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October 26, 2012

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GRAND JUNCTION FIELD OFFICE  
DIVISION OF  
RECLAMATION MINING & SAFETY

Mr. G. Russell Means  
Environmental Protection Specialist  
Division of Reclamation, Mining and Safety  
101 South 3<sup>rd</sup> Street, Suite 301  
Grand Junction, CO 81501

and via email to Russ.Means@state.co.us

**RE: Nuvemco, LLC's Last Chance Mine, File No. M-2008-012  
Technical Revision No. 1**

Dear Mr. Means,

Nuvmco has completed the construction of three ponds to control stormwater in accordance with the existing SWMP and the previously submitted of Technical Revision No. 1 for Nuvmco's above referenced Last Chance Mine permit. The as constructed details are enclosed in addition to volumetric calculations and certification.

We look forward to your inspection of these facilities on October 30, 2012.

Please advise if you need any further information or documentation.

Very truly yours,

**AMEC Environment and Infrastructure**

E. Thomas Cavanaugh, CPG, PG  
Senior Associate

## **Exhibit 1a – Modifications required during construction, October 15 & 22, 2013 and PE certification**

Nuvmeco and AMEC, after consultation with DRMS, due to subsurface conditions and current configuration of the Waste Rock Pile (WRP), elected to construct three detention ponds to control stormwater runoff from the existing WRP. This configuration will allow more active management of runoff when mining resumes. Each of the ponds were constructed to contain more than the runoff created by a 100-yr 24-hour storm event, plus a 10-year 24-hour storm event. As detailed in Table 1 and described following, the cumulative volume of the three ponds is approximately 22% greater than required which will allow more flexibility when mining resumes and the WRP is enlarged and the configuration changes.

Figure No. 2a is aerial imagery from the NATIONAL AGRICULTURE IMAGERY PROGRAM (NAIP) from August 2011 which shows the current extent of the Waste Rock Area (WRA) and was utilized to locate the existing WRA. Figure 2b has the outlines of the three current drainage areas with respective locations of the receiving ponds. The locations and configurations of the ditches, berms and ponds which control stormwater runoff from the WRA will be determined and constructed in phases based upon mining activities. The Last Chance Mine is not currently being mined underground pending development drilling results and improved economic considerations. The WRA size and configuration is stable and smaller than the area used for calculations in the 2010 SWMP which provides latitude for alternative pond shapes to be constructed if they have equivalent volume. Nuvmeco will revise the SWMP utilizing different sized, but volumetrically adequate detention ponds for sediment control. This modification will maximize the effectiveness of natural features. Figure No. 1a is a modification that shows the location of each ponds. The northern temporary ore stockpile area as presented in the 2010 SWMP remains the same, as do the other inputs and calculations of the plan. The north and west parts of the Last Chance Permit have significant area to expand detention ponds for properly authorized expansion of mining operations in the future.

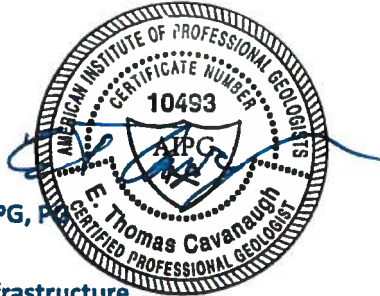
Modifications of the SWMP include managing the southwestern runoff from the Area 3 of the WRA to Pond 3, and the northern runoff by Pond No. 1 with their respective berms and ditches. The berms prevent run-on from the undisturbed areas and the ditches direct WRA runoff to the respective ponds. These detention ponds were be constructed to control runoff from precipitation falling on the WRA and other disturbed ground, minimizing additional disturbance until mining resumes. As shown corresponding to Phase 1, the current area drained to the detention ponds is 36,844 sq ft. Areas draining to specific ponds include: Pond No. 1 is 18,148 sq ft; 12,630 sq ft to Pond No. 2; and the remaining 6,066 sq ft is drained to Pond 3. The Maximum Runoff Volume calculations on page 5 of the SWMP were modified accordingly.

All pond, ditch, and berm construction has been completed under the supervision of AMEC senior geologist Tom Cavanaugh. Following is a certification by Colorado professional engineer Kevin Garrett confirming that the detention pond facility is adequate for potential

Last Chance Mine Permit No. M-2008-012  
Technical Revision #1 Dated May 31, 2012  
As modified during construction October 15 & 22, 2012  
Page 2

storm events and was constructed in accordance with the approved design plan and updated Environmental Protection Plan as required by Section 7.3.2 of the Rules and Rules Exhibit U.

Respectfully submitted,



**E. Thomas Cavanaugh, CPG, PMP**  
**Senior Associate**  
**AMEC Environment & Infrastructure**

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and



**Kevin E. Garrett, PhD, PE, PMP**  
**Senior Associate**  
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**Table 1. Last Chance Mine SWMP Detention Ponds**

**Pond 1 - volume calculations in feet**

	length	width	depth		volume
C1 + C2	5	8	8	0.5	160 ft <sup>3</sup>
B	20	16	8	0.5	1280 ft <sup>3</sup>
D	20	8	8	0.5	640 ft <sup>3</sup>
E	=(20*3*5)+(20*5*5*0.5)+(20*3*9*0.5)				820 ft <sup>3</sup>
A	20	20	8		3200 ft <sup>3</sup>
G	16	8	5	0.5	320 ft <sup>3</sup>
F	16	15	5		1200 ft <sup>3</sup>
H = G	16	8	5	0.5	320 ft <sup>3</sup>
I	50	11.5	5	0.5	1438 ft <sup>3</sup>
Approx Volume of Pond 1 =					9378 ft <sup>3</sup>

Required  
Pond  
Volumes ft<sup>3</sup>

**7495 ft<sup>3</sup>**

**Pond 2 - volume calculations in feet**

F	L * W * D *0.5	22	4	4	0.5	176 ft <sup>3</sup>
E	L * W * D *0.5	14	6	4	0.5	168 ft <sup>3</sup>
D	L * W * D	16	4	6		384 ft <sup>3</sup>
B	L * W * D *0.5	18	8	12	0.5	864 ft <sup>3</sup>
A	L * W * D	17	8	18		2448 ft <sup>3</sup>
G	L * W * D *0.5	18	3	8	0.5	216 ft <sup>3</sup>
H	L * W * D *0.5	11	4	10	0.5	220 ft <sup>3</sup>
C	L * W * D	12	10	4		480 ft <sup>3</sup>
G1	L * W * D *0.5	10	2	4	0.5	40 ft <sup>3</sup>
J	L * W * D *0.5	8	12	3	0.5	144 ft <sup>3</sup>
I	L * W * D *0.5	25	4	10	0.5	500 ft <sup>3</sup>
Approx Volume of Pond 2 =						5640 ft <sup>3</sup>

**5216 ft<sup>3</sup>**

**Pond 3 - volume calculations in feet**

		length	width	depth		volume
V1, rectangular	L * W * D	26	11	5.5		1573 ft <sup>3</sup>
V2, two tri prisms	L * W * D	26	11	5.5		1573 ft <sup>3</sup>
V3, tri prism	L * W * D *0.5	12	5.5	5.5	0.5	182 ft <sup>3</sup>
V4, N corners	L * W * D *0.5	11	5.5	5.5	0.5	166 ft <sup>3</sup>
V5, S end	L * W * D *0.5	21	6	2	0.5	126 ft <sup>3</sup>
Approx Volume of Pond 3 =						3620 ft <sup>3</sup>

**2505 ft<sup>3</sup>**

**Sum of Detention Pond Volumes 18637 ft<sup>3</sup>**

**15216 ft<sup>3</sup>**

**Precipitation drainage areas as outlined on Figure No. 2**

		ft of precip	
Area 1	18148 ft <sup>2</sup>	0.413	7495 ft <sup>3</sup>
Area 2	12630 ft <sup>2</sup>	0.413	5216 ft <sup>3</sup>
Area 3	6066 ft <sup>2</sup>	0.413	2505 ft <sup>3</sup>
<b>Total</b>	<b>36844 ft<sup>2</sup></b>	<b>0.413</b>	<b>15217 ft<sup>3</sup></b>



NUVEMCO

125 Continental View Drive  
Boulder, Colorado 80503



2000 S Colorado Blvd, Ste 3-1000  
Denver, Colorado 80222

**LAST CHANCE  
AERIAL  
PHOTO**

Montrose County, Colorado

0 25 50 75 100 Feet  
1 inch = 100 feet

**Explanation of  
Features**

Date: 10/28/2012

Checked By: Tom Cavanaugh

Drawn By: AJG

**Notes:**

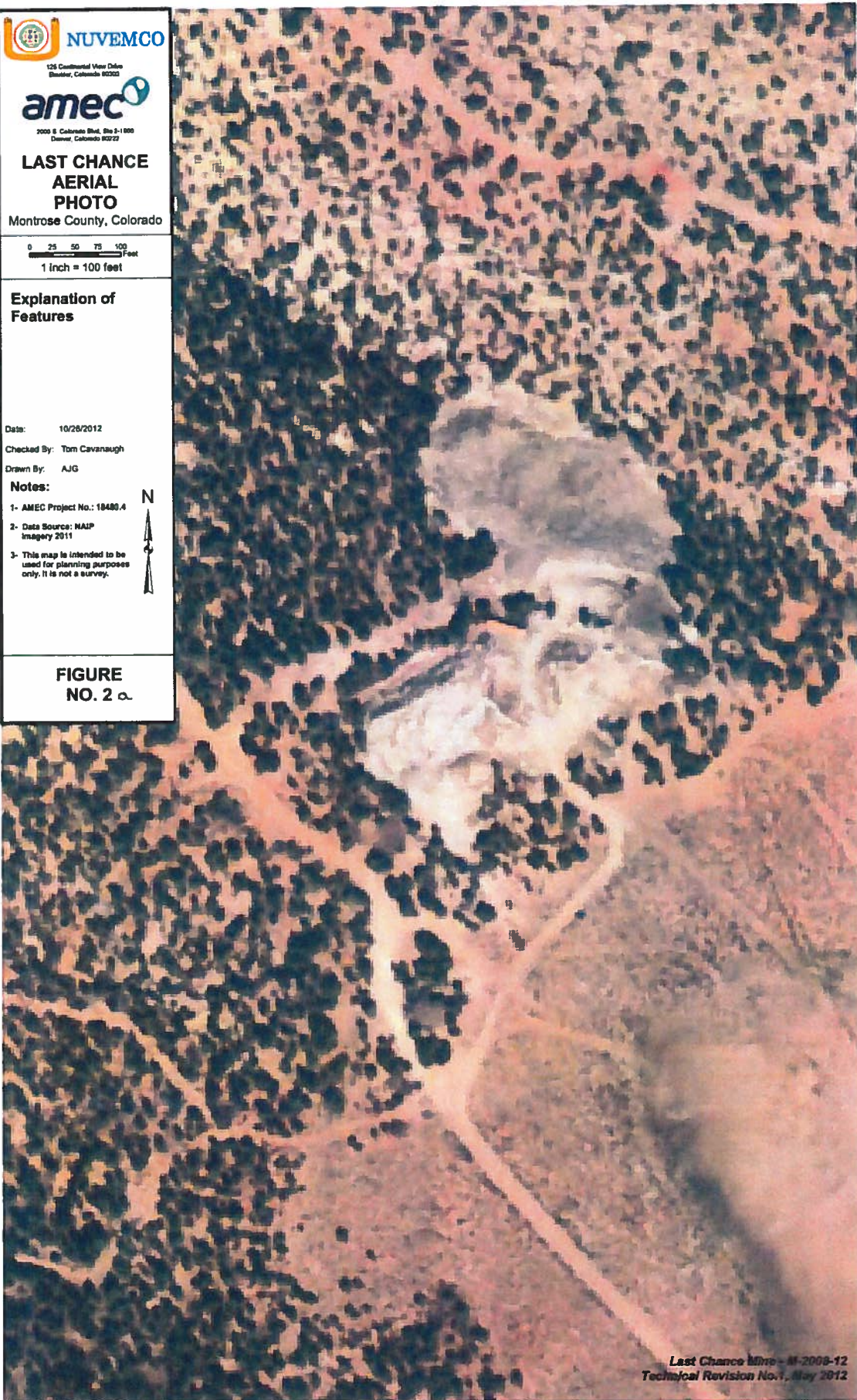
1- AMEC Project No.: 18480.4

2- Data Source: NAIP  
Imagery 2011

3- This map is intended to be  
used for planning purposes  
only. It is not a survey.



**FIGURE  
NO. 2**



Last Chance Mine - M-2008-12  
Technical Revision No. 1, May 2012



125 Continental View Drive  
Boulder, Colorado 80503

**amec**

2020 S. Colorado Blvd., Ste 2-100  
Denver, Colorado 80222

# LAST CHANCE AERIAL PHOTO

Montrose County, Colorado

0 25 50 75 100 Feet  
1 inch = 100 feet

## Explanation of Features

- Pond
- Runoff Area

Date: 10/26/2012

Checked By: Tom Cavanaugh

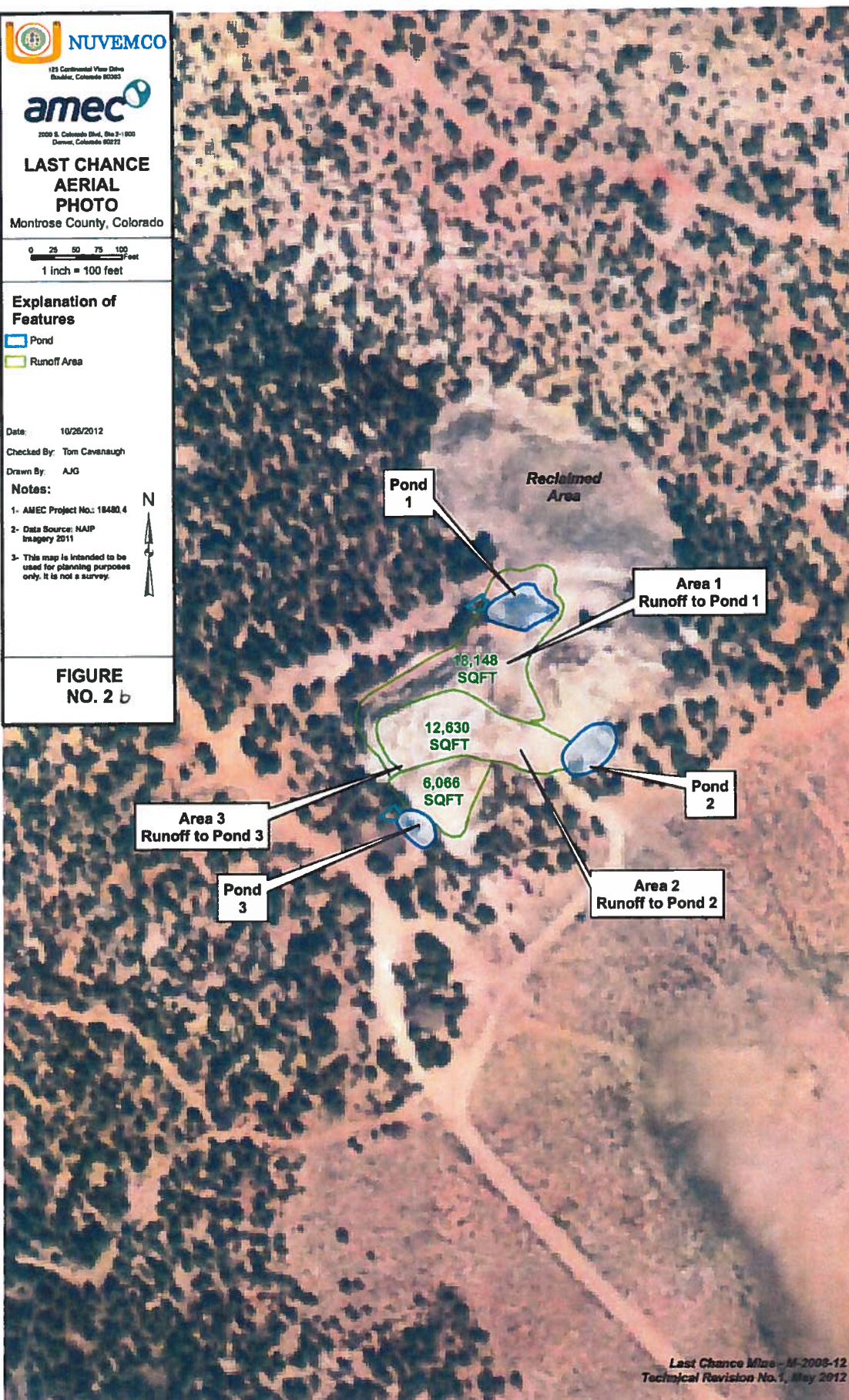
Drawn By: AJG

### Notes:

- AMEC Project No.: 18480.4
- Data Source: NAIP Imagery 2011
- This map is intended to be used for planning purposes only. It is not a survey.



**FIGURE  
NO. 2 b**





175 Continental View Drive  
Durango, Colorado 81303



2001 S. Colorado Blvd, Ste 2-1000  
Durango, Colorado 81303

# LAST CHANCE STORM WATER CONTROLS

Montrose County, Colorado

0 10 20 30 40 50  
1 inch = 50 feet

## Storm Water Controls to be Constructed

- Outfall
- Pond
- Runoff Area
- Current Waste Rock Area

Date: 10/26/2012

Checked By: Tom Cavanaugh

Drawn By: AJG

### Notes:

- AMEC Project No.: 10480.4
- Data Source: Nuvemco 122(d) permit, modified from Exhibit C: Map C-5.
- This map is intended to be used for planning purposes only. It is not a survey.

FIGURE  
NO. 1 a

