EXHIBIT 313C, APPENDIX A

Otter Creek Mine
Swell Factor Study

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1.0 INTRODUCTION

Stripping operations at Otter Creek Mine will be conducted using a combination of dragline and truck shovel equipment to effectively uncover the volume of coal necessary to meet customer shipments. In order to complete reclamation planning, post-mine topography (PMT) design and determine the overall mass balance for the operation, OCC must have a reasonable approximation of the material swell factor for each stripping equipment type as well as the anticipated volumes that each operation will remove. Typically, swell factor determinations are periodically obtained from field measurements taken at the site once operations have been sufficiently conducted to allow representative measurements to be taken. Prior to operations actually taking place, the swell factors must generally be determined from results obtained at similar operations where the operating equipment types and overburden characteristics are comparable.

To determine representative dragline and truck shovel swell factors, OCC enlisted the services of CDG Engineers (CDG) located in Sheridan, Wyoming. CDG has conducted several swell factor studies in the recent past at a variety of surface coal mining operations in the Powder River Basin (PRB) of Wyoming and Montana. These include Antelope Coal Company (ACC), Black Thunder Coal Company (BTCC), North Rochelle Mine (NRM), North Antelope Rochelle Mine (NARM) and Spring Creek Coal Company (SCC). Summaries of the results and methodologies of those studies are provided in this appendix to provide substantiation for the initial swell factors utilized in planning at OCC. The actual study reports are not included in this document, but remain on file at CDG.

Following the discussion of swell factor determinations, this appendix also contains information regarding development of the initial PMT design for OCC. The PMT design was also completed by CDG and the information contained herein describes the process followed by CDG in completing the design.

2.0 SUMMARY OF RESULTS

Table MP-1 provides a listing of the measurements taken during the most recent swell factor studies completed by CDG and form the basis of the recommended swell factors for OCC. The studies were conducted at five separate surface mining operations including four completed at Wyoming PRB operations while one was completed at a Montana PRB coal mine. In all cases, distinct measurements were completed for both dragline and truck shovel stripping operations which will approximate the operations planned for OCC. The methodologies behind the measurements obtained are described in more detail in Section 3.

2.1 Dragline Swell Factor

As illustrated in Table MP-1, the volume-weighted average of the dragline swell measurements is slightly above 18%. Results range from 14.5% to 20% and are based on 28 measurements involving nearly 454 million bank cubic yards of stripped overburden and 536 million loose cubic yards of correlated spoil placement. The measurements were conducted from 2005 to 2009.

Based on the results of these measurements, the recommended swell factor for the proposed dragline stripping operation at OCC is 17%. This level is slightly below the weighted-volume average swell obtained in the previous studies, but was intentionally lowered to help insure that sufficient material is available to construct the proposed PMT.

2.2 Truck Shovel Swell Factor

Results of the truck shovel swell studies conducted by CDG indicate that the volume-weighted average swell factor is nearly 13**%**. Overburden volumes analyzed by computerized surface modeling to produce this result included 15 measurements containing over 95 million bank cubic yards of overburden and parting and a corresponding total spoil volume of 107 million loose cubic yards. These measurements were also obtained between 2005 and 2009 and were completed in conjunction with the dragline swell measurements at the respective operations.

The recommended truck shovel swell factor for the truck shovel stripping operation at OCC is 12%. As with the dragline swell factor selection, this level is lower than the results obtained in the studies and is also intended to insure that sufficient volume is available to construct the proposed PMT.

3.0 STUDY METHODOLOGIES

Important steps in conducting each of the swell factors studies include data collection, operational reviews, surface modeling and interpreting results. Each of these steps is described in greater detail below.

3.1 Data Collection, Modeling and Review

The following data items were obtained from the respective mines to conduct the swell factor studies:

- *Monthly aerial flight data and orthophotography of the active mine areas*.
    - Each of the mines provided monthly, digital aerial flight data obtained over at least the previous 3 years of operation. The data consisted of conventional 3-D breaklines, random TIN points and spot elevation data suitable for mapping meeting National Map Accuracy Standards (NMAS). The data was supplied in AutoCAD format, immediately available for extraction and manipulation using a surface modeling software program.
    - Mines also supplied the corresponding orthophotography in conjunction with the flight data. Orthophotos were also generated on a monthly basis at the mines and supplied as TIFF images.
    - Where necessary, field survey data was also requested and supplied to augment available flight data.
- *Mine structure data.*
    - Geologic structure information provided by the mines included digital point data (grid files) of the roof and floor for the respective coal seams. Parting or interburden surface grids were generated from the coal seam grid files. Grid files contained three-dimensional point data (x, y and z data) on a 100’x 100’ grid spacing for the entire active area of the mine. Original ground surface data was also provided as contour data for use with the progressive flight information.
- *Pit design parameters and sequencing information.*
    - Pit design parameters provided by the mines included dragline and truck shovel bench and cut design (height, width, angles), location of exclusive

dragline and truck shovel pit stripping areas and life-of-mine mine progression maps. Other mapping provided included delineation of mine reclamation areas, material stockpile locations and designations and the past and present coal removal sequence for the individual pit areas at each operation.

3.2 Operational Review

Stripping operations at each of the studied mines consisted of a combination of truck shovel and dragline stripping. The operational review conducted at each of the operations was intended to understand the stripping procedures used during the study measurement periods in order to determine more accurately material movement. The reviews consisted of reviewing monthly mine reports and associated progression mapping, monthly production tables, sequential orthophotography and major equipment mechanical availability reporting. This information was then used in conjunction with the cut and fill surface modeling described below to pinpoint and correlate material movement within the respective stripping operations.

Truck shovel stripping was typically conducted with advancing benches in the stripping operation and could include a variety of backfill locations that were advanced based on haul proximity and deficit requirements. The operational review assisted in defining the individual bench advances, both in stripping and placement in backfill and also helped define material used for other possible purposes. Examples of these uses included ramp and road extensions, berm construction, pond construction or expansion, etc. Identifying the occurrence and timing of other uses was useful in limiting inaccurate measurements being used and included in the study results.

Dragline stripping is typically more complex and consists of truck shovel prestripping (if necessary) followed by production drilling, cast blasting and dozing, dragline pad preparation, and finally, dragline stripping and spoiling, typically from a spoil-side operation. Due to these multiple operating steps, dragline operations are generally harder to quantify. Operational review for this portion of the studies was intended to assist in determining the actual sequence of steps involved the progress of those steps in the sequential mapping. Overall, the operational review aided considerably in establishing the measurement correlation between cut and fill.

3.3 Initial Surface Modeling

Initial modeling of the coal seams and surface topography grid data was conducted to prepare digital surfaces of the current topography and the top and bottom of the coal seams and parting, if any. Thickness mapping was also completed for the structure including overburden, each individual coal seam and individual parting. Following this work, digital surfaces were made for each monthly flight.

After the initial modeling, the primary task at the outset of each study was to identify areas within the progression period where the dragline and truck shovel stripping and corresponding spoiling and backfill operations could be accurately identified and measured. As described above, these PRB mines conduct several concurrent operational activities in a single pit at any given time. The activities can include operations such as production drilling and blasting, production dozing, coal mining, overburden removal by dragline and/or truck shovel operations as well as general pit and road maintenance activities. In order to define areas where the dragline and truck shovel swell could be assessed, CDG conducted an extensive review of the digital progression data and monthly photo information to identify individual blocks within the progression that could reasonably be isolated in terms of stripping and spoil or backfill advance with minimal error due to extraneous operating activities. This work coupled with the operational review helped define the measurement areas that best represented a balance between cut and fill.

To identify such areas, each investigation began by importing the digital surface information for each time increment provided (typically monthly) and mathematically manipulating (subtracting) the surfaces to produce monthly incremental cut and fill contour thickness surfaces that illustrate the material movement and locations for the respective time basis dictated by the available data. CDG utilized both SurvCADD™ and QUICKSURF™ software packages as tools for modeling digital surface data. Either of these database modeling tools allows selection of data and proper trending algorithms to conduct surface modeling and produce structure isopach maps and associated thickness mapping of overburden, coal seam(s), interburden and parting. Both packages are also capable of calculating volumes by applying boundary polylines to thickness surfaces.

3.4 Dragline Swell Factor Methodology

The basis for accurately quantifying dragline bank and corresponding spoil material volumes was to correctly identify, model and construct surfaces representing the dragline bench (cut) volume and the available spoil room (fill) in the prior, mined-out cut. On the cut side, quantifying adjustments include accurate removal of any pre-stripped material from the dragline bench and accurate representation of the bench prior to blasting or spoil dozing operations. In addition, accurate structure modeling of the top of coal is necessary for identifying the base of the bench. Items to be quantified on the fill side include pit floor structure, unrecovered coal and coal waste, the spoil side dragline pad configuration and the adjacent spoil profile that will all dictate the available spoil room boundaries.

As illustrated in Table MP-1, one set of calculations for ACC utilized cross-section data that related the cut and fill volumes by determining the respective cross-sectional area of both as derived from the two-dimensional area measurements to determine the dragline swell factor. For that particular study, CDG produced both cross-sectional data as well as digital surface modeling to prove that any future determinations could be completed solely by surface modeling. After reviewing the progression information within the operational history provided by the mines, a number of separate areas were identified where dragline stripping or cut side operations could be reasonably correlated to a resulting spoil profile (fill side).

Both the cross-section and surface modeling locations were derived primarily to minimize the influence of ramp overburden material being included in the measurements and causing bias. Ramp rehandle material handled by the dragline as the operation crossed any available ramp access must be adjusted to exclude any identifiable rehandle material or the ramp area must be entirely excluded from the quantity calculation. In this manner, each location is representative of bank material on the cut side and also representative of fill side with coal exposed and all spoil properly placed in preparation for coal removal.

For the single cross-sectional analysis, 11 cross-section locations were arbitrarily spaced between 250-300 feet apart within the representative cut and fill areas. The cross-section lines were “draped” onto both the cut side topography following any prestripping activity and the fill side topography once spoil placement operations were complete. These cross-section elevation lines were then joined. Once these cross-section elevation lines were complete, coal and interburden surface elevations were extracted from the initial modeling and added to the cross-section elevation to complete the cross-sectional areas shown. Areas of cut and fill were then measured to calculate the respective dragline swell factors.

In the follow-up analysis using surface-to-surface manipulations, topographic surfaces were extracted both before and after stripping operations were complete in the respective areas. The extracted surfaces were then subtracted from one another to produce cut and fill thickness contour surfaces. Boundary polygons were then established to set the limits for calculating volumes on each cut and fill area. Volumes were determined electronically by extracting and analyzing the thickness grids. As evidenced in Table MP-1, the swell factor results under both processes were extremely close indicating that surface-to-surface manipulation could be utilized going forward.

In all cases, it was not possible to model an entire turnover cut and develop dragline swell comparisons by simply manipulating the sequences of toe/crest data to construct the progression of stripping and spoiling operations. As noted above, additional surface manipulation was required to create the dragline benches and/or the corresponding spoil profile for the area to be representative for swell measurement. Creating such benches or spoil profiles was based on the specific operating procedures for the mine. Further, any such profiles created were incorporated with actual surface data provided by the mine as a check that the profile adhered to the mine’s operating protocol.

3.5 Truck Shovel Swell Factor Methodology

The methodology used to develop the truck shovel swell factor is very similar to the surface modeling discussion provided above for the dragline swell factor. In this case, 15 separate cut and fill areas were detected that contained reasonable and correlatable data. Similarly to the dragline swell evaluation, surfaces were extracted both before and after stripping operations were complete in the respective areas. The extracted surfaces were then subtracted from one another to produce cut and fill thickness contour surfaces. Boundary polygons were then established to set the limits for calculating volumes on each cut and fill area based upon the extent of cut/fill contours produced by the surface-to-surface manipulation. Volumes were determined electronically by extracting and analyzing the thickness grids produced by the surface subtraction technique.

As with the dragline swell factor evaluation, truck shovel cut and fill correlations were determined based on the operational review for the respective time increments provided. Cut and fill contours that appeared in the surface manipulations were further verified by the review prior to their inclusion in the measurements. Where the review indicated that portions of the material moved was used or placed for other purposes, the increment was discarded unless the volume related to that purpose could be quantified. Some mines reported such volumes either as an estimated volume or by load counts. If this information existed, the measurement was adjusted accordingly and retained in the calculation.

Both the NRM and North Antelope Rochelle Mine NARM truck shovel swell factors were based on single measurements associated with the cut material being placed in an out-of-pit stockpile for a given increment of time. CDG limited the time increment based on the operational review before completing the surface-to-surface modeling and volume determination shown.

TABLE MP-1
SWELL FACTOR STUDY MEASUREMENTS & RESULTS

MINE	DRAGLINE BCY X-SECTION AREA (sq.ft)	DRAGLINE LCY X-SECTION AREA (sq.ft)	DRAGLINE (%) SWELL	TRUCK SHOVEL BCY (X 1000)	TRUCK SHOVEL LCY (X 1000)	TRUCK SHOVEL (%) SWELL
ACC (D/L cross-sections (sq.ft)) (07-09)	22,719	27,414	20.7%	2,336	2,691	15.2%
Truck Shovel Volumes by modeling	24,626	30,524	24.0%	2,900	3,317	14.4%
	26,628	32,064	20.4%	2,018	2,223	10.2%
	26,210	31,770	21.2%	1,855	2,121	14.3%
	21,867	26,176	19.7%	516	582	12.8%
	24,546	29,504	20.2%	3,112	3,527	13.3%
	25,970	30,015	15.6%	4,688	5,499	17.3%
	26,868	29,171	8.6%	2,675	3,069	14.7%
	27,741	31,069	12.0%	2,138	2,407	12.6%
	21,723	27,712	27.6%	**22,238**	**25,436**	**14.4%**
	22,508	28,545	26.8%			
	271,406	**323,964**	**19.4%**			
	BCY (X 1000)	LCY (X 1000)	(%) SWELL			
ACC - surface modeling/manipulation	787	957	21.6%			
to determine volume (08-09)	652	755	15.8%			
	197	249	26.4%			
	1,636	**1,961**	**19.9%**			
BTCC D/L Surface Modeling (06-07)	11,258	13,348	18.6%	3,310	3,744	13.1%
Truck Shovel Surface Modeling (05-07)	7,025	8,430	20.0%	2,097	2,374	13.2%
	6,293	7,143	13.5%	3,960	4,458	12.6%
	7,249	8,291	14.4%	3,464	3,983	15.0%
	6,022	6,841	13.6%	**12,831**	**14,559**	**13.5%**
	6,240	7,392	18.5%			
	5,692	6,744	18.5%			
	49,779	**58,189**	**16.9%**			
N. Rochelle Mine Surface Modeling (01-02)	**89,500**	**102,453**	**14.5%**	**57,349**	**64,261**	**12.1%**
NARM Surface Modeling (05-06)	7,235	8,509	17.6%	**2,762**	**3,088**	**11.8%**
	13,260	15,792	19.1%			
	20,495	**24,301**	**18.6%**			
SCC Surface Modeling (05-07)	3,068	3,673	19.7%			
	7,954	9,480	19.2%			
	7,584	9,111	20.1%			
	2487	3002	20.7%			
	21,093	**25,266**	**19.8%**			
TOTALS	**453,909**	**536,134**	**18%**	**95,180**	**107,344**	**13%**