Company in NAPP Region Prep Plant

A Risk Free Opportunity to Harness New Revenue

6/1/15

Summary Results from trial of Sub325™ Fine Coal Recovery System May 18 – 27, 2015

- Tuesday, May 19 - startup/shakedown activities were completed on the Sub325 unit. Intermittent operational tests were conducted to demonstrate the technology to company personnel. Centrisys (centrifuge mfg) was on-site to participate/support.

- Wednesday, May 20 & Thursday May 21 – various combinations of the plant's Decanter screen drain and bowl effluent were fed to the SCI unit with significant capture results. Volumetric proportions tested ranged from 100% drain to approximately 65% drain–35% effluent. SCI product moistures ranged from 14.6% total to 26.9% total, respectively.

- Friday, May 22 - Company and SCI personnel installed a Thermo-Ramsey belt scale just AFTER the plant's Decanter on the clean coal collecting conveyor. The weight reported by this belt scale was added to the weight reported from the SCI belt scale to determine the TOTAL tons captured by BOTH dewatering/capture units. This summation was then contrasted to the weight measured by the newly installed belt scale when screen drain was being re-cycled (normal operation) rather than being delivered to the SCI unit. Thus, the difference in the scale weights is the amount of "new tons captured" due to the use of the Sub325 system.

- Tuesday May 26 to Wednesday, May 27 – testing resumes focusing on a definitive determination of 'New Tons Captured'. Results show an additional 10.1 tph was captured when the Sub325 system was utilized (see the following table). With moisture from the SCI technology ranging from about 16% to 20% over the various days of testing with screen drain only (see the following graphic), the effective increase in total plant clean coal moisture will be less than 0.50% on an absolute basis.

- **Conclusion**: Commercial-scale testing with the Sub325 technology successfully demonstrated that the machine can recover an additional 10.1 t/h of clean coal in this plant and do so at acceptable moistures.

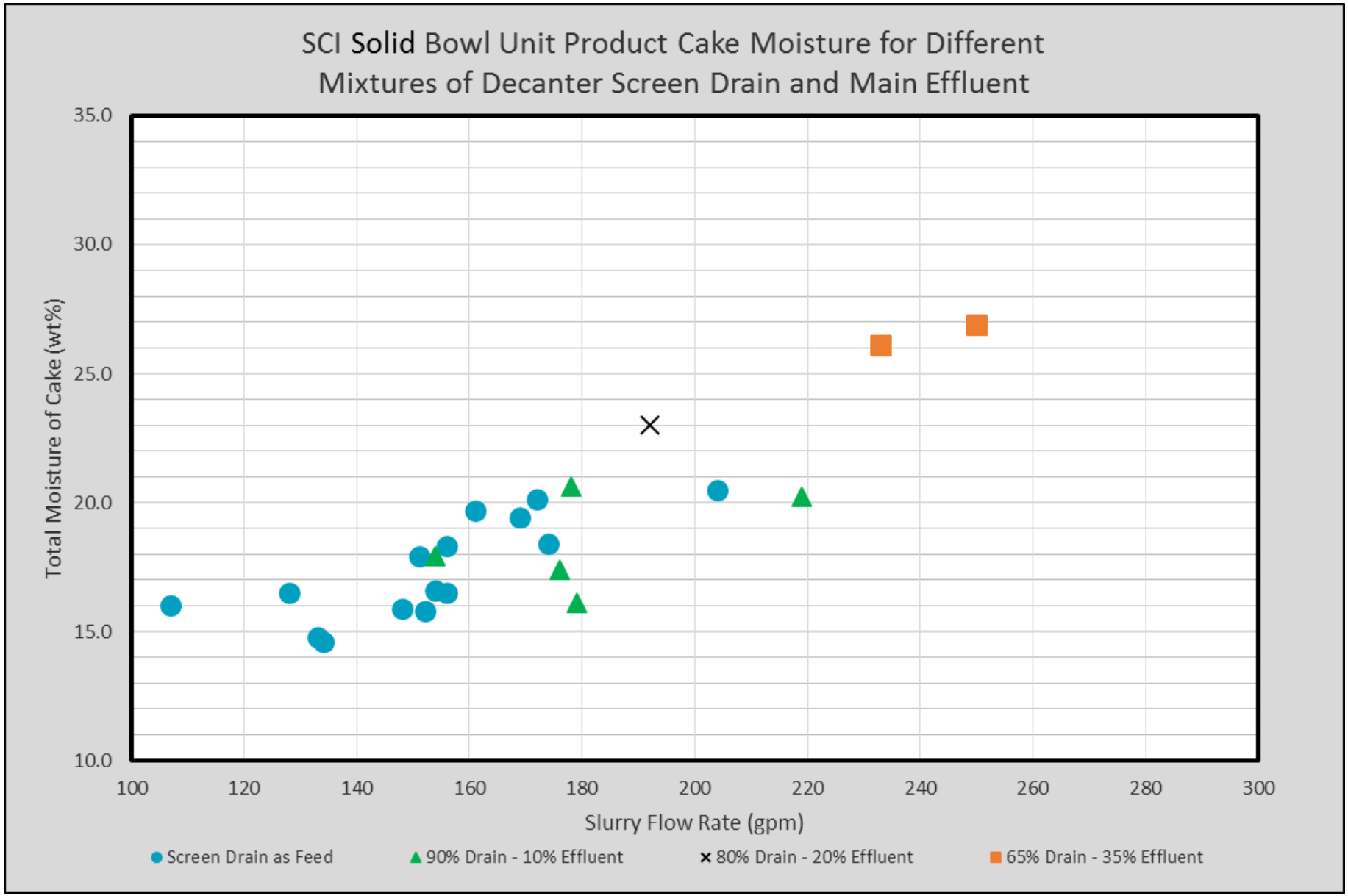
- **Next Steps**: SCI and Company should diligently pursue arrangements for an in-plant installation and full-time operation of the SCI Sub325 Fine Coal Recovery System. A combination of the plant's Decanter screen drain and bowl effluent should be plumbed as feed to the Sub325 where it is expected that 10 to 13 tph of 'New Tons Captured' will be realized.

SOMERSET

Weighed Material Testing
Screenbowl Screen Drain as Feed Source
27-May-15

		Tons of Cake	
		SCI-installed Belt Scale	SCI Trailer Belt Scale
Screen Drain in Recycle (SCI Unit Off)	6:30:00 AM	4403	0
	6:45:00 AM	4426	0
	7:00:00 AM	4453	0
	7:15:00 AM	4479	0
	7:30:00 AM	4506	0
	TPH =	**103**	**0**
100% of Screen Drain Diverted to SCI Unit (no Recycle)	7:53:00 AM	4545	
	8:08:00 AM	4569	*Recorded*
	8:23:00 AM	4594	*from*
	8:38:00 AM	4618	*9:00-10:30 AM*
	8:53:00 AM	4643	↓
	9:08:00 AM	4667	1354.3
	9:23:00 AM	4692	1359.7
	9:38:00 AM	4718	1361.1
	9:53:00 AM	4744	1363.3
	10:08:00 AM	4772	1365.8
	10:23:00 AM	4798	1372.1
	TPH =	**101**	**11.9**
Total Differential ("New") TPH =			**10.1**

SOMERSET


SCI Solid Bowl Unit Product Cake Moisture for Different Mixtures of Decanter Screen Drain and Main Effluent
Total Moisture of Cake (wt%)
35.0
30.0
25.0
20.0
15.0
10.0
100
120
140
160
180
200
220
240
260
280
300
Slurry Flow Rate (gpm)
Screen Drain as Feed
90% Drain - 10% Effluent
80% Drain - 20% Effluent
65% Drain - 35% Effluent

Economic Proposal to Company

- No upfront Capex, SCI supplies capex intensive machine
- No installation cost, SCI will install machine up to $250K at their risk
- No maintenance cost, SCI does all maintenance & service, including expensive rotating unit replacement
- 20%/80% to Company for 7 months, 80%/20% to Company for 77 months
  - % split x actual spot coal sales price x tons per month; (see appendix)
- **$5.0MM NPV* to Company for life of project**
  (assumes only 1 shift/day, 5 days/week; excluding secondary benefits)
- Secondary Benefits possible to Company (up to $260k annually)
  - Chemical cost drop at thickener (up to 33%)
  - Potential Torque and Moisture drop in Screen Bowl
    - Opportunity to stretch the life of screen bowl rotating unit
    - Opportunity to increase output from floatation cells
    - Opportunity to increase plant feed rate or reduce run hours
  - Reduce volume going to refuse
    - Increases slurry pond life or refuse footprint
- **Total Annual Economic Value to Company > $1.5MM**

*** with given assumptions**

You could see a plant yield increase up to 2.5% !!

Appendix

TO CUSTOMER'S ACCOUNT					
No Capex					
No Maintenance Cost	**GENERAL ILLUSTRATION of SECONDARY BENEFITS**				
No Parts Replacement Cost					
No Installation Cost	Assume:	300	tph plant	$ 75.00	coal price
Power Cost		9.5	hrs/day		
		250	days/yr		
20% x tons/mo x Avg Sales Price - first X months		50%	plant yield		
80% x tons/mo x Avg Sales Price - 84 - X months		$ 0.50	chemical cost/ton (clean basis)		
Increase Plant Yield up to 3% . . .		10,688	extra tons produced per year =	$ 761,484	new revenue straight to bottom line
- Remove Recirculating load					
- Increase floatation cell output					
- Potentially increase Plant feed rate and/or decrease plant run hours		0.5	hour per day reduced overtime =	$ 70,313	per year in overtime savings
- Potentially up gravity and yield on coarse circuit, depending on -325M ash					
Decrease chemical cost at thickener (up to 30%)		0.35	new chemical cost/ton (CC basis)	$ 53,438	annual savings in chemical cost at thickener
Decrease Screenbowl Feed, Torque, Wear, and Moisture		$ 90,000	annual cost of rotating unit	$ 10,446	annual savings pushing cost out for reduced throughput to screenbowl
Increase pond life / Decrease volume of solids to Refuse		$ 883,333			cost to build pond
		4,800,000	cubic feet in pond 400'x400'x30'		
		345,455	cubic feet per year to pond (c + r)		
		13.9	pond life before SCI		
		27.8	pond life after SCI	$ 126,190	
				$ 260,387	value of secondary benefits to customer

Annual value of secondary benefits to customer