ASX Announcement



30 September 2015

COMPANY DETAILS

ABN: 62 147 346 334

PRINCIPAL AND REGISTERED OFFICE Potash West NL Suite 3 23 Belgravia Street Belmont WA 6104

POSTAL ADDRESS PO Box 588 Belmont WA 6984

W www.potashwest.com.au

E info@potashwest.com.au

P +61 8 9479 5386

F +61 8 9475 0847

ASX CODE PWN

FRANKFURT CODE A1JH27

OTC PINK PWNNY

CORPORATE INFORMATION (30 September 2015)

218M Ordinary fully paid shares 36M Ordinary partly paid shares 5M Unlisted Options

BOARD OF DIRECTORS

Adrian Griffin (Non-Executive Chairman) Patrick McManus (Managing Director) Natalia Streltsova (Non-Executive Director) Chew Wai Chuen (Non-Executive Director)

NEW STUDY DOUBLES MINE LIFE & LOWERS OPEX FOR 40-YEAR W.A. PHOSPHATE MINE

Highlights:

- Revised scoping study released for Dinner Hill project
- Doubles mine life from 20 to 40 years
- Delivers 14% higher NPV of A\$378m (pre- tax) up from A\$331m
- Based on single superphosphate (SSP) output of 400,000tpa
- Capex of A\$205m up from A\$136m / Includes new acid plant
- Possibility to produce rock phosphate

The economics of a proposed \$205 million Western Australia phosphate mine have been boosted by results from a revised scoping study released today by the project's sole owner, **Potash West NL**(the Company) (ASX: **PWN**) for its Dinner Hill project, 225km north of Perth.

The Scoping Study referred to in this report is based on low-level technical and economic assessments, and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Scoping Study will be realised.

Potash West is pleased to announce that the results are so encouraging the Company has immediately commenced a Pre-Feasibility Study for Dinner Hill.

The project is envisaged by the Company to become a supplier into the global fertiliser market, estimated to be worth US\$172 billion this calendar year.

Potash West Managing Director, Mr Patrick McManus said:

"The significant phosphate potential of Dinner Hill was recognised as we progressed our exploration in early 2015. As we had defined a new resource inventory estimate this year some 100% higher than previously, from new drilling programs, we took the decision to revise and update the existing scoping study findings for Dinner Hill. The drilling programme has identified a significant high grade section of the deposit. The high grade start-up delivers 5,5% P_2O_5 ore for the first five years, 90% higher than the resource average".

"These factors drove a number of changes to the project plan, most notably installing a sulphur burning acid plant, which, while increasing the initial capital cost, substantially reduces operating costs – and for a mine life now double that of earlier estimates".

"As a result, the new findings released today reinforce that the Dinner Hill phosphate resource can provide a long term supply of single superphosphate to WA and the local region. The advantages of low cost mining, low sovereign risk, world class infrastructure in place, and short logistic chain to end users, combine to make the economics of this project compelling".

Our plan is to develop this phosphate project as Stage 1 of a plan to produce potash, phosphates and alum from the extensive greensand deposits at Dinner Hill".

"In particular, the new 40-year project mine life uses only 64% of the current mine plan resource defined to date at Dinner Hill, indicating that there are expansion options available".

"As a result, we have commenced the preliminary feasibility study, including new metallurgical testwork, and in addition to the process design for single superphosphate, we will continue to investigate its potential for rock phosphate production."

For further information contact:

Potash West NL:

Patrick McManus Managing Director Tel: +61 (08) 9479 5386 Email: info@potashwest.com.au Web: www.potashwest.com.au

Media:

Professional Public Relations Colin Hay Email:colin.hay@ppr.com.au Tel: +61 (08) 9388 0944

DETAILED PROJECT BACKGROUND AND COSTINGS SUMMARY IN FOLLOWING PAGES:

About Potash West

Potash West (ASX:PWN) is an exploration company focused on developing phosphate and potassium-rich greensand deposits in West Australia's Perth Basin. The Company aims to define a substantial resource base and investigate how best to recover phosphate and potash from the mineral. The project is well situated in relation to infrastructure, with close access to rail, power and gas. A successful commercial outcome will allow the Company to become a major contributor to the fertiliser market at a time of heightened demand.

The Company has a major land holding over one of the world's largest known glauconite deposits, with exploration licenses and applications covering an area of more than 2,600km². Previous exploration indicates glauconite sediments are widespread for more than 150km along strike and 30km in width.

The company has 55% of a potash exploration project in the South Harz region of Thuringia, in Central Germany. The region has been a potash producing area for over 100 years.

Cautionary Statement:

The scoping referred to in this report is based on low-level technical and economic assessments and is insufficient to support any estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Scoping Study will be realised.

The use of the word "ore" in the context of this report does not support the definition of "Ore Reserves" as defined by the 2012 Edition of the 'Australasian Code for reporting of Exploration Results, Mineral Resources and Ore Reserves. The word 'ore' is used in this report to give an indication of quality and quantity of mineralised material that would be fed to the processing plant and it is not to be assumed that 'ore ' will provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the scoping study will be realized.

Competent Person's Statement:

The metallurgical information in this report is based on information compiled by Gary Johnson, who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Johnson has sufficient experience relevant to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Johnson is a consultant to the mining industry. This report is issued with Mr Johnson's consent as to the form and context in which the results appear.

The geological information in this report which relates to Exploration Targets and Mineral Resources is based upon information compiled by Mr J.J.G. Doepel, B.Sc. (Hons), GradDipForSc, Dip Teach, Principal Geologist of Continental Resource Management Pty Ltd. Mr Doepel is a member of the Australasian Institute of Mining and Metallurgy and has sufficient expertise and experience which is relevant to the style of mineralisation and to the type of deposit under consideration to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Doepel consents to the inclusion in the report of the matters based on his information in the form and context in which they appear.

The information in this report that relates to Exploration Results is based on information compiled by Lindsay Cahill, who is a member of the Australian Institute of Geoscientists. Mr Cahill is a consultant to the mining industry, and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration. He is qualified as a Competent Person as defined in the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. This report is issued with Mr Cahill's consent as to the form and context in which the exploration results appears.

OVERVIEW: DINNER HILL PHOSPHATE PROJECT

Potash West is pleased to announce the update to its Scoping Study into the production of single superphosphate from the Dinner Hill project area within its world class Dandaragan Trough Project in Western Australia. An average mine production rate of 3.8 Mtpa to produce an average of 400ktpa SSP over a 40 year life has been considered.

In June 2015 the Company announced a new indicated phosphate resource at the Dinner Hill project. The new Indicated Mineral Resource is 250 Mt at 2.9% P_2O_5 , an increase of 108% from the previous reported resource (refer ASX announcement 3 June 2015). A new mining plan has been developed from this resource. The mining block plan show 236Mt of mineralization mined at 2.9% P_2O_5 . A high grade core has allowed a 40 year mine life at a grade +40% higher than the average for the resource.

The most recent complete project financial analysis of the phosphate project was completed in 2014. Since then a number of external factors have shifted significantly. These include:

- a drop in \$A from \$US 90c to \$US70c;
- a drop in operating costs, driven principally by the fall in oil costs, of 10%,
- a reduction in capital equipment costs estimated at 5%;
- a drop in estimated selling price of single superphosphate, in the forecast period, from US\$350/t to US\$ 227/t, and
- a forecast drop in the price of sulphur.

These factors have driven a number of changes to the project plan, most notably installing a sulphur burning acid plant, which, while increasing the capital cost, substantially reduces operating costs.

Key outcomes are:

•	Mining rate, average	3.8 Mtpa
•	Mining grade, average % P ₂ O ₅	3.5%
•	Mine life, for model	40 years
•	% of mining plan consumed, over 40 years	64%
•	Average revenues per year	\$128 million
•	Average operating cash costs per year	\$76 million
•	IRR	20%
•	NPV _{8%}	\$378 million
•	Capital cost	\$205 million
•	EBITDA, pa	\$52 million

For comparison the previous model metrics are compared in Table 1:

Item	Previous	Update
Capital cost	136	205
NPV 8%, \$A million	331	378
IRR %	29.5	20.5
Minelife, for model	20 Years	40 years
Opex, per tonne of product	210	190
Average Sales price \$US/t	350	224
Average Sales price \$A/t	370	320
EBITDA, \$M pa	42	52

Table 1: Metric Comparisons

INTRODUCTION

Potash West NL is a mineral exploration company focused on developing phosphate and potassiumrich greensand deposits in Western Australia's Perth Basin. The Company's flagship project is the Dandaragan Trough, which is one of the world's largest greensand deposits. The project has unique advantages in excellent connectivity to transport facilities, infrastructure and proximity to local markets. The Company holds exploration licenses and applications in 11 tenements, covering an area of +2,600km2 (see Figure 1)



Figure 1: Land Tenure Dandaragan Trough Project

The Dinner Hill potash and phosphate deposit is located some 225km north of Perth and forms part of the Company's Dandaragan Trough Project. The Dinner Hill resources cover an area of 17km² in the northwest of the Trough, and is easily accessible by sealed roads (Figure 2). The phosphate and potash-rich glauconite occur together in the same geological sequence.



Figure 2: Dinner Hill Phosphate Deposit - tenure and infrastructure

Continental Resource Management Pty Ltd (CRM) has undertaken geological modeling and resource estimation at the Dinner Hill Phosphate Deposit which is estimated to contain an Indicated Mineral Resource of 250Mt at 2.9% P_2O_5 (ASX announcement 3 June 2015). Preliminary test work and economic modeling suggested saleable phosphate rock could be concentrated from the greensands by conventional processing steps and the production of single superphosphate has the most favorable economics. The scoping study completed in 2014 has been updated to incorporate the changed geological resource.

GENERAL

Potash West commissioned Strategic Metallurgy to develop a process to produce single superphosphate from Dandaragan greensands. Several samples from the Dinner Hill resource were subject to a series of tests to determine the amenability of the mineralisation for phosphate recovery. These samples were tested as composites of the individual lithologies that exist in the deposits, including Poison Hill and Molecap Greensand and Gingin Chalk. Down-hole composites which included all lithologies, have also been included in the metallurgical testwork program.

The phosphate component in the samples were identified as fluorapatite and appeared relatively liberated. The apatite is nodular in nature and as such proved easy to concentrate to the coarser fractions. Phosphate concentrates responded well to conventional anionic flotation and high recoveries and grades (>30% P₂O₅) were achieved.

Strategic Metallurgy provided a process package, which formed the basis of the scoping study, based on the results of the test work programs. The documentation included process flow diagrams, process design criteria, mass balance, process description and capital and operating estimates for a project treating 3.8 Mtpa of Poison Hill and Molecap Greensand. This scale of operation produces an average of 400,000 tpa of single superphosphate.

Integer Research was commissioned to investigate potential sale prices for single superphosphate. These values were used as the base price for the prices used in this study.

The Scoping Study is based upon the JORC Indicated Resource quoted for the Dinner Hill area.

RESOURCE

The resource estimate was carried out by John Doepel, Principal Geologist of CRM. It is reported in accordance with the 2012 Edition of the JORC Code.

The Dinner Hill Phosphate Deposit covers two sub-horizontal greensand formations within the Cretaceous Coolyena Group: the Poison Hill Greensand and the Molecap Greensand. Over most of the area of the deposit they are separated by the Gingin Chalk. An average thickness of about 11m of surficial, mostly sandy, cover overlies the greensand units. The greensands contain significant amounts of glauconite and all lithologies contain significant phosphate content in the form of apatite nodules. Figure 3 is an east-west cross-section through the deposit displaying blocks within the resource.



Figure 3: Cross section 6,638,000N

The currently drilled portion of the Dinner Hill Deposit covers an area of some 17 square kilometres. Aircore drilling programs have been carried out in the period 2011 to 2015 to enable the estimation of resources. The program commenced on 800m centres and has been progressively infilled to the current 400m by 400m and 200m by 200m. Drill-hole data was used to construct the ore block model and to estimate the resource. The data comprised drill logs, analyses for 182 air-core drill-holes totalling 6732m and 93 dry bulk density samples taken from four PQ diamond holes drilled in August 2012.

The ore block model grades were estimated by geostatistical interpolation using the inverse distance squared method. Parent block sizes were 100m x 100m x 1m vertical. The ore block model was constrained within a $1\% P_2O_5$ wireframe.

CRM has restricted the Mineral Resource to those blocks that have a CaO : P_2O_5 ratio of less than 2.5, as metallurgical studies indicate that higher ratios will result in uneconomic acid consumptions during product beneficiation. This was necessary due to the limited selectivity of apatite from chalk by the processing plant. The presence of chalk in the phosphate concentrate limits the phosphate grade of the final product. Further metallurgical work will be required to establish the best conditions to separate chalk from the phosphate. This may increase the resource, by allowing material with a higher CaO : P_2O_5 to have value.

The cut-off grades used for phosphate are based on ongoing metallurgical and economic studies and were set at levels that ensure continuity of mineralisation throughout the deposit. The phosphate resource is shown at a range of cut-off grades in Figure 4.



Figure 4: Grade tonnage curve for the Dinner Hill phosphate resource above a range of cut-off grades.

MINING AND PRIMARY BENEFICIATION

The greensand deposits of the Dandaragan Trough are an unconsolidated mixture of silica, glauconite and apatite, not dissimilar in physical characteristics to mineral sand deposits that are mined close by at Cataby and Eneabba. Mining will be carried out by techniques that are well established in those deposits. Topsoil and overburden will be mined by scrapers, with topsoil being replaced as soon as practical.

Mineralisation will be mined by a bulldozer, which feeds an in-pit slurry unit. The slurry will be pumped to a concentrator, where material will be screened and de-slimed. Plus 0.5 mm material contains the bulk of the phosphate and will be milled prior to being fed to the flotation plant.

As part of the rehabilitation process, flotation tailings and slimes will be de-watered and returned to the mine void, covered with overburden and then contoured and covered with topsoil. It is estimated that it will take approximately 5 years from mining to return to end-use, although this might be slightly longer as operations are established.

PROCESSING

The mined phosphate rich greensands will be treated in a superphosphate processing plant consisting of conventional unit operations, including scrubbing, screening, de-sliming, magnetic separation and flotation to produce phosphate rock containing >30% P_2O_5 . The phosphate rock will be acidulated using sulfuric acid to produce SSP containing >18% P_2O_5 . A diagram of the process is presented in Figure 5.



Figure 5 Process Flowsheet

The key operating parameters include:

- Screening at 0.5 mm recovers approximately 63% of the contained phosphate for direct feed to the flotation plant.
- De-sliming and magnetic separation recovers a further 7% of the contained P_2O_5 for direct

feed to the flotation plant.

- Flotation and magnetic separation recovers 88% of the phosphate from the flotation feed to the phosphate concentrate.
- Acidulation recovers 100% of the phosphate from the phosphate concentrate to the SSP product
- An overall recovery of 61.3%.

The major attributes of the processing plant include the relatively simple and cheap upgrade of the phosphate mineralisation for feed to the flotation plant. These processing steps, which include screening, de-sliming and magnetic separation, are low cost and relatively easy to operate. The significant upgrade allows for relatively small downstream processing units.

The main reagents required include sulfuric acid, for the acidulation process, and fatty acid, for flotation. Sulfuric acid is made on site, by burning purchased sulfur, this reduces the heating and operating costs. The reagents are assumed to be delivered to site by road from Kwinana. Slimes will contain a significant fraction of calcite present in the mineralisation. Neutralization of excess gas scrubber water will be effectively managed by reaction with part of the slimes material.

TAILINGS

Tailings from the process are benign consisting of un-reacted calcite, goethite, silica and glauconite. A small volume of acidic liquor, generated from the acidulation plant off-gas scrubber, will be neutralized with limestone tailings prior to disposal. Tailings from the plant will be pumped to a tailings storage facility. Tailings will be dewatered then returned to the pit as back fill.

INFRASTRUCTURE

For the purpose of the scoping study, the processing facility is assumed to be located between the towns of Moora and Dandaragan in Western Australia, both towns are approximately 170 km north of Perth. It will be well positioned with respect to road and rail access and located within 30 km of the electricity utility corridor. The following infrastructure has been accounted for in the capital and operating cost estimates:

- The processing plant power demand will be supplied from the South West Interconnecting Network (SWIN). The site can be serviced from existing transmission infrastructure at Moora or Cataby.
- Western Power's Mid West Energy Project (MWEP) will increase electrical capacity in the Mid-West from the current 150 MW to 680 MW by 2018. This will provide for the power draw required in future plant expansions.
- Make-up water will be supplied from local borefields. Water will be recovered from the tailings facility.
- The main imported reagents will be delivered to site in bulk on sealed road.
- SSP final product will be delivered to Moora on sealed road and delivered to Geraldton or Kwinana on the existing rail.

CAPITAL COST

The capital cost for the project was estimated by Strategic Metallurgy and based on information contained in the Dandaragan Trough Potash Project Scoping Study Report (Potash Scoping Study), budget quotations and process design criteria provided by Strategic Metallurgy in early 2013. Equipment costs were factored using standard industry techniques. The costing was based on a design package prepared by Strategic Metallurgy Pty Ltd with a nominal throughput rate of 3.8 Mtpa of ore. The design package comprised:

- A complete set of flowsheets for the process,
- Process design criteria based on the nominal throughput rate; and
- A report detailing the testwork supporting the process design.

The accuracy of the estimate is considered to be +/- 35%, which is appropriate for a Scoping Study.

	A\$ millions
Process Plant	\$66.0
Acid Plant	\$57.0
Infrastructure	\$48.1
Indirect costs (including	\$33.4
contingency)	
TOTAL	\$204.5

Table 2: Capital Cost Estimate

OPERATING COST

The operating costs for the project were estimated from first principles based on the Process Design Criteria in Strategic Metallurgy's design package. Contained in the operating costs are estimates for:

- Personnel Requirements
- Reagent Consumption and Consumables
- Power Consumption
- Maintenance Materials

	A\$/tonne of feed	A\$/tonne of
		product
Mining and Rehabilitation (including	\$5.38	\$50.44
overburden)		
Process Plant (including transport of reagents)	\$8.82	\$82.67
Railing and project shipping	\$6.11	\$57.28
TOTALS	\$20.32	\$190.38

Table 3: Operating Cost Estimate

The friable nature of the greensands and low stripping ratio allows for very low mining costs and the

well-established infrastructure and relatively short distance to market allows for low transportation costs. In addition the ore can be upgraded with simple physical beneficiation, prior to grinding and flotation. These significant advantages more than off-set the relatively low insitu grade.

ENVIRONMENT AND PERMITTING

Land use in the Dandaragan Trough region is principally farming, and the Company's tenements are exclusively within freehold land and road reserves. A desktop study was completed over the Dinner Hill area (proposed mine site) and a broader region in the east of the Project Area (proposed plant site). The study objectives were to identify any key environmental issues associated with the sites.

Environmental constraints consistent with the locality were identified as typical for an agricultural region of Western Australia. As most of the mining site land use is agricultural and pastoral, constraints are likely to be localised to stands of remnant vegetation. These are typically managed by rehabilitation methods well established at other mining operations in the region.

There is flexibility in the processing plant site, so it can be located to manage the environmental impacts, consistent with good planning practice.

MARKETING AND PRODUCT PRICING

Integer Research was commissioned by Potash West in August 2015 to undertake a pricing study for SSP, in SE Asia, for the 40 year life of the project. Integer Research is a respected, independent research company with deep expertise in the fertiliser industry and in the supply, demand and pricing of fertiliser products.

An average of 400,000 tonnes SSP, at a grade of 18.1% P₂O₅, will be produced annually. Due to the shortage of data for traded SSP, Integer developed a pricing model based on estimated costs of phosphate rock and sulphur. Potash West then modified those prices to reflect 2015 dollar values, 2015 exchange rates and the cost of capital, the prices are shown in table 4. These prices are listed as CFR and, as such, domestic and international transportation costs have been taken into account in the economic analysis.

Year	Sales pr	ice (US\$/t)	Exchange rate	Sales Price A\$/t	
	Integer,	PWN Model		Real 2015\$	
	Nominal	Real 2015\$			
1	\$214	\$216	0.70	\$309	
2	\$215	\$215	0.70	\$307	
3	\$215	\$212	0.70	\$303	
4	\$218	\$212	0.70	\$303	
5	\$221	\$212	0.70	\$303	
6-40 Average	\$282	\$226	0.70	\$323	
Averages	\$272	\$224	0.70	\$321	

 Table 4: Single Superphosphate, sales prices and discounts

It is anticipated that sales volumes and prices will be refined and better defined as part of the feasibility study. For this study, it was assumed that 100,000 tpa SSP would be sold on the domestic market with the remainder sold on the international market.

POTENTIAL IMPROVEMENTS

The processing flow sheet was developed by a systematic test work approach on limited samples. A composite was subjected to a flow sheet test work to determine the overall metallurgical recovery to form the basis of the economic model for this scoping study. The work program identified a number of areas in which further work would produce improvements to the project.

Areas of improvement include:

- Increasing throughput, to consume more of the indicated resource. This will have a positive impact on NPV and IRR.
- The reduced operating costs has opened the possibility of selling upgraded rock phosphate as a final product. This would reduce the capital requirement significantly, allowing production and sale of a lower value product
- Detailed analysis of the logistics chain may produce a lower cost transport solution, by relocating certain processing operations.
- Purchase of sulphuric acid would reduce the capital cost significantly, with a trade-off of higher operating costs. The availability of low cost waste acid in the region has not been explored. Sulphur and acid costs are a significant part of total costs.
- Phosphate loss to the fines is significant. Optimisation work on the de-sliming process should see improvements in phosphate recovery.
- Phosphate loss to the glauconite containing magnetic concentrate is also significant. The losses have not been identified as magnetic phosphate or entrainment of non-magnetic phosphate. Processing options such as cleaner re-cleaner magnetic separation in conjunction with milling may significantly increase the separation of glauconite from apatite, which would see improvements in phosphate recovery.

FINANCIAL MODEL

A high level production model was developed based on yields achieved in testwork, with operating and capital costs estimates from Strategic Metallurgy. Production was assumed to commence in 2018. Capital and operating costs and sales revenues have been derived in A\$. Key financial results are shown in table 5:

Capital Costs	\$205 million
Average Operating cost, pa	\$76 million
Average Revenue, pa	\$128 million
NPV _{8%} , ungeared, pre-tax	\$378 million
IRR%	20.5
EBITDA, \$M, pa	52

Table 5:	Financial	Metrics
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The base case has an NPV_{8%} of A378M and an IRR of 20.5%. Table 6 shows a sensitivity analysis of IRR to variations in the major project drivers:

Driver	-30%	-20%	-10%	0	+10%	+20%	+30%
Selling Price, \$A	5%	11%	16%	20.5%	25%	30%	34%
Capital Costs	28%	25%	22%	20.5%	18%	15%	12%
Орех	29%	26%	23%	20.5%	19%	18%	16%

Table 6: Project IRR at changing cost and selling prices

NEXT STEPS

Work has commenced on the preliminary feasibility study. In addition to the process design for single superphosphate, the production of rock phosphate will be investigated.