Kimber Pit Mining Area

The October 2006 landslide in the East Panel of Trapper Mine resulted in a dramatic change in planned mining methods at the mine. K Pit and L Pit (a.k.a. G Pit) were originally planned as dragline pits, consistent with Trapper's historic mining method. After extensive geotechnical study and mine planning efforts, it was determined that dragline mining was not a viable mining method for the K Pit due to the steeply dipping structure.

After the East Panel landslide, Trapper retained Agapito Associates, Inc. (AAI) to perform a geotechnical investigation of the area to determine the causes and ramifications of the event. Numerous studies and evaluations were performed by AAI personnel. A detailed analysis of AAI's findings is available in AAI's January 2008 report, "Trapper G-Pit Landslide Mining Assessment" found in Appendix T.

K Pit was mined with both a truck/loader fleet and draglines. The western portion of the pit was mined in a strikeline orientation. The truck/loader fleet strips the overburden from the upper coal seams (to L seam) ahead of the dragline operations. Seams M, Q, and R were exposed with the dragline operation.

The eastern portion of K Pit was mined in a dipline orientation with the truck/loader fleet continuing to uncover the upper coals to L seam ahead of the draglines, and the dragline operations exposing M, Q, and R seams.

Due to the steeply dipping pit floors, the initial overburden removed from K Pit was placed in the Horse Gulch Fill and as final pit backfill in Flintlock pit. K Pit has been reclaimed and is in various stages of bond release.

Lancaster Pit Mining Area

L pit has been designed both as a strikeline and dipline dragline pit over the years. Development of this pit occurred as mining progressed from K Pit, and will utilize a combination of truck and loader pre-stripping, dozer stripping, and dragline stripping (in a dipline or strikeline orientation). L Pit will be one of five active pits during the 2023-2027 permit term, along with C, I, J and N Pits.

Hawken Pit Mining Area

Mining in Hawken pit (H-pit) was completed in April 1997. After performing reclamation activities, the Queen Anne dragline walked to Ashmore pit in May 1997.

Ithaca and Jennings Pits Mining Area

I & J Pits are single seam pits that are opened to the F and G2 seams, respectively, by a combination of truck and loader pre-stripping, dragline, and/or dozer stripping. The Queen Anne dragline was moved to this area in 2023 to develop cuts in J Pit. The I Pit East box cut has been opened with the truck/excavator fleet and the F seam has been mined. The eastern portion of the pit has also been High Wall Mined. HWM will return to mine the western portion of the pit (to the north of cut). Both the I and J pits are opened in relatively shallow cover (50 to 80 feet) along the outcrop of the seams, and both are located in the No Name, Coyote and Buzzard Drainages. I & J Pits will be two of five active pits during the 2023 – 2027 permit term, along with L and N pits. Highwall mining may take place in both of these pits on the F and G2 seams on the north sides of the final cuts. See section 3.1.4.2 Highwall Mining for a description of the highwall mining.

Nighthawk Pit Mining Area

Nighthawk Pit (N pit) is located in the East and Middle Pyeatt drainages. This pit is being developed in the same area as historical mining of the Ashmore Pit. The Ashmore pit mined to the two uppermost seams in the area: H and I seams. N pit is being developed in the same area but will be mining the L, M and Q

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seams. N pit has been designed as a strikeline pit and will utilize a combination of truck and loader stripping, dozer stripping, and dragline stripping (in a strikeline orientation). This pit will start to the west and advance to the east, reworking old areas of Ashmore Pit. N Pit will be one of five active pits during the 2023 – 2027 permit term, along with C pit, L pit, I pit and J pit. Highwall mining may take place on both the north and south sides of the box-cut , in the L, M and Q seams . The seams may be high wall mined from the bottom seam (Q seam) up (to the L seam). See section 3.1.4.2 Highwall Mining for a description of the highwall mining.

Colt Pit Mining Area

Colt pit as presented in PR-11 has been suspended at this time. If the pit were to be developed the following description details the design, and mining sequence. It will not be developed during this permit term. C Pit is located in East and West Buzzard drainages. This area was previously mined as dip-line dragline pits until the overburden became too deep. C Pit will lie on the edge of the previously mined C Pit area. Most of the pit material is in-situ with some amount of spoil material that was graded over the top of the un-mined area (i.e. lower coal seams not previously mined). A strike-line box cut will be dug along the previously mined C Pit area where both L and Q will be conventionally mined from the box cut, as well as with highwall mining methods. A 150' offset has been left between the old workings and new mine area to create a safety pillar for highwall mining activities. This pillar will exist along the south edge of C Pit. C Pit has been designed as a combination dragline/truck and excavator stripping pit. The pit will be broken up into approximately 3 sections, with the first section of the box cut being hauled to a temporary overburden stockpile located north of the pit. The temporary overburden stockpile will hold approximately 4,500,000 LCYs. Some truck/excavator material may be placed on the south side of the dragline spoil, on the south side of the box cut. C Pit will be excavated to L and Q seams. All available L and Q pit tons will be conventionally mined out of the box cut. Once all the pit tons are mined, highwall mining will be completed on all available Q seam. Material will be hauled from the adjacent cut block and placed into the open pit to backfill up to the L seam for highwall mining, only on the north side of the box cut. The temporary overburden stockpile will be used to backfill the final pit section and complete any other final reclamation.

3.1.4.2 Highwall Mining

Highwall mining has occurred on a limited basis to the east of East Ashmore pit. In 2007, the H seam on the floor of cut 45 was highwall mined eastward from this pit.

In the future, highwall mining will be conducted in the end walls or highwalls/low walls of the I, J, L, C and N pits. In I Pit the F seam will be mined to the north of the strike cut and in J Pit the G2 seam will be mined to the north, thus complying with rule 4.23.2 (1). In the East Ashmore pit (northern L Pit) wall the H seam will be mined. In the L dip pit wall the K and/or the M and/or the Q seam will be mined. In N Pit, the L, M, and Q coal seams will be mined. In C Pit, if developed, the L and Q seam will be mined to the north. The south side of C Pit will consist of only Q seam highwall mining. The HWM areas in L pit are less than 2,000 feet in length, therefore, they comply with 4.23.2 (1). The N Pit length of box cut is 4,200 feet, with a potential to HWM mine seams to the north and the south of the surface pit. Coal on either end of the pit will remain for future access as described under 4.23.2 (1) (b), meaning the access panels will be 4,200 feet apart for N Pit.

Use of Mining Technologies' HW H800 Addcar System or a similar system is planned. A launch vehicle platform, which sits on the floor of a conventionally mined cut, controls all functions of the system, rigid conveyor cars, which are each fitted with their own belt conveyor, are fed by a full sized conventional, remote controlled underground continuous miner. Video cameras placed on the miner give real time feedback to the outside operator, a proprietary HORTA Guidance System gives continuous three-dimensional locations, and Gamma Sensors in the miner's cutting head provide the ability to sense roof and floor rock and help keep the miner in the coal seam and avoid dilution from the roof and floor.

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Depth of penetration and coal recovery will vary depending on coal seam splitting, thinning or pinching, coal quality, roof and floor integrity, and machine physical limitations. Penetration depths of up to 1,600 feet are possible under optimal conditions; however, with Trapper's thin and steeply dipping coal seams much shorter penetrations are anticipated, (1,200 feet are shown).

Trapper is not currently aware of any abandoned or active underground mine workings in any of the pertinent coal seams in the proposed highwall mining areas. In the event abandoned or active underground mining operations are identified, no highwall mining will be conducted within 500 feet of any underground workings in the applicable seams. A protective buffer of 200 feet will be left in place between the north wall of the old F Pit and the southernmost extent of the N Pit south highwall mining.

Trapper is also not aware of any dwellings, buildings, tanks, impoundments or utilities overlying areas planned for highwall mining. Subsidence is not anticipated with any highwall mining activities at the site. Design criteria established by Agapito Associates Inc. (Summary of Geotechnical Design and Operational Considerations for Highwall Mining-I, J, N and L Pits, Trapper Mine; January 2, 2020; Page(s) 3-1, 6-3), will be utilized to ensure long-term stability of highwalls and mining areas based on seam and overburden thickness.

Access to highwall miner entries will be blocked or buried within 30 days following coal extraction.

Any highwall mining entry discharging water containing toxic-forming or acid-forming material will be plugged within 72 hours after completion by backfilling and compacting non-combustible and impervious material into the hole to a depth sufficient to form a water-tight seal or the discharge will be treated within 72 hours after completion to meet applicable effluent limitations and water quality standards.

3.1.5 Reclamation Plan

Following mining, pits are backfilled as a part of the overburden and interburden removal operation. The backfilling operations are accomplished in different ways, depending on the equipment utilized in overburden removal operations.

In a typical dragline operation, as the dragline excavates a pit, the overburden/interburden material is spoiled (backfilled) into the previous pit (see fig. 3.5-2 A). The backfill material is placed in piles that require additional contouring. Contouring is accomplished with dozers, graders and similar equipment. Occasionally, the dragline is also used.

In Multiple Equipment operations, the dragline may be assisted by truck/loader (or excavator) operations and dozer stripping operations. Dozers are utilized to remove interburden material from the "K", and "L" coal seams. The Dragline operation removes the "M" and "Q" interburdens, and the Truck/Loader fleet removes the surface overburden and the "H", and "I" interburden material. The Truck/Loader Operations, as well as the dozer operations, are generally operating several cuts ahead of the dragline operation.

In the Multiple Equipment scenario, the dozer fleet pushes the interburden material perpendicular to the cut and into the prior pit. This interburden becomes the first material backfilled into the previous pit and therefore is at the bottom of the backfill sequence. The dragline excavates the lower interburden material above the "M" and "Q" seams and places it on top of the material placed in the prior cut by the dozer fleet. This dragline spoil is the intermediate layer of material within the backfill sequence. The final layer in the backfill sequence is placed by the truck/loader operations. This material is placed in dumps that are in close proximity to the post mining topography (PMT). The final contouring is accomplished with dozers, graders and similar equipment (see Fig. 3.5-2 B).

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In the case of Ithaca and Jennings Pits, the backfill will occur as one pit is developed, a previously mined pit is backfilled. The initial pit overburden will be stockpiled south of the BC haulroad, just east of No Name

pond #2. Approximately 600,000 LCY's of material will be placed in a temporary spoil pile here, and will remain until the final pit is ready to backfill. The final contouring is accomplished with dozers, graders and similar equipment.

C Pit would utilize a temporary overburden stockpile, just north of the pit, for the initial boxcut material. The pit will be divided up into approximately 3 pit sections with the first section starting on the south east side of the pit. The first boxcut section will move approximately 4,500,000 LCY's of material to a temporary spoil pile. Once highwall mining of the bottom seam is complete, the adjacent pit section will be excavated to backfill the initial boxcut so the L seam may be highwall mined. Highwall mining of the seams in the pit will be from the bottom up. The initial boxcut dirt that was placed in the temporary overburden stockpile will be utilized to backfill the final open pit.

In the case of Nighthawk Pit, the backfill is an integral part of the pit operation, where the pit is backfilled from seam to seam from the bottom to the top as the coal seams in the north and south highwalls, and potentially endwalls, are mined utilizing Highwall Mining techniques. This pit is developed in sections from the west to the east and is backfilled as the pit progresses to the east so as to minimize out of pit spoil placement.

Spoil is placed in a temporary spoil pile adjacent to the west of the pit and is then backfilled from the pile for reclamation at the end of the life of the pit. The pile is designed for 7.6M LCY, although only a little over 5M BCY are expected to be placed there. Spoil swell is presented on page 3-49 of the Trapper Permit. Swell on the re-disturbed spoils from A pit will be approximately 10%. AAI has completed a geotechnical study to assess the global stability of the proposed spoil pile west of the pit and came to the conclusion that overall, a combined review of the numerical modeling results indicate that the proposed spoil pile is likely to be stable over its projected life of 4 – 6 years.

The backfilled pit is graded to approximate the pre-mined contour and blended in with the surrounding topography. Final grading is performed along the contour except where the safety of men and equipment may be compromised.

The area is then prepared for topsoil replacement. A dozer pulling a drag, or similarly effective equipment, may be used for areas being reclaimed to cropland. The drag levels ridges made during recontouring to allow a more uniform depth of topsoil to be laid down.

The topsoil is placed on the graded spoil to a predetermined depth as uniformly as is practicable. Fertilization (croplands only) and seedbed preparations follow. The areas are then seeded. (Sections 3.5 and 3.6 discuss these reclamation operations in more detail.)

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