TETRA TECH EBA

OQM | Organizational Quality Management Program

MINERAL RESOURCE ESTIMATE AND PRELIMINARY ECONOMIC ASSESSMENT FOR THE SANDTOWN PROPERTY, CAVE CITY, ARKANSAS



PRESENTED TO

Select Sands Corporation

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TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY 1
1.1 Property Description and Location 1
1.2 Site inspection 1
1.3 Geology Summary 1
1.4 Mineralization 2
1.5 Resources 2
1.6 Mining 2
1.7 Processing 3
1.8 Project Infrastructure 4
1.9 Project Economics 5
1.10 Interpretation and Conclusions 6

2.0 INTRODUCTION 6
2.1 Sources of Information 7
2.2 Site Inspection 7

3.0 RELIANCE ON OTHER EXPERTS 7

4.0 PROPERTY DESCRIPTION AND LOCATION 8
4.1 Location 8
4.2 Mineral Tenure and Property Agreements 10

5.0 ACCESSIBILITY, CLIMATE, LOCAL INFRASTRUCTURE AND PHYSIOGRAPHY 11
5.1 Accessibility 11
5.2 Infrastructure 11
5.3 Physiography 12
5.4 Climate 13

6.0 HISTORY 14

7.0 GEOLOGICAL SETTING AND MINERALIZATION 14
7.1 Regional Geology 14
7.2 Property Geology 17
7.3 Mineralization 17

8.0 DEPOSIT TYPES 19
8.1 Overview 19
8.2 Proppant Requirements 19

9.0 EXPLORATION 20

10.0 DRILLING 20
10.1 Introduction 20
10.2 2014 Diamond Drill Program 20
10.2.1 Significant Results 21

10.3 2015 RAB Drill Program 23
10.3.1 Significant Results 24

11.0 SAMPLE PREPARATION, ANAYSES AND SECURITY 26
11.1 2014 Diamond Drill Program 26
11.2 2015 RAB Drill Program 27
11.3 Qualified Person Statement 27

12.0 DATA VERIFICATION 27
12.1 Acid Solubility, Roundness, and Crush Resistance 27
12.2 Qualified Person Statement 29

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING 30
13.1 Introduction 30
13.2 STIM-Lab Results 30
13.3 SGS Results 32
13.4 Tetra Tech Results 32
13.5 Density Testing 33

14.0 MINERAL RESOURCE ESTIMATES 33
14.1 Introduction 33
14.2 Basis of Current Estimate 34
14.3 Geological Model 34
14.4 Volume Estimate 37
14.5 Mineral Resource Statement 38
14.6 Resource Classification 39
14.6.1 QP Statement 39

15.0 MINERAL RESERVE ESTIMATES 40

16.0 MINING METHODS 40
16.1 Dilution and Mining Recovery 42
16.2 Mining Processes 42
16.2.1 Preparation and Pre-stripping 42
16.2.2 Drilling and Blasting 42
16.2.3 Loading and Hauling 43
16.2.4 Support Activities and Facilities 43
16.3 Mining Equipment 44
16.4 Mining Schedule 44

17.0 RECOVERY METHODS 49
17.1 Process Selection 49
17.2 Process Design Criteria 49
17.3 Plant Design 49
17.3.1 RoM Stockpile 52
17.3.2 Crushing Plant 52
17.3.3 Wet Plant 52

17.3.4 Drying and Loading....53

18.0 PROJECT INFRASTRUCTURE....53
18.1 Access....53
18.2 Power....53
18.3 Natural Gas....54
18.4 Water....54
18.5 Buildings....54
18.6 Security and Truck Scale....54
18.7 Surface Water Management....54
18.7.1 Management of Discard Material....55
18.8 Offsite Infrastructure....55
18.8.1 Rail spur and Loading Facilities....55

19.0 MARKET STUDIES AND CONTRACTS....55
19.1 Marketing....55
19.1.1 Oil and Gas Proppants....56
19.1.2 Glass....56
19.1.3 Building Products....56
19.1.4 Foundry....57
19.1.5 Chemicals....57
19.1.6 Fillers and Extenders....57
19.2 Marketing volumes....57
19.2.1 Prices for Silica Products....57
19.3 Contracts....58

20.0 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL IMPACT....58
20.1 Environmental Studies....59
20.2 Permitting....60
20.3 Potential Social or Community Impacts....63
20.4 Mine Closure (Remediation and Reclamation) Requirements and Costs....63
20.5 Remaining Regulatory Requirements....64

21.0 CAPITAL AND OPERATING COSTS....64
21.1 Capital Costs....64
21.1.1 Site Development and Preparation....65
21.1.2 Mine Operations....66
21.1.3 Process Plant....66
21.1.4 Site Infrastructure....69
21.1.5 Indirect....70
21.1.6 Sustaining....71
21.2 Operating Costs....71
21.2.1 Mining Costs....74
21.2.2 Processing Costs....74
21.2.3 Power....75
21.2.4 Site General and Administration....75

21.2.5 Product Shipping or Transportation 75
21.2.6 Marketing Expenses 76
21.2.7 Contingencies 76

22.0 ECONOMIC ANALYSIS 76
22.1 Results of Discounted Cash Flow Analysis 77
22.2 Taxes and Royalties 78
22.3 Trade-off Studies 78
22.4 Sensitivity Analysis 80
22.5 Discount Cash Flow Analysis 80

23.0 ADJACENT PROPERTIES 84

24.0 OTHER RELEVANT DATA AND INFORMATION 84
24.1 Feasibility Studies 84
24.2 Schedule 84

25.0 INTERPRETATIONS AND CONCLUSIONS 85
25.1 Project Opportunities 85
25.2 Project Risks 85

26.0 RECOMMENDATIONS 85
26.1 Geology and Resource 85
26.2 Mining and Processing 86
26.3 Schedule 86
26.4 Budget for Recommendations 86
26.5 Marketing Study 86

27.0 REFERENCES 87

CERTIFICATES OF QUALIFIED PERSONS 88

LIST OF TABLES IN TEXT

Table 1: Pit Constrained Resources for the Sandtown Property 2
Table 2: Capital Cost Summary 5
Table 3: Summary of Direct and Indirect Production Costs 5
Table 4: Summary of Economic Results 6
Table 5: 2014 Diamond Drill Holes 20
Table 6: 2014 Significant Intercepts 21
Table 7: 2015 RAB Drill Holes 23
Table 8: 2015 Significant Intercepts 24
Table 9: Verification Sample Results – Sample TT2015-01 (Hole P-22) 27
Table 10: Verification Sample Results – Sample TT2015-02 (Hole P-19) 28
Table 11: Results of STIM-Lab Tests 30

Table 12: Significant XRF Results 32
Table 13: Tetra Tech Size Fraction Results 33
Table 14: Bulk Density Testing 33
Table 15: Pit Constraints Applied to Determine Resources 39
Table 16: Pit Constrained Resources for the Sandtown Property 39
Table 17: Open Pit Design Parameters 40
Table 18: Extract from blasting bid provided by Explosive Contractors Inc. 43
Table 19: Mining equipment list 44
Table 20: Detailed Mining Schedule 46
Table 21: Major Process Design Criteria 49
Table 22: Major Equipment List 51
Table 23: Proposed On-site Buildings 54
Table 24: Operators Mining St. Peters Formation 56
Table 25: Prices used for Various Products (in metric tonnes) 57
Table 26: Potential Contracts where Values have been Included in PEA 58
Table 27: Environmental Authorizations that may be required for the Project 62
Table 28: Capital Cost Summary 65
Table 29: Capital Cost for Site Development & Preparation 66
Table 30: Process Plant Crushing and Screening Capital Cost 67
Table 31: Process Plant Wet Plant Costs 67
Table 32: Process Plant Drying, Storage and Loadout Capital Cost Breakdown 68
Table 33: Process Plant Utilities and Mobile Equipment Cost Estimates 69
Table 34: Site Infrastructure Capital Costs 70
Table 35: Indirect Capital Costs 71
Table 36: Indirect Costs Continued 71
Table 37: Summary of Direct and Indirect Production Costs 72
Table 38: Summary of Operating Cost Assumptions used in the PEA 72
Table 39: Labor Costs used for Cost Estimation in the PEA 73
Table 40: Summary of Mining Costs 74
Table 41: Summary of Process Cost Estimates 75
Table 42: Summary of General and Administrative Costs 75
Table 43: Transportation and Offsite Handling Fees 76
Table 44: Summary of Economic Results 77
Table 45: Summary of Taxes Deducted from Revenues in the PEA 78
Table 46: Trade-off Studies 79
Table 47: Summarized Project Schedule 85

LIST OF FIGURES IN TEXT

Figure 1: Production Schedule (shown as short tons per quarter) 3
Figure 2: Location of the Sandtown Property, Arkansas 9
Figure 3: Sandtown Property Boundary (UTM Zone 15, WGS 84) 11
Figure 4: Physiographic Regions of Arkansas 13
Figure 5: Climate data for Batesville 14
Figure 6: Surface Outcrop of the St. Peter Sandstone in Arkansas 16

Figure 7: Regional Stratigraphy (from Giles, 1930) 17
Figure 8: Piece of Core Showing Colour and Texture of the Sandstone on the Property..... 18
Figure 9: Diamond Drill Hole Location Map (UTM Zone 15, WGS 84)..... 21
Figure 10: Diamond Drill Core (ST14-03, Box 6, 40-48') 22
Figure 11: Close-up of Diamond Drill Core..... 22
Figure 12: RAB Drill Hole Location Map (UTM Zone 15, WGS 84)..... 24
Figure 13: RAB drill Intersecting White Sand at P-20. 25
Figure 14: Transition from White to Clay-Rich Sandstone at Base of St. Peter Fm. 26
Figure 15: Sieve Analysis for Sample TT2015-01 28
Figure 16: Sieve Analysis for Sample TT2015-02 29
Figure 17: ST 14-03 (0.0ft – 69.0ft) 30/50 Fraction (STIM-Lab)..... 31
Figure 18: ST 14-03 (0.0ft – 69.0ft) 40/70 Fraction (STIM-Lab)..... 31
Figure 19: ST 14-03 (0.0ft – 69.0ft) 70/140 Fraction (STIM-Lab)..... 32
Figure 20: Simplified Stratigraphy of the Sandtown Property 35
Figure 21: Surface Geology of Resource Area (UTM Zone 15, WGS 84)..... 36
Figure 22: Geological Cross-Sections..... 37
Figure 23: 3D Representation of the St. Peters Fm..... 38
Figure 24: Open Pit Designs Showing East and West Pit Areas at their Largest Extent Considered for the PEA (UTM Zone 15, WGS 84) 41
Figure 25: Production Schedule in short tons..... 45
Figure 26: Process Flow Diagram..... 50
Figure 27: Distribution of Capital Costs..... 65
Figure 28: Project Economics 78
Figure 29: Sensitivity Analysis on after Tax NPV 80
Figure 30: Discounted Cash Flow Analysis 81

ACRONYMS AND ABBREVIATIONS

AB	Alberta
ADEQ	Arkansas Department of Environmental Quality
AMSL	Above Mean Sea Level
API	American Petroleum Institute
AR	Arkansas
ARAS	Arkansas Archeological Survey
EBA	Tetra Tech EBA Inc.
ECCI	Arkansas Based Engineering and Environmental Firm
Entergy	Entergy Arkansas, LLC
FEL	Front end loader
FOB	Free on board
Frac	Fracking (as in fracking sands)
FSST	Fine sand stone
FTU	Formazin Turbidity Units
G & A	General and Administrative
HCL-HF	Hydrochloric-hydrofluoric Acid
ICP	Inductively coupled plasma
ICP-MS	Inductively coupled plasma mass spectrometry
ICP-AES	Inductively coupled plasma atomic emission spectography
IGP	Arkansas Industrial General Storm Water Permit
IRR	Internal rate of return
ISO	International Standards Organization
LST	Limestone
MNA	Missouri & Northern Arkansas Railroad
MO	Missouri
MSc.	Master of Science
MSST	Medium sand stone
NOI	Notice of intent
NPDES	National Pollutant Discharge Elimination System
NPV	Net present value
OVBD	Overburden
PEA	Preliminary Economic Assessment
P.Eng.	Professional engineer
PE	Professional engineer
P. Geo.	Professional geologist
RAB	Rotary air blast
RoM	Run-of-mine
SEC	Security and Exchange Commission
SGS	SGS S.A. (formerly Société Générale de Surveillance)
SIC	Standard Industrial Classification Code
SST Clay	Siltstone or clay

SWPP	Storm Water Prevention Plan
T&E	Threatened and endangered
TN	Tennessee
Tr	Trace
TSX	Toronto Stock Exchange
TT	Tetra Tech Inc.
TT EBA	Tetra Tech EBA Inc.
US	United States of America
USA	United States of America
USGS	United Stated Geology Survey
UTM	Universal Transverse Mercator
XRF	X-Ray Fluorescence

UNITS AND SYMBOLS

$	United States Dollars
‘	Feet
“	Inches
°	Degrees (angle, latitude, longitude)
°C	Degrees centigrade
°F	Degrees fahrenheit
acre/s	Imperial acres or acres
d	Day
ft.	Imperial feet
g	Gram or grams
g/cm^3	Grams per cubic centimeter
gal	Gallons
gal/hr	Gallons per hour
gpm	Gallons per minute
ha.	Hectare
HP	Horse power
hr	Hour
inches	Inches
km	Kilometers
kst	Thousand short tons
kV	Thousand volts
kWhr	Kilowatt hour
lbs.	Pounds
lbs/ft^3	Pounds per cubic foot
litres	Litre
litres/hr	Litres per hour
m	Meters

m/hr	Metres per hour
mesh	Mesh number
miles	Miles
Mm^3	Million cubic meters
MMBTU	Million British Thermal Units
mt/m^3	Metric tonnes per cubic metre
psi	Pounds per square inch
st	Short tons
st/hr	Short tons per hour
st/yd^3	Short tons per year
st/yd^3	Short tons per cubic yard
tonnes	Metric tonnes
tons	Short tons
US$	United States Dollars
US$000	Thousand United Stated Dollars
yd	Yard

1.0 EXECUTIVE SUMMARY

Tetra Tech EBA Inc. (Tetra Tech) was requested by Select Sands Corporation (Select Sands) to complete a Mineral Resource Estimate and Preliminary Economic Assessment (PEA) for their Sandtown Property, located in Cave City Arkansas. The Sandtown Property is host to sandstone deposits which are prospective for use in the proppant (i.e. frac sand) and silica sand industries. This technical report provides a summary of the technical and scientific information available for the Sandtown Property, as well as presents an initial mineral resource estimate and economic assessment. This report has been prepared in accordance with National Instrument 43-101 *Standards of Disclosure for Mineral Properties* (NI 43-101) and *Form 43-101F1* (the Form).

The envisaged project would consist of a quarrying operation, a crushing and screening plant, wet classification plant, grinding plant and product drying and storage and associated infrastructure. The PEA considers a project that would produce 882,000 short tons (st) of products per year.

1.1 Property Description and Location

The Sandtown Property is located in north-central Arkansas, approximately 3 km (~2 miles) west of the town of Cave City. The property straddles the border between Independence County to the south and Sharp County to the north, and is centred at 35.9310 latitude and -91.5920 longitude (UTM 15S 626990m E 3977210 m N). The closest major cities are Little Rock, AR located 140 km to the southwest, and Memphis, TN located 160 km to the southeast.

In total, the Sandtown Property is comprised of 210 ha. (520 acres) of mostly wooded lands. The area surrounding the property is rural and largely agricultural with large poultry farms and pasture land the most prevalent type of farming operation.

1.2 Site inspection

Cameron Bartsch, M.Sc., P.Geo., a Qualified Person from Tetra Tech, visited the Sandtown Property for a total of two days from February 19th to 20th, 2015. The site visit included a tour of the local infrastructure in the area, the property and all drill hole locations. Drilling was ongoing at the time of the visit and two independent verification samples were also collected during Mr. Bartsch's visit.

1.3 Geology Summary

The Sandtown Property is located in the Ozark Plateaus region of the Interior Highlands geologic province of Arkansas. The rocks in the Ozark Plateaus region are dominated by well-lithified sandstone, shale, limestone, and dolostone of Paleozoic age. Most of the sediments that compose the rocks in the Ozark Plateaus region were deposited, when north Arkansas was a shallow south-sloping sea floor (continental shelf), the Arkansas River Valley was near the edge of the shelf, and the Ouachita area was a deep abyssal plain. In the late Paleozoic Era, a broad uplift domed the Ozark Plateaus strata with little structural disruption.

The Ozark Plateaus region is made up of generally flat-lying Paleozoic age strata divided into three plateau surfaces (the Salem, Springfield and Boston Mountains plateaus). The Sandtown Property is located within the Middle Ordovician St. Peter Sandstone / Formation of the Salem Plateau. The faulting observed in the Ozarks is generally normal with most faults displaying a displacement down on the southern side (although a few strike-slip faults may be expressed) (McFarland, 2004).

The St. Peter Sandstone formation outcrops locally in the bottom of valleys, on hill slopes, and on ridge tops. The St. Peter Sandstone is very variable in thickness ranging from a "feathers edge to as much as 53 m (175 feet) thick" (McFarland, 2004) with maximum thickness of 61 m (200 feet) (Giles, 1930). The sandstone appears south of Eureka Springs and thickens eastward, reaching its maximum thickness in the Mountain View, Mountain Home,

and Batesville region (Giles, 1930) which are located northwest, west and south of the Sandtown Property respectively.

Bedrock exposure on the Sandtown Property is limited due to the widespread alluvial deposits; however, limited outcroppings do occur along stream embankments and heights of land. Where outcrops are present, the rocks are exclusively comprised of the St. Peter Sandstone.

1.4 Mineralization

The mineralization on site consists of well-sorted and high purity sandstone belonging to the St. Peter Sandstone. As noted above, the unit is comprised of medium- to fine-grained, well rounded, and friable white sandstone that is a potentially economic source of material for use in both the frac and silica sand industries.

In hand sample, the sandstone has a sugary texture due to the fine grain size and poorly cemented nature of the sandstone (Figure 8). Quartz appears to constitute the majority of the sand grains, the majority of which are well rounded.

While the majority of the St. Peter Sandstone intersected in the drill holes maintained a white to near white appearance, localized sections of iron staining do occur. The staining was most commonly observed near the upper contact with the sand and gravel deposits where presumably there is sufficient ground water flow to oxidize any iron that occurs within or adjacent to the deposit. The extent of the staining in the deposit impacts the suitability of the material for use in certain aspects of the silica sand industries, although it is less so for the frac sand industry.

1.5 Resources

In order to determine resources, portions of the St. Peters Sandstone in areas not suitable for mining and processing for economic uses have been excluded. This portions include the area underlying a drainage running north south through the property as well as portions forming pit slopes and allowing for buffer zones against public infrastructure, which includes property boundaries and the power line right of way which traverses the northern portion of the property.

Two distinct mining areas where identified namely the east and west pits. Pit designs were created around the resources based on benched mining of the fine sandstone (FSST) and creation of slopes in overburden (OVBD) and medium sand stone (MSST).

The resulting pit constrained resources are contained in Table 1. No inferred or measured resources are currently included.

Table 1: Pit Constrained Resources for the Sandtown Property

	Thousand Short tons	Classification
East Pit Resources	8,079	Indicated resources
West Pit Resources	13,935	Indicated resources
Total Pit constrained resources	**22,014**	**Indicated resources**

1.6 Mining

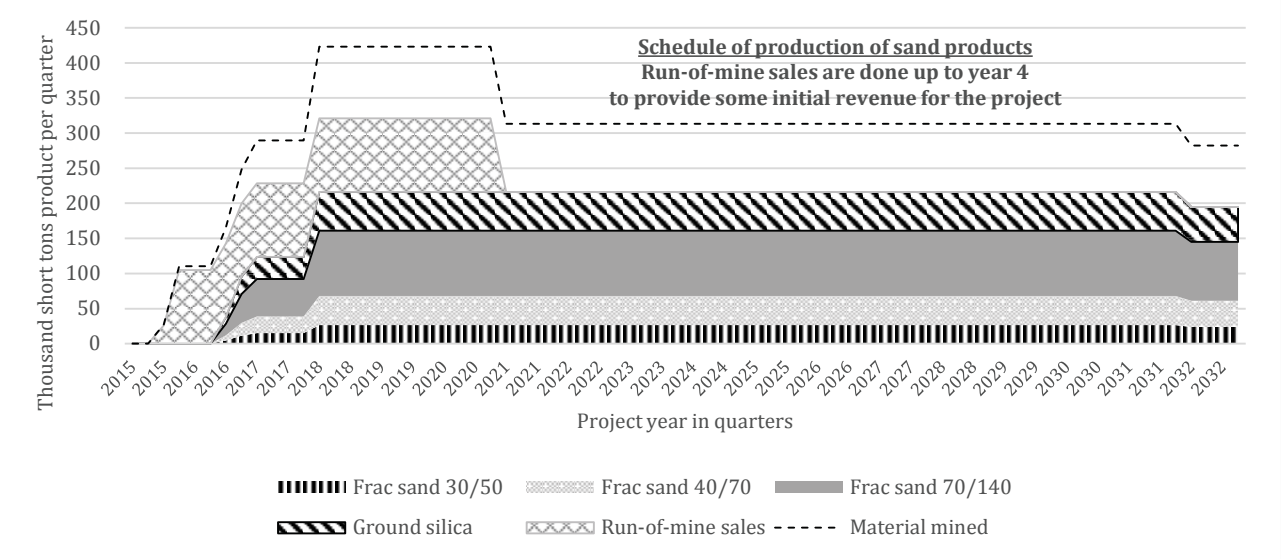
For the Sandtown Property would be open pit mining. The FSST targeted for mining and processing is overlain by Sand and Gravel deposits MSST and OVBD which would need to be removed prior to mining. Based on the cemented nature of the FSST it would require drill and blast, whereas the MSST and the OVBD are unconsolidated

would be mineable via free dig with a hydraulic excavator or through ripping with a bull dozer. It is noted that the area planned for mining is wooded and as such logging and clearing would be required prior to mining. For the PEA blasting has been included as contract blasting, and as such Explosive Contractors Inc. (Hollister Missouri) have provided drilling and blasting costs and details of blasting operations.

For the PEA loading is considered to be done by excavator with wheeled loader as back-up. This is to allow for free dig in the upper non-consolidated material and for loading of blasted consolidated material. An 80 tonne (~88 st) excavator has been selected as most suitable with a 2 to 4 m^3 (~71 to 141 $ft.^3$) bucket, supported by a loader with a 2.5 to 9 m^3 (~88 to 318 $ft.^3$) bucket. Hauling has been considered with articulated or rear dump rigid trucks. Overburden and MSST would be hauled using the same equipment. Note that mining equipment is planned to be supplied by contractor. For the PEA this has been considered as a dry rate whereby the owner supplies diesel and the contractor supplies equipment, labor and maintains the equipment.

Select Sands is also planning to sell run-of-mine (RoM) ore for $7.50/st net of associated costs for the first 4 years of operations. This is intended to provide Select Sands with some initial revenue to help with the payback of initial capital expenditure. Run-of-mine sales would start in the third quarter of 2015 and would continue until the end of Year 4, where all mined material would be run through the process plant on site. Contract mining and the processing of the ore by Select Sands would begin in the third quarter of year 2016. The first two quarters of 2016 could be primarily focused on process plant construction and preparation of other on-site infrastructure required for mining. The various products produced and total material mined can be seen below in Figure 1.

Figure 1: Production Schedule (shown as short tons per quarter)



1.7 Processing

Other than proppant test work conducted to determine the overall quality of the Sandtown Project silica sand, Select Sands has not conducted any prototype metallurgical work specifically orientated towards extraction, separation, marketing and production of their silica sand frac sand deposit. The main objective of the processing plant would be to process sandstone into three specifically sized frac sand gradation along with a fine size gradation of silica. The frac sand mesh size gradations considered are 30/50, 50/70 and 70/140. The product for the fine size gradation would be in the 200/400 mesh range.

The proposed process would be entirely mechanical, focusing on liberation and size classification as its primary objective. For the proppant sand, no specific size reduction or manufacture of grain sizes would be required as the sand grains within the rock type are of optimal size and shape. To manufacture the fine grain sand, a grinding circuit would be considered to achieve the 200/400 mesh range. Based upon testwork completed to date and for the purpose of developing the process design criteria, recovery of proppant sand from the product stream is 70 percent. The plant design is to recover and ship approximately 800,137 tonnes/y (882,000 st/y) of sand.

The process plant would involve both dry and wet processing components. RoM material would be stockpiled near the process feed facilities, where it would be reclaimed via front end loader (FEL) into the portable crushing circuit. The material would then be further processed in the wet frac sand plant to break-up clusters and liberate individual silica particles; remove non silica contaminants and clay impurities; and segregate the non frac sand size fractions.

The proposed process will include:

- dry primary crushing and screening;
- wet screening and first stage classification;
- wet attrition scrubbing;
- subsequent wet screening and classification stages for proppant product;
- fine product grinding circuit; and
- drying, product storage and truck loading.

The crushing plant considered is of a portable design to allow for flexibility between the mine and process operations. Subsequent to the crushing plant, a wet plant process would be used to further liberate the silica particles; remove contaminants and impurities; and classify the sand into the size classifications.

The ultra-fines recovery plant would consist of a sump, pump, hydrocyclone pack, ball mill and dewatering screen. Overflow of this plant (-400 mesh) would flow to a thickener/clarifier system.

Wet products would be stored in a concrete bunker area for reclamation by a front end loader for placement into a hopper and transfer conveyor feeding the dryer. From the dryer, bucket elevators would carry the feed material into a surge hopper that then loads onto weigh-belt feeders feeding screeners which in turn transport the dried product to the storage silos.

1.8 Project Infrastructure

The project is a Greenfield site and will require the addition of extensive infrastructure to support the operation. The infrastructure requirements for the property are comprised of:

- On-site roads for operations access;
- Main sub-station power supply and distribution;
- Water supply, storage and distribution;
- On-site buildings including offices, maintenance shops, warehousing, wash/locker room, security and sales office, utility room and electrical room;

- Fuel and lubrication storage and containment;
- Communications;
- Natural gas supply;
- Off-site Rail Loading; and
- Discards management.

Tetra Tech has been made aware that Select Sands have engaged in discussions with WildCat Minerals, an established frac sands distributor, in regards to the use of a rail loading facility in Batesville, Arkansas. It is the intention that products produced at the Sandtown Property would be transported by truck the WilCat Minerals facility in Batesville, WildCat Minerals would store, handle and load the products onto rail cars for a fee, which is charged to the end customer.

1.9 Project Economics

Capital costs estimated for the Sandtown project as part of the PEA are shown in Table 2 and operating cost breakdown over life of mine are shown in Table 3. The initial capital cost is estimated to be $42.3 million and the operating cost are estimated at $19 per short ton processed through the mill.

Table 2: Capital Cost Summary

Capital Cost Summary Including Contingency in US$000				
	Preproduction		Sustaining	Reclamation
	Year -2	Year -1	Years 1-16	Years 17-19
Total Direct Costs	**$587**	**$37,529**	**$54**	
Site Development & Preparation	$587	$685	$54	
Process Plant		$32,776		
Infrastructure		$4,068		
Total Indirect Costs	**$2,056**	**$2,132**		**$1,000**
Total Capital	**$2,643**	**$39,661**	**$54**	**$1,000**

Table 3: Summary of Direct and Indirect Production Costs

Operating costs summary		
Aspect of operations	**Life of mine costs**	**Average cost per ton moved / processed**
	US$000	**US$/st**
Mining	$112,405	$4.16[1]
Processing	$191,444	$10.30[2]
G & A	$42,705	$2.30
Total production costs	**$346,554**	**$18.64**
Indirect costs (property and mining taxes)	$12,589	$0.68
Total operating costs excluding marketing[3]	**$359,143**	**$19.32**

Note: **1**. Per ton moved, includes waste rock required to be moved to expose St. Peters Sandstone sands; **2**. Per ton processed excludes tons sold as run-of-mine which would be processed by third parties; and **3**. Excludes costs of transportation of products produced offsite. These costs are assumed to be transferred to the purchaser of silica sands products.

Capital and operating costs as well as forecasted revenue and applicable taxes have been included into a discounted cash flow analysis. The economic results from the PEA are shown in Table 4. No financing or funding has been considered in the discounted cash flow. Using current prices the project has been found to have a net present value of $92 million, with an internal rate of return of 34% and a payback period of 2.5 years.

Table 4: Summary of Economic Results

Highlights of the PEA		
Base case (contract mining)	**Value**	**Units**
Production highlights		
Total sands mined	27,019	Kst[1]
Classified frac and ground sands products sold	13,516	kst
Run-of-mine direct sales (first 4 years only)[2]	2,225	kst
Total products saleable	15,741	kst
Operating life including 2 years preproduction operations[3]	18	years
Economic model highlights		
Total life of mine revenue estimated	$766,515	$000
Total operating costs over life of mine	$346,554	$000
Average operating costs per ton processed	$19	$/st
Operating profit	$407,372	$000
Preproduction capital costs[4]	$42,304	$000
Sustaining capital costs[4]	$1,054	$000
Federal taxes	$114,858	$000
State taxes	$31,176	$000
After tax net present value at 8%	$92,020	$000
After tax IRR	34%	
After tax payback period	2.5	years

Note: 1. Thousand short tons; 2. Potential contract sales of run of mine at $7.5 net of costs; 3. Run of mine sales are considered prior to year 1 of operations; and 4. Includes contingency, direct and indirect as well as sales taxes.

1.10 Interpretation and Conclusions

Work by Select Sands at their Sandtown Property in north-central Arkansas has been successful in identifying a significant deposit potentially suitable for proppant or other industrial sand use. The deposit is at or near surface, and appears to underlie the majority of Select Sands property.

The PEA shows positive economics and justifies further investigation of the property and in particular further testwork of the sandstones for economic uses.

2.0 INTRODUCTION

Tetra Tech EBA Inc. (Tetra Tech) was requested by Select Sands Corporation (Select Sands) to complete a Mineral Resource Estimate and Preliminary Economic Assessment (PEA) for their Sandtown Property, located in Cave City Arkansas. The Sandtown Property is host to sandstone deposits which are prospective for use in the proppant (i.e. frac sand) and silica sand industries. This technical report provides a summary of the technical and scientific information available for the Sandtown Property, as well as presents an initial mineral resource estimate and economic assessment. This report has been prepared in accordance with National Instrument 43-101 Standards of Disclosure for Mineral Properties (NI 43-101) and Form 43-101F1 (the Form).

The envisaged project would consist of a quarrying operation, a crushing and screening plant, wet classification plant, grinding plant and product drying and storage and associated infrastructure. The PEA considers a project that would produce 882,000 short tons (st) of products per year, which would consist of frac sands products (proppants) and ground silica products for other silica markets. The project as envisaged, would require access to existing rail infrastructure in Batesville, Arkansas.

2.1 Sources of Information

The sources of information used in the compilation of this report include the following:

- Information on the property history and area was provided by Stephen Stauffer, the property Vendor;
- Information on recent exploration activities provided by Select Sands;
- Geological information was compiled from various government and industry sources, including USGS, Arkansas Geological Survey;
- Marketing studies were compiled from information provided by Select Sands; and
- Capital cost information was gathered from Vendors, budgetary estimates, similar projects and industry publications.

2.2 Site Inspection

Cameron Bartsch, M.Sc., P.Geo, a Qualified Person from Tetra Tech, visited the Sandtown Property for a total of 2 days from February 19th to 20th, 2015. The site visit included a tour of the local infrastructure in the area, the property and all drill hole locations. Drilling was ongoing at the time of the visit and two independent verification samples were also collected during Mr. Bartsch's visit.

3.0 RELIANCE ON OTHER EXPERTS

Tetra Tech has relied on the following sources of information from outside sources that do not meet the definition of a Qualified Person:

- Information on local quarry permitting and reclamation bond requirements was provided by Jeremy Stehle Environmental Scientist with ECCI, an Arkansas based Engineering and Environmental consulting company on April 30th 2015 and in subsequent correspondence,. ECCI is currently under contract with Select Sands to complete a "Notice of Intent to Quarry" application for submission to the Arkansas government.
- Information on the status of the property was provided by Select Sands in the form of a notarized copy of the "Option to Purchase Real Property" agreement signed by Select Sands and Stephen and Paula Stuaffer, dated October 25th, 2014 and notarized by David Watts, Notary Public, of Vancouver, BC.

Information provided by outside sources has been reviewed by Tetra Tech and is considered suitable for inclusion in this technical report.

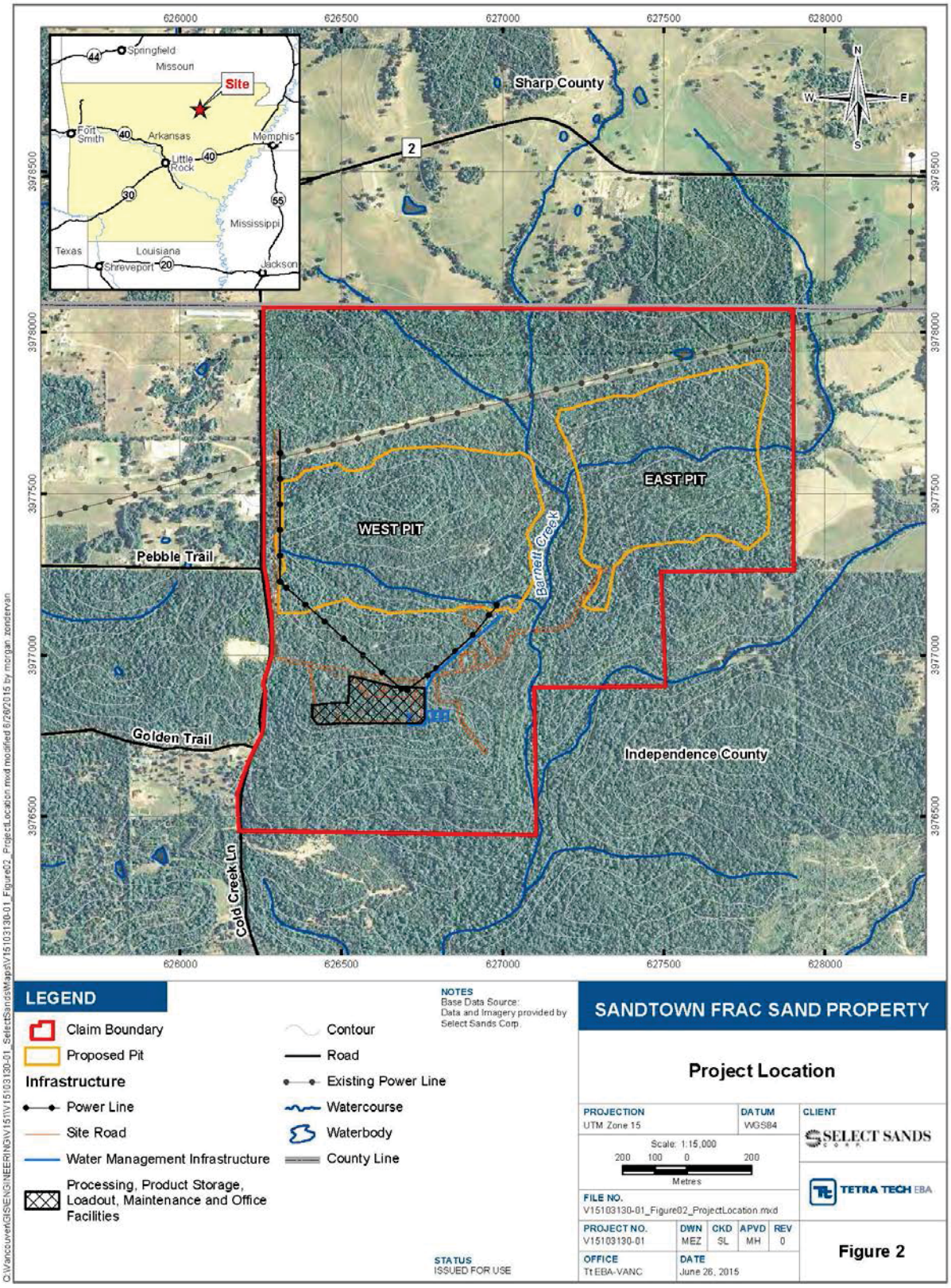
4.0 PROPERTY DESCRIPTION AND LOCATION

4.1 Location

The Sandtown Property is located in north-central Arkansas, approximately 3 km (~1 mile) west of the town of Cave City (Figure 2). The property straddles the border between Independence County to the south and Sharp County to the north, and is centred at 35.9310° latitude and -91.5920° longitude (UTM 15S 626990 m E 3977210 m N WGS 84). Elevations on the property vary from around 177 m (580 ft.) to around 213 m (700 ft.) AMSL. The closest major cities are Little Rock, AR located 140 km (87 miles) to the southwest, and Memphis, TN located 160 km (99 miles) to the southeast.

In total, the Sandtown Property is comprised of 210 ha. (520 acres) of mostly wooded lands. Little development has taken place on the property besides a through-going high transmission power line and several four wheeled drive accessible trails throughout the property. Selective logging of cedar trees was taking place on the property at the time of the site visit. The area surrounding the property is rural and largely agricultural with large poultry farms and pasture land the most prevalent type of farming operation.

Figure 2: Location of the Sandtown Property, Arkansas



4.2 Mineral Tenure and Property Agreements

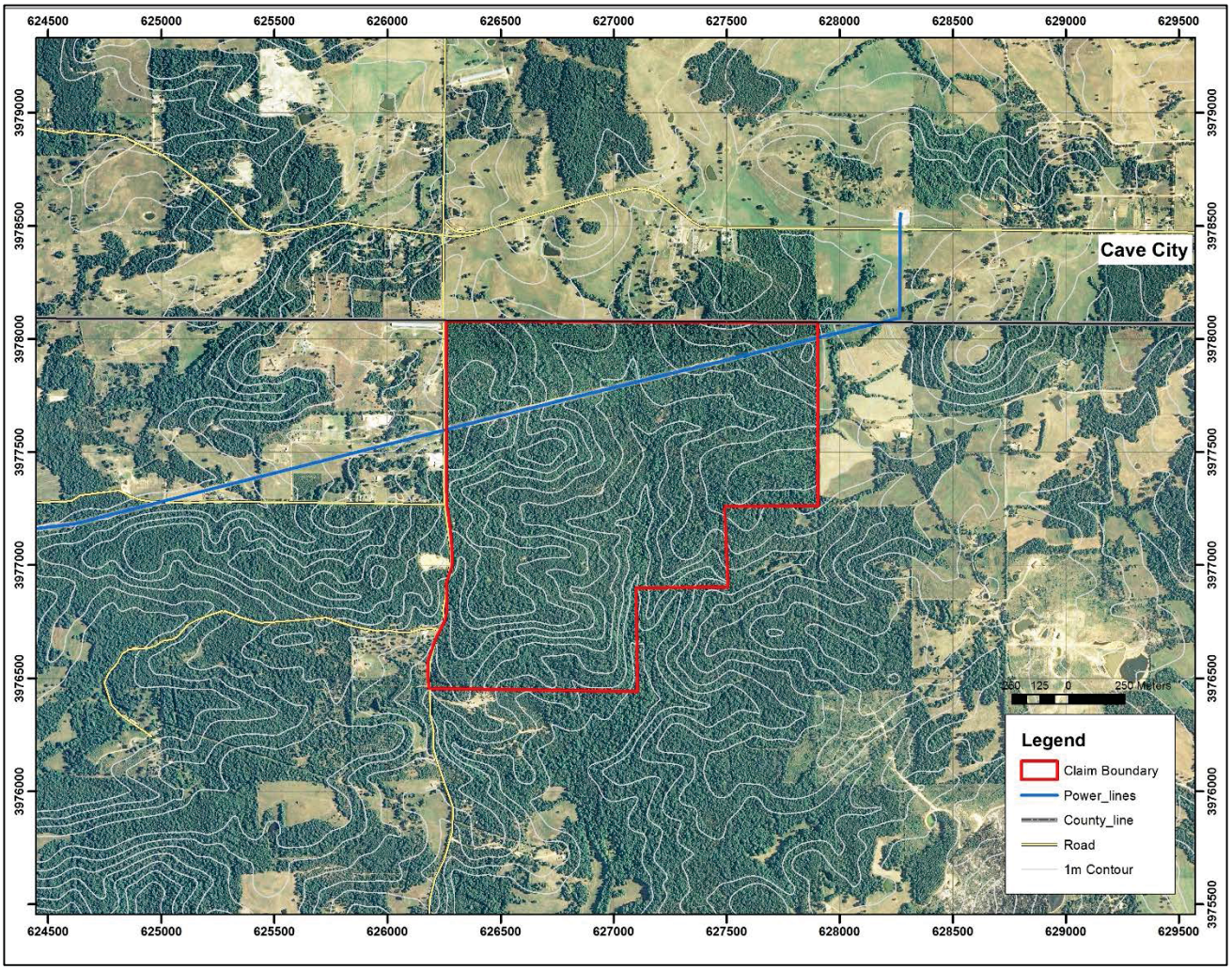
On October 25th, 2014 La Ronge Gold Corporation (La Ronge Gold, now Select Sands Corp.) entered into a binding letter of agreement for an option to acquire a 100% undivided right, title and interest in the Sandtown property (Figure 3). The agreement is between La Ronge Gold and Stephen and Paula Stauffer (the Vendor), the current registered land owners. Under the terms of the agreement, La Ronge Gold is required to pay US$25,000 upon TSX Venture Exchange approval (the "Approval Date") of the acquisition, and further payments of (i) US$100,000 upon the earlier of the completion of test drilling and 2 months after the Approval Date; (ii) US$75,000 upon the earlier of the completion of test work and 4 months after the Approval Date; and (iii) a final payment of $US1,800 per acre less prior payments made (or approximately US$736,000) is due to the Vendor 18 months after the Approval Date.

On November 13th, 2014 La Ronge Gold officially changed its name to Select Sands Corporation.

To date, Select Sands has made first three payments, totaling US$200,000, towards the purchase of the property. On March 1st, 2015 Select Sands and the Vendor signed an addendum to the original property agreement that allows Select Sand to collect material from a 10 acre parcel of land for test mining purposes before the full option agreement is reached, provided they pay the Vendor US$0.75/ton for any material sold as either fracking sand or other sand and gravel.

To the best of Tetra Tech's knowledge, there are no known environmental liabilities and/or any other significant factors and risks that may affect access, title or the right or ability to perform work on the property.

Figure 3: Sandtown Property Boundary (UTM Zone 15, WGS 84)



5.0 ACCESSIBILITY, CLIMATE, LOCAL INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Accessibility

The Sandtown Property is located approximately two hours from Little Rock, AR and is accessible by traveling 170 km northeast from Little Rock on State Hwy 167 to Cave City. From Cave City, the property is located approximately 3 km west along W Center Street and then south 1km on Cold Creek Lane. All roads leading to the site are paved and maintained year round.

5.2 Infrastructure

Cave City is the closest urban centre to the property, with a population of approximately 1,900 people. The town could be used to source basic amenities. A more likely source of supplies and labour for any potential quarrying operations would likely be the city of Batesville, located 25 km to the south. Batesville is the largest centre in Independence County with a population of 10,200. Several quarry operations are currently producing limestone in

the vicinity of Batesville and are a good indication for the potential of a skilled work force and reliable supply network in the area.

All routes used to access the property are well maintained, four-season roads. Once on the property, a series of four-wheel drive trails allow access to most parts of the mineral tenure. No studies have yet been undertaken to confirm the suitability of the roads to handle potential frac sand transportation.

A short line railroad operated by Missouri & Northern Arkansas Railroad (MNA) services the Batesville area and is the closest railroad to the project site. MNA is the primary railroad that services the existing quarry operations in the area. The most likely access point for loading facilities for any potential quarrying operations would most likely be located in the northern end of Batesville (Refer to Section 18.8).

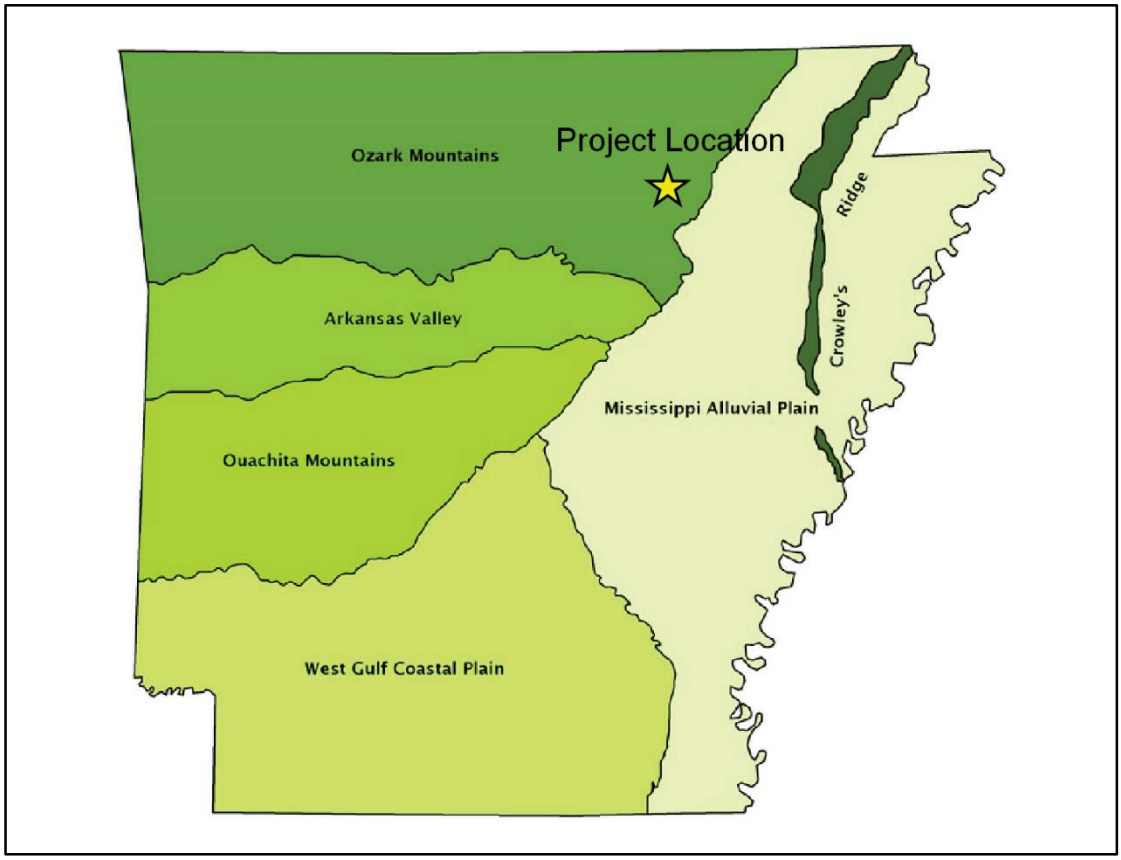
A high power transmission line cuts across the northern part of the property, terminating at a substation located approximately 500 m (1640 ft.) from the northeast property boundary. While this does allow for ease of access to electrical power, the presence of the high transmission lines does act as a potential barrier to development of the full extent of the property. A minimum of a 50 meter (164 ft.) buffer has been allowed for along both the transmission lines and road defining the edge of the property, and has been factored in to the mineral resource estimate reported in Section 13.0.

Besides the power lines, the only development that exists on the property consists of a cemetery located in the southern part of property along an east slope of a creek valley. In discussions with Mr. Stephen Stauffer, it was determined that the cemetery was likely part of a family homestead that was active in the area during the latter part of the 19th and early 20th century. No evidence of recent activity or upkeep was observed. Nevertheless, the cemetery location would need to be factored into any future quarry development plans.

5.3 Physiography

The Sandtown Property is located near the physiographic boundary between the Ozark Mountain Plateaus to the west, and Mississippi River Alluvial Plain to the east (Figure 4). In the Cave City area, the Ozark Mountains are comprised of the Salem Plateau, characterized by gently rolling hills and flat plains in contrast to the rugged mountains with elevations ranging from 600 to 1,400 feet (183 to 427 m) above sea level immediately to the south. The plateau is dissected by abundant rivers streams flowing through the dominantly limestone substrate to create the rugged physiography observed. Caves and karst topography are common due to the bedrock geology.

Figure 4: Physiographic Regions of Arkansas



Source: http://www.encyclopediaofarkansas.net/

The area around Cave City is predominantly made of relatively flat plains that form the headwaters to a broad drainage system of small tributaries that eventually flow into the White River near Batesville to the south. The White River is the closest significant body of water to the property.

Historically, the local area would have been covered by a mix of hard and softwoods, although much of the original forest cover has been removed to make way for pasture land. The Sandtown Property is one of the few remaining properties in the area that remains forest covered.

Soil cover is sparse, and in the case of the Sandtown Property, consist mainly of sand with variable amounts of organic material at surface. Rock escarpments and bluffs are common in drainage channels.

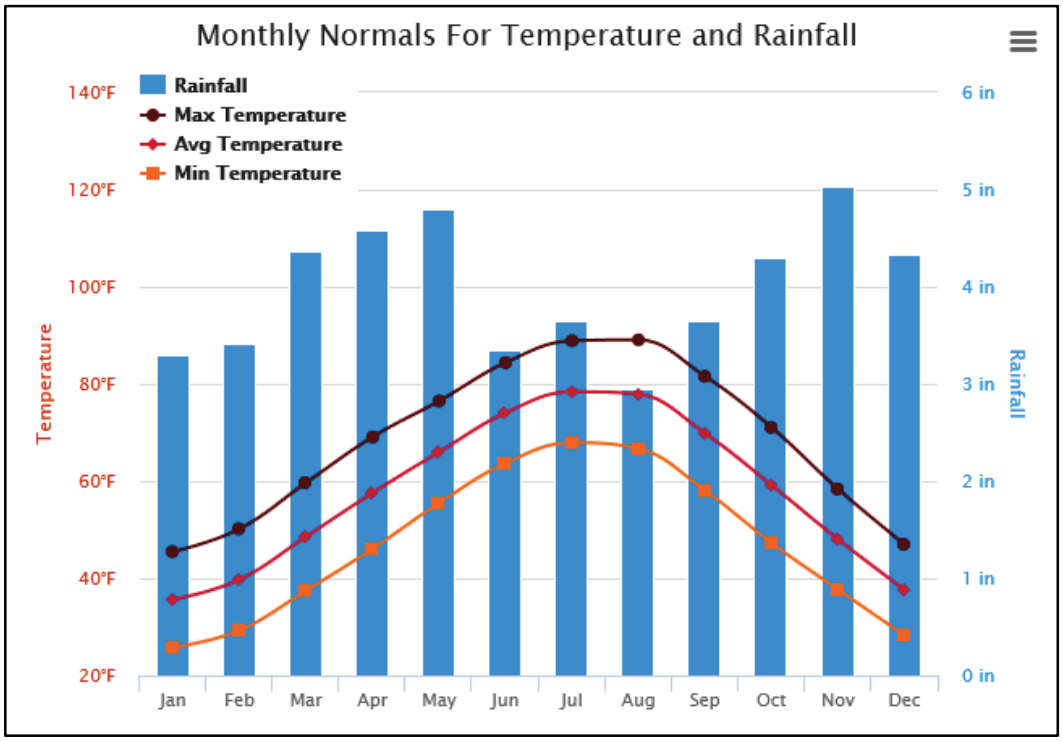
5.4 Climate

Arkansas is generally classified as having a humid sub-tropical climate, largely due to its close proximity to the warm Gulf of Mexico. Sub-tropical climates are generally known for hot, humid summers followed by slightly drier winters. The physiography of the state plays a large role in influencing the local climactic conditions, with the flat alluvial river valleys to the east generally channeling the warm moist air from the gulf along the eastern flank of the Ozark Mountains. Intense and potentially destructive thunderstorms are common in the area due to the interaction of this warm moist air with cold dry air moving in from the Rocky Mountains to the west.

The Sandtown Property lies in the Ozark Mountains, which is both the coolest and driest part of the state of Arkansas. Local average temperatures typically range from 80°F in the summer months down to 25°F in December

and January (Figure 5). Snow and freezing rain are common during the winter months, although significant accumulations are not. The wettest months occur in the spring and the fall when average monthly rainfalls range between 4 and 5 inches compared to 3-4 inches during the summer months.

Figure 5: Climate data for Batesville



Source: http://www.srh.noaa.gov/

6.0 HISTORY

No exploration has taken place on the property prior to work undertaken by Select Sands in 2014 (refer to Section 10.0).

7.0 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

The regional geology of Arkansas is broadly divided into: the Ozark Region (or Ozark Plateaus region), and the Arkansas Valley and Ouachita Mountains Regions of the Interior Highlands geologic province in the northwest; and the Mississippi Embayment and Gulf Coastal Plain of the Atlantic Plain geologic province in the south and east (U.S. Geological Survey, 2014). The Sandtown Property is located in the Ozark Plateaus region. The rocks in the Interior Highlands are dominated by well-lithified sandstone, shale, limestone, and dolostone of Paleozoic age (www.geology.ar.gov). A thin drape of younger unconsolidated clay, sand and gravel, termed alluvium, is often found in valley floors and associated with the streams and rivers. The sedimentary deposits of the Atlantic Plain are mainly unconsolidated clay, sand, and gravel of Quaternary age, poorly consolidated deposits of clay, sand, silt, limestone, and lignite of Tertiary age, and consolidated (to a limited extent) deposits of Cretaceous marl, chalk, limestone, sand, and gravel.

Most of the sediments that compose the rocks in the Interior Highlands were deposited, when north Arkansas was a shallow south-sloping sea floor (continental shelf). The Arkansas River Valley was near the edge of the shelf, and the Ouachita area was a deep abyssal plain (www.geology.ar.gov). In the late Paleozoic Era, a broad uplift domed the Ozark strata with little structural disruption. Simultaneously, a collision of two of the earth's mobile continental plates compressed the sediments of the abyssal plain into the Ouachita Mountains. This multimillion-year-long process folded and faulted the Ouachita strata into a structurally complex mountain chain. The Arkansas River Valley area is the transition zone between the structurally simple Ozark Region and the structurally complex Ouachitas with subdued characteristics in each region (www.geology.ar.gov).

The Ozark Plateaus region is made up of generally flat-lying Paleozoic age strata divided into three plateau surfaces (the Salem, Springfield and Boston Mountains plateaus). The Sandtown Property is located within the Middle Ordovician St. Peter Sandstone / Formation of the Salem Plateau. The Salem Plateau contains the oldest rock at the surface - Ordovician dolostones, sandstones and limestones. The faulting observed in the Ozarks is generally normal with most faults displaying a displacement down on the southern side; however, some observations suggest that a few strike-slip faults may be expressed (McFarland, 2004).

Three sandstone formations of early-middle Ordovician age are prominently developed and widely distributed in the Ozark Plateaus. They are named from oldest to youngest, Kings River, Calico Rock, and St. Peter Sandstone/Formations. Figure 6 below shows surface outcrop of the St. Peter Sandstone). The St. Peter Sandstone appears to rest unconformably on the Everton formation (Figure 7). There is no angular discordance noted between these two formations, but the contact is undulating (Glick, 1953). The lowermost sand beds of the St. Peter dip into the depressions and lap over the higher parts of the uneven surface of the Everton formation.

The St. Peter Sandstone is widely distributed in the upper Mississippi Valley Region. Much of the formation is buried beneath later formations, but outcrops locally in the bottom of valleys, on hill slopes, and on ridge tops. The St. Peter Sandstone has largely been removed by erosion in much of the Ozark Plateaus and southern Missouri (Giles, 1930). The St. Peter Sandstone in Arkansas is very variable in thickness even within short distances. It is described as ranging from a “feathers edge to as much as 175 feet (53 m) thick” (McFarland, 2004). Reporting in the 1930’s indicated that its thickness may reach a maximum of 200 feet (61 m) (Giles, 1930). The sandstone is buried in extreme northwestern Arkansas but appears south of Eureka Springs and thickens eastward, reaching its maximum thickness in the Mountain View, Mountain Home, and Batesville region (Giles, 1930) which are located northwest, west and south of the Sandtown Property respectively.

The St. Peter Sandstone is generally expressed as a massive bedded, medium- to fine-grained, well rounded, friable white sandstone. Minor beds of shale, limestone, and/or dolostone have been noted in select sections of the St. Peter Sandstone. The matrix cement in the sandstone is commonly calcite and often includes hundreds to thousands of sand grains in a single crystal (McFarland, 2004). The sandstone typically has limited structure, with crossbedding and ripple marks noted infrequently in descriptions of the unit. Fossils are very rare in the St. Peter Sandstone and those that are found are poorly preserved. Fossils have been found at the top of the formation in southeast Missouri, but not in the unit in Arkansas.

Figure 6: Surface Outcrop of the St. Peter Sandstone in Arkansas

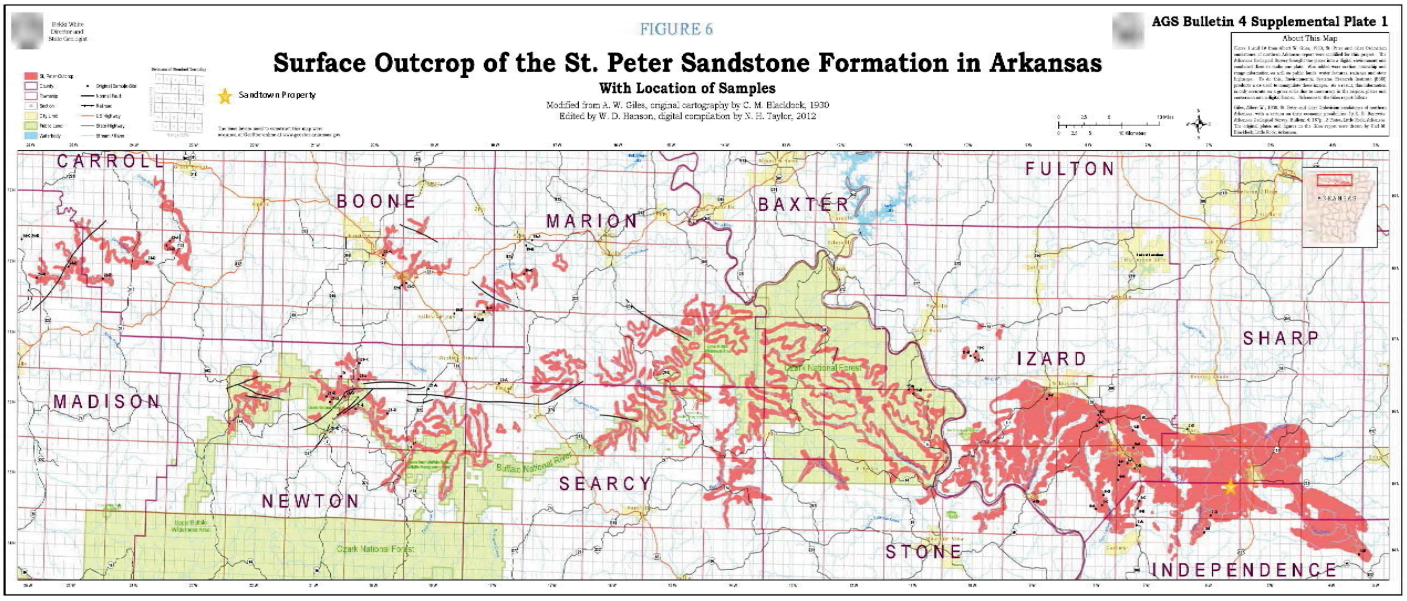
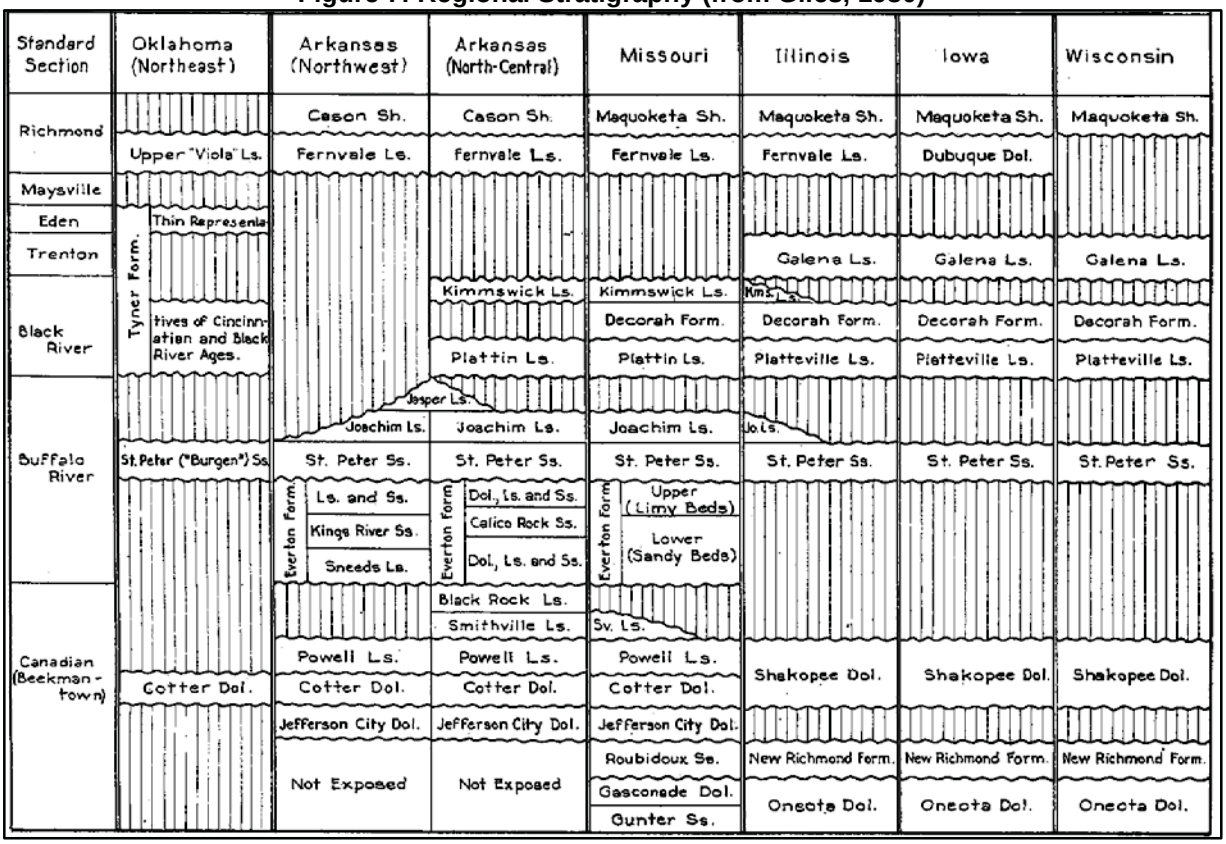


Figure 7: Regional Stratigraphy (from Giles, 1930)



7.2 Property Geology

The Sandtown Property is located near the southeastern limits of the St. Peter Sandstone as mapped in Arkansas. Bedrock exposure on the property is limited due to the widespread alluvial deposits; however, limited outcroppings do occur along stream embankments and heights of land. Where outcrops are present, the rocks are exclusively comprised of the St. Peter Sandstone (Figure 6). A more detailed analysis of the property geology is provided in Section 14.3.

7.3 Mineralization

The mineralization on site consists of well-sorted and high purity sandstone belonging to the St. Peter Sandstone. As noted above, the unit is comprised of medium- to fine-grained, well rounded, and friable white sandstone that is a potentially economic source of material for use in both the frac and silica sand industries.

In hand sample, the sandstone has a sugary texture due to the fine grain size and poorly cemented nature of the sandstone (Figure 8). Quartz appears to constitute the majority of the sand grains, the majority of which are well rounded.

While the majority of the St. Peter Sandstone intersected in the drill holes maintained a white to near white appearance, although localized sections of iron staining do occur. The staining was most commonly observed near the upper contact with the sand and gravel deposits where presumably there is sufficient ground water flow to oxidize any iron that occurs within or adjacent to the deposit. The extent of the staining in the deposit impacts the

suitability of the material for use in certain aspects of the silica sand industries, although it is less so for the frac sand industry.

Figure 8: Piece of Core Showing Colour and Texture of the Sandstone on the Property



Figure 9: Showing Roundness of Quartz Grains in Sandstone (from StimLab)



8.0 DEPOSIT TYPES

8.1 Overview

Mineralization in the form of high purity sandstone on the Sandtown Property is primarily being considered for two end products with a variety of uses as part of the current study. This includes a granular silica for use primarily as a proppant (frac sand) in the oil and gas industry, but can also other industrial products like glass, architectural and solar glass applications, and foundry and building products. The second product considered is a ground silica powder for use in plastics, rubber, polishes, cleansers, paints, glazes, textile fibreglass, precision castings, premium paints, specialty coatings, sealants, silicone rubber, and epoxies.

8.2 Proppant Requirements

Various types of proppants can be used in hydraulic fracturing operations, ranging from raw natural sand, coated sand, and man-made ceramic products. The key criteria is determining the suitability of sand for use as a proppant are the mineralogical composition and shape (sphericity and roundness), grain size distribution, a crush resistance The criteria for assessing the suitability of a natural sand for use in hydraulic fracturing operations is set out in the American Petroleum Institute's Recommended Practice 19C (API RP 19C) – Recommended Practice for Measurement of Proppants Used in Hydraulic Fracturing and Gravel-packing Operations (API 2008a) and ISO13503-2:2006 Petroleum and natural gas industries – Completion fluids and materials – Part 2: Measurement of properties used in hydraulic fracturing and gravel packing operations. API RP 19C was published in 2008 and replaces an earlier version, API RP 56. Both standards provide recommended specifications that consider particle distribution, roundness and sphericity, turbidity, acid solubility, and crush resistance, as follows:

- Sieve Distribution: Maximum of 0.1% larger than largest designated sieve, max 1.0% smaller than smallest designated sieve. Combined amount of sand retained between designated sieve sizes must be >90% original sample weight;
- Sphericity and Roundness: Determined by visual comparison of 20 or more grains. Sphericity is a measure of how close the grain is to a sphere, and roundness is a measure of the relative sharpness of grain corners. Frac sand should have a sphericity and roundness of 0.6 (scale of 0-1.0, with 1.0 being a sphere) or greater;
- Turbidity: Measurement of the amount of clay and silt sized particles contained in a sand done by placing it in water and measuring the overall turbidity of the liquid, measured in Formazin Turbidity Units (FTU). Recommended is 250 FTU or less;
- Acid Solubility: Provides an indication of the amount of undesirable contaminants in a sand by determining its solubility when soaked in a hydrochloric-hydrofluoric acid (HCL-HF) solution. The maximum solubility 6/12 through 30/50 mesh sand is 2%, and 40/70 through 70/140 is 3%; and
- Crush Resistance: Determined by subjecting a sample to specific pressures for designated amount of time and measuring the amount of fines (percent by weight) that result. Maximum allowable fines varies by mesh size, for example for 20/40 sand at 4000 psi the maximum fines is 14%.

In addition to the above, API RP 19D – Recommended Practice for Measuring the Long-term Conductivity of Proppants (API 2008b) provides recommendations for the conductivity and liquid permeability required for a frac sand. Permeability is a measure of a porous medium's ability to flow, measured in Darcy's. Conductivity is a measure of a hydraulic fractures ability to flow. Both are measured at increasing closure pressures ranging from 2000-8000 psi to determine the change. Measurements taken are compared against predicted values (Predict-K) for other proppants.

Select Sands has analyzed samples from the Sandtown Property against API Standards. Several samples were sent to STIM-Lab, an independent laboratory specializing in evaluating proppant characteristics. The characteristics of the samples were determined and compared to the API RP 19C/D and ISO13503--2 standards. The results of this analysis are summarized in Sections 12.1 and 13.0. In addition, composite samples collected during the 2015 RAB drill program were sent to Tetra Tech materials testing laboratory in Calgary, AB. The purpose of this testing was to confirm the STIM-Lab results as well as establish a level or certainty about the consistency of the deposit across the property. Materials sent to the Tetra Tech lab were only analyzed for grain size distribution and crushability. The results of this testing are provided in Section 13.4.

9.0 EXPLORATION

Exploration work done by Select Sands since acquiring the project has been drilling, is detailed in Section 10.0.

10.0 DRILLING

10.1 Introduction

Select Sands completed two drill programs since acquiring the Sandtown Property in 2014. In December, 2014, the company completed a diamond drill program totaling 243 feet (74.0 m). This was followed by a Rotary Air Blast Rotary (RAB) drill program in February 2015 comprising 1157.2 feet (352.7 m) in 16 drill holes. Details of the drill programs are provided below.

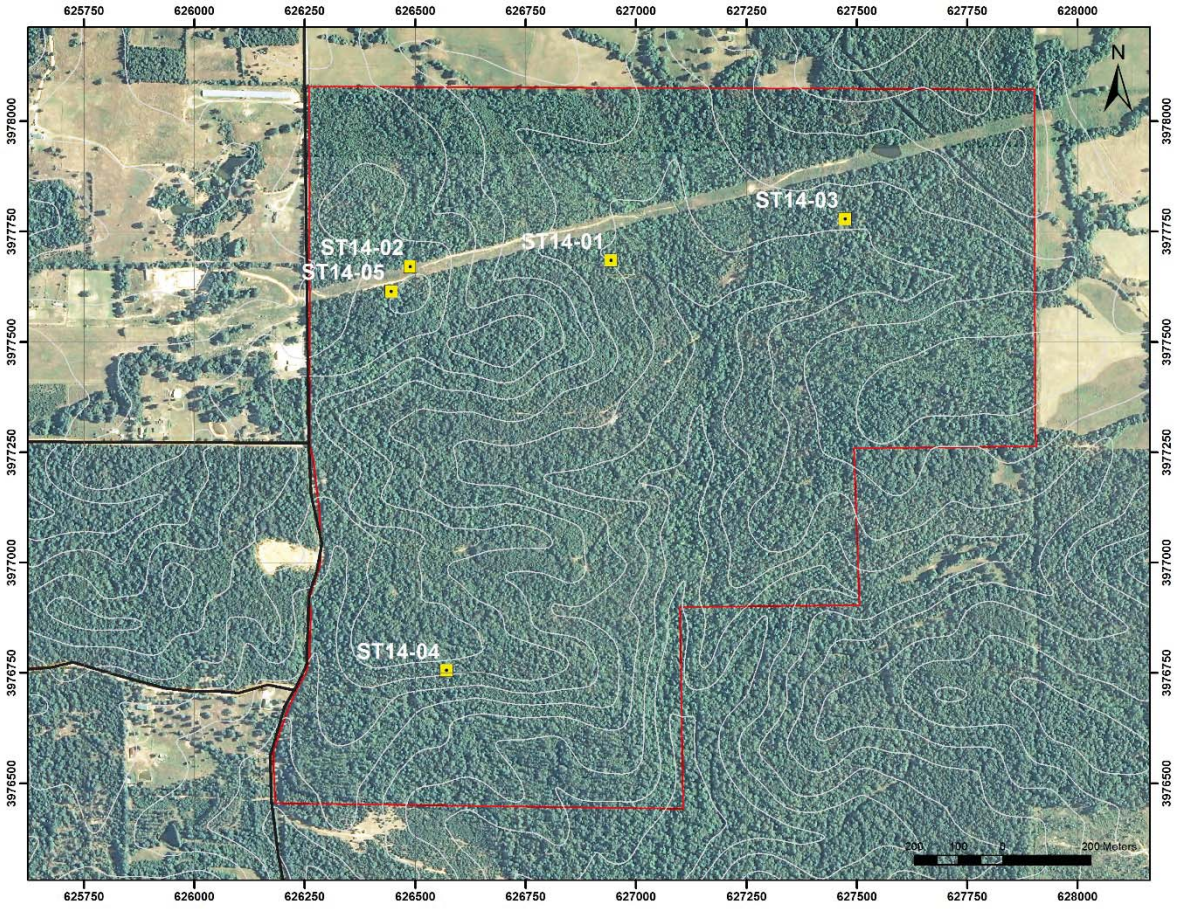
10.2 2014 Diamond Drill Program

Drilling in 2014 was carried out by Independent Sand Processor out of Arkansas, USA. Hole locations and depths are provided in Table 5 and Figure 9 below. This initial drill program on the property was a reconnaissance program designed to test for the presence of the St. Peter Sandstone on the property, as well as a preliminary characterization of the sand intersected. Samples collected during the program were sent for analysis at STIM-Lab, Oklahoma.

Table 5: 2014 Diamond Drill Holes

Hole_ID	Easting	Northing	UTM_E	UTM_N	Elevation (ft.)	Elevation (m)	Azimuth	Dip	Length (ft.)	Length (m)
ST14-01	-91.5927	35.93527	626944	3977684	714	217.6	0	90	22	6.7056
ST14-02	-91.59774	35.93521	626489	3977670	728	221.9	0	90	32	9.7536
ST14-03	-91.58681	35.93605	627474	3977778	652	198.7	0	90	80	24.384
ST14-04	-91.59698	35.92695	626571	3976755	699	213.1	0	90	57	17.3736
ST14-05	-91.59823	35.93471	626446	3977614	745	227.1	0	90	52	15.8496

Figure 9: Diamond Drill Hole Location Map (UTM Zone 15, WGS 84)



10.2.1 Significant Results

Table 6 below lists the significant intercepts, most notably with ST14-03 showing a 23.5 m (77 ft.) of sandstone. Figure 10 and Figure 11 show photographs of typical core of the St. Peters Sandstone recovered from the drilling.

Table 6: 2014 Significant Intercepts

Drill Hole	From (ft.)	From (m)	To (ft.)	To (m)	Thickness (ft.)	Thickness (m)	Lithology
ST14-01	0	0.0	22.0	6.7	22	6.7	SST
ST14-02	0	0.0	32.0	9.8	32	9.8	SST
ST14-03	2	0.6	79.0	24.1	77	23.5	SST
ST15-05	4	1.2	52.0	15.8	48	14.6	SST

SST - siltstone.

Figure 10: Diamond Drill Core (ST14-03, Box 6, 40-48')



Figure 11: Close-up of Diamond Drill Core



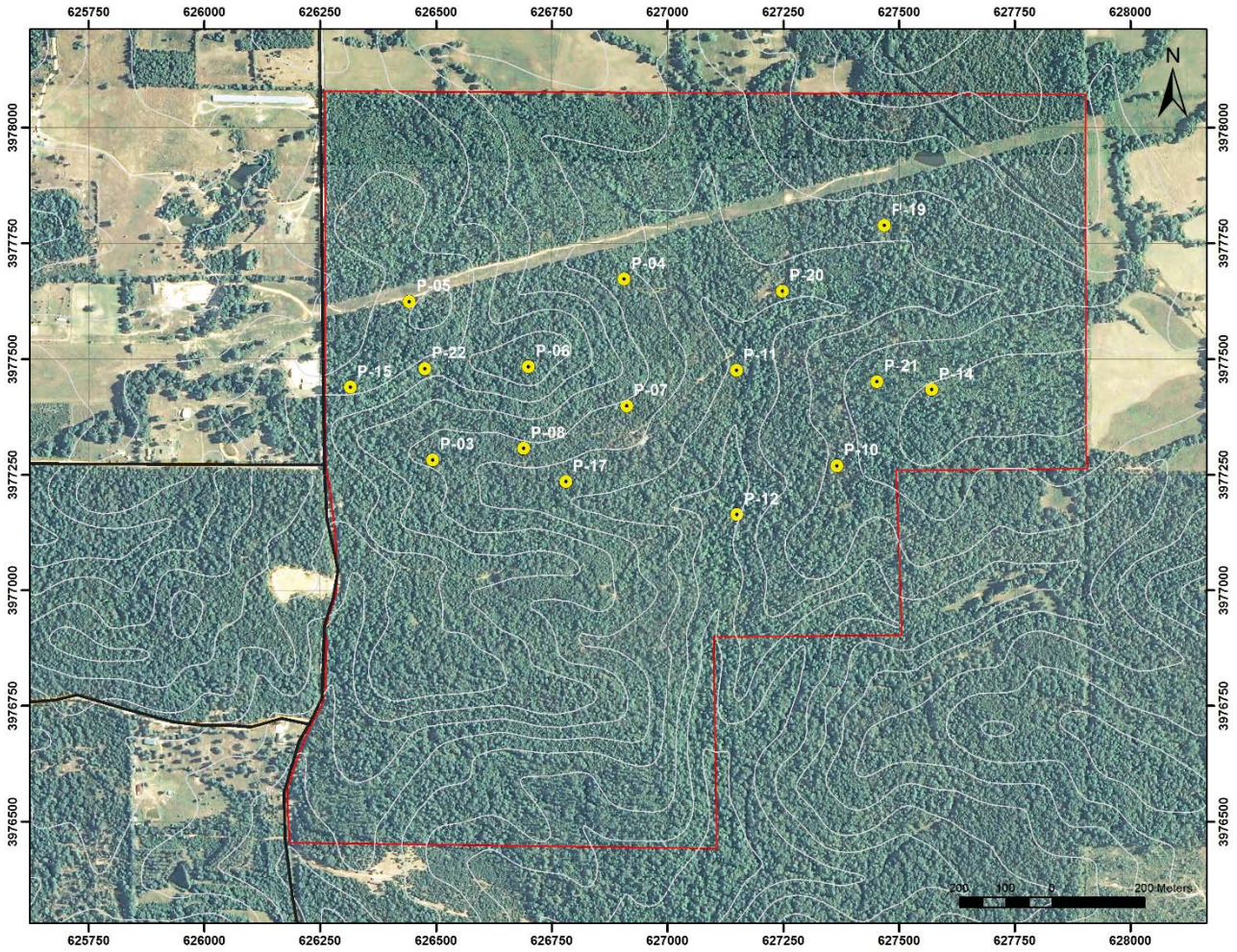
10.3 2015 RAB Drill Program

Drilling in 2015 was carried out with a Rotary Air-Blast drill by Explosive Contractors Inc. out of Hollister, MO. Whereas the diamond drill program was designed to confirm and characterize the potential for industrial use sand deposits on the Sandtown Property, the 2015 RAB drill program was designed to determine the thickness and extents of the deposit. To achieve this, a suite of 16 holes were drilled across the property using a drill spacing of roughly 200 to 300 m (656 – 984 ft.) (Table 7 and Figure 12). A total of 352.7 m (1157 ft.) were drilled using this method.

Table 7: 2015 RAB Drill Holes

Hole ID	Easting	Northing	UTM_E	UTM_N	Elevation (ft.)	Elevation (m)	Dip	Length (ft.)	Length (m)
P-03	-91.59776	35.9317	626492	3977281	663	202.1	90	81	24.69
P-04	-91.59312	35.93517	626906	3977671	673	205.1	90	98.1	29.9
P-05	-91.59827	35.93479	626443	3977622	744	226.8	90	49	14.94
P-06	-91.59544	35.93349	626697	3977483	731	222.8	90	90	27.43
P-07	-91.5931	35.9327	626911	3977398	699	213.1	90	114	34.75
P-08	-91.59558	35.9319	626689	3977305	676	206.0	90	89.1	27.16
P-10	-91.58809	35.93147	627365	3977268	649	197.8	90	40	12.19
P-11	-91.59046	35.93336	627148	3977473	616	187.8	90	43	13.11
P-12	-91.5905	35.93055	627152	3977158	583	177.7	90	40	12.19
P-14	-91.5833	35.9331	627795	3977455	686	209.1	90	60	18.29
P-15	-91.59971	35.93314	626313	3977439	697	212.4	90	81	24.69
P-17	-91.595903	35.929799	626664	3977073	666	203.0	90	32	9.75
P-19	-91.58687	35.93614	627465	3977787	656	199.9	90	90	27.43
P-20	-91.58933	35.93489	627245	3977647	641	195.4	90	100	30.48
P-21	-91.5871	35.9331	627452	3977449	650	198.1	90	70	21.34
P-22	-91.59792	35.93348	626476	3977479	722	220.1	90	80	24.38

Figure 12: RAB Drill Hole Location Map (UTM Zone 15, WGS 84)



10.3.1 Significant Results

The RAB drill program was successful in intersecting the St. Peter Sandstone in 15 of the 16 holes drilled. Average depths and thicknesses of these intersections are provided in Table 8.

Table 8: 2015 Significant Intercepts

Drill Hole	From (ft.)	From (m)	To (ft.)	To (m)	Thickness (ft.)	Thickness (m)	Lithology
P-03	7	2.1	63.5	19.4	56.5	17.2	SST
P-04	10	3.0	69.0	21.0	59	18.0	SST
P-05	6	1.8	49.0	14.9	43	13.1	SST
P-07	10	3.0	114.0	34.7	104	31.7	SST
P-08	3	0.9	89.0	27.1	86	26.2	SST
P-10	1	0.3	31.5	9.6	30.5	9.3	SST
P-11	14	4.3	32.0	9.8	18	5.5	SST
P-12	3	0.9	28.0	8.5	25	7.6	SST
P-14	13	4.0	46.0	14.0	33	10.1	SST

Drill Hole	From (ft.)	From (m)	To (ft.)	To (m)	Thickness (ft.)	Thickness (m)	Lithology
P-15	2	0.6	61.0	18.6	59	18.0	SST
P-17	5	1.5	12.0	3.7	7	2.1	SST
P-19	3	0.9	73.0	22.3	70	21.3	SST
P-20	3	0.9	78.0	23.8	75	22.9	SST
P-21	3	0.9	63.0	19.2	60	18.3	SST
P-22	3	0.9	74.0	22.6	71	21.6	SST

Note: SST - siltstone.

The results of the 2015 drill program indicate that the majority of the Sandtown Property appears to be underlain by the St. Peter Sandstone. The only hole to not intersect the unit was P-06, located in the center of the drill pattern. The hole was drilled to a maximum depth of 27.43 m (99.99 ft.) before terminating in a medium- to coarse-grained unconsolidated sand. A cross section completed through this deposit appears to indicate a volumetrically significant, yet spatially limited, deposit of unconsolidated sand lies on top of the St. Peter Sandstone in the vicinity of P-06 (refer to Section 14.0).

Much of sandstone intersected during both the 2014 and 2015 drill programs showed good homogeneity in both grain size and composition. The largest variability observed was in color, with iron staining generally being more prevalent at the top of the unit, decreasing to almost nil beyond approximately 5m depth, and then again re-appearing near the base of the unit. Figure 13 shows the RAB drill intersecting white sandstone in hole P-20, with sand a similar colour to the surrounding snow, while Figure 14 shows the gradation from pure white sand to dark brown, clay-rich sand at the base of the St. Peter Sandstone. Within the unit itself, narrow (< 20cm) clay-rich seems were intersected infrequently in the drilling, although they are volumetrically insignificant.

Figure 13: RAB drill Intersecting White Sand at P-20.



Figure 14: Transition from White to Clay-Rich Sandstone at Base of St. Peter Fm.



11.0 SAMPLE PREPARATION, ANAYSES AND SECURITY

11.1 2014 Diamond Drill Program

Following the 2014 diamond drilling program entire core boxes from the borehole collar to final depth were sent to STIM-Lab. The following is an excerpt from the STIM-Lab Report titled "Measurement of Properties for Proppants Used In Hydraulic Fracturing and Gravel-Packing Operations Evaluations on Core Samples, For Select Sands Corp., Submitted January 8, 2015":

> *"STIM-LAB, Inc. has completed the ISO 13503-2:2006/API RP19C:2008 evaluations requested on the submitted sand sample labeled 35.93511 – 91.59766 Elevation 707 Hole # II ST 14-02 0' to 8', 8' to 16', 16' to 24' and 24' to 32'. The sample will be referred to as ST14-02 (0.0ft – 32.0ft), throughout the report. The sample was received at STIM-Lab Inc. on January 8, 2015.*
>
> *Upon arrival, the sample was dried, weighed, and washed through a 200 mesh sieve. The sample retained on the sieve was then dried and reweighed. The percent loss was calculated from the material that washed through the sieve."*

The report goes on to discuss X-ray diffraction analysis, sieve analysis, sphericity and roundness, acid solubility, turbidity, bulk density, apparent density and crush with K-value results. The procedures followed are reportedly stated in ISO 13503-2:2006/API RP19C:2008.

11.2 2015 RAB Drill Program

Composite samples were collected at regular ten foot intervals down hole during the RAB drilling process. Depths to bedrock were recorded and labeled in large Ziploc freezer bags by Select Sand personnel. Approximately 4 to 5 pounds of representative sample was collected for each 10 ft. interval as a representative composite sample. A smaller sample subset from each interval, was troweled into Ziploc sandwich bags for later washing, drying and examination under a binocular microscope. The remainder of the samples collected were transported to the Tetra Tech lab in Calgary to undergo sieving and crush testing to determine 20/40, 30/50 and 100+ recovery percentages. No internal quality control measures were noted during the program.

11.3 Qualified Person Statement

It is the opinion of the qualified person that the sampling, analysis and security procedures undertaken during the 2015 exploration program are generally consistent with early-stage exploration on properties hosting similar industrial mineral commodities, and appear reasonable. Increased confidence in the analytical methods and data is provided by the results from the two independent laboratories (refer to Section 12.0).

12.0 DATA VERIFICATION

Cameron Bartsch, P.Geo., of Tetra Tech visited the Sandtown Property on February 19 and 20th, 2015. A total of two samples were collected from the RAB drilling that was ongoing at the time of the visit. The samples collected were from the drill cuttings and were sent to Tetra Tech's accredited laboratory in Calgary, AB. The samples were analyzed according to API RP 19C specifications for sieve distribution (30/50, 40/70 and 70/140 gradations), sphericity and roundness, crush resistance and acid solubility.

12.1 Acid Solubility, Roundness, and Crush Resistance

The results of the analysis are presented in Table 9, Table 10, Figure 15, and Figure 16.

Table 9: Verification Sample Results – Sample TT2015-01 (Hole P-22)

Sample Gradation	Crush Resistance (%)	Suggested API Maximum Fines (% by weight)	Roundness and Sphericity	API Recommended Roundness and Sphericity	Acid Solubility	Maximum Acid Solubility, API Limits (%)
30/50	15.9	10	0.6/0.7	0.6/0.6	1.4	2
40/70	11.2	8	0.6/0.7	0.6/0.6	1.4	3
70/140	5	6	0.6/0.7	0.6/0.6	1.4	3

Note: API – American Petroleum Institute

Figure 15: Sieve Analysis for Sample TT2015-01

Sieve Size	Percent Passing
200 mm	
150 mm	
100 mm	
80 mm	
50 mm	
40 mm	
25 mm	
20 mm	
16 mm	
12.5 mm	
10 mm	100
5 mm	99
2.5 mm	99
1.25 mm	98
630 µm	98
315 µm	91
160 µm	58
80 µm	25.5

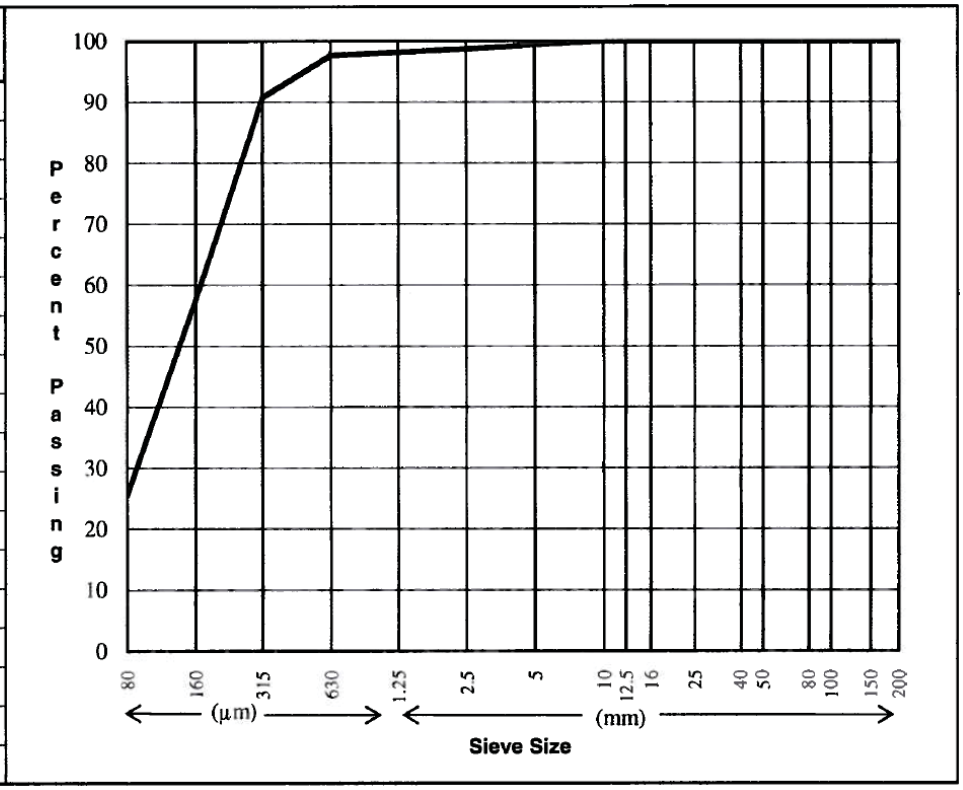


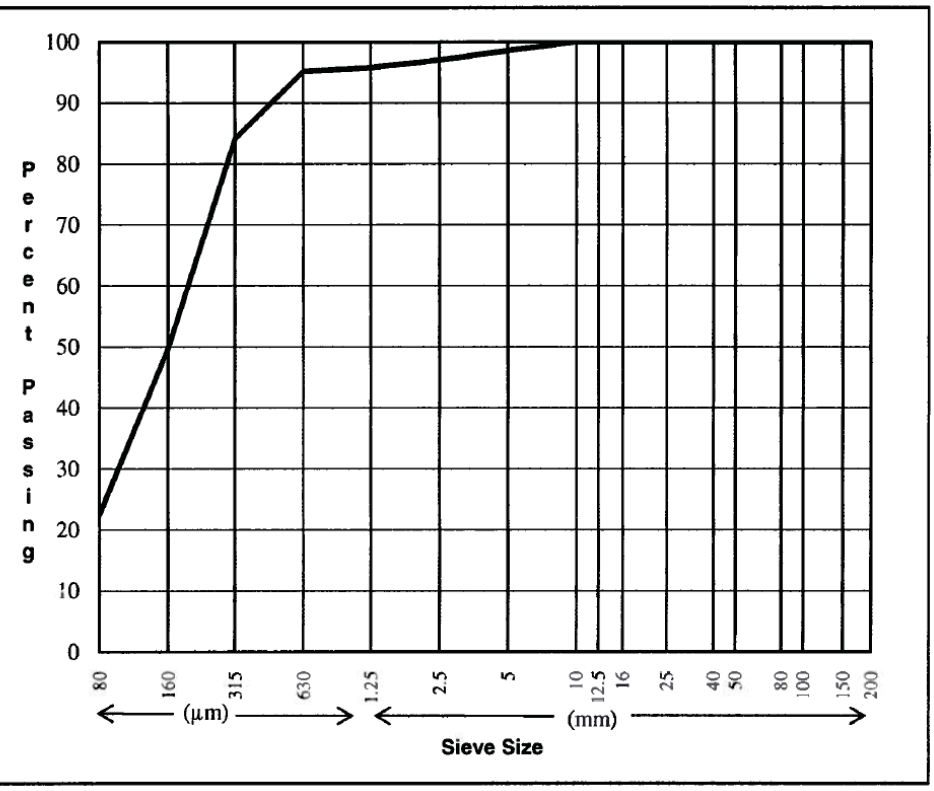
Table 10: Verification Sample Results – Sample TT2015-02 (Hole P-19)

Sample Gradation	Crush Resistance (%)	Suggested API Maximum Fines (% by weight)	Roundness and Sphericity	API Recommended Roundness and Sphericity	Acid Solubility	Maximum Acid Solubility, API Limits (%)
30/50	8.5	10	0.7/0.7	0.6/0.6	1.3	2
40/70	7	8	0.7/0.7	0.6/0.6	1.3	3
70/140	3.5	6	0.7/0.7	0.6/0.6	1.3	3

Note: API – American Petroleum Institute

Figure 16: Sieve Analysis for Sample TT2015-02

Sieve Size	Percent Passing
200 mm	
150 mm	
100 mm	
80 mm	
50 mm	
40 mm	
25 mm	
20 mm	
16 mm	
12.5 mm	
10 mm	100
5 mm	99
2.5 mm	97
1.25 mm	96
630 µm	95
315 µm	84
160 µm	50
80 µm	22.5



Overall, the results are generally consistent with previous testwork done by STIM-Lab (presented in Section 13.0). Sphericity, roundness, and acid solubility are well within API standards in both of the samples collected. The percent of fines recovered from the crush resistance testing for both size gradations exceed API standards by 3-6% in TT2015-01 and were slight elevated in sample TT2015-02. This was somewhat expected due to the nature of the drill method being utilized.

12.2 Qualified Person Statement

Tetra Tech has reviewed the analytical results from the independent sampling and feel that the results previously reported for the quality and distribution of the sand deposit is reasonable and reliable. The results of two of the three tests performed are directly comparable to the results reported by Select Sands from the StimLab. The decrease in crush resistance in the verification samples may be a factor of the RAB drilling method more than a reflection of variability in the deposit itself. A concern was expressed early on that RAB drilling may be destructive to the sample due to the force required to drill the hole. It appears the project would benefit from additional diamond drilling in order to gain a better understanding of potential variability in the deposit as well as the influence of RAB on the crushability results. Better knowledge of deposit-scale variability would assist in determining if a selective approach to mining and processing is required to achieve the optimum sand product.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Introduction

For the purpose of completing the PEA, testwork was conducted on samples taken from the property to inform mineral processing requirements and for determining potential product yields and market suitability. The tests conducted include:

1. Measurement of properties for Proppants used in Hydraulic Fracturing and Gravel-Packing operations, which were conducted by STIM-Lab, Oklahoma;
2. XRF Whole rock, ICP-MS and ICP-AES, conducted by SGS, BC, Canada;
3. Conductivity and permeability of 30/50, 40/70 and 70/140 mesh samples, by STIM-Lab, Oklahoma;
4. Size fractionation, conducted by Tetra Tech laboratories in Calgary, Alberta; and
5. SGS density testing, done in Vancouver, Canada.

13.2 STIM-Lab Results

Select Sands sent two samples from the 2014 diamond drill program for testing for API RP19C specifications to STIM-Lab Inc.'s laboratory in Duncan, Oklahoma. STIM-Lab in Oklahoma is accredited and recognized for testing related to the oil and gas industry. The results of the testing are summarized in Table 11 below. Photos of the test samples for the three size fractions analyzed are provided in Figure 17 to Figure 19.

Table 11: Results of STIM-Lab Tests

Sample_ID	XRD Results (%)				Size Fraction (%)			Sphericity / Roundness	Acid Solubility	Turbidity	K-Value*
	Quartz	Kspar	Calcite	Clays	30/50	40/70	70/140				
ST 14-02	99	tr	tr	1	15.1						
						32.7		0.8/0.8	0.7	11	10K
							56.6	0.7/0.7	1.1	13	10K
ST 14-03	99	tr	tr	1	11.1			0.7/0.7	0.7	7	7K
						32.8		0.7/0.7	0.7	6	9K
							58.6	0.7/0.7	0.9	4	10K

Note: * The highest stress level which proppant generates no more than 10% crushed material, rounded down to the nearest 1000psi = K-Value

Figure 17: ST 14-03 (0.0ft – 69.0ft) 30/50 Fraction (STIM-Lab)



Figure 18: ST 14-03 (0.0ft – 69.0ft) 40/70 Fraction (STIM-Lab)

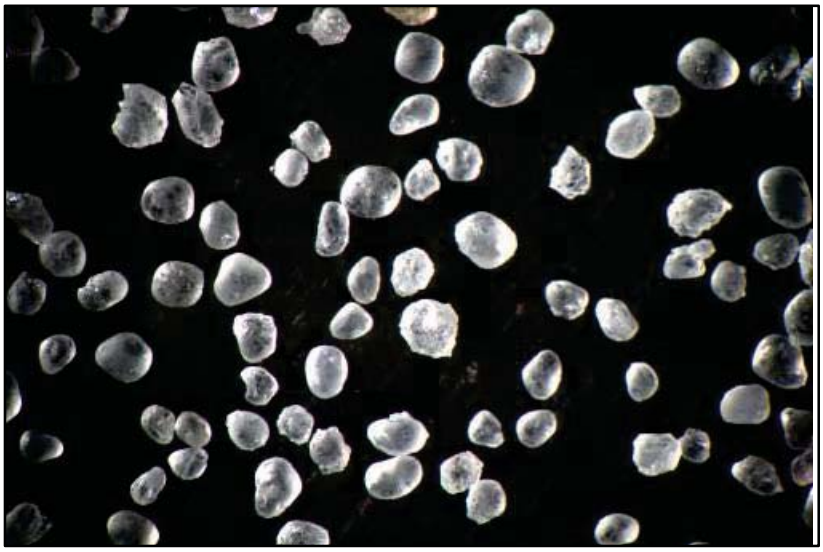
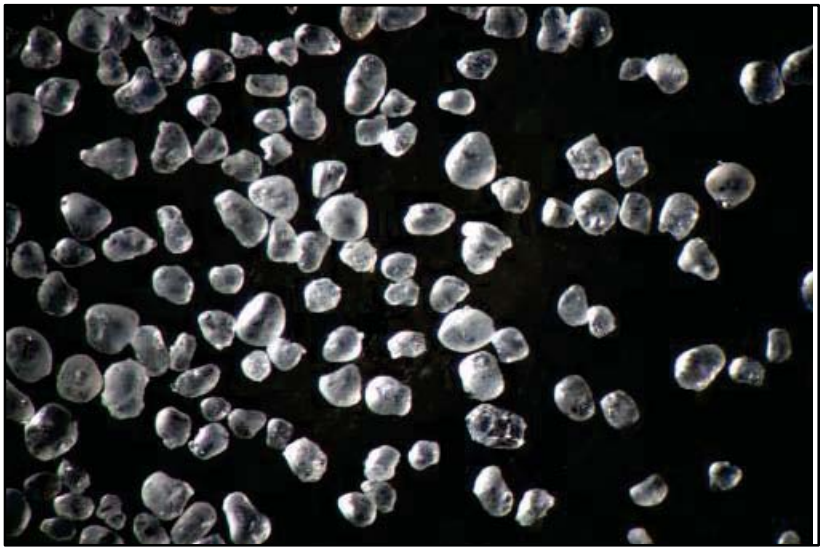


Figure 19: ST 14-03 (0.0ft – 69.0ft) 70/140 Fraction (STIM-Lab)



13.3 SGS Results

SGS conducted XRF, ICP-AES and ICP-MS analysis of 2 sets of samples to determine the mineralogical composition of the rock. Table 12 shows significant XRF results.

Table 12: Significant XRF Results

	Minimum	Maximum	Average
SiO_2%	17.00%	99.80%	94.55%
Al_2O_3	0.04%	4.63%	0.48%
Fe_2O_3%	0.32%	2.87%	0.96%
MgO%	0.02%	16.60%	0.73%
LOI%	-0.02%	38.70%	1.84%
CaO%	0.01%	26.60%	1.11%
K_2O%	0.02%	0.57%	0.11%
Na_2O%	0.01%	0.15%	0.04%
TiO_2%	0.01%	0.21%	0.03%
MnO%	0.01%	0.21%	0.02%
P_2O_5%	0.01%	0.08%	0.01%
Cr_2O_3%	0.01%	0.01%	0.01%
V_2O_5%	0.01%	0.01%	0.01%

13.4 Tetra Tech Results

Tetra Tech conducted size fractionation analysis on RAB drilling samples at their Calgary laboratory. The results are presented in Table 13. The mesh sizes used are typical for the frac sands industry. The average total frac

sand fraction of the RAB drilling results is 69%. As noted previously, the RAB drilling method is postulated to result in an overstating of the true amount of fines in each sample.

Table 13: Tetra Tech Size Fraction Results

% Retained by Size Fraction				
Sample #	**30/50**	**40/70**	**70/140**	**Total**
P-03	10.5%	22.3%	31.0%	63.8%
P-04	21.5%	33.4%	31.5%	86.4%
P-05	14.6%	27.0%	33.6%	75.2%
P-07	13.7%	26.7%	30.4%	70.8%
P-08	13.0%	27.0%	32.5%	72.5%
P-10	18.5%	30.4%	28.4%	77.3%
P-11	12.3%	28.1%	33.2%	73.6%
P-12	4.8%	8.8%	8.9%	22.5%
P-14	14.6%	27.0%	29.7%	71.3%
P-15	14.8%	28.4%	29.2%	72.4%
P-20	15.7%	28.7%	29.4%	73.8%
P-21	15.8%	27.4%	28.2%	71.4%
P-19	13.4%	25.7%	27.8%	66.9%
P-22	12.8%	29.5%	30.1%	72.4%
Average	14.0%	26.5%	28.8%	69.3%

13.5 Density Testing

Bulk density testing was carried out on a total of three core samples collected during the 2014 diamond drill program. Samples were sent to SGS Minerals Services laboratories in Vancouver, BC for analysis. Table 14 shows the results of bulk density testing, a bulk density of 2.2 g/cm^3 (137 lbs./ft^3) has been used in the estimation of resources.

Table 14: Bulk Density Testing

Sample	Dry Weight (g)	Wax Coated Weight (g)	Weight in Water (g)	Rock Volume (cm^3)	Density (g/cm^3)	Density (lbs./ft^3)
CCR-1	332.6	340.5	185.7	146.2	2.28	142.1
CCR-2	288.0	296.5	155.3	131.9	2.18	136.3
CCR-3	100.0	106	52.1	47.3	2.12	132.1

14.0 MINERAL RESOURCE ESTIMATES

14.1 Introduction

Tetra Tech prepared an independent mineral resource estimate for the sand deposits on the Sandtown Property. In preparing the estimate, Tetra Tech followed *CIM Best Practice Guidelines for Mineral Resources and Mineral Reserves* and reports the results in accordance with NI 43-101 below. A general discussion on the extent to which the mineral resource estimates could be affected by known environmental, permitting and socio-economic factors is described below in Section 20.

14.2 Basis of Current Estimate

The following assumptions and parameters were used by Tetra Tech during the resource estimation process:

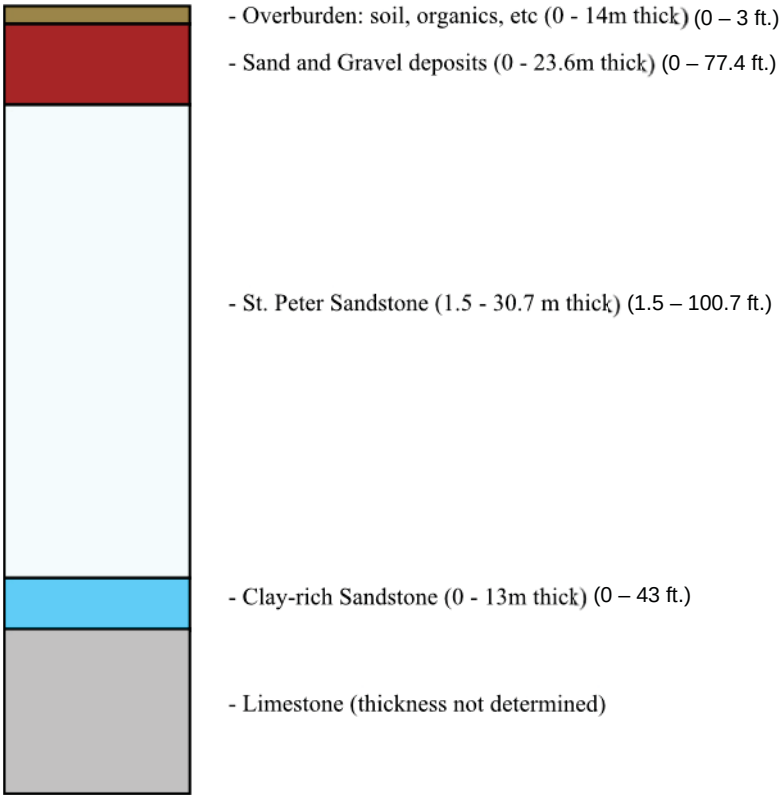
- A target area in the central part of the Sandtown Property was delineated for initial resource estimation base on the spacing of drill holes and known surface outcrops;
- The target area was constrained by including a buffer zone that excluded potential sand resources occurring within 50 m (164 ft.) of the high transmission power lines and property boundaries as there was little chance for development in those areas;
- Mining considerations were applied to design mineable pits for extraction of St. Peters Sandstone;
- The database used for estimation included all data collected during the 2014 diamond drill and 2015 RAB drill programs, comprising approximately 427 m (1401 ft.) of drilling;
- Laboratory test results from the various test facilities were compiled and reviewed to determine the variability of grade and quality across the modelled deposit, where applicable;
- A geological model was constructed for St. Peters Sandstone created based on the known extents of the St. Peters from drill hole intercepts;
- The total volume of the constrained geological solid was estimated from the geological model; and
- An average bulk density of 2.2 g/cm^3 (137 lbs./ft.^{3}) was used for weight determination based on the density test work by SGS.

Tetra Tech is of the opinion the data used during the resource estimation process meets industry standards and is suitable for inclusion in the resource estimate. Where noted, recommendations for additional work required to improve the quality and accuracy of the resource presented.

14.3 Geological Model

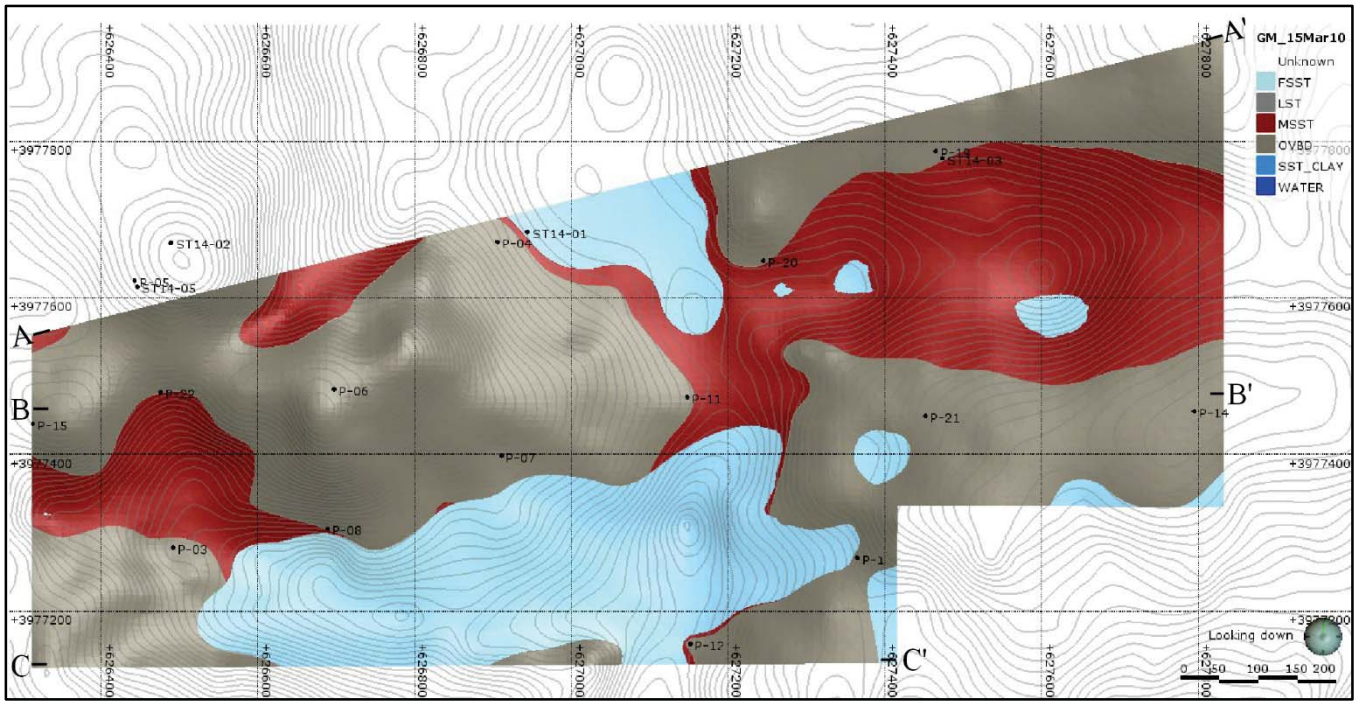
Tetra Tech used the drill database comprised 427 m (1401 ft.) of drilling to construct a 3D geological model of the area underlying the Sandtown Property. The model was constructed utilizing Aranz Geo's Leapfrog 3D modelling software and involved the construction of mesh solids for each of the predominant lithological units identified from drilling. The geology underlying the property is relatively simple from a geological prospective and can be grouped into 4 main rocks types, as illustrated in the simplified stratigraphic column below (Figure 20).

Figure 20: Simplified Stratigraphy of the Sandtown Property



The sandstone unit of interest, the St. Peter Sandstone, was found to occur at or near surface over a large part of the property, including in numerous bluffs outcropping along eroded stream embankments (Figure 21). The OVBD, comprised thick sand-rich organic matter, typically occurs as a thin veneer over most areas of the property. In the west-central part of the property, unconsolidated sand and gravel deposits (MSST – Figure 21) also to overlie the sandstone. This is especially prevalent in the area underlying hole P-06 where 90 feet (27 m) of sand and gravel were encountered. This area corresponds with a topographic high which is interpreted to be mainly comprised of the sand and gravel deposits. The St. Peters Sandstone (FSST – Figure 21) was intersected in holes to the north, west, and south east of P-06 and it is reasonable to infer in the current model that the unit also occurs at depth in this area.

Figure 21: Surface Geology of Resource Area (UTM Zone 15, WGS 84)

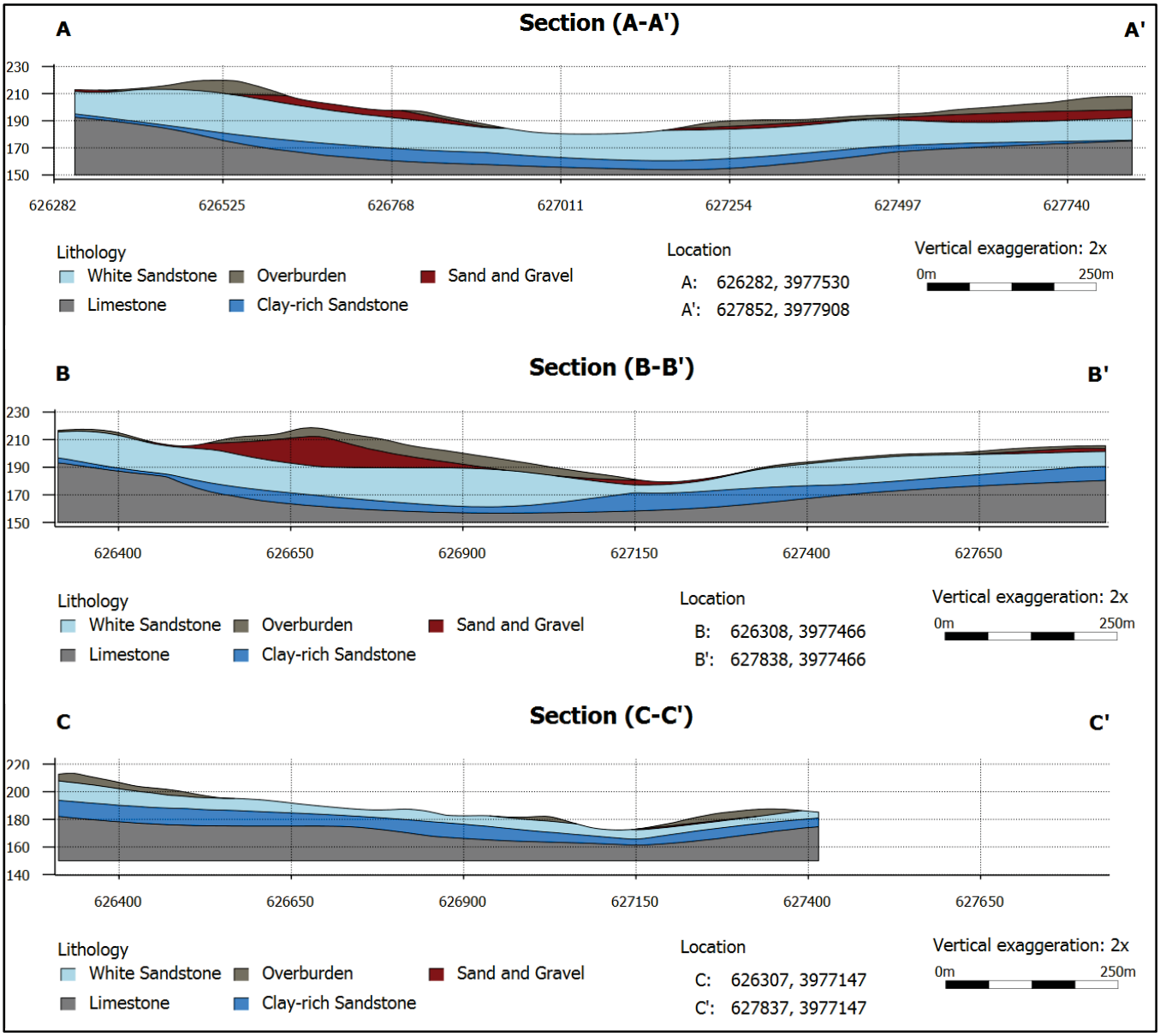


Note: FSST - fine sandstone, LST - limestone, MSST - medium sand stone, OVBD – overburden and SST Clay - siltstone or clay.

The sandstone appears to thin towards the south in the drilling. However, the unit is known to outcrop at the highpoint in the southern part of the property, so it remains uncertain if the thinning observed in drilling is due to or simply due to erosion along a tributary. For the purposes of the current resource estimate, the sandstone is modelled as pinching out to the south (Figure 22), although this is likely to change with an expansion of the drilling in that direction.

Based on current modelling, the St. Peters Sandstone is interpreted to overlie either a dirty limestone unit or a red, clay-rich sandstone. Presumably, the clay-rich deposits form a thin layer overlying the limestone that pinch and swell, likely with the paleo surface. This accounts for their sporadic observation in the drilling. The limestone encountered at depth is most likely part of the Everton Formation, which is the source of the quarried limestone common in the Batesville area.

Figure 22: Geological Cross-Sections



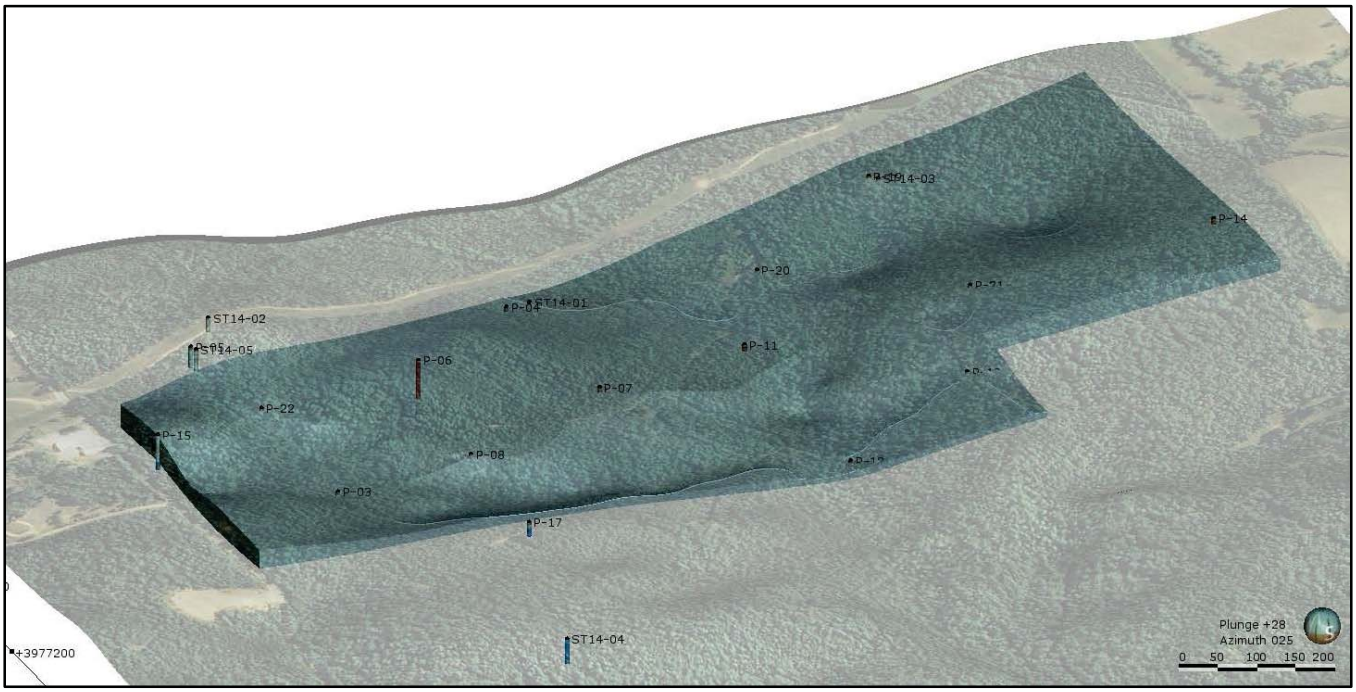
14.4 Volume Estimate

Modelling of the St. Peters Sandstone shows consistent thicknesses and continuity across much of the northern and central part of the property. The formation appears to thin to the south, although limited drill data exists in this area. Based on our modelling, Tetra Tech is confident that the unit underlies much of the northern and central parts of the property, locally absent where it has been completely eroded in the small creek valleys and topographic lows. As a result Tetra Tech expanded the geological solid modelling of the St. Peters Sandstone over much of this area.

A hard geological boundary was used to constrain the solid. The boundary incorporated a buffer zone in areas where quarry development was restricted due to existing infrastructure (Figure 21), areas within 50 m (164 ft.) of

the roads and the property boundary, as well as the high transmission power lines that bisect the property. The resulting geological solid of the St. Peters Sandstone in the current resource area is shown in Figure 23.

Figure 23: 3D Representation of the St. Peters Fm.



14.5 Mineral Resource Statement

In order to determine resources, portions of the St. Peters Sandstone in areas not suitable for mining and processing for economic uses have been excluded. This portions include the area underlying a drainage running north south through the property as well as portions forming pit slopes and allowing for buffer zones against public infrastructure, which includes property boundaries and the power line right of way which traverses the northern portion of the property.

Two distinct mining areas where identified namely the east and west pits. Pit designs were created around the resources based on benched mining of the FSST and creation of slopes in OVBD and MSST.

The parameters that were used to create open pit designs which constrain the resources are shown in Table 15.

Table 15: Pit Constraints Applied to Determine Resources

Parameters	Value Assigned
OVBD and MSST	
Pit slopes in overburden	15°
Bench Face Angle in overburden	60°
Bench width minimum in overburden	8 m (26 ft.)
Bench height max in overburden	2.5 m (8.2 ft.)
FSST	
Pit slope in FSST	23°
BFA in FSST	70°
Bench width minimum in FSST	8 m (26 ft.)
Bench height maximum in FSST	10 m (33 ft.)

Note: BFA – bench face angle, FSST - fine sandstone, MSST - medium sand stone, OVBD – overburden

The resulting pit constrained resources are contained in Table 16. No inferred or measured resources are currently included.

Table 16: Pit Constrained Resources for the Sandtown Property

Pit Resources	Volume (Mm^3)	Metric Specific Gravity (mt/m^3)	Imperial Specific Gravity (st/yd^3)	Thousand Short tons (kst)	Classification
East Pit	3,331	2.2	3.2	8,079	Indicated resources
West Pit	5,746	2.2	3.2	13,935	Indicated resources
Total Pit constrained resources	**9,077**	**2.2**	**3.2**	**22,014**	**Indicated resources**

14.6 Resource Classification

The resource classification was determined based on the relative continuity of the deposit as determined by average drill spacing and the results of composite sampling in each hole. Indicated resources demonstrate consistent thickness and composition intersected across at least three or more drill holes extending to a maximum of 200 m. Inferred resources were extrapolated for a distance of 500 m (1640 ft.) from a single drillhole intercept. No resources were categorized as measured during the current study. This is not a reflection on drill spacing, but rather the lack of accurate survey information for the existing drill collars making some elevations questionable in addition to a detailed downhole characterization of the target sandstone.

14.6.1 QP Statement

The St. Peter Sandstone on the Sandtown Property is comprised of a gently undulating tabular body that shows broad consistency over km-scale distances. Because of the predictable nature of the deposit, Tetra Tech is of the opinion that the method of resource classification described above is appropriate and within the realm of standard industry best practices for similar industrial mineral deposits.

15.0 MINERAL RESERVE ESTIMATES

No mineral reserves have been established for the Sandtown Property at this time.

16.0 MINING METHODS

Due to the near surface tabular nature of the St. Peters Sandstone on the Sandtown Property, the mining method for the Sandtown Property would be open pit mining in discrete blocks or cuts. The FSST targeted for mining and processing is overlain by Sand and Gravel deposits MSST and OVBD which would need to be removed prior to mining. Based on the cemented nature of the FSST it would require drill and blast, whereas the MSST and the OVBD are unconsolidated would be mineable via free dig with a hydraulic excavator or through ripping with a bull dozer.

The property includes area where the FSST is outcropping and these would be targeted for mine start-up. The FSST varies in thickness and could be mined in benches of a maximum of 30 ft. (10 m). After drill and blast mining would take place using truck and shovel (hydraulic excavator/backhoe). Unusable materials could be stockpiled onsite, with mill feed transported to a crusher stockpile.

The resource has been subdivided into two areas, on the east and west side of the drainage running north south through the property. A buffer of 50 meters (164 ft.) has been left on either side of the drainage, which is not planned for mining. In addition, buffer has been left against the property boundary and against power line right of way, which runs to the north of the resource area. Mining parameters used can be seen in Table 17. Note that the overall slope for the MSST and OVBD has been designed using a more conservative slope angle considering the unconsolidated nature of this material. Mining of FSST would take place above the underlain limestone (LST), which would not be mined, though some contamination of the FSST is expected.

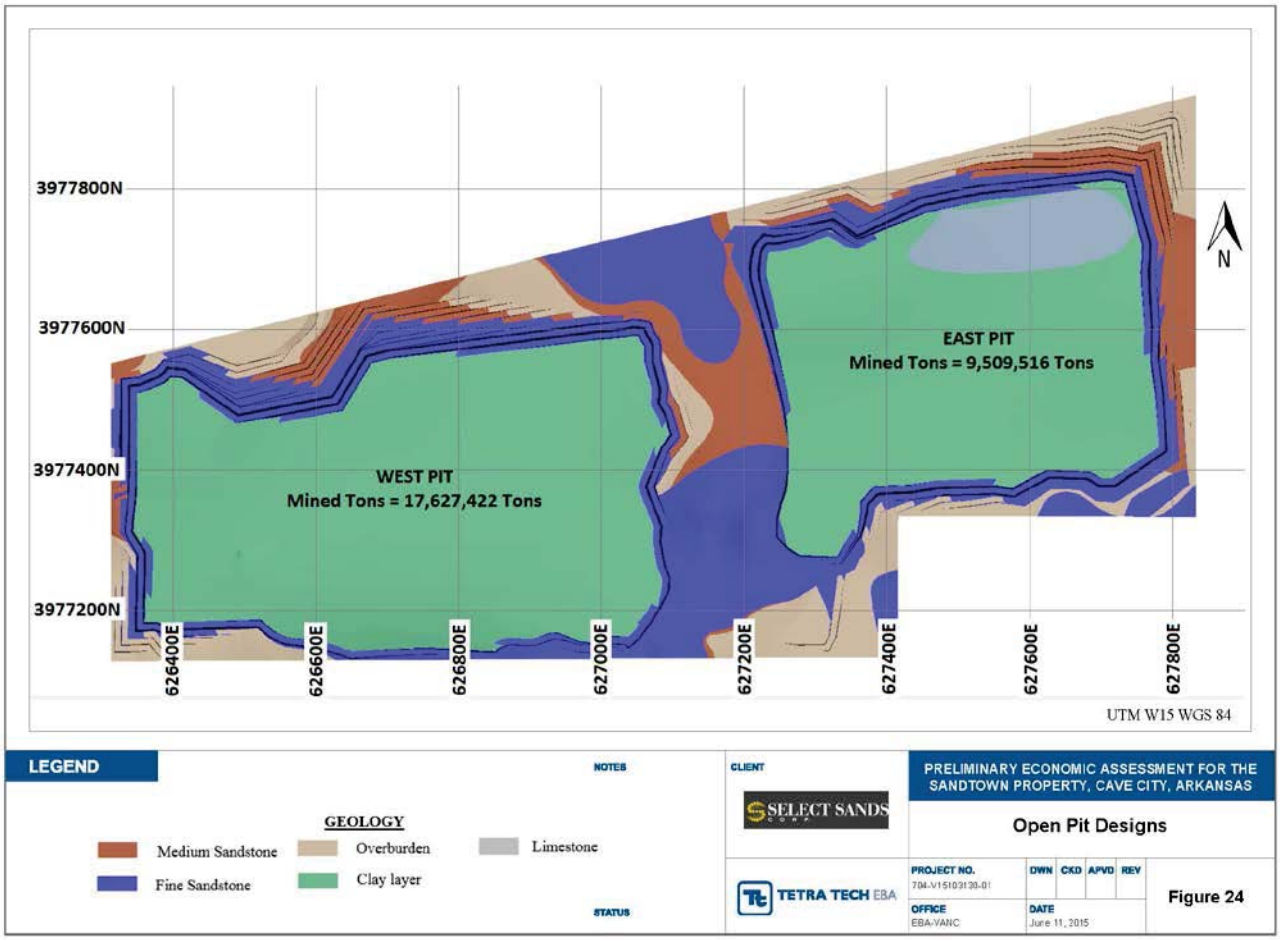
Table 17: Open Pit Design Parameters

Parameters	Value Assigned	Notes/source
OVBD and MSST		
Pit slopes in OVBD	15°	
BFA in OVBD	60°	
Bench width minimum in OVBD	8 m (26 ft.)	
Bench height max in OVBD	2.5 m (8 ft.)	
FSST		
Pit slope in FSST	23°	Theoretical slope based on BFA, bench height, and bench width. However, pit slope is shallower due to shorter benches near surface as a result of FSST dip.
BFA in FSST	70°	
Bench width minimum in FSST	8 m (26 ft.)	
Bench height maximum in FSST	10 m (33 ft.)	
Ramp width minimum	10 m (33 ft.)	
Ramp gradient	12%	
Minimum mining width	30 m (98 ft.)	

Note: BFA – bench face angle, FSST - fine sandstone, LST - limestone, MSST - medium sand stone, OVBD – overburden and SST Clay - siltstone or clay.

The resulting open pit design is shown in Figure 24.

Figure 24: Open Pit Designs Showing East and West Pit Areas at their Largest Extent Considered for the PEA (UTM Zone 15, WGS 84)



16.1 Dilution and Mining Recovery

The PEA has not included a study of the distribution of sand grain size or quality within the deposit. It is assumed that some of the FSST when mined would be diluted with the overlying MSST and the underlying LST. This has been accounted for through assumption of a mining loss of 5% of mined FSST material as unsuitable for processing. All MSST and LST has been assumed unsuitable for processing.

Further study is needed to better characterise mining yield of suitable material and dilution from unsuitable geology after mining.

16.2 Mining Processes

For the purpose of completing a PEA, it has been assumed that the OVBD and MSST do not require blasting, and that only the FSST would be drilled and blasted. Aspects of the mining operations are discussed below.

16.2.1 Preparation and Pre-stripping

It is noted that the area planned for mining is wooded and as such logging and clearing would be required prior to mining. Once logging is complete the area would be cleared using a bull dozer to create stockpiles of roots and branches for burning. Tetra Tech has reviewed and included a budgetary cost estimate provided to Select Sands by Caraway Construction, of US$700 per acre. This quote is provided for a lump sum clearing project of $140,000, however Tetra Tech has considered phased clearing as required for mining, to minimise area exposed to the elements and potential for dust creation.

Pre-stripping of OVBD and MSST could be done through a combination of bull dozing, ripping and free dig. Where topsoil occurs in significant thickness (+1 ft.) this could be stored separately from the remaining OVBD for use in reclamation work post mining.

16.2.2 Drilling and Blasting

For the PEA blasting has been included as contract blasting, and as such Explosive Contractors Inc. (Hollister Missouri) have provided drilling and blasting costs and details of blasting operations. The blasting costs are based on drilling 4 in. (102 mm) holes of up to 60ft. in depth on a blasting patter of either 11 by 11 ft. or 12 by 10 ft. Blasting could be undertaken roughly twice a month at roughly 50,000 short tons (45,000 tonnes) per shot. Drilling could be undertaken by track mounted drill rig capable of drilling 150 ft. per hour (46 m/hr). Diesel would be supplied by the owner at a rate of roughly 18 gal/hr (68 litres/hr). Contractor rates as shown in Table 18 would cover labour, machinery, explosives and associated expenses.

Table 18: Extract from blasting bid provided by Explosive Contractors Inc.

Pattern in ft.	Price in US$ per st
9 by 9	$1.20
9 by 10	$1.09
9 by 11	$0.99
10 by 10	$0.98
10 by 11	$0.90
10 by 12	$0.85
11 by 11	$0.84
11 by 12	$0.80
11 by 13	$0.75
12 by 12	$0.74

Once operations are at full scale 2 to 3 free faces would be made available for blasting at any point so that the cycle of drill, blast, load and haul could be maintained.

16.2.3 Loading and Hauling

For the PEA loading is considered to be done by excavator with wheeled loader as back-up. This would allow for free dig in the upper non-consolidated material and for loading of blasted consolidated material. An 80 tonne excavator has been selected as most suitable with a 2 to 4 m^3 bucket, supported by a loader with a 2.5 to 9 m^3 bucket.

Loading will be done directly into trucks to haul to the plant site for crushing and processing. The PEA has not considered in-pit crushing for mill feed, as currently there is no perceived benefit of using diesel powered crushing, where electrical power is available.

Hauling has been considered with 43 st articulated or rear dump rigid trucks. Overburden and MSST will be hauled using the same equipment.

16.2.4 Support Activities and Facilities

To support the mining activities, the PEA considers the following mining support activities and facilities:

- Truck shop (supplied by contractor);
- Maintenance personnel, vehicles and equipment;
- Fuel and lubricant storage and equipment;
- Supervision personnel and vehicles; and
- Surveying and mine planning personnel.

Note that no explosive storage or explosive magazines are considered necessary for the site, as explosives will be supplied to site as needed by the blasting contractor.

16.3 Mining Equipment

Tetra Tech has included the following in Table 19 as a mining equipment list for the property. Note that mining equipment is planned to be supplied by contractor. For the PEA this has been considered as a dry rate whereby the owner supplies diesel and the contractor supplies equipment, labor and maintains the equipment. For the PEA these costs have been estimated and 20% has been added to the costs as contractor markup.

Table 19: Mining equipment list

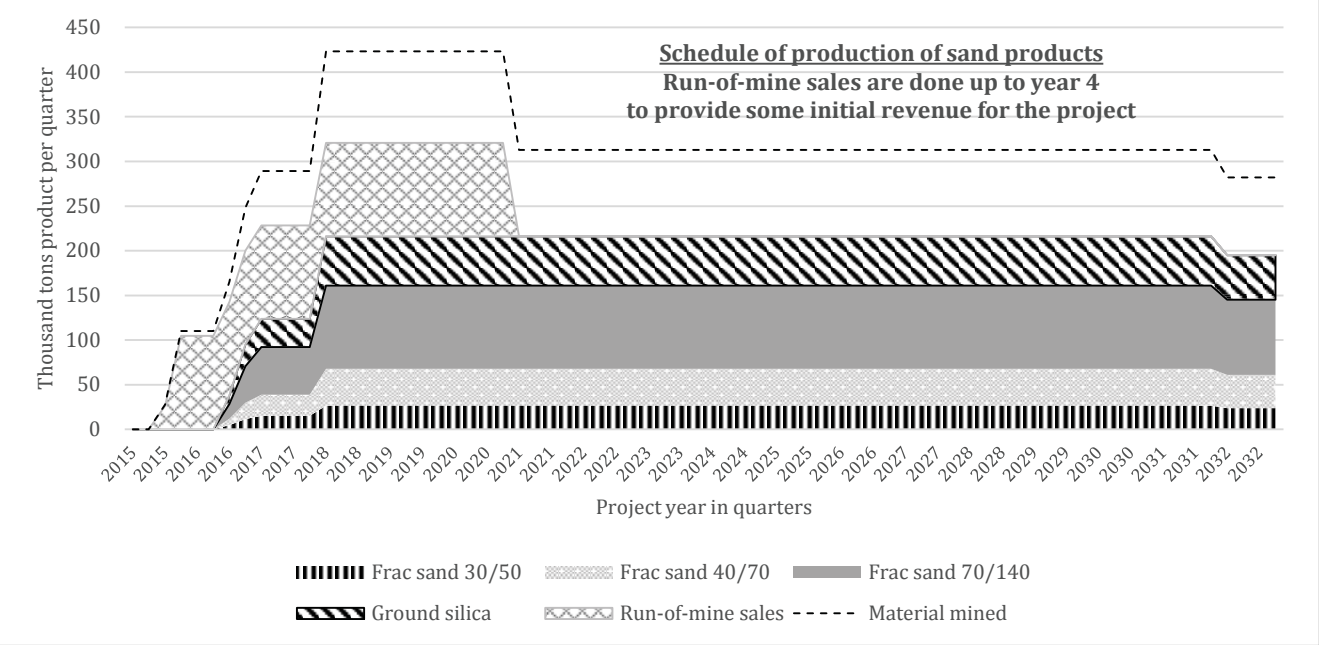
Equipment type	Purpose	Number
Drill rig[1]	Drill holes for blasting	1
Haul trucks	Haul rock to mill or waste dumps	3 (4 peak mining production)
Large excavator/backhoe (Cat 385)	Loading trucks and free dig of overburden	1
Small excavator (Cat 320)	Support operations	1
Wheel loader[2]	Load crusher feed bin	1
Pick - up Truck	Supervision, maintenance, personnel transport	5
CAT D6T (205 Hp)	Create haul roads rip and stockpile overburden	1
Mechanic Truck	Maintenance support	1
Water truck	Dust allaying	1
Grader	Haul road maintenance	1
Dewatering pumps	Pit dewatering	2

Note: 1. Drilling rig would be supplied by the explosive contractors and the owner would supply fuel for drilling; and 2. An additional loader would work at the mill, such that there would be 2 loaders working on the project to account for breakdowns.

16.4 Mining Schedule

Select Sands is also planning to sell run-of-mine (RoM) ore for US$7.50 per short ton net of associated costs for the first 4 years of operations. This is intended to provide Select Sands with some initial revenue to help with the payback of initial capital expenditure. Run-of-mine sales will start in the third quarter of 2015 and will continue until the end of Year 4, where all mined material will be run through the process plant on site. Contract mining and the processing of the ore by Select Sands will begin in the third quarter of year 2016. The first two quarters of 2016 will be primarily focused on process plant construction and preparation of other on-site infrastructure required for mining. The various products produced and total material mined can be seen below in Figure 25.

Figure 25: Production Schedule in short tons



Refer to Table 20 for the mining schedule which details ore and waste mining as well as products produced from the process plant. The schedule is broken up into quarters.

Select Sands
Sandtown Frac Sand Project
PRODUCTION

Description	Rate	Unit	Units	Year Total or Avg	-2 Q1 -Q8	-2 Q2 -Q7	-1 Q3 -Q6	-1 Q4 -Q5	-1 Q1 -Q4	-1 Q2 -Q3	-1 Q3 -Q2	-1 Q4 -Q1	1 Q1 Q1	1 Q2 Q2	1 Q3 Q3	1 Q4 Q4	2 Q1 Q5	2 Q2 Q6	2 Q3 Q7	2 Q4 Q8	3 Q1 Q9	3 Q2 Q10	3 Q3 Q11	3 Q4 Q12	4 Q1 Q13	4 Q2 Q14	4 Q3 Q15	4 Q4 Q16	5 Q1 Q17	5 Q2 Q18	5 Q3 Q19	5 Q4 Q20
PROJECT SUMMARY																																
Production Summary																																
RoM Direct Sale			kst	2,225	0	0	26	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	0	0	0	0
RoM Processed			**kst**	**18,591**	**0**	**0**	**0**	**0**	**0**	**0**	**52**	**131**	**170**	**170**	**170**	**170**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**
Frac sand 30/50			kst	1,655	0	0	0	0	0	0	5	12	15	15	15	15	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Frac sand 40/70			kst	2,584	0	0	0	0	0	0	7	18	24	24	24	24	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Frac sand 70/140			kst	5,819	0	0	0	0	0	0	16	41	53	53	53	53	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93
Ground silica			kst	3,458	0	0	0	0	0	0	10	24	32	32	32	32	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
Total Products			**kst**	**15,741**	**0**	**0**	**26**	**105**	**105**	**105**	**143**	**200**	**228**	**228**	**228**	**228**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**216**	**216**	**216**	**216**
20-OPEN PIT MINE																																
Production																																
Waste			kst	5,107	0	0	0	0	0	309	309	134	72	72	72	72	72	72	72	72	0	0	0	0	91	91	91	91	91	91	91	91
Ore			kst-RoM	21,912	0	0	28	110	110	110	165	248	289	289	289	289	423	423	423	423	423	423	423	423	423	423	423	423	313	313	313	313
Tons Moved			**kst**	**27,019**	**0**	**0**	**28**	**110**	**110**	**419**	**474**	**382**	**361**	**361**	**361**	**361**	**495**	**495**	**495**	**495**	**423**	**423**	**423**	**423**	**514**	**514**	**514**	**514**	**404**	**404**	**404**	**404**
Stripping Ratio			-	0.23	0.00	0.00	0.00	0.00	0.00	2.80	1.87	0.54	0.25	0.25	0.25	0.25	0.17	0.17	0.17	0.17	0.00	0.00	0.00	0.00	0.22	0.22	0.22	0.22	0.29	0.29	0.29	0.29
Mining Losses	5%		kst	1,096	0	0	1	6	6	6	8	12	14	14	14	14	21	21	21	21	21	21	21	21	21	21	21	21	16	16	16	16
Tons RoM			**kst**	**20,816**	**0**	**0**	**26**	**105**	**105**	**105**	**157**	**236**	**275**	**275**	**275**	**275**	**402**	**402**	**402**	**402**	**402**	**402**	**402**	**402**	**402**	**402**	**402**	**402**	**297**	**297**	**297**	**297**
30-Process Plant																																
RoM-Direct Sale																																
% RoM Direct Sale			%	-	0%	0%	100%	100%	100%	100%	67%	44%	38%	38%	38%	38%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	0%	0%	0%	0%
RoM Direct Sale			**kst**	**2,225**	**0**	**0**	**26**	**105**	**105**	**105**	**105**	**105**	**105**	**105**	**105**	**105**	**105**	**105**	**105**	**105**	**105**	**105**	**105**	**105**	**105**	**105**	**105**	**105**	**0**	**0**	**0**	**0**
Plant Production																																
Mill Feed			kst	18,591	0	0	0	0	0	0	52	131	170	170	170	170	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297
Material Recovered	82.2%		kst	15,282	0	0	0	0	0	0	43	108	140	140	140	140	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244
Classification																																
6/30 in mill feed	5.2%		kst	967	0	0	0	0	0	0	3	7	9	9	9	9	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
30/50 in mill feed	8.9%		kst	1,655	0	0	0	0	0	0	5	12	15	15	15	15	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
40/70 in mill feed	13.9%		kst	2,584	0	0	0	0	0	0	7	18	24	24	24	24	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
70/140 in mill feed	31.3%		kst	5,819	0	0	0	0	0	0	16	41	53	53	53	53	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93
140/400 in mill feed	18.6%		kst	3,458	0	0	0	0	0	0	10	24	32	32	32	32	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
<400 mesh in mill feed	4.3%		kst	799	0	0	0	0	0	0	2	6	7	7	7	7	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Total Classified Material			**kst**	**15,282**	**0**	**0**	**0**	**0**	**0**	**0**	**43**	**108**	**140**	**140**	**140**	**140**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**
Products																																
Frac sand 30/50			kst	1,655	0	0	0	0	0	0	5	12	15	15	15	15	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Frac sand 40/70			kst	2,584	0	0	0	0	0	0	7	18	24	24	24	24	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Frac sand 70/140			kst	5,819	0	0	0	0	0	0	16	41	53	53	53	53	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93
Ground silica			kst	3,458	0	0	0	0	0	0	10	24	32	32	32	32	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
Product Yield			**kst**	**13,516**	**0**	**0**	**0**	**0**	**0**	**0**	**38**	**95**	**124**	**124**	**124**	**124**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**
Cumulative Yield			kst	-	0	0	0	0	0	0	38	133	257	381	504	628	844	1,061	1,277	1,493	1,709	1,925	2,142	2,358	2,574	2,790	3,006	3,223	3,439	3,655	3,871	4,087
Reject Fines + Process Waste			**kst**	**5,075**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**36**	**46**	**46**	**46**	**46**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**
Tailings			**kst**	**3,309**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**23**	**30**	**30**	**30**	**30**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**
Cumulative Tailings			kst	-	0	0	0	0	0	0	9	33	63	93	123	154	207	260	313	366	418	471	524	577	630	683	736	789	842	895	948	1,001

Select Sands
Sandtown Frac Sand Project
PRODUCTION

Description	Rate	Unit	Units	Year Total or Avg	6 Q1 Q21	Q2 Q22	Q3 Q23	Q4 Q24	7 Q1 Q25	Q2 Q26	Q3 Q27	Q4 Q28	8 Q1 Q29	Q2 Q30	Q3 Q31	Q4 Q32	9 Q1 Q33	Q2 Q34	Q3 Q35	Q4 Q36	10 Q1 Q37	Q2 Q38	Q3 Q39	Q4 Q40	11 Q1 Q41	Q2 Q42	Q3 Q43	Q4 Q44	12 Q1 Q45	Q2 Q46	Q3 Q47	Q4 Q48
PROJECT SUMMARY																															
Production Summary																															
RoM Direct Sale			kst	2,225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RoM Processed			**kst**	**18,591**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**
Frac sand 30/50			kst	1,655	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Frac sand 40/70			kst	2,584	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Frac sand 70/140			kst	5,819	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93
Ground silica			kst	3,458	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
Total Products			**kst**	**15,741**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**
20-OPEN PIT MINE																															
Production																															
Waste			kst	5,107	91	91	91	91	106	106	106	106	106	106	106	106	103	103	103	103	65	65	65	65	34	34	34	34	34	34	34	34
Ore			kst-RoM	21,912	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313
Tons Moved			**kst**	**27,019**	**404**	**404**	**404**	**404**	**419**	**419**	**419**	**419**	**419**	**419**	**419**	**419**	**416**	**416**	**416**	**416**	**378**	**378**	**378**	**378**	**347**	**347**	**347**	**347**	**347**	**347**	**347**	**347**
Stripping Ratio			-	0.23	0.29	0.29	0.29	0.29	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.33	0.33	0.33	0.33	0.21	0.21	0.21	0.21	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Mining Losses	5%		kst	1,096	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Tons RoM			**kst**	**20,816**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**
30-Process Plant																															
RoM-Direct Sale																															
% RoM Direct Sale			%	-	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
RoM Direct Sale			**kst**	**2,225**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Plant Production																															
Mill Feed			kst	18,591	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297	297
Material Recovered	82.2%		kst	15,282	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244
Classification																															
6/30 in mill feed	5.2%		kst	967	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
30/50 in mill feed	8.9%		kst	1,655	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
40/70 in mill feed	13.9%		kst	2,584	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
70/140 in mill feed	31.3%		kst	5,819	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93
140/400 in mill feed	18.6%		kst	3,458	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
<400 mesh in mill feed	4.3%		kst	799	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Total Classified Material			**kst**	**15,282**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**
Products																															
Frac sand 30/50			kst	1,655	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Frac sand 40/70			kst	2,584	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Frac sand 70/140			kst	5,819	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93
Ground silica			kst	3,458	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
Product Yield			**kst**	**13,516**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**
Cumulative Yield			kst	-	4,304	4,520	4,736	4,952	5,169	5,385	5,601	5,817	6,033	6,250	6,466	6,682	6,898	7,114	7,331	7,547	7,763	7,979	8,196	8,412	8,628	8,844	9,060	9,277	9,493	9,709	9,925	10,141
Reject Fines + Process Waste			**kst**	**5,075**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**
Tailings			**kst**	**3,309**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**
Cumulative Tailings			kst	-	1,054	1,107	1,160	1,213	1,265	1,318	1,371	1,424	1,477	1,530	1,583	1,636	1,689	1,742	1,795	1,848	1,901	1,954	2,007	2,060	2,112	2,165	2,218	2,271	2,324	2,377	2,430	2,483

Select Sands
Sandtown Frac Sand Project
PRODUCTION

End Open Pit <
End Process <
>> Closure
End Project<<

Description	Rate	Unit	Units	Year Total or Avg	13 Q1 Q49	Q2 Q50	Q3 Q51	Q4 Q52	14 Q1 Q53	Q2 Q54	Q3 Q55	Q4 Q56	15 Q1 Q57	Q2 Q58	Q3 Q59	Q4 Q60	16 Q1 Q61	Q2 Q62	Q3 Q63	Q4 Q64	17 Q1 Q33	Q2 Q34	Q3 Q35	Q4 Q36	18 Q1 Q37	Q2 Q38	Q3 Q39	Q4 Q40	19 Q1 Q41	Q2 Q42	Q3 Q43	Q4 Q44
PROJECT SUMMARY																															
Production Summary																															
RoM Direct Sale			kst	2,225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RoM Processed			**kst**	**18,591**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**268**	**268**	**268**	**268**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Frac sand 30/50			kst	1,655	26	26	26	26	26	26	26	26	26	26	26	26	24	24	24	24	0	0	0	0	0	0	0	0	0	0	0	0
Frac sand 40/70			kst	2,584	41	41	41	41	41	41	41	41	41	41	41	41	37	37	37	37	0	0	0	0	0	0	0	0	0	0	0	0
Frac sand 70/140			kst	5,819	93	93	93	93	93	93	93	93	93	93	93	93	84	84	84	84	0	0	0	0	0	0	0	0	0	0	0	0
Ground silica			kst	3,458	55	55	55	55	55	55	55	55	55	55	55	55	50	50	50	50	0	0	0	0	0	0	0	0	0	0	0	0
Total Products			**kst**	**15,741**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**195**	**195**	**195**	**195**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
20-OPEN PIT MINE																															
Production																															
Waste			kst	5,107	75	75	75	75	75	75	75	75	73	73	73	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ore			kst-RoM	21,912	313	313	313	313	313	313	313	313	313	313	313	313	282	282	282	282	0	0	0	0	0	0	0	0	0	0	0	0
Tons Moved			**kst**	**27,019**	**388**	**388**	**388**	**388**	**388**	**388**	**388**	**388**	**387**	**387**	**387**	**387**	**282**	**282**	**282**	**282**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Stripping Ratio			-	0.23	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.23	0.23	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mining Losses	5%		kst	1,096	16	16	16	16	16	16	16	16	16	16	16	16	14	14	14	14	0	0	0	0	0	0	0	0	0	0	0	0
Tons RoM			**kst**	**20,816**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**268**	**268**	**268**	**268**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
30-Process Plant																															
RoM-Direct Sale																															
% RoM Direct Sale			%	-	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
RoM Direct Sale			**kst**	**2,225**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Plant Production																															
Mill Feed			kst	18,591	297	297	297	297	297	297	297	297	297	297	297	297	268	268	268	268	0	0	0	0	0	0	0	0	0	0	0	0
Material Recovered	82.2%		kst	15,282	244	244	244	244	244	244	244	244	244	244	244	244	220	220	220	220	0	0	0	0	0	0	0	0	0	0	0	0
Classification																															
6/30 in mill feed	5.2%		kst	967	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	0	0	0	0	0	0	0	0	0	0	0	0
30/50 in mill feed	8.9%		kst	1,655	26	26	26	26	26	26	26	26	26	26	26	26	24	24	24	24	0	0	0	0	0	0	0	0	0	0	0	0
40/70 in mill feed	13.9%		kst	2,584	41	41	41	41	41	41	41	41	41	41	41	41	37	37	37	37	0	0	0	0	0	0	0	0	0	0	0	0
70/140 in mill feed	31.3%		kst	5,819	93	93	93	93	93	93	93	93	93	93	93	93	84	84	84	84	0	0	0	0	0	0	0	0	0	0	0	0
140/400 in mill feed	18.6%		kst	3,458	55	55	55	55	55	55	55	55	55	55	55	55	50	50	50	50	0	0	0	0	0	0	0	0	0	0	0	0
<400 mesh in mill feed	4.3%		kst	799	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	0	0	0	0	0	0	0	0	0	0	0	0
Total Classified Material			**kst**	**15,282**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**244**	**220**	**220**	**220**	**220**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Products																															
Frac sand 30/50			kst	1,655	26	26	26	26	26	26	26	26	26	26	26	26	24	24	24	24	0	0	0	0	0	0	0	0	0	0	0	0
Frac sand 40/70			kst	2,584	41	41	41	41	41	41	41	41	41	41	41	41	37	37	37	37	0	0	0	0	0	0	0	0	0	0	0	0
Frac sand 70/140			kst	5,819	93	93	93	93	93	93	93	93	93	93	93	93	84	84	84	84	0	0	0	0	0	0	0	0	0	0	0	0
Ground silica			kst	3,458	55	55	55	55	55	55	55	55	55	55	55	55	50	50	50	50	0	0	0	0	0	0	0	0	0	0	0	0
Product Yield			**kst**	**13,516**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**195**	**195**	**195**	**195**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Cumulative Yield			kst	-	10,358	10,574	10,790	11,006	11,222	11,439	11,655	11,871	12,087	12,304	12,520	12,736	12,931	13,126	13,321	13,516	13,516	13,516	13,516	13,516	13,516	13,516	13,516	13,516	13,516	13,516	13,516	13,516
Reject Fines + Process Waste			**kst**	**5,075**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**81**	**73**	**73**	**73**	**73**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Tailings			**kst**	**3,309**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**53**	**48**	**48**	**48**	**48**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Cumulative Tailings			kst	-	2,536	2,589	2,642	2,695	2,748	2,801	2,854	2,907	2,959	3,012	3,065	3,118	3,166	3,214	3,261	3,309	3,309	3,309	3,309	3,309	3,309	3,309	3,309	3,309	3,309	3,309	3,309	3,309

17.0 RECOVERY METHODS

17.1 Process Selection

Other than proppant test work conducted to determine the overall quality of the Sandtown Project silica sand, Select Sands has not conducted any prototype metallurgical work specifically orientated towards extraction, separation, marketing and production of their silica sand frac sand deposit. The main objective of the processing plant would be to process sandstone into three specifically sized frac sand gradation along with a fine size gradation of silica. The frac sand mesh size gradations considered are 30/50, 50/70 and 70/140. The product for the fine size gradation would be in the 200/400 mesh range.

The proposed process would be entirely mechanical, and would require no chemical treatments, additions, or nonstandard material handling processes. The process focuses on liberation and size classification as its primary objective. For the proppant sand, no specific size reduction or manufacture of grain sizes would be required as the sand grains within the rock type are of optimal size and shape. To manufacture the fine grain sand, a grinding circuit would be considered to achieve the 200/400 mesh range.

Based upon testwork completed to date and for the purpose of developing the process design criteria, recovery of proppant sand from the product stream is 70 percent. This assessment is recognized as conservative and improvement would be expected with further testwork.

17.2 Process Design Criteria

Process Design Criteria were developed for the Sandtown Frac Sand Project with information provided from:

- Select Sands Corp's related experience and knowledge;
- Metallurgical test data from STIM-Lab; and
- Sample tests from Tetra Tech.

The plant design is to recover and ship approximately 882,000 st/y of sand. Table 21 outlines the major process design criteria.

Table 21: Major Process Design Criteria

Criteria	Units	Amount
Operating Year	d	365
Plant Availability	%	85
Operating Hours per Year	h	7,446
Design Feed Rate	st/h	229
Total Frac Sand Recovery	%	54
30/50 Mesh tonnage	st/y	131,654
50/70 Mesh tonnage	st/y	205,354
70/140 Mesh tonnage	st/y	462,992

17.3 Plant Design

The process plant would involve both dry and wet processing components. RoM material would be stockpiled near the process feed facilities, where it would be reclaimed via front end loader (FEL) into the portable crushing circuit.

The material would then be further processed in the wet frac sand plant to break-up clusters and liberate individual silica particles; remove non silica contaminants and clay impurities; and segregate the non frac sand size fractions. A simplified process flow diagram is provided in Figure 26.

The proposed process will include:

- Dry primary crushing and screening;
- Wet screening and first stage classification;
- Wet attrition scrubbing;
- Subsequent wet screening and classification stages for proppant product;
- Fine product grinding circuit; and
- Drying, product storage and truck loading.

Figure 26: Process Flow Diagram

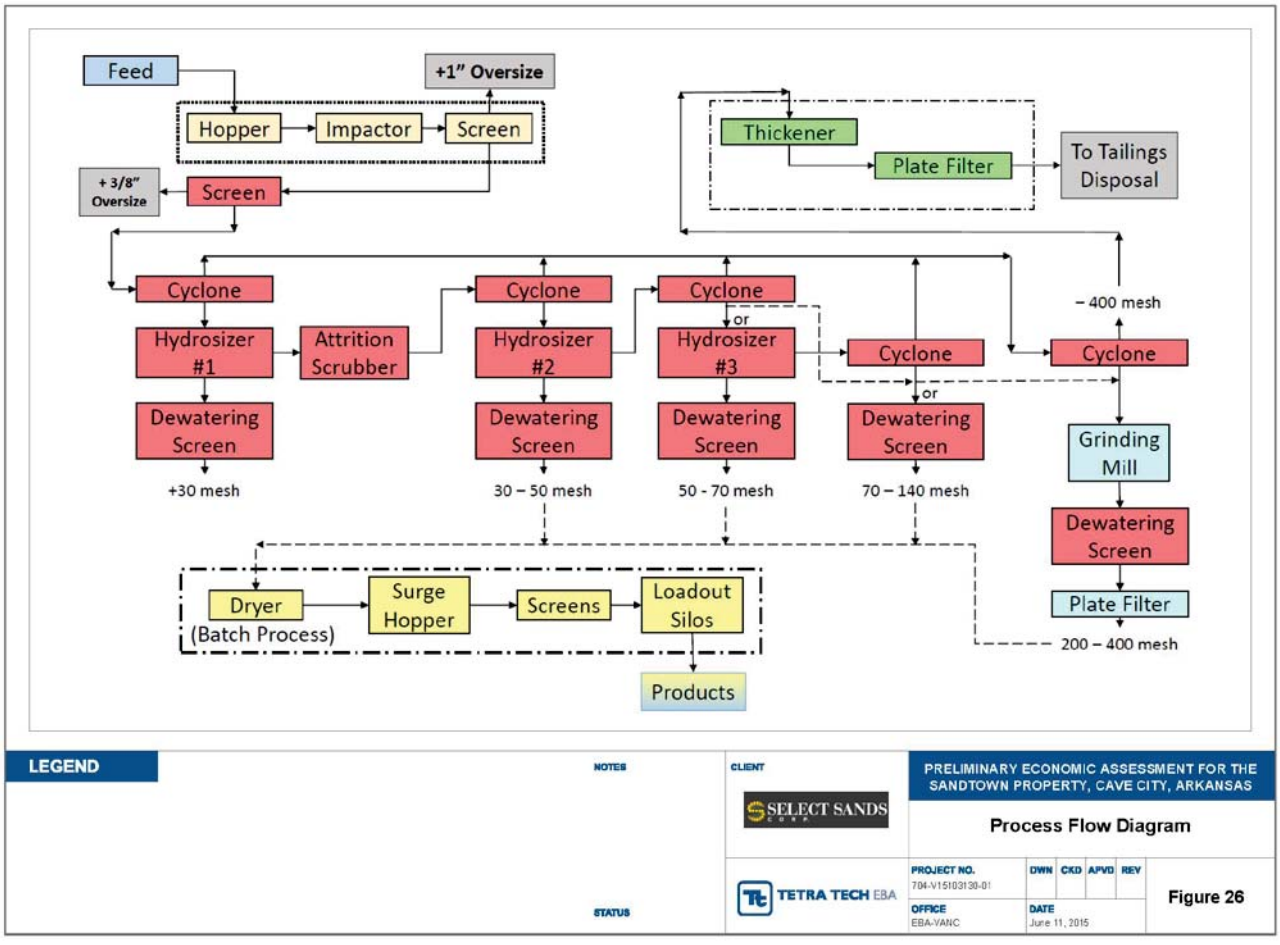


Table 22 lists the major process equipment list.

Table 22: Major Equipment List

Description	Number of Units
Crushing Circuit	
Vibrating Grizzly Feeder, 44” x 16’, 25 HP	1
Horizontal Shaft Impact Crusher, 200 HP	1
Single Deck Inclined Screen, 4’ x 10’, 2 x 3 HP	1
Loading Hopper, 9 yd^3	1
Cross Belt Magnet,	1
Under Crusher Conveyor, 36” W x 32’ L, 10 HP	1
Radial Conveyor, 30” W x 50’ L, 7 HP	2
Transfer Conveyor, 36” W x 200’ L, 15 HP	1
Scalping Screen	
Double Deck Horizontal Screen, 6’ x 20’, 50 HP	1
Slurry box	1
Wet Classification	
Hydrocyclone / HydroSizer / Dewatering Circuit	3
Ultra Sand Plant	1
Ultra Fine Recovery Plant	1
Sump & Pump	4
Attrition Scrubber Set	1
Precast Concrete Storage Bunker	1
Fine Product Grinding Circuit	
Ball Mill, Ceramic Lined, 16.4’ x 20.5’, 2000 HP	1
Sump & Pump	1
Hydrocyclone Pack	1
Dewatering Screen	1
Water Recovery Circuit	
Thickener	1
Polymer Makeup and Dosing	1
Return Water Tank	1
Holding Tank	1
Recessed Plate Filter Press	1
Product Drying and Storage	
Feed Hopper	1
Transfer Conveyors	5
Vibrating Fluid Bed Dryer with Gas Burner	1
Bag House	1
Bucket Elevators	5
Surge Hopper	2
Weigh-belt Feeder	4
Minerals Separator Screeners	4
Loading Spouts	4
Product Silos	4
Bin Vent Filters	4
Loading Area	
Truck Weigh Scale	1

Note: L – length, W – width and HD – horse power

17.3.1 RoM Stockpile

Mine material would be transported via the mine haul trucks to a stockpile location from where an FEL would reclaim material to feed into the operation's crushing plant.

17.3.2 Crushing Plant

The crushing plant considered is of a portable design to allow for flexibility between the mine and process operations. The crushing plant would include a vibrating grizzly feeder, a horizontal impact crusher, loading hopper, under crusher discharge conveyor, cross belt magnet, single deck inclined screen and transfer conveyors. This circuit would be used to reduce the sandstone to manageable sizes without causing damage to the individual grains within the rock.

17.3.3 Wet Plant

Subsequent to the crushing plant, a wet plant process would be used to further liberate the silica particles; remove contaminants and impurities; and classify the sand into the predetermined size classifications. The wet plant would be comprised of a primary scalping screen, an attrition scrubbing station, a series of single stage frac sand plants, a fine grinding and recovery station. All minus 400 mesh material is collected in a thickener/clarifier with the thickened slurry pumped to a plate and frame filter press to maximize water recover to be recycled back to the plant.

The plant would receive material from the transfer conveyors onto a vibrating double deck scalping screen. The vibrating action serves to further break-up lumps and a spray of water would assist in pulping up the sand before it would be introduced into the collection sump.

The collection sump slurry would be pumped to a hydrocyclone to remove a portion of the fine sand and water and would discharge into a first stage hydrosizer, which would make the first split at 30 mesh. The underflow would flow to a dewatering screen which would dewater the material. The overflow would flow to a second stage sump and be pumped to a separator above a bank of attrition scrubbers. The attrition scrubbers would break up any sand agglomerations.

The attrition scrubbers would discharge into the second stage sump and be mixed with water. The slurry would be pumped to a second stage hydrocyclone. The hydrocyclone would remove a portion of the fine sands and water and discharge into the second stage hydrosizer, which would make a 40/50 mesh split. The underflow of the hydro sizer (30 x 40-50 mesh material) would flow into a dewatering screen. The hydrosizer overflow would flow to a tertiary stage sump.

From the tertiary stage sump, the slurry would be pumped to a tertiary hydrocyclone where a portion of the fine sand and water would be removed. The underflow would discharge into a tertiary hydrosizer which would make a 70 mesh split. The underflow of the hydrosizer (50 x 70 mesh material) would flow into a dewatering screen. The tertiary hydrosizer overflow would flow to the final stage which would be a ultra-sand plant. The ultra-sand plant would consist of a sump, pump, hydrocyclone, separator and dewatering screen. The ultra-sand plant would yield 70 x 140 mesh product. Overflow from the ultra-sand plant (-140 mesh) would flow to the ultra-fines recovery plant.

The ultra-fines recovery plant would consist of a sump, pump, hydrocyclone pack, ball mill and dewatering screen. The ultra-fines plant would yield a 140 x 400 mesh product. Overflow of this plant (-400 mesh) would flow to a thickener/clarifier system.

Wet products from each of the separation stations would be stored in a concrete bunker area for reclamation by a front end loader.

17.3.4 Drying and Loading

The desired sand product size would be loaded as required into a hopper that feeds onto a transfer conveyor. The material would be transported to the fluidised heat bed dryer. From the dryer, bucket elevators would carry the feed material into a surge hopper that then loads onto weigh-belt feeders feeding screeners which in turn transport the dried product to the associated product storage silo. Each silo would feed its own truck loading bay that includes a scale and tally system connected to a central computer and accounting system.

18.0 PROJECT INFRASTRUCTURE

The project is a Greenfield site and will require the addition of extensive infrastructure to support the operation. The infrastructure requirements for the property are comprised of:

- On-site roads for operations access;
- Main sub-station power supply and distribution;
- Water supply, storage and distribution;
- On-site buildings including offices, maintenance shops, warehousing, wash/locker room, security and sales office, utility room and electrical room;
- Fuel and lubrication storage and containment;
- Communications;
- Natural gas supply;
- Off-site Rail Loading; and
- Discards management.

18.1 Access

The site can be accessed from Cave City located 4 miles east of the property or from Batesville located to the south of the project. The majority of the access to the property passes through rural area that has residences located directly off the county road. The majority of the roads are a paved, two lane county road.

The PEA assumes the primary access onto the property will be made off of Cold Creek Lane which forms the western boundary of the property. A regional traffic study is recommended to assess the potential impact from the transport truck traffic that is anticipated during operations.

18.2 Power

Discussions have been entered into with Entergy Arkansas, LLC (Entergy), the utility which provides power in Arkansas. Entergy would provide power from a local tap-point, provide overhead power line and provide step-down transformation infrastructure to bring voltage from either 134, 64 or 34 kV (depending on which existing line is tapped into) to site distribution voltage of 4,160 V. Metering will be done on the 4,160 V line. Select Sands will pay Entergy for the construction and then metered usage costs during operations. Select Sands will construct a 4,160 V distribution circuit for the operations and step-down transformers and switching gear and overload protections will be required to drop voltage that required for equipment.

18.3 Natural Gas

Natural gas supply is required to support the process operations to fuel the product dryer. For this PEA, it is assumed that natural gas can be routed to the plant site. Spectra Energy Partners, LP, owns Ozark Gas Transmission that services the near-by counties in Arkansas. The availability and supply of natural gas will need to be confirmed as the project advances.

18.4 Water

No fresh water sources have yet been identified for the property. The wet process will require water for first fill and subsequent make-up water for losses due to discarded fines, evaporation and leakages, in addition water will be required for firewater, potable uses, general site dust suppression, and truck washing.

For the PEA it has been assumed that water is obtainable from wells, in pit dewatering and dams on the property. Initial indication is that ground water does occur within the FSST and it is expected that the pit will encounter water. However, further work needs to be completed on the water requirements for the process and on adequate and permissible water sources.

18.5 Buildings

For the purpose of the PEA the buildings in Table 23 have been included in the capital costs.

Table 23: Proposed On-site Buildings

Building	Details
Offices	Modular offices
Security check and weight bridge, dispatch and sales	Modular/ container office
Mine dry / change rooms	Modular
Store/warehouse	Steel shed with closed sides
Process building/shed	Steel shed with closed sides
Truck shop	Steel shed close on 3 sides
Transformer room	Container or mobile unit

18.6 Security and Truck Scale

The main entrance to the property, will be a security control point which will include a truck scale. Security staff along with sales/logistics staff will control access onto the site and provide waybills for loaded trucks leaving the site. A provision has been made for a single 80 ton truck scale. This will be suited to weigh trucks in and out as required for tracking product leaving the mine site. Truck scales may also be included for each silo load out facility (not included in capital cost estimate), however a drive on truck scale will still be required to control run-of-mine sales.

18.7 Surface Water Management

ECCI, an engineering and environmental firm based on Arkansas, have assisted Select Sands with a conceptual Storm Water Prevention Plan (SWPP). The plan include 3 outfalls on the property for discharge of storm water and allowable non-storm water discharges. In addition has assessed the potential contaminants that may arise from the proposed sand mining and processing operation.

18.7.1 Management of Discard Material

Process discards, not saleable as product would be stored in a constructed facility (first 4 years of production) and in the mined out areas for the remaining mine life. The material is understood to be inert and requires formation of a settling pond to allow solids to settle out of solution and the resulting supernatant water to be pumped back to the processing facility for re-use. The facility created for this purpose is planned to be located to the south of the processing facilities. The facility consists of a cleared area with a rock dyke to contain the material and any water.

18.8 Offsite Infrastructure

18.8.1 Rail spur and Loading Facilities

Tetra Tech has been made aware that Select Sands have engaged in discussions with WildCat Minerals in regards to the use of a rail loading facility in Batesville, Arkansas. It is understood that provisional meetings have been concluded and that WildCat Minerals have indicated a charge of US$12 per ton for storage and handling of frac sand material at their Batesville facility. WildCat Minerals provided the following rail costs for transportation of the frac sand material from Arkansas to South Texas:

- Private car - $5,200 per car; and
- System car - $5,900 per car.

The rail cars applicable to the pricing above have a capacity of 100 tons (91 tonnes).

19.0 MARKET STUDIES AND CONTRACTS

No marketing study has been completed prior to completing this PEA. A desktop review of readily available information for silica sands products has been completed by Silica Sands to support completion of a PEA. Sources of information include the U.S. Geological Survey (August 2014), U.S. Silica publications and PacWest Proppant Marketing Analysis (January 2013 and January 2014). The findings are included below.

19.1 Marketing

For the purpose of completing the PEA, Tetra Tech has considered the following potential silica sand products:

- Silica proppants with mesh sizes of 30/50, 40/70 and 70/140;
- Granular silica; and
- Ground silica of between 200 and 400 mesh.

The evaluation of the markets for products mined and processed at the Sandtown Property has included an evaluation of operation mining the St. Peters Sandstone in other areas. Some of the operators mining the St. Peters Sandstone have been summarised in Table 24.

Table 24: Operators Mining St. Peters Formation

Operator	Location of operations	Products
U.S. Silica Holdings Inc.	Pacific Missouri	Oil and gas proppants Granular Silica Ground silica
Hi Crush Partners	Augusta Wisconsin	Frac Sands (proppants)
Badger Mining Corporation	Fairwater Wisconsin	Granular Silica for casting Frac sands (proppants)
Unimin Corporation	Guion Arkansas Wisconsin, Illinois, Minnesota, Oklahoma, Texas	Silica and silica sand products

In regards to marketing of silica sands PacWest, 2013 expects 9% growth in frac sand demand with 5% growth in sand supply. PacWest, 2014 highlights that 92% of proppant consumed is frac sand as opposed to resin coated sand and ceramic products, which make up the remaining 6% of proppants consumed. Frac sand demand is reportedly driven by the increasing use of horizontal wells and the increased volume of sand used per well. Demand is expected to be 132 billion Lbs in 2015, increasing to 153 billion Lbs in 2016, an increase of 9 million metric tonnes.

U.S. Silica March 2015 Quarterly Report to the SEC, discuss growth in Frac Sand demand between 2009 and 2014 of 51%. The report goes on to describe a recent decline in sales in the first quarter of 2015 in comparison to first quarter 2014. This is expected to continue through 2015 driven by lower energy prices, noting that U.S. Silica still expect long term growth in the shale fracking industry. U.S. Silica also report a stable industrial product markets which are reportedly driven by housing industry, vehicle sales and industrial consumption. Industrial products include glass sand, filtration sand, foundry and building products, and sports and recreation markets. U.S. Silica annual report for 2014 discusses silica sand products, which is précised below.

19.1.1 Oil and Gas Proppants

The U.S. Silica Annual report 2014 discusses the role of frac sands in keeping fractures open for movement of oil or gas through wells. Silica sand is required due to hardness and shape characteristics that allow oil or gas to move through fractures. In additional every 4 to 5 years additional sand is conventionally pumped into the well to keep fractures open.

19.1.2 Glass

The U.S. Silica Annual report, 2014, discusses the fact that commercial silica accounts for a significant proportion of raw materials for glass making (55% to 75%). Glass markets include container glass, flat glass and fiberglass. Container glass is reported to grow with population growth whereas flat and fiberglass growth is correlated with construction and automotive industries. Specialist markets such as solar glass have not performed due to weak demand and some glass industry market growth is offset by recycling of glass.

19.1.3 Building Products

The U.S. Silica Annual report, 2014, discusses silica for building products which include flooring compounds, mortars and grouts, specialty cements, stucco and roofing shingles. Stating that ground silica is used by building products manufacturers in the manufacturing of certain fiberglass products and additionally as functional extenders and to improve durability and weathering performance of products. Reportedly, construction of geothermal wells requires specialized ground silica products. The market for commercial silica used to manufacture building products

is said to be driven by housing construction and projects which has had a downturn since 2006, but recent housing development data shows a mild recovery.

19.1.4 Foundry

U.S Silica also reports on the use of silica products for molds and metal castings. Whole grain silica is sold to coaters who sell products on to foundries for use in casting processes. Foundry silica markets are driven primarily by automobile industries. This market decreased around 2010 with some recovery prior to 2013, with 2013 through 2014 showing some levelling of this market.

19.1.5 Chemicals

U.S. Silica Annual report also discussed the use of both silica products in the manufacturing of silicon-based chemicals, which are reportedly used in a variety of applications, including food processing, detergent products, paper textile, specialty foundry applications and as inputs for some precipitated silica products. Silica for these markets is sold as granular and ground silica.

19.1.6 Fillers and Extenders

U.S. Silica Annual report 2014, goes on to discuss silica products used by producers of paints and coatings as well as rubber and plastics industries for use as epoxy molding compounds and silicone rubber. This market is also driven by building industries and automotive industries. For these markets the silica is normally sold as ground silica, including very fine classifications.

19.2 Marketing volumes

USGS reported sales of silica sands totaling about 50.7 million metric tonnes (Mt) in 2012, with PacWest forecasting proppant consumption at just over 70 Mt in 2015, up from just under 70 Mt in 2014.

19.2.1 Prices for Silica Products

For the purpose of the PEA, Tetra Tech has relied on USGS 2012 Minerals Handbook, Silica (published August 2014). In particular prices have Free on Board (FOB) prices for Midwest and southern states have been averaged by major use as shown in Table 25.

Since U.S. Silica in their quarterly report published in April 2015 reports lower prices for first quarter 2015 than first quarter 2014, no assumption of price escalation between 2012 and 2015 has been applied.

Table 25: Prices used for Various Products (in metric tonnes)

Major use	Tonnage sold in thousand tonnes	USGS 2012 prices	Other price data	Sources	PEA prices used	Weighted average prices
Glass making unground	6,069	$31.02			$31	$56
Glass making ground (fine products)	506	$50.97			$51	
Foundry	4,499	$43.90			$44	
Abrasives, ceramic and chemicals	2,316	$48.50			$49	
Filtration	235	$49.18			$49	

Major use	Tonnage sold in thousand tonnes	USGS 2012 prices	Other price data	Sources	PEA prices used	Weighted average prices
Frac sands	30,560	$66.04	$88,$65	U.S. Silica Quarterly 2015, FMSA Holdings	$65	
Other	2,172	$29.57			$30	

19.3 Contracts

Due to the preliminary nature of the evaluation of the Sandtown Property, no contracts have yet been entered into relating to marketing, sales or operations. Contracts that are part of current discussions for which preliminary data has been considered in this PEA are shown in Table 26 below.

Table 26: Potential Contracts where Values have been Included in PEA

Company	Aspects of operations	Current values applied
Wildcat Minerals	Rail terminal and product handling services	$12 / ton and $55 / ton rail freight
Krug Energy	Provision of natural gas for product dryers	$5.43 per MMBtu
Entergy, Arkansas	Supply of power line and main substation and power	No values obtained prior to completion of PEA
Explosive Contractors	Provision of drilling and blasting services	$1 / ton of rock blasted, excluding fuel for drilling
Caraway Construction	Clearing of trees	$700 / acre bush cleared

The operation is anticipated as a contract mining (included in PEA) and potentially contract processing operation (owner processing considered in PEA).

20.0 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL IMPACT

Select Sands must complete the overall permitting and approval process in order to construct, operate and close the proposed Select Sands Corporation Quarry at the Sandtown Property.

This permitting and approval process includes the acquisition of all necessary permits and approvals from various federal, state and local government agencies. This section is based on information available at the time of this report.

Select Sands received an unconditional Authorization to Quarry at the Sandtown Property dated 1 may 2015 by the Arkansas Department of Environmental Quality (ADEQ) pursuant to the *Arkansas Quarry Operation, Reclamation and Safe Closure Act* for a 5 year period ending April 30, 2020. The area planned to be mined in the Five Year Mine Plan will cover approximately 100 acres in the western pit including access roads, offsets, pit limits and stripping for future years of quarrying. The PEA document considers a much larger area for which permits will be obtained every five years as required during the mine life.

The industrial activities at the Sandtown Property are classified as Standard Industrial Classification Code (SIC) 1446 (Mining, Industrial Sand). Industrial activities within this SCI code are included within Industrial Sector J1 of the Arkansas Industrial General Storm water Permit (IGP).

Key facilities and associated activities of the proposed Select Sands Corporation Quarry likely to interact with environmental, social and economic components of the proposed project setting include the following:

- Quarry pits;
- Rejects pile facility;
- Processing plant;
- Salvaged soil and overburden piles;
- Site roads;
- Site preparation activities;
- Air Emissions – dust, sulfur dioxide, volatile organic carbons, mono-nitrogen oxides and carbon monoxide emissions;
- Noise and vibration;
- Effluent discharge;
- Waste water discharge; and
- Surface water and / or groundwater use.

20.1 Environmental Studies

As mentioned in Section 3.1 the Sandtown Property is comprised of 210 ha. (520 acres) of mostly wooded lands. Little development has taken place on the property besides a through-going high transmission power line and several four wheeled drive accessible trails throughout the property. The area surrounding the property is rural and largely agricultural with large poultry farms and pasture land the most prevalent type of operation. No environmental baseline studies have been undertaken or are planned as part of the permitting process.

The Sandtown Property is located near the physiographic boundary between the Ozark Mountain Plateaus to the west, and Mississippi River Alluvial Plain to the east. The Ozark Mountains in Sandtown Property area are characterized by the Salem Plateau, characterized by rugged mountains from 800 to 1,400 feet (244 to 427 m) above sea level. The plateau is dissected by abundant streams and rivers, some of which from broad drainage valleys oriented towards the Mississippi River.

Surface and storm water from the Sandtown Property flows towards the south into an unnamed tributary which discharges into Barnett Creek, then to Dry Creek, then to Sullivan Creek, then to Poke Bayou, then to White River and ultimately discharges into the Black River. These water bodies are not listed as impaired in the ADEQ draft 2014 Impaired Waterbodies List under Section 303d of the *Federal Clean Water Act* (ADEQ 2014).

The State of Arkansas Natural Resources Commission designated the Mississippi River Valley alluvial aquifer and Memphis Sand Aquifer within portions of Clay, Craighead, Cross, Greene, Poinsett, St. Francis and Lee Counties lying west of Crowley's Ridge as a Critical Ground Water Area. The Sandown Property is situated west of the designated Critical Ground Water Area and is thus not subject to associated groundwater quality and extraction considerations. Groundwater – surface water characterisation study and resource assessment will need to be completed to determine source of water needed for quarrying, processing activities and potable use, and pressure on local ground and surface water resource.

The *Migratory Bird Treaty Act of 1918 as amended, 16 USC §§ 703−712,* protects all migratory birds and their eggs, nests, and feathers and prohibits the taking, killing, or possession of migratory birds. Requirements under the *Migratory Birds Treaty* and *the Endangered Species Acts* should be considered prior to tree removal and site preparation for quarrying and construction. Provided best management practices and mitigation measures are used during tree removal harm to migratory birds is not anticipated.

The Federal *Endangered Species Act* of 1973, as amended, 16 USC §§ 1531 et seq., was designed to protect species that are threatened with extinction. It provides for the conservation of ecosystems upon which these species depend and provides a program for identification and conservation of these species. Federal agencies are required to ensure that any actions are not likely to jeopardize the continued existence of a threatened and endangered (T&E) species. The Freshwater mullusks (pink Mucket Pearly mussel, *Lampsilis abrupta*) is a protected listed species known to occur in the White and Black Rivers. Select Sands will not use pesticides likely to harm pink Mucket Pearly mussels.

A soil suitability for reclamation study may be required prior to site preparation work in accordance with section 15-57-409. Reclamation of land at exhausted quarry site (4) of the *Arkansas Quarry Operation, Reclamation, and Safe Closure Act*, which states that "*Available topsoil and spoil removed during quarrying will be stockpiled for use during reclamation*". The soil suitability for reclamation study may need to be completed to determine: volumes of suitable topsoil and spoil for use during reclamation; soil and spoil stockpile locations; and sediment control measures requirements.

Other potential detrimental effects associated with activities during the life of the proposed Project include: Increased dust, sulfur dioxide, volatile organic carbons, mono-nitrogen oxides and carbon monoxide concentrations in the air; and Increased noise and vibrations.

The following environmental management plans specific for the designed project will be developed and implemented to minimize potential effects on the environment:

- Air quality;
- Noise and vibration;
- Site specific storm water pollution prevention;
- Soil and overburden salvage and protection;
- Waste (quarry, hazardous, municipal, and liquid wastes); and
- Water (resource and potable).

20.2 Permitting

List of permits / Notice of Intents (NOI)s submitted and planned for submission include the following:

- NOI for Quarry Authorization was submitted for a preliminary quarry design and authorization was received on 1 May 2015;
- NOI for the Industrial Storm water Permit is planned;
- NOI for Minor Source Air Permit for the operation of process equipment for the sandstone crushing is planned for submission (Select Sands Corp. is eligible for a general permit because of the planned dryer use which are prohibited in the general air permit); and

- NOI for process water discharge permit is planned for submission.

The Governing Legislation is *Act 1166 of 1997 – Arkansas Quarry Operations, Reclamation and Safe Closure Act* and the name of the issuing authority is the ADEQ. Each NOI will have an associated permit fee.

The State of Arkansas has a water-use registration program which was established in 1985. The water-use registration categories includes groundwater used for mining as a non-agricultural types of water usage, mining. This is water used in an excavating or mining of minerals, liquids, gravels, etc. This also includes water used in the processing of these types of products (Arkansas Water-Use Registration Program).

In accordance with State laws any non-domestic user of groundwater that has the potential to withdraw at least 50,000 gallons a day (35 gpm flow rate) or any user of surface water that withdrawals 1 acre-foot or more per year must report their Annual water usage and pay a $10 registration fee per withdrawal site between October 1 through March 1 each year, to the Arkansas Natural Resources Commission. There are fines associate with failure to register a surface or groundwater withdrawal site as required by law ranging a written notice to $100 depending on length of time from registration due date. The maximum annual penalty per registrant is $500 whether for ground or surface water use or both.

Additional details on environmental authorizations that may be required for the proposed Select Sands Corporation Quarry is included below in Table 27.

Table 27: Environmental Authorizations that may be required for the Project

Required Authorization, Notice of Intent	Legislation	Issuing Authority	Status / Issue Date	Approximate Timing	Anticipated Need	Fee or Bond
Notice of Intent (NOI) to Quarry (no permit required).	*The Arkansas Quarry Operation, Reclamation, and Safe Closure Act.*	Arkansas Department of Environmental Quality (ADEQ).	Received 1 May 2015.	Upon submission of "notification of intent to quarry", by certified mail, to the ADEQ. Upon receipt of "notifications of intent" the department will have 90 days to respond to Select Sands Corporation by certified mail to errors and/or omissions in the notifications.	No permit needed. To entitle Select Sand Corporation to begin quarrying and conduct quarry operations. Need to include proof of public notification.	$250 notification fee $25 annual fee per acre of affected land (not to exceed $1000 per quarry.
NOI to Reclaim Quarry.	*The Arkansas Quarry Operation, Reclamation, and Safe Closure Act.*	ADEQ, Surface Mining and Reclamation Division.	April 1, 2015.			A $78,100 bond to ensure reclamation of permit area (up to five year quarry plan).
NOI for Discharges of Storm water Associated with Industrial Activity (except from construction activity) Authorized under National Pollutant Discharge Elimination System (NPDES) General Permit No. ARR000000	*Arkansas Water Pollution Prevention Act* *Clean Water Act* *The Arkansas Quarry Operation, Reclamation, and Safe Closure Act*	ADEQ	To be determined	Minimum thirty (30) days prior to commencement of storm water discharge from the facility	Coverage under NPDES general permit for discharge of storm water associated with Select Sand Quarry activities (except from construction activity) through outfalls 001, 002 and 003.	Annual fees of $200.00 per year
Minor Source Air Permit	ADEQ *Regulations 18 and 19*	ADEQ	To be determined	Up to 180 Days	Must be obtained prior to constructing equipment onsite.	Calculated by ADEQ Air division based on the amount of pollutants released.
NOI for General Air Permit for Minor Source Rock Crushing Facilities (Permit #: 1916-AGP-000)			Not applicable		Select Sand would not be eligible for this permit. Due to the dryer, according to Specific Condition Number 6.	
Process Water Discharge Permit	*Arkansas Water Pollution Control Act (Act 472 of 1949)*	ADEQ	To be determined	Up to 180 Days	Must be obtained prior to discharging process water.	
Permit	*Archaeological Resources Protection Act of 1979, as amended, 16 USC §§ 470aa−mm*		To be determined		Must be obtained prior to disturbance of any archaeological resource encountered during ground preparation and / or excavation work.	

20.3 Potential Social or Community Impacts

Select Sands will implement the necessary measures as appropriate, per section 15-57-410 of the *Arkansas Quarry Operation, Reclamation, and Safe Closure Act*, to safeguard the operations for the benefit of neighbour and other citizens and to retain trespassers from entering the quarry or plant site. As mentioned in Section 3.1 of this PEA, the closest community to the proposed quarry is Cave City which spans on both sides of the Independence and Sharp counties in the U.S. State of Arkansas with a population of approximately 1,900. Cave City is located approximately 3 km east of the Sandtown Property. The area surrounding the property is rural and largely agricultural with large poultry farms and pasture land the most prevalent type of operation. Cave City Church of God is located to the west of the Sandtown Property across from Cold Creek Lane. There is a grave located within the Sandtown Property boundaries.

Quarry development and operations are expected to have a positive effect on local employment and economy. As mentioned in Section 4.2 Cave City could be used to source basic amenities and Batesville, located 25 km to the south of the property, to source of supplies and labour. Potential issues of social concern are associated with annoyance from noise and vibration generation, air emissions, increased traffic, landscape and visual impacts, and disturbance or destruction of heritage resources.

Select Sands has designed a project that will minimize negative social effects while creating new jobs for residents in nearby communities and economic benefits from purchase of supplies and services. Dust, noise and vibration community concerns during each phase of the project will be minimized by implementing proactive adaptive management, which include confirming management effort results through monitoring and documentation. Concerns associated with increased traffic will be minimized by adherence to applicable traffic bylaws. The design includes measures to minimize landscape and visual impacts by leaving an appropriate vegetated buffer zone around the operations. The grave site located within the property boundaries will be preserved by following the Guidelines for Cemetery Preservation Support Provided by the Arkansas Archaeological Survey (ARAS) (ARAS 2014), including but not limited to consultation with ARAS, documentation, fencing and signage. Site workers will be instructed on appropriate procedures for work in the event that an archaeological site or artifact is encountered during site preparation work to ensure adherence to applicable state and / or federal laws and regulations.

20.4 Mine Closure (Remediation and Reclamation) Requirements and Costs

A Quarry Closure Reclamation and Remediation plan will be developed in accordance with section 15-57-409. Reclamation of Land at Exhausted Quarry Site of the A*rkansas Quarry Operation, Reclamation, and Safe Closure Act* (Arkansas Department of Environmental Quality) and consideration of reclamation practices described in Chapter 5: Reclamation Conservation Practices presented in the Conservation Practices for the Reclamation of Surface Mines in Arkansas (Arkansas Department of Environmental Quality, 2001). Including but not limited to the following considerations:

- Preservation of topsoil and overburden for reclamation where possible;
- Replacement of topsoil and overburden during reclamation as appropriate;
- Soil analysis and quality amendment for productivity, reclamation success;
- Contemporaneous reclamation;
- Confirmatory assessment, testing and remediation for potential site contamination; and
- Site regarding, vegetation and pit flooding.

As part of the NOI to Quarry Select Sand paid a $78,100 cash reclamation bond as principal for the first 5 years of quarrying to the ADEQ to insure the reclamation of the 5 year plan permit area.

For the PEA a cost of $1 million has been include for the end of the life of mine for reclamation, this would include demolition of the mill and other infrastructure and reclamation mining and other disturbed areas.

20.5 Remaining Regulatory Requirements

As described above in Section 15.2 the remaining regulatory requirements include but are not limited to the following:

- NOI for Discharges of Storm water Associated with Industrial Activity (except from construction activity) Authorized under National Pollutant Discharge Elimination System (NPDES) General Permit No. ARR000000;
- Minor Source Air Permit;
- NOI for General Air Permit for Minor Source Rock Crushing Facilities (Permit #: 1916-AGP-000);
- Process Water Discharge Permit;
- Permit for disruption or removal of known archaeological sites or artifacts; and
- Groundwater and / or surface water –use registration.

21.0 CAPITAL AND OPERATING COSTS

The PEA estimated capital cost is $43.4 million to construct the project including direct and indirect, freight, contingency and sales taxes. In addition, the operating cost has been estimated at $19 per short ton processed.

For the purpose of this PEA, Tetra Tech and Select Sands have considered a contract mining scenario for evaluation. All mining operating costs were developed for owner mining and then a 20% premium was added to derive the contract mining costs. These are reflected in the operating costs, while no equipment purchase costs have been included in the capital cost estimate.

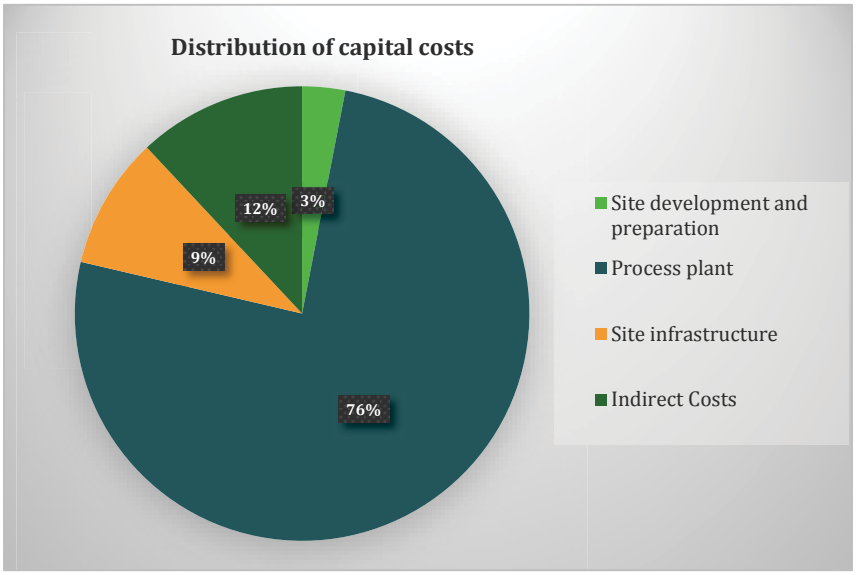
21.1 Capital Costs

Initial capital costs are estimated at US $42.3 million for the 16 year mine life, with US $ 1 million sustaining capital. The base case shown in Table 28 considers that Select Sands would hire for the services of contract mining and have a processing facility on site to produce various size fractions to be sold as different products. Capital cost summary is highlighted in Table 28 and the distribution of capital costs is shown in Figure 27.

Table 28: Capital Cost Summary

Capital Cost Summary Including Contingency				
	Preproduction		Sustaining	Reclamation
	Year -2	Year -1	Years 1-16	Years 17-19
Total Direct Costs	**$587**	**$37,529**	**$54**	
Site Development & Preparation	$587	$685	$54	
Process Plant		$32,776		
Infrastructure		$4,068		
Total Indirect Costs	**$2,056**	**$2,132**		**$1,000**
Engineering/Startup	$1,021	$1,741		
Consultants	$535			
Environmental		$191		
Purchases & Other	$500	$200		
Permitting, Social & Reclamation				$1,000
Total Capital	**$2,643**	**$39,661**	**$54**	**$1,000**

Figure 27: Distribution of Capital Costs



21.1.1 Site Development and Preparation

The site development and preparation costs have been estimated at a total of US$1.3 million. Majority of this expense would be in years -2 and -1 with only US$54 thousand being estimated for site road construction to the ramp of the East Pit. Select Sands will incur this sustaining cost in year 11, a year prior to mining operations commencing in the East Pit. A breakdown of the site costs is in Table 29 below.

Table 29: Capital Cost for Site Development & Preparation

Site Development & Preparation including contingency			
	Development		Operation
	Year -2	Year -1	Years 1-16
General Mine Infrastructure	**$347**	**$122**	**$54**
Site Roads Initial and West pit	$162		
Site Roads East Pit			$41
Site road culverts		$12	
Fuel storage diesel		$30	
Fuel storage gasoline		$30	
Truck scale	$103		
Communications and IT		$21	
Freight/Insurance	$2	$1	
Contingency	$80	$28	$13
Site Civil	**$240**	**$563**	
Brush clearing west pit	$69		
Brush clearing east pit	$61		
Brush clearing site roads initial	$6		
Brush clearing site roads deferred	$2		
Brush clearing Plant truck shop office	$13		
Brush clearing Waste storage	$13		
Brush clearing Discard Fines Storage	$26		
Cut and fill plant office area		$168	
Compaction of fill for office area		$273	
Foundations truck scale	$11		
Foundations fuel storage		$11	
Foundations truck shop		$11	
Foundations Other		$7	
Contingency	$40	$94	
Total Site Development	**$587**	**$685**	**$54**

21.1.2 Mine Operations

Select Sands will not have any capital expenditure on mining equipment as the operations will primarily be undertaken by a contractor. If Select Sands wishes to purchase mining equipment or if Select Sands wishes to lease mining equipment, the mining equipment required is expected to cost US$ 7 million.

21.1.3 Process Plant

The process plant capital is estimated to be US $32.7 million. The below costs cover all equipment required for the processing of the run of mine sand including silos for storage. Material and labour costs for the process building

structure and foundation are included in the infrastructure section below. Table 30 to Table 33 show process plant equipment and construction costs.

Table 30: Process Plant Crushing and Screening Capital Cost

Process Plant	
Crushing Portable Plant	**$925**
Portable crushing vendor package	$694
Electrical Allowance	$35
Structural Steel and Foundations Allowance	$69
Freight/Insurance	$23
Contingency	$104
Conveyors	**$414**
Radial Conveyor	$97
Transfer Conveyor	$219
Electrical Allowance	$14
Structural Steel and Foundations Allowance	$28
Freight/Insurance	$9
Contingency	$47
Scalping Screen	**$404**
Double Deck Horizontal Screen Package	$308
Electrical Allowance	$14
Structural Steel and Foundations Allowance	$27
Freight/Insurance	$9
Contingency	$46

Table 31: Process Plant Wet Plant Costs

Process Plant	
Wet Classification & Water Recovery	**$11,470**
Hydrocyclone/HydroSizer/Dewatering Circuit package including concrete product bunkers	$6,850
Piping Allowance	$610
Electrical Allowance	$615
Structural Steel and Foundations Allowance	$1,525
Freight/Insurance	$200
Contingency	$1,370
Fine Product Grinding	**$6,936**
Ball Mill	$3,014
Pump Box & Pump	$274
Screen #1	$403
Screen #2	$403
Screen #3	$403
Screen #4	$403

Process Plant	
Wet Classification & Water Recovery	**$11,470**
Piping Allowance	$164
Electrical Allowance	$329
Structural Steel and Foundations Allowance	$329
Freight/Insurance	$108
Contingency	$1,107

Table 32: Process Plant Drying, Storage and Loadout Capital Cost Breakdown

Process Plant	
Product Drying, Storage and Loadout	**$11,439**
Feed Hopper	$49
Transfer Conveyor #1	$137
Transfer Conveyor #2	$66
Transfer Conveyor #3	$66
Transfer Conveyor #4	$66
Transfer Conveyor #5	$66
Vibrating Fluid Bed Dryer Vendor Package	$1,918
Bucket Elevator #1	$118
Bucket Elevator #2	$85
Bucket Elevator #3	$85
Bucket Elevator #4	$85
Bucket Elevator #5	$85
Surge Hopper	$27
Weighbelt Feeder # 1	$48
Weighbelt Feeder #2	$48
Weighbelt Feeder #3	$48
Weighbelt Feeder #4	$48
Minerals Separator Screeners #1	$403
Minerals Separator Screeners #2	$403
Minerals Separator Screeners #3	$403
Minerals Separator Screeners #4	$403
Loading Spouts #1	$10
Loading Spouts #2	$10
Loading Spouts #3	$10
Loading Spouts #4	$10
Product Storage Silos #1, #2, #3, and #4	$3,161
Bin Vents #1, #2, #3, and #4	$25
Electrical Allowance	$702
Structural Steel and Foundations Allowance	$1,052
Freight/Insurance	$230
Contingency	$1,576

Table 33: Process Plant Utilities and Mobile Equipment Cost Estimates

Process Plant	
Plant Utilities	**$300**
Electric Substation & Distribution	$62
Natural Gas Supply	$137
Compressed Air System	$27
Freight/Insurance	$7
Contingency	$68
Plant Mobile Equipment	**$889**
Crew Cab Pick-up Trucks	$192
Skid Steer Loader	$55
1.4 yd Front End Loader	$163
13 yd Dump Truck	$241
2T Fork Lift	$50
Portable Air Compressor	$27
Electric Welder	$25
Freight/Insurance	$22
Contingency	$113
Total Process Plant	**$32,776**

21.1.4 Site Infrastructure

Total site infrastructure cost is USUS$ 4 million. Note that since contract mining has been considered, no estimate has been included for a truck shop. In addition, no offsite infrastructure or equipment that would typically be required for the storage and loading of product onto rail is needed as Select Sands is in the process of making an agreement with Wildcat Minerals to use their rail terminal in Batesville Arkansas. This agreement include the fact that Wildcat Minerals will handle, load and store Select Sands' products for US $12/ton. This cost is charged to the customer and therefore does not influence project economics. Table 34 below breaks down the site infrastructure capital costs.

Table 34: Site Infrastructure Capital Costs

Site Infrastructure	
Buildings	**$1,383**
Office	$211
Warehouse	$166
Washroom / locker room	$81
Meeting/ training room	$24
Security, weight bridge , sales office	$49
Process Maintenance Shop	$523
Electrical room	$19
Building plumbing and electrical	$125
Freight/Insurance	$5
Contingency	180
Main Power Supply	**$1,373**
Transmission Power Line	$1,373
Main Substation Connection	$714
Main switch room equipment	$59
Freight/Insurance	$40
Contingency	$166
Water Management	**$408**
Water Supply drilling	$30
Water supply piping	$59
Water supply electrical	$23
Water supply tank	$22
Water supply pumps	$25
Site drainage swales and trenches	$102
Office sanitary field/sewage treatment	$24
Impacted water settling ponds	$28
Freight/Insurance	$2
Contingency	$94
Discard fines	**$889**
Place and compact berm for discard fines	$684
Contingency	$205
Natural Gas Supply	$15
Total Site Infrastructure	**$4,068**

21.1.5 Indirect

The total indirect capital cost is US $5.2 million. US $1 million including contingency of this is sustaining capital for a reclamation bond. Total indirect capital costs can be seen below in Table 35 and Table 36.

Table 35: Indirect Capital Costs

Indirect Costs		
	Development	
	Year -2	**Year -1**
Engineering/Startup	**$1,021**	**$1,741**
Construction Indirects		$204
Engineering & Procurement	$1,021	
Construction Management		$1,021
Commissioning		$204
Spares		$204
First Fills		$107
Consultants	**$535**	
Vendor & Consultant Assistance		$535

Table 36: Indirect Costs Continued

Indirect Costs			
	Development		**Reclamation**
	Year -2	Year -1	Years 17-19
Environmental		$191	
Purchases & Other	$500	$200	
Permitting, Social & Reclamation			$1,000
Total Indirects	$2,056	$2,132	$1,000

21.1.6 Sustaining

The total project sustaining capital cost is US $1.05 million. This is a combination of US $54 thousand required for year 11 for the construction of the site roads leading to the East Pit. Another US $1 million is considered for reclamation, which would be required in year 17 at the end of mine life.

21.2 Operating Costs

Site operating costs have been estimated to average $19 per ton processed. In addition to site costs, marketing costs have been deducted from revenues for silica sand products. Table 37 summarises the estimated production costs for the PEA. Directs costs relate to labour, equipment, fuel, power and consumables required for production whereas indirect costs are property taxes and Arkansas severance taxes at $0.04 / ton as well as additional taxes of $0.03 per ton.

Table 37: Summary of Direct and Indirect Production Costs

Operating costs summary				
Aspect of operations	**Life of mine costs**	**Average annual cost at full production**	**Average cost per ton moved / processed**	**Average cost per ton sold**
	US$000	**US$000**	**US$/st**	**US$/st**
Mining	$112,405	$7,039	$4.16[1]	$7.14
Processing	$191,444	$11,565	$10.30[2]	$12.16
G & A	$42,705	$2,550	$2.30	$2.71
Total production costs	**$346,554**	**$21,153**	**$18.64**	**$22.02**
Indirect costs (property and mining taxes)	$12,589	$161	$0.68	$0.80
Total operating costs excluding marketing[3]	**$359,143**	**$21,314**	**$19.32**	**$22.82**

Note: **1**. Per ton moved, includes waste rock required to be moved to expose St. Peters Sandstone sands; **2**. Per ton processed excludes tons sold as run-of-mine which would be processed by third parties; and **3**. Excludes costs of transportation of products produced offsite. These costs are assumed to be transferred to the purchaser of silica sands products.

Table 38 shows the assumptions for power costs and consumables used in the PEA model for operating costs.

Table 38: Summary of Operating Cost Assumptions used in the PEA

Item	Value assigned
Fuel cost – diesel	$2.60 / gal
Fuel cost - gasoline	$3.00 / gal
Electrical power costs	$0.084 per kWh
Natural gas	$5.43 per MMBTU
Lube	$12.50 per gal
Contract blasting cost (excludes fuel)	$1 per ton

For the PEA it has been assumed that power would be provided by Entergy Arkansas LLC and Natural Gas by Krug Energy, who are natural gas suppliers based in Searcy, Arkansas. Discussions have been had with Explosive Contractors, of Hollister Missouri for provision of blasting services. No supplier has been identified for fuel as yet nor has a mining contractor been identified.

In addition Table 39 shows the general labor rates sources used to estimate labour costs in the PEA. A burden of 43.7% was applied throughout.

Table 39: Labor Costs used for Cost Estimation in the PEA

Labor						
Job Classification	**Hours**	**Wage ($/hr.)**	**Salary ($/yr.)**	**Burden (%)**	**Shift Diff ($/hr.)**	**Annual Cost ($000s)**
Mining O&M Labor						
Supervisor	-	-	$75,700	43.7%	-	$108.78
Mobile equipment operator	2,080	$16.75	-	43.7%	$0.00	$50.07
Mechanic	2,080	$17.26	-	43.7%	$0.00	$51.59
Support Labor	2,080	$14.63	-	43.7%	$0.00	$43.73
Mine Technical Services						
General Manager	-	-	$198,700	43.7%	-	$285.53
Mine Engineer	-	-	$76,800	43.7%	-	$110.36
Health, Safety and Environmental						
H&S/Environmental Manager	-	-	$103,000	43.7%	-	$148.01
Safety Coordinator	-	-	$63,000	43.7%	-	$90.53
Process - Operations						
Plant Foreman	2,080	$17.26	-	43.7%	$0.00	$51.59
Central Control Operator	2,080	$17.26	-	43.7%	$0.00	$51.59
Crusher Operator	2,080	$16.75	-	43.7%	$0.00	$50.07
HSI/Reclaim System	2,080	$16.22	-	43.7%	$0.00	$48.48
Hydrosizer/Separators	2,080	$16.22	-	43.7%	$0.00	$48.48
Scrubber Floor	2,080	$16.22	-	43.7%	$0.00	$48.48
Fluid Bed Dryer Operator	2,080	$17.26	-	43.7%	$0.00	$51.59
Loader Operator	2,080	$16.75	-	43.7%	$0.00	$50.07
Lab QA/QC Operator	2,080	$16.22	-	43.7%	$0.00	$48.48
Product Storage	2,080	$16.22	-	43.7%	$0.00	$48.48
Utility Operator	2,080	$16.22	-	43.7%	$0.00	$48.48
Scales	2,080	$16.22	-	43.7%	$0.00	$48.48
Mechanic/Welder	2,080	$17.26	-	43.7%	$0.00	$51.59
Electrician	2,080	$16.75	-	43.7%	$0.00	$50.07
Instrumentation Controls	2,080	$16.75	-	43.7%	$0.00	$50.07
Day Labor	2,080	$14.63	-	43.7%	$0.00	$43.73
Process - Warehouse						
Senior Warehouse	2,080	$16.22	-	43.7%	$0.00	$48.48
Warehouse Laborer	2,080	$14.63	-	43.7%	$0.00	$43.73
Process - Technical Services						
Process Manager	-	-	$96,400	43.7%	-	$138.53
Process General Foreman	-	-	$73,800	43.7%	-	$106.05
Plant Maintenance Supervisor	-	-	$72,100	43.7%	-	$103.61
Clerk - Operations & Maintenance	-	-	$48,800	43.7%	-	$70.13
Business & Administrative						
General Manager	-	-	$198,700	43.7%	-	$285.53
Administrative Assistant	-	-	$38,200	43.7%	-	$54.89

Labor						
Job Classification	**Hours**	**Wage ($/hr.)**	**Salary ($/yr.)**	**Burden (%)**	**Shift Diff ($/hr.)**	**Annual Cost ($000s)**
HR	-	-	$100,900	43.7%	-	$144.99
IT Technician	2,080	$16.75	-	43.7%	$0.00	$50.07
Purchasing Agent	-	-	$80,600	43.7%	-	$115.82
Accountant	-	-	$84,300	43.7%	-	$121.14
Source: CostMine 2014, Survey Results for Arkansas - Eastern Region						

21.2.1 Mining Costs

The economic base case summarized below in Table 40 considers the use of contracting, using a dry rate approach (owner supplies fuel to contractor).

Table 40: Summary of Mining Costs

Mining costs		
Item	**Life of mine costs**	**Cost per ton moved**
Fuel	$17,000	$0.63
Lubricants	$850	$0.03
Equipment maintenance	$12,403	$0.46
Labour	$32,631	$1.21
Contract blasting[1]	$19,528	$0.72
Contractor margin[2]	$9,177	$0.34
Total mining cost	**$91,589**	**$3.39**
Mining G & A[3]	$2,083	$0.08
Contingency 20%	$18,734	$0.69
Total	**$112,406**	**$4.16**

Note: 1. Contract blasting is only considered for the fine sandstone, whereas overburden and overlying medium sandstone would be excavated by free dig; 2. Contractor margin is added at 20% of equipment maintenance costs, labour and lubricants. Blasting is a separate contract and fuel would be supplied by the owner; and 3. Mining G & A covers mine planning, surveying, consultants, safety equipment and personal protective equipment

21.2.2 Processing Costs

Processing cost summarized below in Table 41, has been estimated based on throughput rates, power consumption, fuel consumption, equipment maintenance and wear parts, lubricants and labour requirements.

Table 41: Summary of Process Cost Estimates

Process Plant	Life of mine costs	Average cost per ton processed
	US$000	$/st-processed
Crushing Portable	$4,910	$0.26
Conveyors	$3,346	$0.18
Scalping Screen	$819	$0.04
Wet Classification	$5,988	$0.32
Fine Product Grinding	$55,718	$3.00
Product Drying, Storage and Loadout	$18,893	$1.02
Plant Mobile Equipment	$3,133	$0.17
Labor	$66,730	$3.59
Contingency	$31,907	$1.72
Total	**$191,444**	**$10.30**

21.2.3 Power

Power costs have been included in processing for both electrical power and natural gas for the product dryers.

21.2.4 Site General and Administration

General and administrative costs includes site management and support staff as well as office consumables, administrative fees, insurances, communications, safety equipment and management travel expenses. Table 42 shows a summary of the estimated G and A for life of mine and per ton processed.

Table 42: Summary of General and Administrative Costs

General and Administrative Costs in $000		
Item	**Life of Mine Costs $000**	**Cost per short ton processed in $/st**
Management	$10,896	$0.59
Site staff	$18,327	$0.99
Consumables and other expenses	$6,365	$0.34
Contingency	$7,118	$0.38
Total G & A	**$42,705**	**$2.30**

21.2.5 Product Shipping or Transportation

The PEA considers selling of silica products as mine gate and that all offsite transportation of products would be charged to the customer. In the process of completion of the PEA transport costs where obtained for trucking the product from the site to a rail terminal in Batesville and rail freight costs from Batesville to Texas. A fee for storage, handling and loading products at the rail terminal was also obtained. These are included in Table 43.

Table 43: Transportation and Offsite Handling Fees

Item	Cost
Transport from mine site to Batesville	$3.50 per ton
Rail to Texas	$51 to $59 per ton
Handling at Batesville Rail terminal	$12 per ton

21.2.6 Marketing Expenses

Marketing expenses were included at an estimate of $200,000 per year of operations. The first 3 quarters have been an additional marketing cost of $31 thousand per quarter.

21.2.7 Contingencies

Tetra Tech has added 20% contingency to operating cost estimates, which totals $58 million over life of mine and $2.7 per short ton processed.

22.0 ECONOMIC ANALYSIS

The preliminary economic analysis conducted using discounted cash flow analysis for a 16 year mine life (excluding a 2 year preproduction period) resulted in an after tax net present value (8%) of $92 million, with an IRR of 34%. After tax payback period is estimated at 2.5 years. Economics and costs are included as US dollars.

The estimation of revenue has been based on:

1. Sale of run-of-mine for $7.50 per short ton net of associated costs;
2. Sale of frac sand at an average of $59 per short ton;
3. Sale of ground sand for $46 per short ton; and
4. Transportation costs are not deducted from product prices used and are considered paid by the customer.

Total revenue for the project is estimated at $770 million over life of mine, from which $3.4 million has been deducted for marketing expenses. Gross project revenue is estimated at a resulting $767 million for the project life. Additional assumptions used in the economic model include the following:

1. Sales of run-of-mine are considered to begin in year -2 and are discontinued in year 4;
2. Mill construction is included in year -1 with limited production in year -1;
3. No inflation or escalation has been included in the financial model;
4. Net present value has been estimated at an 8% discount rate applied quarterly; and
5. Working capital is based on 45 days of operating costs for each quarter of operations.

22.1 Results of Discounted Cash Flow Analysis

The base case results (contractor mining and inclusion of grinding circuit), are summarised in Table 44.

Table 44: Summary of Economic Results

Highlights of the PEA		
Base case (contract mining)	**Value**	**Units**
Production highlights		
Total sands mined	27,019	Kst[1]
Total waste mined	5,107	kst
Classified frac and ground sands products sold	13,516	kst
Run-of-mine direct sales (first 4 years only)[2]	2,225	kst
Total products saleable	15,741	kst
Annual mill feed throughput	1,190	kst
Annual silica sands products produced	865	kst
Operating life including 2 years preproduction operations[3]	18	years
Economic model highlights		
Total life of mine revenue estimated	$766,515	$000
Average revenue per ton frac sand sold	$59	$/st
Average revenue per ton ground silica sold	$46	$/st
Average revenue per ton run of mine sold	$7.5	$/st
Total operating costs over life of mine	$346,554	$000
Average operating costs per ton processed	$19	$/st
Operating profit	$407,372	$000
Preproduction capital costs[4]	$42,304	$000
Sustaining capital costs[4]	$1,054	$000
Working capital initial	$58	$000
Working capital maximum[5]	$699	$000
Pretax NPV	$159,641	$000
Pretax IRR	45%	
Federal taxes	$114,858	$000
State taxes	$31,176	$000
Free cash flow	$217,981	$000
After tax net present value at 8%	$92,020	$000
After tax IRR	34%	
After tax payback period	2.5	years

Note: 1. Thousand short tons; 2. Potential contract sales of run of mine at $7.5 net of costs; 3. Run of mine sales are considered prior to year 1 of operations; 4. Includes contingency, direct and indirect as well as sales taxes; and 5. Maximum amount of working capital needed to sustain operations based on 45 days of operating costs per quarter.

The life of mine cash flows are shown in Figure 28.

Figure 28: Project Economics



22.2 Taxes and Royalties

Table 45 summarises the taxes included in the PEA. No private royalties are applicable to the property. Applicable deductions from the taxable income include depletion, depreciation, amortization and losses carried forward.

Table 45: Summary of Taxes Deducted from Revenues in the PEA

Taxes	Basis of estimate	Life of mine taxes
		$000
Sales taxes	7%	$2,096
Real property taxes	$49.12 per $1,000 of 20% of asset value	$11,487
Severance tax	$0.04 per ton	$630
Additional tax on stone and crushed rock	$0.03 per ton	$472
Federal income tax	35%	$114,858
State income tax	9.5%	$31,176

22.3 Trade-off Studies

The following trade-off studies have been conducted to evaluate the impact on project economics:

- Contract mining versus owner mining; and

- Inclusion versus exclusion of ball mill grinding.

The effects on profits and costs the 2 different scenarios have on the overall project can be seen below in Table 46. The base case used for the PEA is shown to be the best case for moving the project forward, a marginal decrease in NPV results from owner operated mining equipment and a more significant decrease occurs if a grind circuit is excluded from the processing.

Table 46: Trade-off Studies

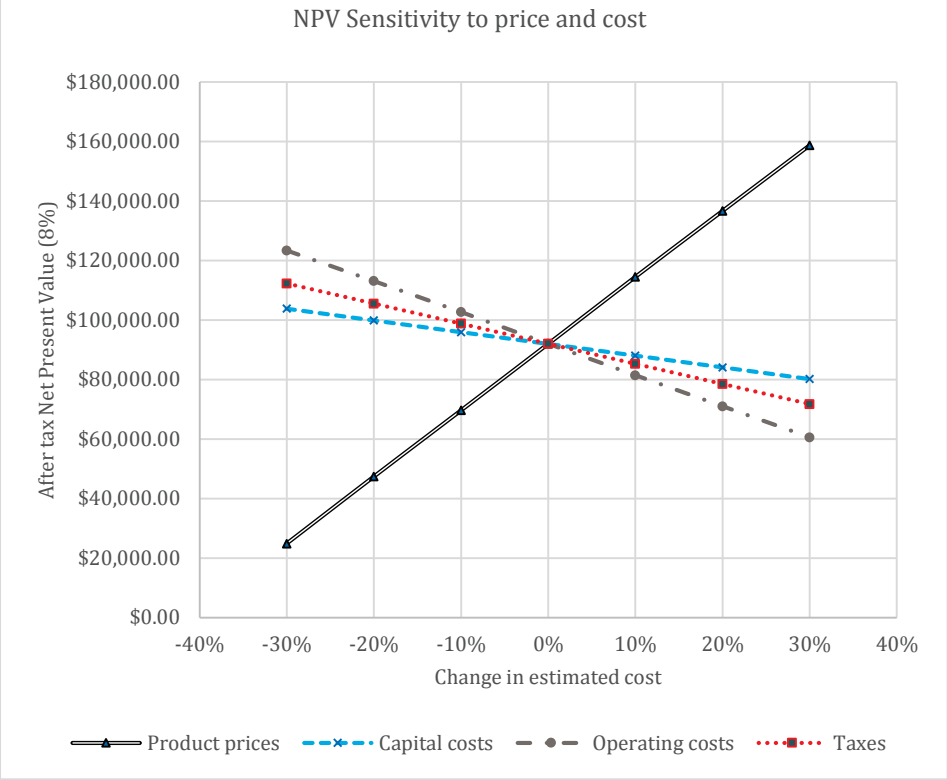
Trade-off Studies					
		Units	**Base Case**	**Owner Mining**	**No Fine Grinding**
Products	Frac sand 30/50	$000s	1,655	1,655	1,655
	Frac sand 40/70	$000s	2,584	2,584	2,584
	Frac sand 70/140	$000s	5,819	5,819	5,819
	Ground Silica	$000s	3,458	3,458	0
	Total	$000s	13,516	13,516	10,058
Total Processed Products	RoM Direct Sale	$000s	2,225	2,225	2,225
	Frac Sands	$000s	10,058	10,058	10,058
	Glass Making Ground	$000s	3,458	3,458	0
	Total	$000s	15,741	15,741	12,283
Gross Income	RoM Direct Sale	$000s	16,690	16,690	16,690
	Frac Sands	$000s	593,239	593,239	593,239
	Glass Making Ground	$000s	160,030	160,030	0
	Marketing Cost	$000s	(3,444)	(3,444)	(3,444)
	Total	**$000s**	**766,515**	**766,515**	**606,485**
Operating Costs	Open Pit Mine	$000s	112,405	99,383	112,405
	Process Plant	$000s	191,444	191,444	124,582
	G&A	$000s	42,705	42,705	42,705
	Indirect	$000s	12,589	13,623	10,058
	Total	$000s	359,143	347,155	289,751
Capital Costs	Site Development	$000s	1,326	1,326	1,326
	Mine Operations	$000s	0	7,103	0
	Process Plant	$000s	32,776	32,776	25,840
	Infrastructure	$000s	4,068	4,068	4,068
	Indirect	$000s	5,188	5,682	5,188
	Total	$000s	43,357	50,460	36,422
Economics	Operating Profit	$000s	407,372	419,360	316,734
	Cash Flow	$000s	217,981	220,177	168,131
	NPV @ 8%	**$000s**	**92,020**	**90,473**	**70,560**
	IRR	%	34.4%	31.1%	33.2%
	Payback (months)	months	26	28	28

Note: G&A – general and administrative, IRR – internal rate of return, NVP – net present value and RoM – run-of-mine.

22.4 Sensitivity Analysis

Figure 29 shows the -30% to +30% sensitivities for the after tax NPV for product prices, capital costs, operating costs and taxes. The figure shows that the project is most sensitive to the prices obtained for products. The project economics are least sensitive to capital costs.

Figure 29: Sensitivity Analysis on after Tax NPV



22.5 Discount Cash Flow Analysis

The discount cash flow analysis is shown in Figure 30. No escalation or inflation has been used in the model.

Select Sands
Sandtown Frac Sand Project
CASH FLOW

Description	Rate		Unit	Total or Avg	-2 Q1 -Q8	-2 Q2 -Q7	-1 Q3 -Q6	-1 Q4 -Q5	-1 Q1 -Q4	-1 Q2 -Q3	-1 Q3 -Q2	-1 Q4 -Q1	1 Q1 Q1	1 Q2 Q2	1 Q3 Q3	1 Q4 Q4	2 Q1 Q5	2 Q2 Q6	2 Q3 Q7	2 Q4 Q8	3 Q1 Q9	3 Q2 Q10	3 Q3 Q11	3 Q4 Q12	4 Q1 Q13	4 Q2 Q14	4 Q3 Q15	4 Q4 Q16	5 Q1 Q17	5 Q2 Q18	5 Q3 Q19	5 Q4 Q20
> Develop					<	>Start Open Pit																								
												>Start Process Operations																		
>PPD						> RoM Direct Sale																									<
PROJECT SUMMARY																															
Production Summary																															
Tons Moved			kst	27,019	0	0	28	110	110	419	474	382	361	361	361	361	495	495	495	495	423	423	423	423	514	514	514	514	404	404	404	404
RoM Processed			**kst**	**18,591**	**0**	**0**	**0**	**0**	**0**	**0**	**52**	**131**	**170**	**170**	**170**	**170**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**
Products																															
Frac sand 30/50			kst	1,655	0	0	0	0	0	0	5	12	15	15	15	15	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Frac sand 40/70			kst	2,584	0	0	0	0	0	0	7	18	24	24	24	24	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Frac sand 70/140			kst	5,819	0	0	0	0	0	0	16	41	53	53	53	53	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93
Ground silica			kst	3,458	0	0	0	0	0	0	10	24	32	32	32	32	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
Total Processed Products			**kst**	**13,516**	**0**	**0**	**0**	**0**	**0**	**0**	**38**	**95**	**124**	**124**	**124**	**124**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**
RoM Direct Sale			kst	2,225	0	0	26	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	0	0	0	0
Frac Sands			kst	10,058	0	0	0	0	0	0	28	71	92	92	92	92	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161
Glass Making Ground			kst	3,458	0	0	0	0	0	0	10	24	32	32	32	32	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
Total Products			**kst**	**15,741**	**0**	**0**	**26**	**105**	**105**	**105**	**143**	**200**	**228**	**228**	**228**	**228**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**216**	**216**	**216**	**216**
GROSS INCOME																															
Gross Income from Mining																															
RoM Direct Sale		**$7.50**	$000s	16,690	0	0	196	785	785	785	785	785	785	785	785	785	785	785	785	785	785	785	785	785	785	785	785	0	0	0	0
Frac Sands		**$58.98**	$000s	593,239	0	0	0	0	0	0	1,671	4,177	5,430	5,430	5,430	5,430	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490
Glass Making Ground		**$46.26**	$000s	160,030	0	0	0	0	0	0	451	1,127	1,465	1,465	1,465	1,465	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560
Gross Sales	-	**$41.42**	**$000s**	**769,959**	**0**	**0**	**196**	**785**	**785**	**785**	**2,907**	**6,089**	**7,680**	**7,680**	**7,680**	**7,680**	**12,836**	**12,836**	**12,836**	**12,836**	**12,836**	**12,836**	**12,836**	**12,836**	**12,836**	**12,836**	**12,836**	**12,836**	**12,050**	**12,050**	**12,050**	**12,050**
Transportation	-	-	$000s	0																												
Marketing			$000s	-3,444	0	0	0	0	0	-81	-81	-81	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50
Gross Income (FOB-Plant)		**$41.23**	**$000s**	**766,515**	**0**	**0**	**196**	**785**	**785**	**704**	**2,826**	**6,008**	**7,630**	**7,630**	**7,630**	**7,630**	**12,786**	**12,786**	**12,786**	**12,786**	**12,786**	**12,786**	**12,786**	**12,786**	**12,786**	**12,786**	**12,786**	**12,786**	**12,000**	**12,000**	**12,000**	**12,000**
OPERATING COSTS																															
Operating Costs																															
20-Open Pit Mine		$6.05	$000s	112,405	0	0	2	2	45	537	935	986	1,226	1,226	1,226	1,226	1,757	1,757	1,757	1,757	1,656	1,656	1,656	1,656	1,769	1,769	1,769	1,769	1,770	1,770	1,770	1,770
30-Process Plant		$10.30	$000s	191,444	0	0	100	100	100	100	2,860	2,860	2,860	2,860	2,860	2,860	2,860	2,860	2,860	2,860	2,860	2,860	2,860	2,860	2,879	2,879	2,879	2,879	2,879	2,879	2,879	2,879
40-G&A		$2.30	$000s	42,705	0	0	0	0	0	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637
Direct Operating Costs		**$18.64**	**$000s**	**346,554**	**0**	**0**	**102**	**102**	**146**	**1,274**	**4,433**	**4,483**	**4,724**	**4,724**	**4,724**	**4,724**	**5,255**	**5,255**	**5,255**	**5,255**	**5,154**	**5,154**	**5,154**	**5,154**	**5,285**	**5,285**	**5,285**	**5,285**	**5,286**	**5,286**	**5,286**	**5,286**
Indirect Costs																																
Property Tax		$0.62	$000s	11,487	0	0	364	370	363	350	387	397	391	369	346	324	343	327	311	295	282	271	259	248	239	231	222	214	164	156	148	140
Severance	$0.04	$0.03	$000s	630	0	0	1	4	4	4	6	8	9	9	9	9	13	13	13	13	13	13	13	13	13	13	13	13	9	9	9	9
Additional Tax	$0.03	$0.03	$000s	472	0	0	1	3	3	3	4	6	7	7	7	7	10	10	10	10	10	10	10	10	10	10	10	10	6	6	6	6
Indirect Costs		**$0.68**	**$000s**	**12,589**	**0**	**0**	**366**	**377**	**370**	**357**	**397**	**411**	**407**	**385**	**362**	**340**	**365**	**350**	**334**	**318**	**305**	**293**	**282**	**271**	**261**	**253**	**245**	**237**	**179**	**171**	**163**	**155**
Operating Cost		**$19.32**	**$000s**	**359,143**	**0**	**0**	**468**	**479**	**515**	**1,631**	**4,829**	**4,894**	**5,131**	**5,109**	**5,086**	**5,064**	**5,620**	**5,605**	**5,589**	**5,573**	**5,458**	**5,447**	**5,435**	**5,424**	**5,546**	**5,538**	**5,530**	**5,522**	**5,465**	**5,457**	**5,449**	**5,441**
Operating Profit		**$21.91**	**$000s**	**407,372**	**0**	**0**	**-272**	**306**	**270**	**-927**	**-2,004**	**1,113**	**2,500**	**2,522**	**2,544**	**2,566**	**7,165**	**7,181**	**7,197**	**7,213**	**7,328**	**7,339**	**7,350**	**7,361**	**7,240**	**7,248**	**7,256**	**7,264**	**6,535**	**6,543**	**6,552**	**6,560**
			$000s	**53%**																												
CAPITAL COSTS																																
Direct Costs																																
10-Site Development & Preparation			$000s	1,326	587	0	0	0	685	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-Mine Operations			$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-Process Plant			$000s	32,776	0	0	0	0	15,740	17,036	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40-Infrastructure			$000s	4,068	0	0	0	0	4,068	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Costs			**$000s**	**38,170**	**587**	**0**	**0**	**0**	**20,493**	**17,036**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Indirect Costs																																
90-Indirect Costs			$000s	5,188	1,035	0	0	1,021	1,616	515	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Indirect Costs			**$000s**	**5,188**	**1,035**	**0**	**0**	**1,021**	**1,616**	**515**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Capital Costs			**$000s**	**43,357**	**1,622**	**0**	**0**	**1,021**	**22,109**	**17,552**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
			$000s	**-**	**1,622**	**1,622**	**1,622**	**2,643**	**24,752**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**
Working Capital																																
Beginning Balance			$000s		0	0	0	58	59	64	211	605	613	639	636	633	631	699	697	695	693	679	678	676	675	690	689	688	687	680	679	678
Ending Balance	12%		$000s		0	0	58	59	64	211	605	613	639	636	633	631	699	697	695	693	679	678	676	675	690	689	688	687	680	679	678	677
Change in Working Capital			**$000s**		**-0**	**0**	**-58**	**-1**	**-4**	**-148**	**-394**	**-8**	**-25**	**3**	**3**	**3**	**-69**	**2**	**2**	**2**	**14**	**1**	**1**	**1**	**-15**	**1**	**1**	**1**	**7**	**1**	**1**	**1**
CASH FLOW																																
Cash Flow																																
Operating Profit	-	-	$000s	407,372	0	0	-272	306	270	-927	-2,004	1,113	2,500	2,522	2,544	2,566	7,165	7,181	7,197	7,213	7,328	7,339	7,350	7,361	7,240	7,248	7,256	7,264	6,535	6,543	6,552	6,560
LoM Capital	-	-	$000s	-43,357	-1,622	0	0	-1,021	-22,109	-17,552	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Federal Income Tax	-	-	$000s	-114,858	0	0	0	0	0	0	0	0	0	0	0	0	0	-1,144	-1,692	-1,698	-1,825	-1,903	-1,907	-1,911	-1,930	-1,936	-1,939	-1,992	-1,763	-1,766	-1,769	-1,772
State Income Tax	-	-	$000s	-31,176	0	0	0	0	0	0	0	0	0	0	0	0	0	-310	-459	-461	-495	-517	-518	-519	-524	-539	-540	-541	-479	-479	-480	-481
Working Capital	-	-	$000s	-0	0	0	-58	-1	-4	-148	-394	-8	-25	3	3	3	-69	2	2	2	14	1	1	1	-15	1	1	1	7	1	1	1
Cash Flow	**-**	**-**	**$000s**	**217,981**	**-1,622**	**0**	**-329**	**-716**	**-21,843**	**-18,627**	**-2,398**	**1,105**	**2,474**	**2,524**	**2,547**	**2,569**	**7,097**	**5,729**	**5,047**	**5,056**	**5,022**	**4,921**	**4,927**	**4,933**	**4,771**	**4,724**	**4,728**	**4,733**	**4,301**	**4,299**	**4,303**	**4,308**
Cumulative	-	-	$000s	-	-1,622	-1,622	-1,952	-2,668	-23,795	-42,422	-44,820	-43,714	-41,240	-38,715	-36,169	-33,600	-26,503	-20,775	-15,727	-10,671	-5,649	-729	4,198	9,132	13,902	18,626	23,354	28,087	32,387	36,686	40,990	45,297
Present Value	8%	**1.94%**	**$000s**	**92,020**	**-1,622**	**0**	**-317**	**-676**	**-20,225**	**-16,918**	**-2,137**	**966**	**2,121**	**2,123**	**2,101**	**2,079**	**5,633**	**4,461**	**3,855**	**3,789**	**3,691**	**3,548**	**3,485**	**3,423**	**3,247**	**3,154**	**3,096**	**3,040**	**2,710**	**2,657**	**2,609**	**2,562**
NPV	**-**	**-**	**$000s**		**-1,622**	**-1,622**	**-1,939**	**-2,615**	**-22,164**	**-39,083**	**-41,219**	**-40,253**	**-38,132**	**-36,009**	**-33,908**	**-31,829**	**-26,195**	**-21,735**	**-17,879**	**-14,091**	**-10,399**	**-6,851**	**-3,367**	**56**	**3,303**	**6,457**	**9,553**	**12,593**	**15,304**	**17,961**	**20,570**	**23,133**
IRR	**-**	**-**	**%**	**34.4%**																												
Payback	**-**	**-**	**years**	**2.1**																				**2.15**								
	-	**-**	**months**	**26**																												
Peak Funding	**-**	**-**	**$000s**	**-21,843**																												

Description	Rate		Units	Total or Avg	6 Q1 Q21	Q2 Q22	Q3 Q23	Q4 Q24	7 Q1 Q25	Q2 Q26	Q3 Q27	Q4 Q28	8 Q1 Q29	Q2 Q30	Q3 Q31	Q4 Q32	9 Q1 Q33	Q2 Q34	Q3 Q35	Q4 Q36	10 Q1 Q37	Q2 Q38	Q3 Q39	Q4 Q40	11 Q1 Q41	Q2 Q42	Q3 Q43	Q4 Q44	12 Q1 Q45	Q2 Q46	Q3 Q47	Q4 Q48
PROJECT SUMMARY																															
Production Summary																															
Tons Moved			kst	27,019	404	404	404	404	419	419	419	419	419	419	419	419	416	416	416	416	378	378	378	378	347	347	347	347	347	347	347	347
RoM Processed			**kst**	**18,591**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**
Products																															
Frac sand 30/50			kst	1,655	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Frac sand 40/70			kst	2,584	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Frac sand 70/140			kst	5,819	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93
Ground silica			kst	3,458	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
Total Processed Products			**kst**	**13,516**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**
RoM Direct Sale			kst	2,225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Frac Sands			kst	10,058	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161	161
Glass Making Ground			kst	3,458	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
Total Products			**kst**	**15,741**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**
GROSS INCOME																															
Gross Income from Mining																															
RoM Direct Sale		**$7.50**	$000s	16,690	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Frac Sands		**$58.98**	$000s	593,239	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490
Glass Making Ground		**$46.26**	$000s	160,030	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560
Gross Sales	-	**$41.42**	**$000s**	**769,959**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**
Transportation	-	-	$000s	0																											
Marketing			$000s	-3,444	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50
Gross Income (FOB-Plant)		**$41.23**	**$000s**	**766,515**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**
OPERATING COSTS																															
Operating Costs																															
20-Open Pit Mine		$6.05	$000s	112,405	1,771	1,771	1,771	1,771	1,783	1,783	1,783	1,783	1,783	1,783	1,783	1,783	1,810	1,810	1,810	1,810	1,780	1,780	1,780	1,780	1,756	1,756	1,756	1,756	1,727	1,727	1,727	1,727
30-Process Plant		$10.30	$000s	191,444	2,879	2,879	2,879	2,879	2,879	2,879	2,879	2,879	2,897	2,897	2,897	2,897	2,897	2,897	2,897	2,897	2,897	2,897	2,897	2,897	2,897	2,897	2,897	2,897	2,915	2,915	2,915	2,915
40-G&A		$2.30	$000s	42,705	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637
Direct Operating Costs		**$18.64**	**$000s**	**346,554**	**5,287**	**5,287**	**5,287**	**5,287**	**5,299**	**5,299**	**5,299**	**5,299**	**5,317**	**5,317**	**5,317**	**5,317**	**5,344**	**5,344**	**5,344**	**5,344**	**5,315**	**5,315**	**5,315**	**5,315**	**5,290**	**5,290**	**5,290**	**5,290**	**5,279**	**5,279**	**5,279**	**5,279**
Indirect Costs																															
Property Tax		$0.62	$000s	11,487	132	124	115	107	102	97	93	89	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
Severance	$0.04	$0.03	$000s	630	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Additional Tax	$0.03	$0.03	$000s	472	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Indirect Costs		**$0.68**	**$000s**	**12,589**	**147**	**139**	**131**	**123**	**117**	**113**	**109**	**105**	**103**	**103**	**103**	**103**	**103**	**103**	**103**	**103**	**103**	**103**	**103**	**103**	**103**	**103**	**103**	**103**	**103**	**103**	**103**	**103**
Operating Cost		**$19.32**	**$000s**	**359,143**	**5,434**	**5,426**	**5,418**	**5,410**	**5,415**	**5,411**	**5,407**	**5,403**	**5,420**	**5,420**	**5,420**	**5,420**	**5,447**	**5,447**	**5,447**	**5,447**	**5,417**	**5,417**	**5,417**	**5,417**	**5,393**	**5,393**	**5,393**	**5,393**	**5,382**	**5,382**	**5,382**	**5,382**
Operating Profit		**$21.91**	**$000s**	**407,372**	**6,566**	**6,574**	**6,583**	**6,591**	**6,585**	**6,589**	**6,593**	**6,597**	**6,581**	**6,581**	**6,581**	**6,581**	**6,553**	**6,553**	**6,553**	**6,553**	**6,583**	**6,583**	**6,583**	**6,583**	**6,608**	**6,608**	**6,608**	**6,608**	**6,618**	**6,618**	**6,618**	**6,618**
			$000s	**53%**																											
CAPITAL COSTS																															
Direct Costs																															
10-Site Development & Preparation			$000s	1,326	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13	13	13	0	0	0	0
20-Mine Operations			$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-Process Plant			$000s	32,776	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40-Infrastructure			$000s	4,068	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Costs			**$000s**	**38,170**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**13**	**13**	**13**	**0**	**0**	**0**	**0**
Indirect Costs																															
90-Indirect Costs			$000s	5,188	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Indirect Costs			**$000s**	**5,188**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Capital Costs			**$000s**	**43,357**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**13**	**13**	**13**	**0**	**0**	**0**	**0**
			$000s	**-**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,304**	**42,317**	**42,331**	**42,344**	**42,357**	**42,357**	**42,357**	**42,357**	**42,357**
Working Capital																															
Beginning Balance			$000s	-	677	676	675	674	673	674	673	673	672	674	674	674	674	678	678	678	678	674	674	674	674	671	671	671	671	670	670	670
Ending Balance	12%		$000s	-	676	675	674	673	674	673	673	672	674	674	674	674	678	678	678	678	674	674	674	674	671	671	671	671	670	670	670	670
Change in Working Capital			**$000s**	**-0**	**1**	**1**	**1**	**1**	**-1**	**0**	**0**	**0**	**-2**	**0**	**0**	**0**	**-3**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**0**
CASH FLOW																															
Cash Flow																															
Operating Profit	-	-	$000s	407,372	6,566	6,574	6,583	6,591	6,585	6,589	6,593	6,597	6,581	6,581	6,581	6,581	6,553	6,553	6,553	6,553	6,583	6,583	6,583	6,583	6,608	6,608	6,608	6,608	6,618	6,618	6,618	6,618
LoM Capital	-	-	$000s	-43,357	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-13	-13	-13	-13	0	0	0	0
Federal Income Tax	-	-	$000s	-114,858	-1,774	-1,777	-1,780	-1,782	-1,858	-1,926	-1,927	-1,929	-2,000	-2,067	-2,067	-2,067	-2,057	-2,057	-2,057	-2,057	-2,068	-2,068	-2,068	-2,068	-2,076	-2,076	-2,076	-2,075	-2,079	-2,079	-2,079	-2,079
State Income Tax	-	-	$000s	-31,176	-482	-482	-483	-484	-504	-523	-523	-524	-543	-561	-561	-561	-558	-558	-558	-558	-561	-561	-561	-561	-563	-563	-563	-563	-564	-564	-564	-564
Working Capital	-	-	$000s	-0	1	1	1	1	-1	0	0	0	-2	0	0	0	-3	0	0	0	4	0	0	0	3	0	0	0	1	0	0	0
Cash Flow	**-**	**-**	**$000s**	**217,981**	**4,312**	**4,316**	**4,321**	**4,325**	**4,222**	**4,141**	**4,143**	**4,145**	**4,035**	**3,953**	**3,953**	**3,953**	**3,934**	**3,938**	**3,938**	**3,938**	**3,958**	**3,954**	**3,954**	**3,954**	**3,958**	**3,955**	**3,955**	**3,955**	**3,976**	**3,975**	**3,975**	**3,975**
Cumulative	-	-	$000s	-	49,609	53,925	58,246	62,571	66,793	70,934	75,077	79,222	83,258	87,210	91,163	95,116	99,050	102,988	106,926	110,864	114,821	118,775	122,729	126,684	130,641	134,596	138,551	142,507	146,483	150,458	154,432	158,407
Present Value	8%	**1.94%**	**$000s**	**92,020**	**2,516**	**2,471**	**2,426**	**2,382**	**2,281**	**2,194**	**2,154**	**2,114**	**2,019**	**1,940**	**1,903**	**1,866**	**1,822**	**1,789**	**1,755**	**1,722**	**1,697**	**1,664**	**1,632**	**1,601**	**1,572**	**1,541**	**1,511**	**1,483**	**1,462**	**1,434**	**1,406**	**1,380**
NPV	**-**	**-**	**$000s**	**-**	**25,648**	**28,119**	**30,545**	**32,927**	**35,208**	**37,403**	**39,557**	**41,671**	**43,689**	**45,629**	**47,532**	**49,398**	**51,220**	**53,010**	**54,765**	**56,486**	**58,184**	**59,847**	**61,479**	**63,080**	**64,651**	**66,192**	**67,703**	**69,186**	**70,648**	**72,082**	**73,488**	**74,868**
IRR	**-**	**-**	**%**	**34.4%**																											
Payback	**-**	**-**	**years**	**2.1**																											
	-	**-**	**months**	**26**																											
Peak Funding	**-**	**-**	**$000s**	**-21,843**																											

Figure 30

End Open Pit <
End Process <
>> Closure
End Project<<

Description	Rate	Unit	Units	Total or Avg	13 Q1 Q49	Q2 Q50	Q3 Q51	Q4 Q52	14 Q1 Q53	Q2 Q54	Q3 Q55	Q4 Q56	15 Q1 Q57	Q2 Q58	Q3 Q59	Q4 Q60	16 Q1 Q61	Q2 Q62	Q3 Q63	Q4 Q64	17 Q1 Q33	Q2 Q34	Q3 Q35	Q4 Q36	18 Q1 Q37	Q2 Q38	Q3 Q39	Q4 Q40	19 Q1 Q41	Q2 Q42	Q3 Q43	Q4 Q44
PROJECT SUMMARY																																
Production Summary																																
Tons Moved			kst	27,019	388	388	388	388	388	388	388	388	387	387	387	387	282	282	282	282	0	0	0	0	0	0	0	0	0	0	0	0
RoM Processed			**kst**	**18,591**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**297**	**268**	**268**	**268**	**268**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Products																																
Frac sand 30/50			kst	1,655	26	26	26	26	26	26	26	26	26	26	26	26	24	24	24	24	0	0	0	0	0	0	0	0	0	0	0	0
Frac sand 40/70			kst	2,584	41	41	41	41	41	41	41	41	41	41	41	41	37	37	37	37	0	0	0	0	0	0	0	0	0	0	0	0
Frac sand 70/140			kst	5,819	93	93	93	93	93	93	93	93	93	93	93	93	84	84	84	84	0	0	0	0	0	0	0	0	0	0	0	0
Ground silica			kst	3,458	55	55	55	55	55	55	55	55	55	55	55	55	50	50	50	50	0	0	0	0	0	0	0	0	0	0	0	0
Total Processed Products			**kst**	**13,516**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**195**	**195**	**195**	**195**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
RoM Direct Sale			kst	2,225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Frac Sands			kst	10,058	161	161	161	161	161	161	161	161	161	161	161	161	145	145	145	145	0	0	0	0	0	0	0	0	0	0	0	0
Glass Making Ground			kst	3,458	55	55	55	55	55	55	55	55	55	55	55	55	50	50	50	50	0	0	0	0	0	0	0	0	0	0	0	0
Total Products			**kst**	**15,741**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**216**	**195**	**195**	**195**	**195**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
GROSS INCOME																																
Gross Income from Mining																																
RoM Direct Sale		**$7.50**	$000s	16,690	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Frac Sands		**$58.98**	$000s	593,239	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	9,490	8,555	8,555	8,555	8,555	0	0	0	0	0	0	0	0	0	0	0	0
Glass Making Ground		**$46.28**	$000s	160,030	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,560	2,308	2,308	2,308	2,308	0	0	0	0	0	0	0	0	0	0	0	0
Gross Sales	-	**$41.42**	**$000s**	**769,959**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**12,050**	**10,863**	**10,863**	**10,863**	**10,863**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Transportation	-	-	$000s	0																												
Marketing			$000s	-3,444	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	-50	0	0	0	0	0	0	0	0	0	0	0	0
Gross Income (FOB-Plant)		**$41.23**	**$000s**	**766,515**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	**10,813**	**10,813**	**10,813**	**10,813**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
OPERATING COSTS																																
Operating Costs																																
20-Open Pit Mine		$6.05	$000s	112,405	1,758	1,758	1,758	1,758	1,758	1,758	1,758	1,758	1,758	1,758	1,758	1,758	1,613	1,613	1,613	1,613	0	0	0	0	0	0	0	0	0	0	0	0
30-Process Plant		$10.30	$000s	191,444	2,915	2,915	2,915	2,915	2,915	2,915	2,915	2,915	2,915	2,915	2,915	2,915	2,915	2,915	2,915	2,915	72	72	72	72	0	0	0	0	0	0	0	0
40-G&A		$2.30	$000s	42,705	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	637	0	0	0	0	0	0	0	0	0	0	0	0
Direct Operating Costs		**$18.64**	**$000s**	**346,554**	**5,311**	**5,311**	**5,311**	**5,311**	**5,311**	**5,311**	**5,311**	**5,311**	**5,310**	**5,310**	**5,310**	**5,310**	**5,166**	**5,166**	**5,166**	**5,166**	**72**	**72**	**72**	**72**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Indirect Costs																																
Property Tax		$0.62	$000s	11,487	88	88	88	88	88	88	88	88	88	88	88	88	79	79	79	79	0	0	0	0	0	0	0	0	0	0	0	0
Severance	$0.04	$0.03	$000s	630	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0
Additional Tax	$0.03	$0.03	$000s	472	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	0	0	0	0	0	0	0	0	0	0	0	0
Indirect Costs		**$0.68**	**$000s**	**12,589**	**103**	**103**	**103**	**103**	**103**	**103**	**103**	**103**	**103**	**103**	**103**	**103**	**93**	**93**	**93**	**93**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Operating Cost		**$19.32**	**$000s**	**359,143**	**5,414**	**5,414**	**5,414**	**5,414**	**5,414**	**5,414**	**5,414**	**5,414**	**5,413**	**5,413**	**5,413**	**5,413**	**5,258**	**5,258**	**5,258**	**5,258**	**72**	**72**	**72**	**72**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Operating Profit		**$21.91**	**$000s**	**407,372**	**6,587**	**6,587**	**6,587**	**6,587**	**6,587**	**6,587**	**6,587**	**6,587**	**6,587**	**6,587**	**6,587**	**6,587**	**5,554**	**5,554**	**5,554**	**5,554**	**-72**	**-72**	**-72**	**-72**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
			$000s	**53%**																												
CAPITAL COSTS																																
Direct Costs																																
10-Site Development & Preparation			$000s	1,326	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-Mine Operations			$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-Process Plant			$000s	32,776	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40-Infrastructure			$000s	4,068	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct Costs			**$000s**	**38,170**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Indirect Costs																																
90-Indirect Costs			$000s	5,188	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	250	250	250	250	0	0	0	0	0	0	0	0
Indirect Costs			**$000s**	**5,188**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**250**	**250**	**250**	**250**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Capital Costs			**$000s**	**43,357**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**250**	**250**	**250**	**250**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
			$000s	**-**	**42,357**	**42,357**	**42,357**	**42,357**	**42,357**	**42,357**	**42,357**	**42,357**	**42,357**	**42,357**	**42,357**	**42,357**	**42,357**	**42,357**	**42,357**	**42,357**	**42,607**	**42,857**	**43,107**	**43,357**	**43,357**	**43,357**	**43,357**	**43,357**	**43,357**	**43,357**	**43,357**	**43,357**
Working Capital																																
Beginning Balance			$000s	-	670	674	674	674	674	674	674	674	674	673	673	673	673	654	654	654	654	9	9	9	9	0	0	0	0	0	0	0
Ending Balance	12%		$000s	-	674	674	674	674	674	674	674	674	673	673	673	673	654	654	654	654	9	9	9	9	0	0	0	0	0	0	0	0
Change in Working Capital			**$000s**	**-0**	**-4**	**0**	**0**	**0**	**-0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**19**	**0**	**0**	**0**	**646**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
CASH FLOW																																
Cash Flow																																
Operating Profit	-	-	$000s	407,372	6,587	6,587	6,587	6,587	6,587	6,587	6,587	6,587	6,587	6,587	6,587	6,587	5,554	5,554	5,554	5,554	-72	-72	-72	-72	0	0	0	0	0	0	0	0
LoM Capital	-	-	$000s	-43,357	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-250	-250	-250	-250	0	0	0	0	0	0	0	0
Federal Income Tax	-	-	$000s	-114,858	-2,068	-2,068	-2,068	-2,068	-2,068	-2,068	-2,068	-2,068	-2,068	-2,068	-2,068	-2,068	-1,730	-1,730	-1,730	-1,730	0	0	0	0	0	0	0	0	0	0	0	0
State Income Tax	-	-	$000s	-31,176	-561	-561	-561	-561	-561	-561	-561	-561	-561	-561	-561	-561	-470	-470	-470	-470	0	0	0	0	0	0	0	0	0	0	0	0
Working Capital	-	-	$000s	-0	-4	0	0	0	-0	0	0	0	0	0	0	0	19	0	0	0	646	0	0	0	9	0	0	0	0	0	0	0
Cash Flow	**-**	**-**	**$000s**	**217,981**	**3,953**	**3,957**	**3,957**	**3,957**	**3,957**	**3,957**	**3,957**	**3,957**	**3,958**	**3,958**	**3,958**	**3,958**	**3,374**	**3,354**	**3,354**	**3,354**	**324**	**-322**	**-322**	**-322**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Cumulative	-	-	$000s	-	162,361	166,318	170,275	174,232	178,189	182,147	186,104	190,061	194,019	197,977	201,934	205,892	209,265	212,620	215,974	219,329	219,653	219,331	219,010	218,688	218,697	218,697	218,697	218,697	218,697	218,697	218,697	218,697
Present Value	8%	**1.94%**	**$000s**	**92,020**	**1,346**	**1,322**	**1,296**	**1,272**	**1,247**	**1,224**	**1,200**	**1,178**	**1,155**	**1,133**	**1,112**	**1,090**	**912**	**889**	**872**	**856**	**150**	**-146**	**-143**	**-141**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
NPV	**-**	**-**	**$000s**	**-**	**76,214**	**77,535**	**78,832**	**80,103**	**81,351**	**82,575**	**83,775**	**84,952**	**86,108**	**87,241**	**88,352**	**89,443**	**90,355**	**91,244**	**92,116**	**92,972**	**93,122**	**92,976**	**92,833**	**92,692**	**92,696**	**92,696**	**92,696**	**92,696**	**92,696**	**92,696**	**92,696**	**92,696**
IRR	**-**	**-**	**%**	**34.4%**																												
Payback	**-**	**-**	**years**	**2.1**																												
	-	**-**	**months**	**26**																												
Peak Funding	**-**	**-**	**$000s**	**-21,843**																												

23.0 ADJACENT PROPERTIES

There are no immediate mining or industrial properties adjacent to the Sandtown Property. Unimin owns and operates the Guion Frac sand property 20 miles to the west of where the Sandtown Property is situated. No further information regarding mineral leases, quarry permits or exploration permits has been obtained for adjacent properties.

24.0 OTHER RELEVANT DATA AND INFORMATION

The following information is pertinent to the any further assessment of this property.

24.1 Feasibility Studies

Tetra Tech proposes that Select Sands conducts a prefeasibility or feasibility level assessment of the property. The feasibility study should include the following studies to which would be required prior to commencement with construction:

1. Further resource drilling;
2. Enhanced test work of targeted resources for economic uses;
3. Bulk testing to supply material for testwork and marketing, as well as refinement of mining parameters;
4. Geotechnical and geo-hydrological drilling in the pit area to improve understanding of pit wall stability and ground water interactions;
5. Undertake drilling or hydrological studies to source water for operations;
6. Undertake condemnation drilling of potential plant and infrastructure sites;
7. Undertake geotechnical studies (drilling) of plant and infrastructure;
8. Conduct further procurement work for process equipment, consumables, power, mining and construction contractors;
9. Firm up agreements/information on product pricing and transportation arrangements; and
10. Revise project economics based on the above project information.

24.2 Schedule

Table 47 shows the conceptual project schedule for the Sandtown Property. Select Sands has obtained a quarrying permit and as such plans and discussions are currently ongoing for the mining and sale of unprocessed run-of-mine. Select Sands intends to commence with a feasibility study during the second half of 2015, in association with vendors. This to allow for construction commencing first, to complete during the second quarter of 2016. Plant commissioning and limited production would be undertaken during third and fourth quarter of 2016.

Table 47: Summarized Project Schedule

Select Sands Project Schedule													
Project year	-2	-2	-1	-1	-1	5	6	7	10	11	16	19	
Quarter	Q3	Q4	Q1	Q2	Q3	All	All	All	All	All	All	All	
Feasibility and permitting	>>Feasibility, finance and permitting												
Selling run-of-mine	>>Selling run-of-mine												
Mill construction			>>Mill construction										
Mining and mill production					>>Start						<<End		
Mining West Pit					>>Start				<<End				
Mining East Pit									>>Start		<<End		
Reject Fines Storage in Pond					>>Start	<<End							
Reject Fines storage in mined out pits						>>Start					<<End		
Reclamation and closure													<<End

Note: years are not consecutive.

25.0 INTERPRETATIONS AND CONCLUSIONS

Work by Select Sands at their Sandtown Property in north-central Arkansas has been successful in identifying a significant deposit potentially suitable for proppant or other industrial sand use. The deposit is at or near surface, and appears to underlie the majority of Select Sands property. The PEA shows positive economics and justifies further investigation of the property and in particular further testwork of the sandstones for economic uses.

25.1 Project Opportunities

Since drilling has only been undertaken on a portion of the Sandtown Property, the opportunity exists to increase the resources for the property.

25.2 Project Risks

The PEA is not detailed enough to conclude capital and operating costs definitively and as such costs are likely to vary from the costs included in this PEA. Due to the nature of the project and the frac sands industry, selling of the products in accordance with the volumes estimated and at the prices estimated may not be possible. It is expected that it will take time to establish a customer base for the silica sand products. In addition, the nature of the industry is such that long term silica sand supply agreements are typical and new comers may not be easily able to enter into contracts with silica sand buyers. In addition, buyers will require delivery of sand to a certain specification and thus typically buy from the same sand supplier.

26.0 RECOMMENDATIONS

26.1 Geology and Resource

Based on the PEA, Tetra Tech have made recommendations as detailed below. The intent is to refine the project understanding and to further reduce project risk prior to further development of the property.

- The project would benefit from additional diamond drilling in order to gain a better understanding of potential variability in the deposit as well as the influence of RAB on the crushability results. Better knowledge of deposit-scale variability would assist in determining selective approach to mining and processing is required to achieve the optimum proppant or industrial sand product.
- Surveys of the drill collars should be done in order confirm the depths and thicknesses of the target sandstone unit.
- Additional drilling should be carried out to determine the optimal area for any potential quarry operation (i.e. least amount of cover, bed thickness, etc.).

- Site hydrology should be assessed to determine the best approach to deal with groundwater.
- Drilling should be undertaken north of the power lines on the property to determine if the St. Peters FM exists there.

26.2 Mining and Processing

Mining parameters including geotechnical analysis is required to improve the confidence of the pit designs used in the mine plans. Initial mining done for bulk sampling or run-of-mine sales will provide information on blasting parameters, rock strength and slope stability which could be used to refine the mining plans and improve estimates of mining costs. In addition, further work could be done to evaluate the potential of mining the area underlying the drainage which divides the property.

Select Sands should conduct prototype metallurgical work specifically orientated towards the extraction, separation, marketing and production of their silica sand frac sand deposit. The main objective of the test work would be processing plant would be to prove that the sandstone can be processed into three specifically sized frac sand gradation along with a fine size gradation of silica.

26.3 Schedule

Tetra Tech recommends that vendors are engaged during the 3rd quarter of 2015 if Select Sands wishes to complete mill construction by the second quarter of 2016. Time must be allowed for procurement lead time of significant equipment which could be up to 18 months for equipment such as the ball mill. To keep the project in track as considered in this PEA, the feasibility study will need to be conducted in parallel with procurement and vendor engineering work. As such field work such as test drilling relating to construction must be commenced with during third quarter 2015, to allow time for project layout and design alterations based on results.

26.4 Budget for Recommendations

Tetra Tech estimate that roughly $1.5 million is set-aside for further drilling and testwork and the completion of a prefeasibility or feasibility study on the property.

26.5 Marketing Study

Tetra Tech recommends a comprehensive marketing study be undertaken for potential products from the property. This study should include evaluation of producer competition, customer, producer contracts and its impact on new producer's entry into the market.

27.0 REFERENCES

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STIM-Lab, Inc. March 2015, 2015, File Number: SL 11606, “Measurement of Properties for Proppants Used in Hydraulic Fracturing and Gravel-Packing Operations” Evaluations on Core Samples Labeled 35569.6 – 913512.5359360 – 915868 Elevation 629 Hole #3 ST 14-03 (0.0ft – 69.0ft) for Select Sands Corp Submitted February 5, 2015.

SGS Minerals Services – Vancouver, March 18, 2015, Project Number 15062-001, Rock Sample Bulk Density.

Tetra Tech, March 27, 2015, File: V15103130-01.001, Frac Sand Test – Samples TT2015-1 and TT2015-2.

Tetra Tech, April 16, 2015, File: V15103130-01.001, Frac Sand Test – Samples P-03 to P-22.

CERTIFICATES OF QUALIFIED PERSONS

CERTIFICATE OF QUALIFIED PERSON

Mark Horan, P.Eng, QP
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To accompany the Report Entitled: "Mineral Resource Estimate and Preliminary Economic Assessment for the Sandtown Property, Cave City, Arkansas" (Technical Report), effective June 10, 2015 and issued June 30 2015.

I, Mark Horan, P. Eng., do hereby certify that:

- I am senior mining engineer working for Tetra Tech EBA. My office address is:

  Suite 1000 – 10th Floor, 885 Dunsmuir Street
  Vancouver, BC V6C 1N5

- I graduated from the University of Witwatersrand in 1997 with a B.Sc. Eng. (mining), and from Rhodes University in 2002 with an M.Sc.
- I am registered as a Professional Engineer with the Association of Professional Engineers and Geoscientists of British Columbia (Reg. # 170768).
- My relevant experience for the purpose of the technical report includes past involvement mining projects and acting as qualified person in South Africa, Canada, Mexico and Greenland. Commodities I have worked with include gold, silver, lead/zinc, chrome, gemstones, industrial minerals and coal.
- I have read the definition of "qualified person" set out in National Instrument 43-101 (NI43-101) and certify that by reason of my education, affiliation with a professional association and relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of NI 43-101.
- I have not visited the Sandtown Property.
- I am responsible for sections 1, 15, 16, 18 to 20, 21 excluding 21.1.3, 21.1.5 and 21.2.2, and sections 23 to 27 excluding section 26.1, of the Technical Report.
- I am independent of Select Sands by having applied the tests set out in Section 1.5 of NI 43-101.
- I have no previous involvement in the property that is the subject of the current technical report.
- I confirm that I have read NI 43-101 and Form 43-101F1, and the technical report has been prepared in compliance with them.

- To the best of my knowledge, information, and belief, as of the date of this certificate the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated this 30th day of June, 2015

Original signed and sealed by "***Mark Horan***"

Mark Horan, M.Sc.,P.Eng.

Senior Mining Engineer, Tetra Tech EBA

CERTIFICATE OF QUALIFIED PERSON

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To accompany the Report Entitled: "Mineral Resource Estimate and Preliminary Economic Assessment for the Sandtown Property, Cave City, Arkansas" (Technical Report), effective June 10, 2015 and issued June 30 2015.

I, **Cameron Bartsch**, P.Geo., do hereby certify that:

- I am a consulting geologist working for Tetra Tech EBA. My office address is:

  Suite 1000 – 10th Floor, 885 Dunsmuir Street

  Vancouver, BC V6C 1N5

- I graduated from the University of Saskatchewan in 2001 with a B.Sc. (Honours) in Geology, and from Acadia University in 2005 with a M.Sc. in Geology.
- I am registered as a Professional Geoscientist with the Association of Professional Engineers and Geoscientists of British Columbia (Reg.# 35418). I have worked continuously as an exploration and economic geologist since graduation.
- My relevant experience for the purpose of the technical report includes past involvement with exploration and reporting for several industrial mineral projects throughout Saskatchewan, BC and NWT, including frac sand, potash, kaolinite, and aggregate deposits. In addition, I previously held the position of Industrial Minerals Geologist with the Saskatchewan Geological Survey between 2005 and 2006.
- I have read the definition of "qualified person" set out in National Instrument 43-101 (NI43-101) and certify that by reason of my education, affiliation with a professional association and relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of NI 43-101.
- I visited the Sandtown Property for a total of two days from February 19-20, 2014.
- I am responsible for sections 2 to 14 and 26.1 of the Technical Report.
- I am independent of Select Sands by having applied the tests set out in Section 1.5 of NI 43-101.
- I have no previous involvement in the property that is the subject of the current technical report.
- I confirm that I have read NI 43-101 and Form 43-101F1, and the technical report has been prepared in compliance with them.

- To the best of my knowledge, information, and belief, as of the date of this certificate the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated this 28th day of June, 2015

Original signed and sealed by "***Cameron Bartsch***"

Cameron Bartsch, M.Sc.,P.Geo.

Senior Geologist, Tetra Tech EBA

TETRA TECH

CERTIFICATE OF QUALIFIED PERSON

Peter Critikos, PE, QP
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To accompany the Report Entitled: "Mineral Resource Estimate and Preliminary Economic Assessment for the Sandtown Property, Cave City, Arkansas" (Technical Report), effective June 10, 2015 and issued June 2015.

I, **Peter Critikos, PE, QP**, do hereby certify:

- I am a Senior Mining Engineer working for Tetra Tech, Inc. with a business address at:
  350 Indiana Street, Suite 500, Golden, Colorado 80401, USA.
- I am a graduate of the Colorado School of Mines, Golden, Colorado, USA with a Bachelor of Science degree in Mine Engineering, December 1983. In addition, I graduated from North Eastern University, Boston, Massachusetts, USA with a Bachelor of Science degree in Mechanical Engineering, May 1986.
- I am a:
  - Registered Professional Engineer in the State of Colorado (No. 29457)
  - Registered Professional Engineer in the State of Idaho (No. 9446)
  - Registered Professional Engineer in the State of Wyoming (No. 8871)
  - Qualified Person with the Mining & Metallurgical Society of America (No. 1295QP)
- I have worked in the mineral and energy industries as an engineer and project manager in excess of twenty eight years since my graduation from university; as an employee of large engineering companies such as Stone & Webster Engineering, Raytheon Engineers and Constructors, Washington Group International, URS Corporation, Samuel Engineering and Tetra Tech and as an independent consultant.
- My relevant experience for the purpose of the technical report includes past involvement with the design of industrial mineral processing systems including the design of silica sand processing and material handling systems.
- I have read the definition of "qualified person" set out in National Instrument 43-101 (NI43-101) and certify that by reason of my education, affiliation with a professional association and relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of NI 43-101.
- I have not visited the subject property.
- I am responsible for Sections 17, 21.1.3, 21.1.5 and 21.2.2.

- I satisfy the requirements of independence according to Section 1.5 of NI 43-101.
- I have no prior involvement with the Property that is the subject of the Technical Report.
- I have read National Instrument 43-101, Form 43-101F1, and 43-101CP, and the Technical Report has been prepared in compliance with that instrument, form, and companion policy.
- As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the portions of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 30th day of June, 2015.

Original document dated, signed and sealed by ***Peter Critikos, PE, QP***

Peter Critikos, PE, QP

Senior Mining Engineer, Tetra Tech, Inc.

CERTIFICATE OF AUTHOR

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To accompany the Report Entitled: "Mineral Resource Estimate and Preliminary Economic Assessment for the Sandtown Property, Cave City, Arkansas" (Technical Report), effective June 10, 2015 and issued June 2015.

I, **Nick Michael, QP**, of Golden, Colorado, do hereby certify:

1) I am a Principal Mineral Economist with Tetra Tech, Inc. with a business address at 350 Indiana Street, Suite 500, Golden, Colorado 80401, USA.

2) I am a graduate of the Colorado School of Mines in Golden, Colorado USA in mining engineering (1983) and received and received an MBA from Willamette University (1986). I have practiced my profession continuously since 1987. Since 1990, I have completed valuations, evaluations (technical-economic models), and have audited a variety of projects including exploration, pre-production (feasibility-level), operating and mine closure projects. I have also served as expert witness with respect to technical-economic issues.

3) I have not completed a personal inspection of the Property.

4) I am responsible for Section 22.0 of the Report.

5) I satisfy the requirements of independence according to Section 1.5 of NI 43-101.

6) I have no prior involvement with the Property that is the subject of the Technical Report.

7) I have read National Instrument 43-101, Form 43-101F1, and 43-101CP, and the Technical Report has been prepared in compliance with that instrument, form, and companion policy.

8) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the portions of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Signed and dated June 30, 2015.

[SIGNED & SEALED]

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Nick Michael, QP