

C&H Mining Company, Inc.

Lindbergh Mine No. 2

P-3930 / Revision R-20

HYDROLOGIC

RECLAMATION PLAN

submitted by:

Perc Engineering Co., Inc.

P.O. Box 1712

Jasper, AL. 35502-1712

Hydrologic Reclamation Plan (880-X-8H-.06(1)(g)):

I. Steps to Minimize Hydrologic Balance Disturbance:

Surface mining and reclamation activities conducted on the C&H Mining Company, Inc. - Lindbergh Mine No. 2 / Revision R-20 Area will be conducted to minimize disturbance to the hydrologic balance. Several ways in which this will be accomplished are, but not limited to the following:

- a. Monitoring and Reporting of all constructed sediment basins at this mine site (where all runoff from the mine area will drain), surface water monitoring site SW-3180-3, and groundwater monitoring sites MW-2A, MW-4A, MW-4A, MW-6A, MW-1B, MW-3B, and MW-7B as required by the Regulatory Authorities will be performed in accordance with the approved Hydrologic Monitoring Plan.
- b. Physical and chemical treatment of the outfalls at this mine site as necessary to comply with State and Federal Water Quality Laws.
- c. Upon completion of mining, and regrading, surface media will be sampled systematically and sent to the Auburn University Testing Laboratory, or another qualified laboratory, for analyses to determine type and amount of soil amendments necessary to maintain vegetative growth as reported in Part IV-C-1 of the permit application. This sampling system should be adequate (see below).
 1. The chemical analyses will consist of the followings parameters: pH, % Sulfur, Phosphorus, Potassium, Magnesium, Calcium, Maximum Potential Acidity, Neutralizing Potential, NO₃-N, and Recommendations for the amounts of Limestone, Nitrogen, P205, and K20 to be added to the soil.
 2. The physical analyses will consist of the following parameters: Sieve Analysis, % Sand, % Silt, % Clay, Textural Classification, and Available Water Capacity.
- d. Husbandry practices will include, seeding spot areas within the Lindbergh No. 2 Mine to increase cover and the addition of proper nutrients. Suitable mulch shall be used on all regraded and topsoiled areas to control erosion and increase the moisture retention capacity of the soil. A maximum of 3 tons per acre of hay will be used as mulch.
- e. With respect to the Hydrologic Balance, because mining at this site is not expected to significantly affect the regional aquifer in the area, there should be no significant adverse effect on the Hydrologic Balance from mining within the permit area.

II. Material Damage Outside the Permit Area:

All surface mining and reclamation activities within the post R-20 Lindbergh Mine No. 2 will be conducted to minimize and prevent material damage to the hydrologic balance. Several ways in which this will be accomplished are, but not limited to the following:

1. Observing the 300 ft. setbacks from occupied dwellings, unless acceptable waivers are submitted and approved by ASMC.
2. Mining within the permit boundary.
3. Observing and complying with all State and Federal Water Quality Limits.
4. If encountered, mine openings within the permit area (other than blast holes) will be eliminated in the following methods:
 - A) Exploration Holes - Exploration holes will be backfilled with the drill cuttings and capped with two (2) feet of clay.
 - B) Monitoring Wells - Groundwater monitoring wells will be sealed at the time of abandonment with a concrete cap (1.5'x1.5'x.5').
 - C) Mine Openings - None are known to be present within the permit area.
5. Timely regrading for drainage control.
6. On site sediment control to prevent sediment from entering ponds.
7. Timely revegetation of all disturbed areas.

III. Applicable State and Federal Water Quality Laws:

To meet the applicable State and Federal effluent limitation standards as set forth by the Environmental Protection Agency and the Alabama Department of Environmental Management, the applicant shall minimize potential water quality problems by properly handling and disposing of any acid or toxic forming materials and treating contaminated drainage. To assure water quality standards, periodic performance monitoring will be conducted as approved in the Hydrologic Monitoring

Plan. Sediment basins will be utilized as collection sites for surface water treatment when runoff from the mine site requires it. In the event quality problems should arise, the following procedures will be used:

- 1) Lime or caustic soda to raise a low pH.
- 2) Potassium permanganate to decrease manganese levels.
- 3) Alum to decrease total suspended solid concentrations.

In the event alternative methods or chemicals are needed, the Regulatory Authority will be notified prior to use.

IV. Rights of Present Water Users:

As stated above, a well inventory conducted by PERC Engineering Co., Inc. on March 29, 2013 reveals that there are only 3 residences within a ½ mile radius of the revision R-20 Area and all three utilize local groundwater from the same well as their only domestic source. This well was addressed in the original hydrogeologic report and the following was noted: " Wells located to the south of the proposed mine site are in general more likely to be affected due to the fact that the wells are down dip, however the three wells in question (L-22, 23, and 24) are located in excess of 2,300 ft. from the permit boundary. The elevation of these wells are approximately 560 ft. MSL, approximately 100 ft. above strata proposed to be disturbed by mining, and when taking into consideration the dip of this strata, these wells would have to be over 150 ft. deep to even intersect strata proposed to be

mined by this operation. Also, as stated previously, areas up-dip of these wells have been previously mined, therefore it is not anticipated that these three wells will be significantly affected by mining at the Lindbergh No. 2 Mine.” A comparison from the two samples taken from the same well, one collected on 05-13-1996 during the inventory for the original permit area (called L-22), and one collected on 03-29-2013 during the inventory for the Revision R-20 area (called L2R20-22) reveals that there has been no impact to this groundwater resource during the interim. **See attached results of FT2-1 from the original hydrogeologic report.** The sample collected on 03-29-2013 has a slightly lower pH, similar mineralization, lower conductivity, and a lower sulfate concentration than the sample collected on 03-28-2009. This analysis confirms there has been no additional impact to this aquifer from local mining. The only difference between the original permit and the post R-20 permit area (with respect to impact to the adjacent well) is that the post R-20 permit area will be located approximately 100 ft. from the well in question instead of the original 2,300 ft. Based on the fact that the stated dip of the local strata is toward the southeast, there is no doubt that affected groundwater is likely to enter the strata this well is completed in IF the top of the post mine spoil aquifer reaches an elevation which would intersect this strata. The elevation of the American Seam as taken from the Structure-Contour Map in the original Hydrogeologic Report (in the vicinity of the well in question) is approximately 267 ft. MSL. As stated above, the elevation of the well in question (L2R20-22) is approximately 560 ft. MSL and the well is 110 feet deep. This means that the bottom of the strata that this well penetrates lies at 450 ft. MSL. Therefore, in order for affected groundwater to

migrate into the strata this well penetrates, the post mine spoil aquifer must be a minimum of 183 feet thick at this location. Actual changes in groundwater quality may not be observed in this well until the final highwall is eliminated and the spoil regraded. Due to the increased porosity of the post mine spoil aquifer and the associated increase in gravitational affects on the groundwater within that aquifer, the post mine spoil aquifer may not reach 183 feet thick. Impact to the quantity of groundwater which migrates into this well is likely. This is due to the fact that, as stated above, the local dip is towards the southeast. Based on local topography, and the elevation and depth of this well, the recharge area for this well is small, probably no more than two or three hundred acres. As the highwall shown on the Mine Site Location Map advances towards the southeast, and the elevation of the top of the highwall passes 450 ft. MSL, the recharge area of this well will begin to decrease. If mining advances to the limits of the post R-20 permit boundary, the recharge area of this well (and the amount of groundwater available to it) will be significantly decreased.

V.A. Acid and Toxic Drainage:

It should be noted that the area added by this revision is contiguous to the existing permit and lies between the Lindbergh Mine No. 2 and the WB Mining, LLC. - Fishtrap Mines 1 and 2 (ASMC permit numbers P-3813 and P-3930) as shown on the Mine Site Location Map. Also shown on this map are several lithologic, geochemical analysis, and groundwater monitoring sites drilled for the Fishtrap, Fishtrap No. 2, and Lindbergh No. 2 mines. Therefore, these sites should

adequately describe the structure, elevation, orientation, lithology, content, and geochemistry of the area added by Revision R-20. Please see the respective Hydrogeologic Report for this information. Coal stockpiles will be located in such a manner whereas excess drainage may be diverted from Coal stockpile areas. When the Coal stockpile becomes no longer necessary it will be reclaimed by removing the Coal which makes up the pad by truck & covering the pad area with four feet of the best available non-toxic, non-combustible material, or chemically treating the pad & covering the pad with 1 ft. of material, and revegetating in accordance with the approved Reclamation Plan (Part IV-C-5). The pit bottom will have a much lower permeability than the spoil after mining, which should contain any acid or toxic drainage until the highwall is reclaimed and the drainage is allowed to filter into the buffering material and be neutralized. Any material such as oil, grease, rags, etc., that may present a fire hazard will be properly disposed of in an approved landfill. Any non-Coal waste will be disposed of at approved off-site landfills which meet all applicable local, state and federal requirements.

V.B. Contribution of TSS to Streamflow:

Total Suspended Solids within the permit area will be controlled by utilizing the sediment basins to control runoff. These sediment basins will be designed to retain all settleable solids, skim and retain all floating solids and provide adequate detention volume and time to minimize the contribution of total suspended solids into the receiving stream. In the event that a problem arises with the TSS in the discharge of the sediment basin, Alum will be introduced into the basins to decrease

total suspended solid concentrations. An alternative to Alum could be the construction of a floating silt fence to cause the solid to floc and settle to the bottom.

V.C. Water Treatment Facilities:

The sediment basins will be the primary treatment facility to which chemical treatment may be introduced as needed to maintain effluent limits set forth by the Regulatory Authority. Sediment basins will be constructed downstream of the permit area to control drainage and collect sediment from the disturbed area during surface mining and during the reclamation phase. In the event quality problems should arise, the following procedures will be used :

- 1) Lime or caustic soda to raise a low pH.
- 2) Potassium permanganate to decrease manganese levels.
- 3) Alum to decrease total suspended solid concentrations.

In the event alternative methods or chemicals are needed, the Regulatory Authority will be notified prior to use.

V.D. Drainage Control:

Sediment basins will be constructed during mining operations to control drainage and collect sediment from the disturbed area during the construction phase and during the reclamation and restabilization phase. All surface and groundwater runoff will be controlled through the basin whose design is shown in Part III-B of the

application. The basin will be constructed, prior to any disturbance in its drainage area, under the supervision of a qualified Registered Professional Engineer or be a qualified person under his direct supervision. Upon completion of construction the basin will then be certified to the Regulatory Authority as having been constructed by bringing desirable material in and compacting it in lifts until the construction specifications are met. Drainage structures will be installed as per design plans with any necessary erosion control and/or stabilization procedures such as riprap, concrete, drop structures, energy dissipaters, etc. being implemented as deemed necessary by the project engineer. Upon completion of construction the entire disturbed area will be revegetated in accordance with the approved Reclamation Plan (IV-C-5). Silt fences, hay filter dams, dust control on roads, lush vegetation, diversions ditches and other prudent practices will be utilized in controlling runoff.

V.E. Restore Approximate Recharge Capacity:

Due to the unconsolidated nature of the post mine strata and the voids present after mining, gravitational forces (as opposed to capillary forces) will play a larger role in influencing infiltrated groundwater movement, therefore groundwater levels in the post mine aquifer will be lower on average than an unaffected aquifer of identical thickness and extent, and lateral groundwater movement in the post mine aquifer will be much greater than prior to mining therefore, as stated previously, baseflow to surrounding streams will increase.

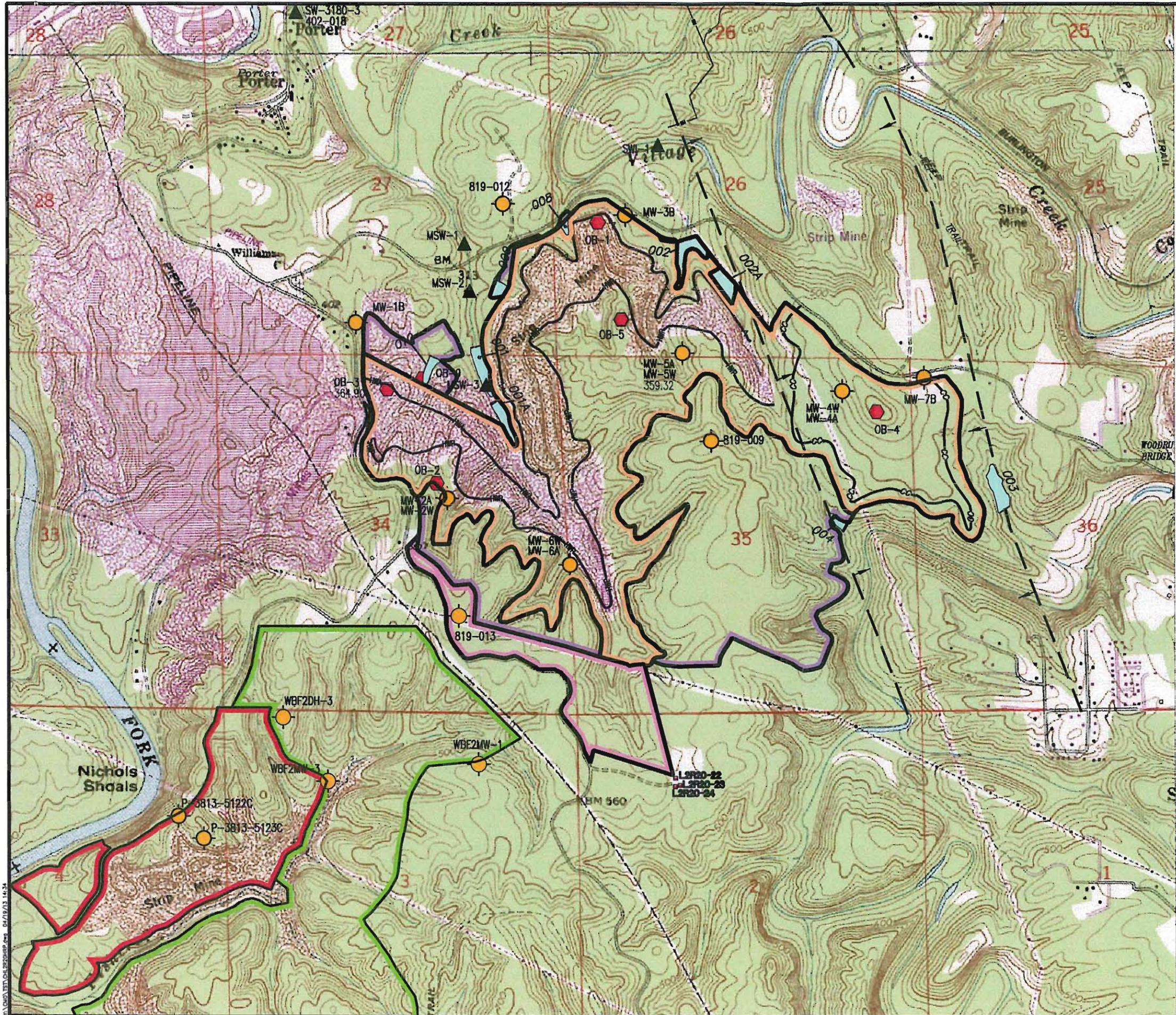
V.F. Rights of Present Water Users:

In the event that it is shown that mining by C&H Mining Company, Inc. has diminished the quality or quantity of this, or other surrounding wells, one of the following methods of replacing the resident's domestic supply will be implemented:

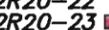
1) an alternative source of groundwater for either shallow groundwater wells or wells with inadequate casing would involve drilling a new well in which the casing would penetrate an aquitard, such as shale, below the lowest target coal seam, and the well would also terminate below the aquitard in water-producing strata, such as sandstone, or 2) connect the residence to an existing municipal water supply, or 3) other methods which replace the groundwater users supply and is agreeable to both the user and the operator will be considered an alternative.

V.G. Potential Adverse Consequences from PHC:

None anticipated.



Legend

-  ORIGINAL PERMIT BOUNDARY
-  REVISION R-20 AREA
-  MINING AREA ADDED BY PRIOR REVISIONS
-  P-3930 BOUNDARY
-  P-3813 BOUNDARY
-  SW-3180-3 SURFACE WATER MONITORING SITE
-  819-013 GROUND WATER MONITORING SITE
-  OB-1 DRILL HOLE
-  FAULT (ARROW INDICATES DOWNTHROWN SIDE).
-  HWA AMERICAN SEAM HIGHWALL
-  HWP PRATT SEAM HIGHWALL
-  CC COBB SEAM OUTCROP
-  A AMERICA SEAM OUTCROP
-  001 SEDIMENT BASIN
-  PREVIOUSLY DISTURBED
-  L2R20-22, L2R20-23, L2R20-24 INVENTORIED RESIDENCE



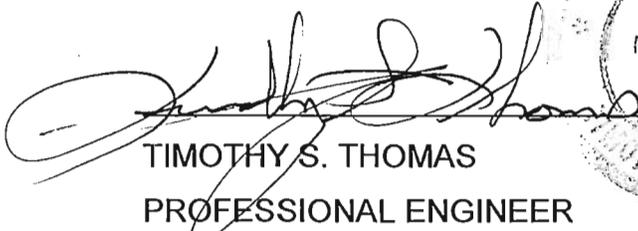
C & H Mining Company, Inc.
Lindbergh Mine No. 2
P-3765 / Revision R-20
Hydrologic Reclamation Plan Map

DRAWN BY: C.M.O.	DATE: 3-25-13
DWG. NAME: CHL2R20HRP	
APPROVED BY: T.S.T.	SCALE: 1" = 1500'

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CERTIFICATION STATEMENT:

The preceding Hydrologic Reclamation Plan for C&H Mining Company, Inc. at their Lindbergh Mine No. 2 under Revision R-20 was prepared by, or under the direction of, a professional engineer and I certify that it is true and correct to the best of my knowledge and belief.


Date: 04-19-13
TIMOTHY S. THOMAS
PROFESSIONAL ENGINEER
REGISTRATION NO. 18830

