person, in any jurisdiction in which such offer would be unlawful under the securities laws of such jurisdiction. To the best of our ability and belief, all information contained herein is accurate and reliable, and has been obtained from public sources we believe to be accurate and reliable, and who are not insiders or connected persons of the stock covered herein or who may otherwise owe any fiduciary duty or duty of confidentiality to the issuer. As is evident by the contents of our research and analysis, we expend considerable time and attention in an effort to ensure that our research analysis and written materials are complete and accurate. We strive for accuracy and completeness to support our opinions, and we have a good-faith belief in everything we write, however, all such information is presented "as is," without warranty of any kind— whether express or implied.

If you are in the United Kingdom, you confirm that you are subscribing and/or accessing BOC Texas, LLC research and materials on behalf of: (A) a high net worth entity (e.g., a company with net assets of GBP 5 million or a high value trust) falling within Article 49 of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the "FPO"); or (B) an investment professional (e.g., a financial institution, government or local authority, or international organization) falling within Article 19 of the FPO.

This report should only be considered in its entirety. Each section should be read in the context of the entire report, and no section, paragraph, sentence or phrase is intended to stand alone or to be interpreted in isolation without reference to the rest of the report. The section headings contained in this report are for reference purposes only and may only be considered in conjunction with the detailed statements of opinion in their respective sections.

BOC Texas, LLC makes no representation, express or implied, as to the accuracy, timeliness, or completeness of any such information or with regard to the results to be obtained from its use. All expressions of opinion are subject to change without notice, and BOC Texas, LLC does not undertake a duty to update or supplement this report or any of the information contained herein. By downloading and opening this report you knowingly and independently agree: (i) that any dispute arising from your use of this report or viewing the material herein shall be governed by the laws of the State of Texas, without regard to any conflict of law provisions; (ii) to submit to the personal and exclusive jurisdiction of the superior courts located within the State of Texas and waive your right to any other jurisdiction or applicable law, given that BOC Texas, LLC is a Texas limited liability company that operates in Texas; and (iii) that regardless of any statute or law to the contrary, any claim or cause of action arising out of or related to use of this website or the material herein must be filed within one (1) year after such claim or cause of action arose or be forever barred. The failure of BOC Texas, LLC to exercise or enforce any right or provision of this disclaimer shall not constitute a waiver of this right or provision. If any provision of this disclaimer is found by a court of competent jurisdiction to be invalid, the parties nevertheless agree that the court should endeavor to give effect to the parties' intentions as reflected in the provision and rule that the other provisions of this disclaimer remain in full force and effect, in particular as to this governing law and jurisdiction provision.