

# Varra Companies, Inc.

## OFFICE OF SPECIAL PROJECTS

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Friday 28 August 2020

To: Peter Hays, E.P.S.  
Colorado Office of Mined Land Reclamation (OMLR, or 'the Office')  
Division of Reclamation Mining and Safety  
1313 Sherman St., #215  
Denver, CO 80203

From: Varra Companies, Inc.  
Bradford Janes, Forester  
Liaison – Interdisciplinary Affairs

Subject: TECHNICAL REVISION to OMLR for Permit M-2013-064 – Varra-  
Coulson Resource Project – Status, Clarification, and Necessary Changes  
to the GRADING PLAN and correlated Financial Warranty.

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Legal Description: A parcel of land located in parts of W/2SW/4NE/4, and the  
SE/4NE/4, and the NE/4NE/4; Section 10; all in Township 5 North;  
Range 65 West; 6<sup>th</sup> P.M.; Weld County, Colorado

General Location: Actively South of the Cache la Poudre River – East of Fern Ave. –  
North of 16<sup>th</sup> St.

Total Acres: 100.63±

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This Technical Revision is intended to clarify planned grading and attending financial warranty considerations for Middle Field and South Field, for Permit M-2013-064, only. This Technical Revision clarifies, updates, and amends prior submittals and Annual Reports.

REFERENCE (from the Original August 2013 Exhibit D):

The 100.63± acre parcel boundary forms the permit boundary. All lands within the 100.63± acre permit area, are to be considered as affected lands under C.R.S. 34-32.5-103(1), respective of this permit application and any subsequent permit revisions or amendments to the permit as originally approved.

Within the permit boundary, there are four identifiable areas, the description of which will help to explain the nature of planned extraction and reclamation. Those identifiable areas are as follows:

52.70±	Acres Extraction – South Field – 05-10± years.
<u>11.61±</u>	Acres Extraction – Middle Field – 10-20± years.
64.31±	Sub-total
<u>1.57±</u>	Acres Extraction - Canal #3 - to be relocated – transitional.
65.88±	Sub-total
<u>1.98±</u>	Acres Reconstructed segment of Canal #3 (includes 0.18± acres within the Poudre River 100 foot set-back area).
67.86±	Sub-total
<u>10.75±</u>	Acres Mineral Reserve – North Field –undetermined ± years.
78.61±	Sub-total
<u>22.02±</u>	Acres Affected Lands beyond planned extraction limits.
100.63±	TOTAL.

The 22.02± acres of lands lying beyond the planned extraction limits may comprise planned or existing permanent access roads, areas of minor to no disturbance; including buffer areas, unaffected segments of Canal #3, and the Cache la Poudre River.

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#### CURRENT CONDITIONS/REVISIONS:

##### Middle Field:

1. Has conservatively a 2.5:1V± slope with apx. 15.00± feet of vertical depth from the bottom of the soil profile until it hits the current floor.
2. Relocation of Greeley Irrigation Canal #3 will not occur, so the area planned for the reconstructed canal is being utilized for extraction and correlated reclamation as part of the finished basin or area of fill for Middle Field.

##### South Field (with implications for Middle Field):

1. Has conservatively a 2.5H:1V± slope with an apx. 35-40± feet of vertical depth to the current floor
2. The last remaining oil and gas facilities on the parcel have been abandoned and the area as previously buffered will now be extracted, consistent with the 2019-2020 OMLR Annual Report.
3. Aggregate extraction will eventually meet and expose the underlying geology. The unconsolidated underlying materials will be utilized for finished grading, and the perimeter slopes will rise from the basin bottom to near the extraction limits at the surface at 3H:1V or flatter. As grading is completed and finished slopes are compacted to meet the basin liner specifications established by the Colorado Division of Water Resources, the remainder of the finished slopes

above the anticipated final water level of the basins will be re-soiled and vegetated as part of reclamation. Similarly, this method will also be employed at Middle Field, unless complete backfilling to the elevation of the original ground occurs instead.

4. Once extraction operations are reclaimed, the temporary access established as shown on the 2019-2020 OMLR Annual Report, may be removed, unless otherwise revised, and the affected lands reclaimed.
5. For continuity of extraction operations beyond the  $8.55\pm$  acres indicated in the 2019-20 OMLR Annual Report, it will become essential near that timeframe to clear the final area where the soil stockpile occurs. Correspondingly, gaining access to this location should incentivize finished grading and resoiling operations to the extent practical.
6. While the stockpiled soil is in excess of that required for reclamation, the necessary portion of the stockpile will be used over all affected lands lacking original soil and along the finished basin grades remaining above the anticipated static water level (groundwater levels) of the basin perimeters. Excess soil used for market may require relocation of the stockpile in whole or part to the extent necessary if this location is to be fully accessed for extraction. Relocation may occur within the permit location and existing areas of extraction at Middle Field or South Field, or on the immediately adjacent lands of our approved Durham location, as part of this Revision.

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OTHER REVISIONS/CORRECTIONS (NOTR: Slight variations from original measurements exist as reflected here below):

53.36 $\pm$	Acres Extraction – South Field This Area now <b>includes 0.45<math>\pm</math> acres of the Abandoned Oil &amp; Gas Area</b> shown in Red at South Field for the Area to be extracted as indicated in the 2019-20 OMLR Annual Report.
<u>12.24<math>\pm</math></u>	Acres Extraction – Middle Field which <b>now includes the 1.98<math>\pm</math> Acres designated for the Reconstructed segment of Canal #3</b> (now excludes 0.18 $\pm$ acres within the Poudre River 100 $\pm$ foot set-back area).
65.60 $\pm$	Sub-total
<u>10.75<math>\pm</math></u>	Acres Mineral Reserve – North Field – <b>unchanged</b>
76.35 $\pm$	Sub-total Acres designated for Extraction
<u>24.28<math>\pm</math></u>	Acres Affected Lands beyond planned extraction limits (which <b>includes temporary access of 0.24<math>\pm</math> Acres – and that portion of Canal #3, previously designated for extraction; as shown on the Exhibit C-2: Extraction Plan Map revision.</b>
100.63 $\pm$	TOTAL ACRES

The 24.28± acres of lands lying beyond the planned extraction limits for Middle and South Fields, may comprise planned or existing permanent access roads, areas of minor to no disturbance; including buffer areas, unaffected segments of Canal #3, and the Cache la Poudre River.

- Of the 65.60± acres of extractable area within Middle Field and South Field; 46.39± acres (or apx. 70.7%) are actively under extraction since the permit issue date. Extraction will continue within these Fields as identified in the August 2020 OMLR Annual Report.
- Extraction depths may prove deeper than 40 feet, as depths of 40± feet only reveal trace amounts of weathered bedrock. Since depths could occur to 60± feet or greater, extraction will now cut at 3H:1V from the present floor near 40± feet to final anticipated depths; which remains consistent with the safety factor (where these slopes are to occur at 20± feet from the anticipated basin bottom).
- Further, the exiting 2.5H:1V± slopes above are shallower than the approved 1.25H:1V± provided for in the original application, as approved; providing additional stability for these slopes until finish grading occurs. Slopes may still be extracted to 1.25H:1V± as part of concurrent finished grade to a depth of 40± feet from the approximate surface.
- The previous rate of extraction has been so rapid leading into the year 2020, it shortened the anticipated life of the mine by nearly 12± years to date, or nearly 50± percent of the anticipated extraction timeline.
- The rate of extraction simply outpaced mining methods intended to maintain concurrency of finished slope establishment, essentially increasing the perimeter length of the unfinished margins of extraction. This correction to the grading plan adjusts the financial warranty to fully account for the entire perimeter length to depth at the Extraction Limits, where backfilling of the finished slopes and finished grading will ultimately occur.
- Warranty cost estimate are updated here under necessary revisions to grading that have and will occur as determined by field examination and supplemental data and comparison with the warranty calculations provided at the time of the permit by the OMLR, support that the values determined and reflected here are reasonable. The value of \$1.263/LCY from the original warranty is applied here for the final perimeter areas and volumes for Middle Field and South Field, respectively. NOTE: Volumes are based upon a 40± foot uniform depth with slopes of 2.5H:1V±. Slopes deeper than 40± depth will be at 3H:1V± or flatter.

The included Map is enlarged at 1 inch = 100 feet to better reflect the measurements and locations of features utilized to determine fill volumes needed to bring the reclaimed basin slopes from the current mean extracted slopes of 2.5H:1V± to a

3H:1V± grade as determined for the completed perimeter area reflected on the revised Extraction Limits of South Field and Middle Field.

We believe interim existing perimeter slopes are stable under current active extraction, and are in the majority *effectively* 2.5H:1V± to 3H:1V±; and all are well above the 1.25H:1V± slopes allowed in the approved permit when considering the interruption of extracted slopes by benching and pit access features. Still, the perimeter extent of the Extraction Limits is greater and warranty needs to reflect costs anticipated for grading the final perimeter slopes to 3H:1V± from the 2.5H:1V± slopes evident over the location, as follows:

Perimeter Length of Extraction Limits:

Middle Field = 3,247.5±' (including the area originally planned for reconstructing Canal #3

South Field = 6,530.5±'

Combined perimeter length = 9,778.0± lin. Feet.

Area of difference between a 2.5H:1V± slope and a 3.0H:1V± slope = 400.0± sq.ft.

Required volume of backfill:

9,778.0± lin.ft. x 400.0± sq.ft. = 3,911,200± cu.ft. ÷ 27 = 144,859.25± cu.yds.

144,859.25± cu.yds.

X 1.263 \$/LCY

\$182,957.23± Total Grading Cost for Combined Extraction Limits – Middle and South Fields

–\$112,275.55± Grading Costs included in Existing Financial Warranty as determined in the attached OMLR FW Calculations of 7 Feb 2014 as revised 10 April 2014 – as included in the attachments to this Revision.

**\$ 70,681.68± Warranty Increase needed for Revised Grading Plan.**

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cc. Garrett C. Varra, Vice-President of Operations  
Varra Companies, Inc.

Attachments:

- Updated Extraction (Grading) Plan Map.
- Original OMLR Financial Warranty Calculations of 10 April 2014 as revised.
- Proof of Placement with Weld County, Colorado – Clerk to the Board.