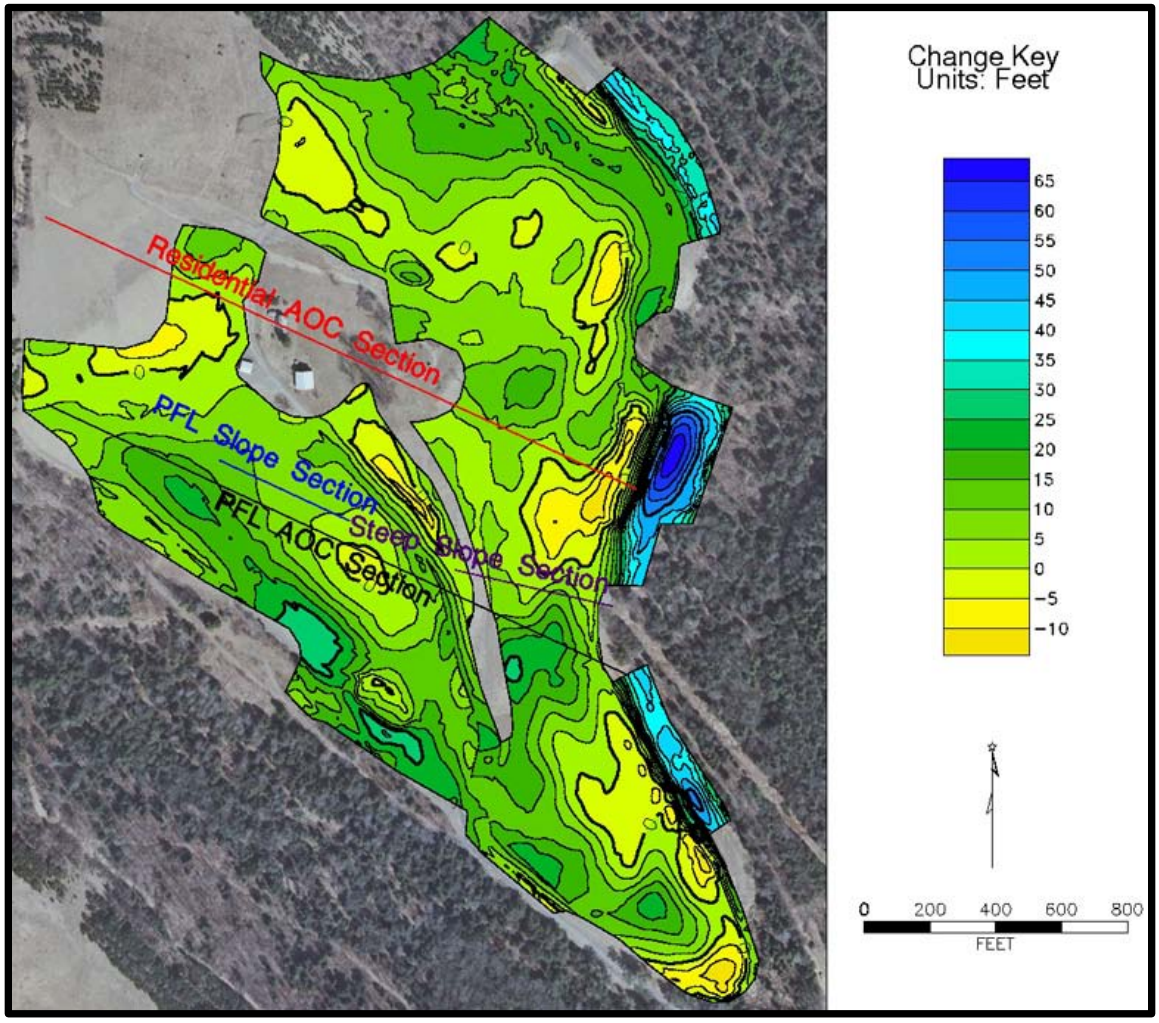
Program Review of the Implementation of Approximate Original Contour Regulations in Pennsylvania's Bituminous Surface Mining Program



Harrisburg Field Office

September 2010

Executive Summary

In 2010, the Harrisburg Field Office conducted an oversight study on interpretation and implementation of approximate original contour (AOC) in Pennsylvania as part of OSM's national oversight efforts. The AOC study in Pennsylvania was limited to bituminous surface mining operations. The study documents how DEP reviews and permits AOC as part of the reclamation plan and how AOC is evaluated during the Stage I inspection. The study found that reclamation plans are not engineering intensive and plans are required to contain reclamation contours of 20ft or less, show all final slopes greater than 20 degrees, and identify all drainage patterns. The pre-mining topographical map is commonly approved as the reclamation map, even for previously affected areas. A study finding is that a pre-mining topographical map does not provide the data necessary to conduct a permit review of the reclamation plan for remining permits. A topographical map of a remining site depicts the abandoned mine topography, which will not be the reclamation topography. Interviews with DEP revealed that AOC compliance is mostly evaluated using visual observations and the Pennsylvania program does not require any other landform measurements, modeling or analysis of pre-mining features as part of the AOC evaluations. In addition to documenting Pennsylvania AOC procedures, OSM selected five permits for a qualitative and quantitative AOC analysis. The permit selection process was specifically designed to identify and include mining scenarios that represent different AOC determination challenges. OSM performed five qualitative AOC site inspections, replicating the AOC evaluation methods used by DEP, and performed three quantitative AOC evaluations, using digital elevation data to quantify the changes in topography. OSM's qualitative field inspections identified localized areas which were at variance with the "closely resemble" requirement contained in the approved AOC definition. However, the field inspections concluded all five sites generally achieved AOC qualitative standards prescribed in the approved Pennsylvania program. The quantitative analysis showed that most of the mine sites were reclaimed to within 20 ft of the original land surface, but the analysis of a ridge mining permit revealed a large deviation from the approved reclamation plan. The quantitative analysis identified that one hill top along a ridge line was lowered by 160 ft which did not comply with the approved reclamation plan. The lowered hill top represented 12% of the total permit area. The qualitative OSM field inspection, conducted using DEP Phase I bond release inspection methods, did not identify this change. OSM's history of oversight inspections avers the AOC issue at the ridge mining site only applies to ridge mining operations. Further, the issue was created by the operator's failure to submit a revised reclamation plan as the mining plan changed. Ridge mining operations on this scale are extremely uncommon in Pennsylvania. However, this study shows a more detailed AOC evaluation is required for these types of operations. Contour strip and box-cut mining methods are by far the most commonly used mining methods in Pennsylvania. Therefore, OSM concludes the current AOC evaluation techniques used by the State are a reasonable

approach to document achievement of the qualitative metrics prescribed in the approved Pennsylvania program. Improved measurement and modeling techniques are prescribed to assure post mining land configuration more closely resembles pre-mining land conditions such as morphology, undulations, dendritic patterns and other features which may otherwise be overlooked.

Introduction

OSM established several national priority oversight topics for 2010, including an oversight study on the implementation of approximate original contour (AOC). The Harrisburg Field Office (HFO) conducted the AOC study on the Pennsylvania program. The national oversight study identified three topics to evaluate the implementation of AOC, 1) AOC interpretation and permitting documentation; 2) processes for on-the-ground AOC verification; and, 3) field verification that backfilling and grading are following the approved plan. This report is divided into six sections that document the AOC study; (1) Introduction; (2) Characterization of Pennsylvania's AOC Program; (3) Study Methodology; (4) Data Collection and Data Evaluation; (5) Conclusions and Recommendations; and, (6) Response to National AOC Questions. The Figures, Photos, and Appendix are located at the back of the report.

Characterization of Pennsylvania's AOC Program

The Federal definition for AOC is "*surface configuration achieved by backfilling and grading of the mined areas so that the reclaimed area, including any terracing or access roads, closely resembles the general surface configuration of the land prior to mining and blends into and complements the drainage patterns of the surrounding terrain, with all highwalls, spoil piles and coal refuse piles eliminated. Permanent water impoundments may be permitted where the regulatory authority has determined that they comply with 30 CFR §816.49.*" The State counterpart to AOC is their definition of "contouring." The definition of contouring (Pa Code Title 25 §87.1) is "*Reclamation of the land affected to approximate original contour so that it closely resembles the general surface configuration of the land prior to mining and blends into and complements the drainage pattern of the surrounding terrain with no high wall, spoil piles or depressions to accumulate water and with adequate provision for drainage*."

For a holistic understanding of how AOC is implemented in Pennsylvania, an understanding of the reclamation standards on "*previously mined areas*" is required since it is estimated that 75% of bituminous surface mining permits contain remining. The backfilling and grading standards for remining areas is found at §87.142. The regulations state, "*When the surface mining activities are affecting lands that had previously been mined to prior current practices and standards, the Department may approve, in writing, terracing as an alternative to contouring of the areas if the operator demonstrates that: (1) The areas proposed to be affected cannot be reclaimed to approximate original contour……*" The reclamation standard on remining sites in Pennsylvania is AOC, which is consistent with the Federal regulations.

The Pennsylvania program doesn't contain any other "working" definition, guidance, or policy that defines AOC as a quantitative metric that could be used to implement and evaluate AOC. The only other insight into how PADEP implements AOC is the language contained in the permit application and information contained in their Stage I completion report.

Permit Application AOC Requirements

Module 10 and Module 18 of the permit application requires the operator to provide information on their reclamation intentions. PADEP uses the application information to evaluate whether the proposed reclamation plan will achieve AOC.

Module 10 is the Operations module that requires operators to describe the methods and equipment that will be used to mine and reclaim the site. Module 10 contains two sections, 10.4 and 10.5, that request AOC-related information (Figure 1).

- Module 10.4, subtitled Final Grade and Drainage, requires the operator to "*Identify the final grading and drainage pattern, including topographic contours on Module 18 and a description of compaction and stabilization techniques. Operations involving steep slopes (greater than 20 degrees) must include a stability analysis.*"
- Module 10.5, subtitled Modifications to Approximate Original Contour, requires operators to determine if they intend to request an AOC variance. Module 10.5 states, "*Where the proposed final grade is other than approximate original contour, provide justification for alternate reclamation proposal. Include a detailed description of the factors which prevent restoration to approximate original contour as well as plans and cross-sections which describe the alternate reclamation and demonstration that the proposed final contour is consistent with the proposed post-mining land use. Alternate reclamation proposals for areas which have been previously mined and unreclaimed must include a demonstration of the environmental benefits of reaffecting the area. "*

Module 18 is the Land use and Reclamation Map that details the minimum requirements that must be shown on the reclamation map (Figure 2). The following AOC- related information must be shown on the reclamation map and is used by PADEP to review the proposed reclamation topography:

- Post-mining topographic contours of 20 ft or less;
- Areas to restored to AOC (If restored to other than AOC, show final contours lines at intervals of 20 ft or less or include sufficient cross sections to adequately reflect final surface configurations);
- All final slopes greater than 20 degrees;
- All drainage patterns.

Characterization of Permitting AOC in Pennsylvania:

During the study, District Mining Managers, Compliance Managers, and Permitting Engineers were interviewed to obtain an understanding of how AOC is permitted. The interviews revealed the following insights into the Pennsylvania program:

1. Nearly all bituminous surface mining permits in Pennsylvania require AOC as the reclamation standard. District mining personnel could only recall a couple permits in the past 20 years that contained an AOC variance.

2. Pennsylvania regulations (§87.68) require the submittal of a contour map or cross section that shows the anticipated final surface configuration of the mine site. However, the permit application is geared towards the submittal of a reclamation map and, as a result; virtually all permits contain a reclamation map showing final contours without cross sections.

3. AOC-related disputes or complaints are very rare. None of the district offices reported any AOC-related citizen complaints in the past three years.

4. The reclamation plan included in the permit is not an engineering-intensive plan. The application requires that the reclamation map be no less accurate than a USGS topographical map. The common and accepted practice is to have the pre-mining topographical map submitted as the basis for Module 18 reclamation map, which documents the operator's intentions to reclaim the land to the pre-mining topography and within the accuracy of a USGS topographical map. It is very rare to have a reclamation map show reclamation contours that differ from the pre-mining topographical map. Since the pre-mining topographical contours are submitted as the reclamation contours, it could be interpreted that the operator intends to reclaim the site to within +/- 20 ft of the original contour. Since pre-mining topographical maps are submitted as the reclamation map, the reclamation map for the remining areas depict the abandoned mine land topography, not the reclamation topography. It is unclear how permit reviewers are able depict and review the reclamation topography for the remining areas during the review of the permit application.

AOC Compliance Evaluation

Compliance with AOC is evaluated and determined at Stage I bond release. PADEP inspectors are required to complete a Stage I inspection report. The Stage I inspection report contains four subtitles that documents the progress of reclamation, Mining Restoration, Hydrogeologic Information, Erosion and Sedimentation Control Information, and Recommendations and General Observations. The Mining Restoration subtitle documents the AOC evaluation and

contains four questions. The four questions are: (1) Is backfilling completed as per the approved plan?; (2) Is all debris, junk, and nonessential equipment removed?; (3) Are all coal stockpiles removed?, and; (4) For prime farmland only, are all slopes less than 8%? The inspector documents his AOC evaluation by check marking each of the questions as Yes, No, or Not Applicable. An example of a completed Stage I inspection report is shown in Figure 3.

Characterization of Evaluating AOC Compliance in Pennsylvania:

In addition to interviewing the personnel identified above, Inspector Supervisors, and Surface Mine Inspectors were interviewed to learn how a site is inspected to determine if AOC has been achieved. The interviews revealed the following program findings:

1. Inspectors rely on visual observations to evaluate a site for AOC compliance.

2. Many inspectors are assigned to a site throughout the entire operational life and use their pre-mining knowledge of the site topography in the AOC evaluation. Otherwise, they use the reclamation map for the evaluation.

3. A typical AOC evaluation entails visually comparing the reclamation map to the reclaimed site, visually evaluating drainage areas, looking for depressions that will retain water, and evaluating the blending of the highwall and low wall with the unmined areas.

4. There doesn't appear to be any approved, through permitting, reclamation standard for the *previously mined areas* since post-mining contours and reclamation drainage configurations are not shown on the reclamation map for these areas.

5. PADEP inspectors feel that the visual methods they use to evaluate AOC are adequate to determine whether the site achieves the qualitative standards set forth in the State regulatory definition for *contouring*.

6. Inspectors report that AOC issues are rare.

7. Several inspectors stated that the most common AOC-inspection problem they encounter is ensuring volume of spoil caused by swell is evenly distributed over the entire hillside (see discussion below).

8. The Pennsylvania program prefers to have the increased spoil volume from spoil swell worked into the existing disturbed area rather than issue AOC variances or excess spoil fills in undisturbed areas.

Virtually all permits in Pennsylvania require AOC as the reclamation standard. Several coal industry personnel were interviewed to document how land reclamation is conducted in Pennsylvania. The interviews revealed that GPS-enabled equipment or elevation spot survey checks are not used during reclamation to ensure AOC compliance. The unmined land above the high wall and below the low wall serves as "elevation targets" for the equipment operators. The undisturbed watersheds above and/or below of the disturbed area are used as guides to reconstruct the drainage areas within the disturbed area. Their reclamation strategy is that blending to those unmined elevations will result in reclamation that "resembles" both the shape and elevation of the pre-mining land configuration.

During the study, PADEP personnel were interviewed to identity the largest AOC-related challenge in the bituminous region of Pennsylvania. A reoccurring theme was the challenge presented by spoil swell on some operations. In sandstone-dominated coal measures and sites with large overburden to coal ratios, the spoil swell can significantly increase the pre-mining spoil volume. Adequately blending the spoil swell over the entire mine site can be an inspection and reclamation challenge. Contour and box-cut mining methods are common in Pennsylvania. The nature of these mining methods is to start mining at the outcrop or in low cover areas and progress towards areas of higher cover. Therefore, most of the spoil is piled on the out slopes of the original hillside as the mining pit progresses deeper into the hillside. During reclamation, the equipment operator simply pushes the spoil from the out slope area towards the center of the hill. The equipment operator keeps pushing the spoil until the reclamation surface meets and blends into the top of the highwall. As a result, most of the spoil swell volume is left where it was originally placed, towards the outcrop area on the out slope of the hill side. The concentrated spoil swell creates a "bulge" in the reclamation topography on the side of the hill. The operator is somewhat limited to how the spoil swell is distributed because they must maintain positive drainage on the hill side, they can't grade spoil in the unmined area above the high wall, and they can't grade spoil in the unmined area below the low wall. These limiting factors often result in a "bulging" hill side for contour mines in Pennsylvania. The magnitude and extent of the bulge vary with mining and reclamation practices and geology. Figure 4 is an exaggerated depiction of how spoil swell can change the hill side morphology. Photo 1 shows a contour mine during backfilling. The hill side bulge from the spoil swell is noticeable in this photo. Photo 2 shows a depiction of a spoil swell bulge on a site that has achieved Stage 2 bond release. Photo 3 is a close up picture of the bulge in Photo 2. The photo was taken at the bottom of the reclaimed hill side looking up towards the unmined hill top. The bulge from this perspective is more pronounced because the change in slope at the top of the bulge is apparent.

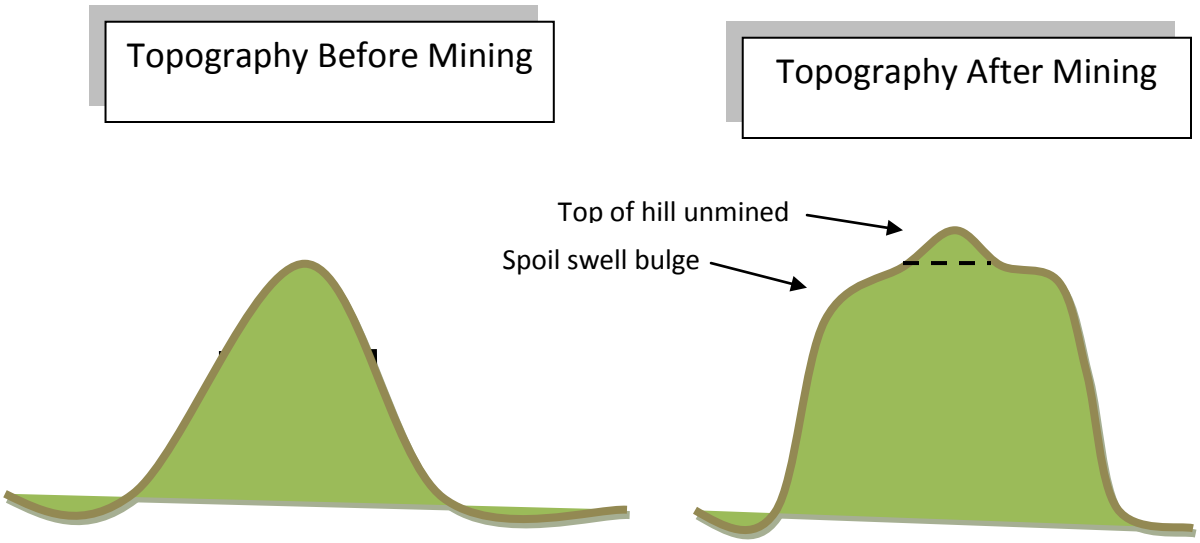


Figure 4: This simple illustration depicts the change in hill side morphology for some surface mines in Pennsylvania.

Photo 1: This photo of a recently backfilled contour strip mine shows a bulge in the middle of the hill side.

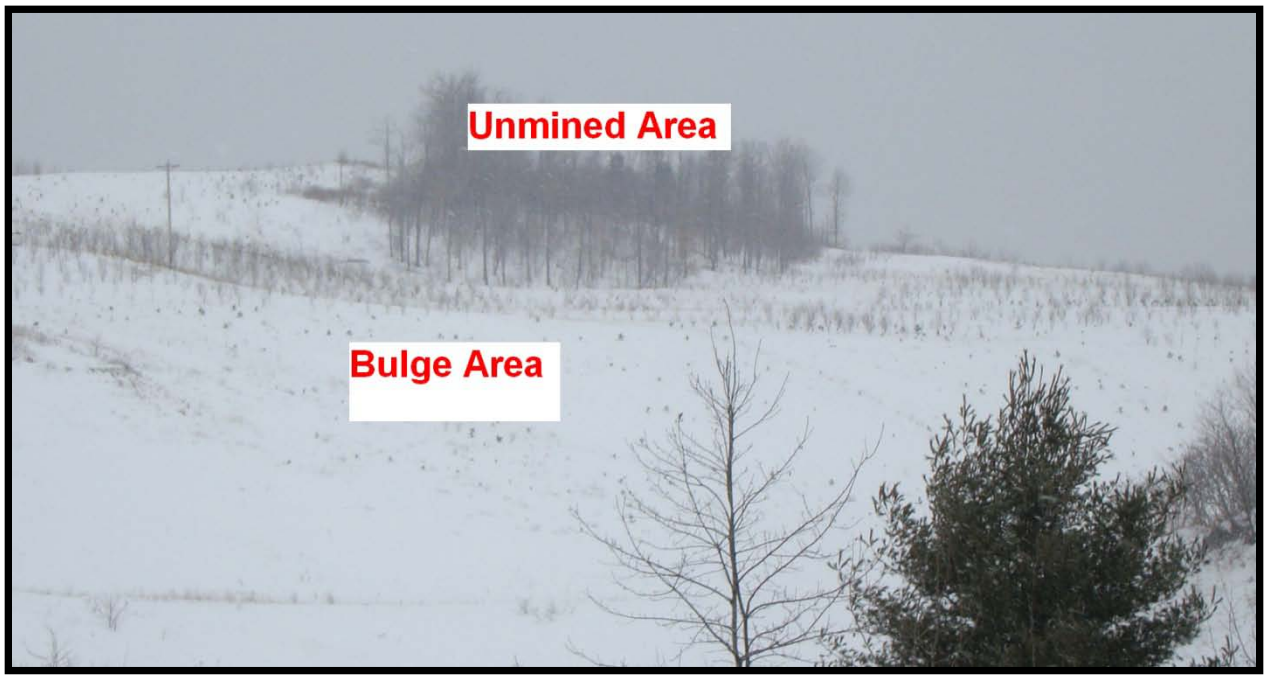


Photo 2: Photo of the MB Energy Brink operation reviewed during this study showing the bulge created by the spoil swell from the > 300 ft high wall. The obvious change in slope depicts the bulge area from the reclaimed area blended into the high wall.

Photo 3: This is a close up photo of the bulge on the Brink operation. The change in slope created by the spoil swell is apparent.

Discussions with DEP staff show that the Pennsylvania program prefers to have the spoil swell "blended" into the reclamation, which results in some variation from the original elevation or morphology, rather than have the excess spoil be disposed of as an "excess spoil" fill in unmined areas or approve a variance from AOC. It is important to note that AOC is commonly achieved with the "spoil swell bulge" incorporated into reclaimed hill sides. The point of this discussion is to highlight one of the few AOC-related challenges in Pennsylvania; the hill side bulge is a relatively minor challenge at limited sites. This issue was one of the few AOC-related issues discussed by PADEP inspectors during this study. Inspectors minimize the shape of the bulge by ensuring operators keep grading more dirt from the spoil pile to the top of the high wall and bottom of the low wall until a relatively even blending/grading is achieved.

Figure 1

Module 10: Operational Information

10.1 Equipment and Operation Plan

For each phase of mining, identify the type and method of mining; engineering techniques; major equipment to be used; starting and finishing point; and the anticipated sequence in which the phases are to be mined. Provide a description or explanation of the relative sequence of mining, including the relative timing of various phases and the estimated life of the mine. (**Note:** Phases should be numbered in the anticipated sequence to be mined and keyed to the Exhibit 9 Operations Map.)

10.2 Pit Dimensions

Identify the length and width of each cut and the maximum highwall height to be encountered. Where the proposed unreclaimed pit dimensions exceed 1500 feet in length or 300 feet in width, provide a demonstration that the additional distance is needed for reason of multiple seam mining, size or amount of equipment to be used, topography or method of mining. (**Note:** This demonstration must be provided when backfilling and grading is proposed for more than 300 horizontal feet from the face of the highwall and more than 1500 linear feet of pit open at one time.)

10.3 Existing Structures

Identify and describe the intended use of all existing structures or facilities to be used in connection with or to facilitate coal mining activities. (Common existing structures include impoundments, ponds, stream crossing facilities, water obstructions and coal processing waste dams.) Provide detailed plans and drawings which identify the current condition of these structures or facilities. Provide a demonstration that these structures or facilities comply with applicable regulations and engineering standards, cross-sections and plan view drawings, and engineer certification.

10.4 Final Grade and Drainage

Identify the final grading and drainage pattern, including topographic contours on Exhibit 18 and a description of compaction and stabilization techniques. Operations involving steep slopes (greater than 20º) must include a stability analysis.

10.5 Modifications to Approximate Original Contour

Where the proposed final grade is other than approximate original contour, provide justification for the alternate reclamation proposal. Include a detailed description of the factors which prevent restoration to approximate original contour as well as plans and cross-sections which describes the alternate reclamation and demonstration that the proposed final contour is consistent with the proposed postmining land use. Alternate reclamation proposals for areas which have been previously mined and unreclaimed must include a demonstration of the environmental benefits of reaffecting the area.

10.6 Reclamation Cost

Provide an estimate of the cost of each stage of reclamation for each phase of mining. Include supporting calculations for the estimates.

Figure 2

Module 18: Land Use and Reclamation Map

Provide a map or plan that includes the permit area and the area within 1,000 feet of the permit area. The map or plan shall be clear, accurate, easily read and on a scale of no smaller than 1 inch = 400 feet. Maps on the scale of 1 inch = 200 feet for permit areas of 100 acres or less and 1 inch = 400 feet for permit areas larger than 100 acres are preferred. Use the same scale as used for Modules 6.2 and 9. All structures are to be depicted to scale where practical. Identify the map plan as Exhibit 18 Land Use and Reclamation Map. Each map or plan must bear the seal or facsimile imprint of a registered professional engineer or registered professional land surveyor. For items c), e), and f), show the barrier areas (within the permit area and any barriers adjacent to the permit area which extend into the permit area) for the features as established by Section 86.102 regulations (e.g., 300 feet to occupied dwelling). The map must show latitude and longitude coordinates at or near the four corners of the map. The coordinates must be no less accurate than the accuracy of a USGS topographic map. The method of determination and estimated accuracy must be indicated on the map. An orthogonal grid system is recommended, but is optional. The grid system can be an arbitrary coordinate system or tied into a true geographic system (i.e., latitude/longitude, UTM or State Plane). Show all the following information within the permit area and for a distance of up to 1000 feet from the permit area, unless specified otherwise. Indicate which items are present by placing a check mark in the box before the item.

- ☐ a) postmining topographic contours (contour intervals of 20 feet or less)
- ☐ b) proposed permit area
- ☐ c) all surface water bodies such as streams, lakes, ponds, springs, wetlands (include barrier areas and names of streams and lakes) Use a unique label for each unnamed tributary
- ☐ d) property lines (key ownership to Module 5)
- ☐ e) all buildings (include barrier areas)
- ☐ f) all man-made features such as roads, utilities including utility lines and right-of-ways or easements and other surface and subsurface man-made features (include names and barrier areas)
- ☐ g) existing or previously surface-mined areas and existing areas of refuse, spoil, waste, and coal processing waste disposal
- ☐ h) reconstructed prime farmland soils and areas of negatively declared prime farmland soils
- ☐ i) haul roads and access roads which will remain as part of postmining land use
- ☐ j) erosion and sedimentation control facilities which will remain as part of postmining land use
- ☐ k) sedimentation ponds/dams or impoundments which will remain as part of postmining land use
- ☐ l) existing land uses and proposed postmining land uses
- ☐ m) areas to be restored to approximate original contour (AOC) and outline all final slopes greater than 20° (If restored to other than AOC, show final contour lines at intervals of 20 feet or less or include sufficient cross sections to adequately reflect final surface configurations)
- ☐ n) drainage pattern
- ☐ o) vegetative cover types to be established (key to seed mixture number, woody plant mixture number and cropping group number in Module 23)
- ☐ p) facilities for protection or enhancement of fish and wildlife
- ☐ q) excess spoil areas
- ☐ r) areas proposed for land application of sewage sludge or coal ash

Figure 3

ER–MR–33: Rev. 7/87

ENTERED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF MINING AND RECLAMATION

Page 1 of 3

Date August 6, 2008

RECLAMATION STATUS REPORT

Inspection Report
Stage I

Report No. 2-08-020

Weather Clear, 70s, humid

On Site Times AM

PERMITTEE	TOWNSHIP	COUNTY	PERMIT NO.
RFI Energy, Inc.	Perry	Clarion	16050109
ADDRESS PO Box 162 Sligo, PA. 16255	PARTIAL X / FOLLOW-UP ☐ / AERIAL ☐	VIOLATIONS NOTED ☐ FOLLOW-UP INSP. REQUIRED ☐ PREVIOUS VIOLATIONS: COMPLIANCE ORDER ☐ CORRECTED ☐ FTC ORDER ☐ CEASE ORDER ☐ UNCORRECTED ☐ OUTSTANDING ENFORCEMENT ☐	LICENSE NO. & EXPR. DATE 5974 12-08 / OPERATIONAL STATUS REG

GENERAL MINING INFORMATION

a. Areas-Seams-Pit Dimensions (L/W/H)-Method: NO PIT

PERFORMANCE STANDARDS

Obs.	STANDARD	Viol.	Comp. Date
	8. Treatment Facilities		
✓	7. Sediment Control Measures		
✓	9. Sediment Ponds		
✓	31. General Backfilling		
✓	56. Backfilling-Final Slopes		

OPERATIONAL AREA = 57.0 acres

MINING AREA EVALUATED	____ ACRES
SUPPORT AREA EVALUATED	____ ACRES
MINING AREA DELETED	____ ACRES
SUPPORT ARE DELETED	____ ACRES

RECLAMATION STATUS QUESTIONS	YES	NO	N/A
MINING RESTORATION			
1. Is backfilling completed as per the approved plan?	✓		
2. Is all debris, junk, and nonessential equipment removed?	✓		
3. Are all coal stockpiles removed?	✓		
4. For prime farmland only, are all slopes less than 8%			✓
HYDROGEOLOGIC INFORMATION			
5. Does analysis of surface & groundwater monitoring data indicate degradation has not occurred?	✓		
6. Do post-mining discharges on the permit meet effluent criteria? NO DISCHARGES ON-SITE, SUB F. PT. 547-15 HAS BEEN MINED OUT + ELIMINATED			✓
If not, indicate monitoring points or sample numbers ---			
7. Do post-mining discharges adjacent to the permit meet effluent criteria?			✓
If not, indicate monitoring points or sample numbers ---			
8. Has a Hydrogeologist evaluated the discharges associated with this permit?	✓		
If yes, date of report Hydrogeologist			
9. Have Subchapter F or G requirements been met?	✓		
EROSION AND SEDIMENTATION CONTROL INFORMATION			
10. Have erosion and sedimentation controls been implemented?	✓		
11. Do sediment basin discharges meet effluent criteria?	✓		
Sample Numbers ---			
REQUIRED FOR COAL REFUSE DISPOSAL ONLY			
12. Is site topsoiled and planted?			✓
RECOMMENDATIONS AND GENERAL OBSERVATIONS			
13. Is the site ready for topsoil replacment and planting? SOME AREAS PLANTED, SOME BEING TOPSOILED AT THIS TIME	✓		
14. DO YOU RECOMMEND APPROVAL OF THIS RECLAMATION STATUS REQUEST?	✓		

COMMENTS AND RECOMMENDATIONS: See P. 2

Person Contacted	Title	Discharge/Seeps X yes ☐ no
Dan Fascemyer	president	Samples Collected X yes ☐ no PREVIOUS – SEE ATTACHED
Signature		Range of Samples Collected ____ to ____
mailed to office		Investigator Signature & I.D. No. David J. Lyle Jr. 11541

The Operator's signature acknowledges that he has read the report, including the reverse side, and that he was given the opportunity to discuss it with the investigator. The signature does not necessarily mean he agrees with the report.

DISTRICT FILE

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF MINING AND RECLAMATION

COMMENTS AND RECOMMENDATIONS

Mine Name: Callander

Date: **August 6, 2008**

PERMITTEE	TOWNSHIP	COUNTY	PERMIT NO
RFI Energy, Inc.	**Perry**	**Clarion**	**16050109**

CR 2-08-020

Weather- clear, 70s

This site is backfilled to AOC. One small dozer and a D11 are finishing up topsoiling of the site. Planting of the remainder of the site is scheduled to be completed within the next 1-2 weeks, weather permitting.

The following work has been completed during the past few months:

- Both reconstructed stream channels are completed. One flows to SP-1, the other to SP-2.
- A small wetland with island has been constructed next to SP-1. It is fed by D2 water which has been piped to the inlet. The outlet/spillway flows into SP-1.
- Approx. 15 acres have been planted this spring, with trees planted on property # 2.

Approximately 20-25 acres remain to be planted.

Sediment Ponds 1,2 and ditches remain in. there are landowner letters on file for these to remain permanently.

The haul road up to property # 2 remains also.

Treatment ponds TF-1 have been regraded and are now topsoiled.

Sub F. pt 547-15 has been eliminated with the reclamation of the old spoil.

Downstream samples indicate no degradation. Copies attached.

Overall reclamation of this site is very good.

Person Contacted	Title	Discharge/Seeps ☐ Yes ☐ No Samples Collected ☐ Yes ☐ No Range of Samples Collected
Signature		Investigator Signature Sampler ID No. **4217** Employee No. **115441**

The Operator's signature acknowledges that he has read the report, including the reverse side, and that he was given the opportunity to discuss it with the investigator. The signature does not necessarily mean he agrees with the report.

District File/Permittee/Inspector

Study Methodology

Study Overview

The national oversight plan contained minimum requirements and guidance on how each field office should conduct oversight on the three AOC study topics. The national plan required that the Pennsylvania oversight study contain five permit reviews. The five permit file reviews consisted of reviewing all AOC permitting and evaluation data. Three of the five permits required a quantitative evaluation that quantified the differences between the pre and post-mining topography. The quantitative evaluation was performed by using existing data or by developing data to create pre and post-mining computer elevation models. Examples of existing data used to generate the computer models are permit maps and lidar data. Differences between the pre and post-mining elevation models were quantified to identify the differences between the pre-mining and post-mining topography. For one site, post-mining elevation data were created by performing GPS traverses across the site. Computer software packages, like Earth Vision and Arc GIS, were used to perform the quantitative analysis. The data collected during the permit reviews and site inspections were used to answer 18 questions outlined in the national AOC oversight plan, which is included after the conclusions section of the report.

In addition to the minimum requirements set forth by the national oversight plan, HFO gathered additional data and performed qualitative field evaluations to better understand how AOC is implemented in Pennsylvania. The qualitative field evaluations were performed before the completion of any computer modeling and provided HFO staff with an opportunity to perform an AOC evaluation using similar data and methods employed by the State inspectors. The purpose of the qualitative AOC evaluation was twofold. First, it provides an on-the-ground perspective to the data generated by the elevation models. The quantitative evaluation can provide the numerical differences between the pre and post-mining topography but, when used alone, lacks the complete perspective needed to apply the qualitative metrics contained in the Pennsylvania AOC definition to the mine site during the Stage I evaluation. Descriptive standards contained in the Pennsylvania AOC definition, like “resembles,” “blends,” and “complements,” can only be applied to a reclaimed mine site if the evaluator is on the ground visually evaluating the reclaimed site in context with the surrounding landscape and drainage configurations. Secondly, HFO wanted the opportunity to conduct a joint AOC evaluation with the State to gain the experience needed to identify if additional evaluation techniques, guidance, or numerical metrics are needed to strengthen the interpretation and implementation of the AOC in Pennsylvania. HFO wanted the opportunity to conduct an AOC evaluation without first knowing the numerical differences in the pre and post-mining topography. HFO thought it would be useful to compare the findings of each qualitative AOC evaluations to the numerical differences revealed during the quantitative evaluation to determine whether visual AOC evaluations are still acceptable, considering the availability of field technology that could be used during the Stage I evaluation.

Site Selection

PADEP maintains four bituminous surface mining offices. This study included a permit from each of the four mining offices and two permits were reviewed in the Moshannon district. While all five permits contained a permit review and qualitative site evaluation, only the two sites in Moshannon and the site in the Cambria district office contained a quantitative evaluation using remote sensing data. The five sites are shown in Table 1. The five sites were specifically selected because they represent different types of mining scenarios that will present different types of AOC compliance challenges. Selecting sites containing different mining scenarios allows for OSM to review how PADEP interprets and evaluates AOC in different situations.

Operator	Operation	SMP#	County	Acres	Started	Stage I	Quantitative	Scenario
MB Energy	**Brink #5**	**17970109**	**Clearfield**	**258**	**1997**	**Nov. 2006**	**Yes**	Thick OB, Ridge Mine
Amerikohl	**Hoizonview**	**56060110**	**Somerset**	**33**	**Dec 2007**	**Dec 2008**	**Yes**	Thin OB, Box cut
Forcey Mining	**Walker**	**17010114**	**Clearfield**	**73**	**2002**	**2007**	**Yes**	Contour Strip & box cut, Steep slopes
RFI	**Callander**	**16050109**	**Clarion**	**85**	**Jan 2006**	**Oct. 2008**	**No**	AML highwall
Coal Loaders	**Stanislaw #2**	**65000101**	**Westmoreland**	**33**		**Nov. 2006**	**No**	Thin OB, Thick Coal

Table 1: The five sites that were reviewed for the AOC study.

1. Amerikohl Horizonview Operation (Thin overburden Boxcut Mining Scenario) - Amerikohl Mining began mining operations on the 33 acre site in December 2007 and achieved Stage I release in December 2008. The pre mining topography was a gentle sloping farm field that contained a maximum elevation difference of 50 ft across the site. The maximum highwall height was ~ 40 ft and the overburden to coal ratio was 10 to 1.

2. Forcey Mining Walker Operation (Contour Strip, Steep Slope Mining Scenario) – This mining operation began in 2002 and achieved Stage 1 in 2007. This operation contains both contour strip and box cut mining methods and some of the site contains relatively steep mining conditions. During reclamation, the site contained a small slide that was ~ 50 ft long by 20 ft wide. The maximum high wall was ~ 85 ft and the total coal thickness was 10 ft. Four different seams were mined at this site. The site conditions and multiple mining methods make this site a good candidate to quantify the pre and post mining topography.

3. MB Energy Brink #5 Operation (Thick overburden and Ridge Mining Scenario)– The MB Energy site was selected because the operation mined through an entire ridge and contained an unusually large high wall (> 300 ft) that would produce a lot of spoil swell. The overburden to coal ratio was probably in the neighborhood of 25 to 1 and the swell factor on this amount of material presents an AOC challenge. This site provides an opportunity to evaluate how PADEP views AOC in respect to reconstruction of drainage patterns, hill morphology, and swell factor on a large site.

4. Coal Loaders Stanislaw #2 Operation (Thin overburden Thick Coal Scenario) – The mine achieved Stage I in November 2006. This site is interesting because the overburden thickness was 15 to 20 ft and the operator removed ~ 9 ft of coal. Since approximately 50% of the overburden was removed as product, it is possible that there may be a material deficiency issue in achieving AOC. Pre-mining lidar data exists and GPS transects would be required to quantify the reclamation topography. However, at this time only a qualitative evaluating is being recommended for this site.

5. RFI Mining Callander Operation (Pre existing highwall Scenario) – This mining operation mined through existing abandoned high walls, however the operator still proposed to reclaim the site to AOC. A qualitative evaluation is being recommended for this site.

Data Collection & Evaluation - AOC Permit Reviews, Site Inspections, & Quantitative Evaluations

1. **Amerikohl Mining - Horizon View (SMP#56060110) –** This modified-block cut surface mine is located in Milford Township in Somerset County. The operation affected 33.9 acres and contained a maximum high wall of 70 ft.

   Permit Review – The permit was reviewed at the Cambria District Mining Office on February 2010. Discussions were held with Cambria staff and information was collected that was used to provide response to the national AOC questions. Module 10 shows the operator proposed AOC as the reclamation standard (Figure 5). Figure 6 is the operations map that is required to show the pre-mining contours. Figure 7 is the reclamation map. A comparison of the contour lines on the two maps show that the pre-mining contours are submitted as the reclamation contours, which is consistent with the reclamation contours submitted with most permit applications in Pennsylvania. The permit area did not contain prime farmlands, permanent impoundments, or other specific AOC-related issues. Mining operations began in February 2008 and Stage I was achieved in November 2009. Figure 8 details the inspection report at Stage I and the AOC evaluation.

   Site Inspection/Qualitative AOC Evaluation – The site inspection occurred on March 31, 2010. Matt Riley (Inspector) represented PADEP and Luke Monette (Physical Scientist) and Brent Means (Hydrologist) represented OSM. During the site visit, the entire permit was walked for AOC evaluation. The reclamation map was visually compared to the reclamation topography to evaluate AOC. The site was planted and stable and the reclaimed site blended into and resembled the surrounding topography. Photo 4 provides an overview of the mine site. Photo 5 provides a good perspective of how the reclaimed mine site compares to the surrounding terrain. Photo 6 also provides a comparison of how the reclamation resembles the adjacent farm fields. The site is surrounded by farm fields and AML land and the post mining land use is pasture land and crop land (hay). The quality of the reclamation was exceptional at the site and it was determined that the reclamation achieved AOC standards. The details of the OSM' qualitative evaluation is documented in Attachment 1.

   Quantitative AOC Evaluation – Lidar data was used to characterize the pre-mining topography. Remote sensing data was not available to define the post-mining topography. As a result, three GPS transects were performed to collect post-mining elevation data. Figure 9 shows the location of the three GPS transects on the operations map. Figures 10 & 11 are cross sections that show the differences between the pre-mining and post-mining topography along the three transects. Cross section A-A' show

practically no difference in elevation or morphology before and after mining and cross section B-B' show the reclaimed land surface is ~ 20 ft higher in some locations. The last cross section, C-C', shows the reclaimed land surface has a more uniform and consistent slope than the pre-mining topography. The last cross section also showed some areas where the post-mining surface elevation is ~ 20 ft higher than the pre-mining.

Permit-Specific Findings that relate to AOC for the Horizonview operation

- The operator performed exceptional reclamation as evidenced by the photos and the quantitative analysis;
- OSM's site inspection determined the site achieved AOC;
- The quantitative analysis was in good agreement with the visual qualitative analysis;
- For this site, the visual inspection method used to evaluate AOC proved to be sufficient.

Figure 5

Module 10: Operational Information

10.1 Equipment and Operation Plan

For each phase of mining, identify the type and method of mining; engineering techniques; major equipment to be used; starting and finishing point; and the anticipated sequence in which the phases are to be mined. Provide a description or explanation of the relative sequence of mining, including the relative timing of various phases and the estimated life of the mine. (Note: Phases should be numbered in the anticipated sequence to be mined and keyed to the Exhibit 9 Operations Map.)

The type of mining will be modified-block surface mining. Two cuts will normally be open at any given time to enable equipment efficiency. Spoil from the Initial two cuts will be placed above the anticipated highwall location for the last cut in the sequence of cuts that will progress in a direction parallel to the existing highwall that resulted from the previous surface mining. From the original two cuts one set of cuts will progress toward the Mud Pike and the other set of cuts will progress toward the southern mining limit. Upon the completion of each cut sequence some of the stored spoil will be pushed into the last cut and spoil from the first cut of the new, parallel cut sequence will also be pushed into that cut. This process will repeat itself until the coal is exhausted. The topsoil and subsoil will be moved with pans and/or dozers. The following equipment will be used for all other mining tasks: (1) D10R Cat dozer or (1) D11R Cat dozer, (1) 992C and/or (1) 988B front-end loader, (1) Cat 966D front-end loader, (2) 773B rock truck, pans, backhoe or equivalent, and reclamation equipment (grader, farm tractor, etc). See also 10.2.

10.2 Pit Dimensions

Identify the length and width of each cut and the maximum highwall height to be encountered. Where the proposed unreclaimed pit dimensions exceed 1500 feet in length or 300 feet in width, provide a demonstration that the additional distance is needed for reason of multiple seam mining, size or amount of equipment to be used, topography or method of mining. (Note: This demonstration must be provided when backfilling and grading is proposed for more than 300 horizontal feet from the face of the highwall and more than 1500 linear feet of pit open at one time.)

Cuts will be up to 100' in width at the bottom, and up to 250' in length. The maximum area of each pit will not exceed 25,000 sq. ft. and the maximum highwall height will range from 60 to 78. Two pits will be needed at all times.

10.3 Existing Structures

Identify and describe the intended use of all existing structures or facilities to be used in connection with or to facilitate coal mining activities. (Common existing structures include impoundments, ponds, stream crossing facilities, water obstructions and coal processing waste dams.) Provide detailed plans and drawings which identify the current condition of these structures or facilities. Provide a demonstration that these structures or facilities comply with applicable regulations and engineering standards, cross-sections and plan view drawings, and engineer certification.

N/A

10.4 Final Grade and Drainage

Identify the final grading and drainage pattern, including topographic contours on Exhibit 18 and a description of compaction and stabilization techniques. Operations involving steep slopes (greater than 20°) must include a stability analysis.

The area to be mined will be returned to the approximate original contour (AOC). The final drainage will approximate the pre-mining pattern, as the contour of the area will be the same as before mining took place on the site. The final slopes will be compacted using heavy equipment at the time of backfilling. No steep slopes will be encountered in this operation. The maximum slope encountered will be approx.10%. The operator has a successful history of mining and reclaiming this type of site in this area. (See Module 18 Map for further details.)

Stability techniques will be the compaction of the overburden in layers, with track equipment, as the material is being placed in the previous pit. No debris will be placed in the backfill. The area will be seeded and mulched as soon as possible after final regrading.

10.5 Modifications to Approximate Original Contour

Where the proposed final grade is other than approximate original contour, provide justification for the alternate reclamation proposal. Include a detailed description of the factors which prevent restoration to approximate original contour as well as plans and cross-sections which describes the alternate reclamation and demonstration that the proposed final contour is consistent with the proposed postmining land use. Alternate reclamation proposals for areas which have been previously mined and unreclaimed must include a demonstration of the environmental benefits of reaffecting the area.

The area will be returned to the approximate original contour (AOC). AOC can be achieved here, due to the existing slopes, contour, and the availability of sufficient overburden and soils.

10.6 Reclamation Cost

Provide an estimate of the cost of each stage of reclamation for each phase of mining. Include supporting calculations for the estimates.

Cost estimate for mine area: See the attached Conventional Bond worksheet.

10.7 Reclamation Timetable

Provide a timetable (indicating months/years) for the accomplishment of each major stage in the reclamation plan.

A mined area will be backfilled concurrently as mining progresses, since previously mined blocks will be filled in with overburden from actively mined cuts. Final rough backfilling and grading shall follow coal removal by not more than 60 days. The final reclamation should be completed within 18 months from activation of the site. The soils will be returned and graded, followed by seeding, mulching, and revegetation in progress by the next growing season (See Module 23). Contouring will be to the approximate original contour. See also the Operations Map, Exhibit 9.

10.8 Special Handling of Potentially Acid-Forming, Toxic-Forming, and Alkaline-Producing Material

a) **Identify the stratigraphic and areal extent, and amount (thickness, tons, and/or cubic yards) of acid, toxic, and alkaline materials that will be special handled. The amount of coal and boney material that would be spoiled must be accurately determined. This may include the top and bottom of a coal interval and any partings. Identify the amount, chemical characteristics, and location of spoil to be placed above and below the special handled material.**

The following potentially acidic materials will be special handled:

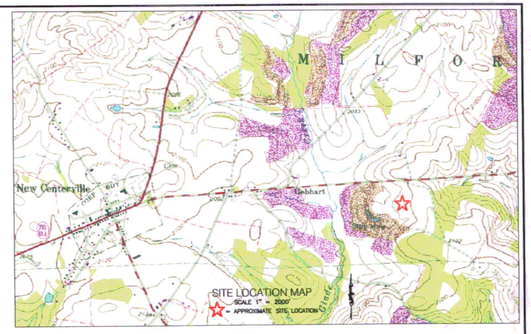
5.0 foot of shale immediately above the coal
All coal not trucked out of the pit and any bony or pit cleanings

b) **Show location of acid and toxic-forming material placement on Module 9 or, if too cluttered, on a separate map. Plan map(s) must show locations of placement and sequence of placement within**

Figure 6

NOTE: THIS EXHIBIT WAS PREPARED IN ACCORDANCE WITH ACCEPTED ENGINEERING, GEOLOGY, AND SURVEYING PRACTICES. THE FEATURES WITHIN 1000' OF THE PERMIT AREA WERE PREPARED WITH THE AID OF USGS MAPS, AERIAL PHOTOGRAPHY, FIELD OBSERVATION, AND COUNTY TAX RECORDS. THE FEATURES OUTSIDE OF THE 1000' PERIMETER ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND THEIR ACCURACY IS NEITHER STATED NOR IMPLIED TO BE OTHER THAN GENERAL INFORMATION. PROPERTY LINES DO NOT REPRESENT ACTUAL PROPERTY SURVEYS.

1) No known oil or gas wells in or within 1000' of the permit area
2) No known public or private cemeteries or Native American burial grounds within 1000' of the proposed permit area.
3) No areas designated as unsuitable for all or certain types of mining.
4) All active or previously surface mined areas are shown (See Mine Maps and legend).
5) No known commercial deep mines underlie the proposed permit area.
6) No known permitted solid waste disposal areas.
7) No excess spoil storage areas.
8) No Coal refuse and or acid or toxic – forming material disposal areas within 1000' of permit area.
9) Coal processing facilities – See Module 17.
10) No areas proposed to be auger mined.
11) No areas proposed for disposal of fly ash/bottom ash.
12) No areas proposed for land application of sewage sludge/coal ash.
13) Air pollution control facilities (See Module 17).
14) No explosive storage areas
15) Adjoining property owners taken from current county records.
16) This map has been prepared from tax maps, deeds, quadrangles, air photographs, etc., along with field work.
17) Wetlands within this proposed surface mining permit as defined by the Federal Manual for the Delineation of Jurisdictional Wetland are shown.
18) SCP = Smooth Concrete Pipe, SMP = Smooth Metal Pipe CMP = Corrugated Metal Pipe CPP = Corrugated Plastic Pipe.
19) No Prime farmlands within permit area.
20) No above ground stationary or underground storage tanks proposed For this operation.
21) Location of temporary coal storage, if necessary, will move within the Operational Area.
22) Placement of alkaline deficient material (pit cleanings and 5' of shale above coal seam) to be located between existing and proposed highwalls at a minimum distance 20' above the pit floor and 5' below the reclaimed surface.
23) Placement of limestone waste as alkaline addition to be distributed across entire area bounded by existing and proposed final highwalls. Placement on all pit floors to be at a rate of 200 tpa @ 100% CCE or equivalent, adjusted for actual CCE%. Placement at soil / spoil interface for all disturbed area to be at a rate of ≥ 1851 tpa @ 100% CCE or equivalent, adjusted for actual CCE%.



All map symbols are standard U.S.G.S. Quadrangle symbols unless otherwise indicated.

Surface Mining Permit Limit 41.4 ac.
Property Line
Barriers
Contour
Index Contour 2100
Roads
Tree Line
Power Line
Telephone Line
Power & Telephone Line
Well
Wetland
Spring
Stream – Perennial – intermittent
Drainage Pattern
Occupied Dwelling
Unoccupied
Barn/Shed
Previously Affected areas
Road & Stream Variance Area
Regional Groundwater Flow
Perched Groundwater flow
Shallow Groundwater flow
Approx. Location Former Highwall
Approx. Position Or Horizon Of LF Coal Seam Crop
Collection Ditch
Diversion Ditch
Final Highwall
Energy Dissipator
Direction of Mining
Topsoil Storage Area T
Treatment Pond
Coal Stockpile Area

NORMA and LYNN E. & ELAINE BRUGH

HORIZON VIEW REAL ESTATE, L.P.

GERALD D. & JANET KING (14)

JOHN & CAROL MILLER (15)

N/F DAVID & ELIZABETH SVONAVEC

N/F JAMES & ELIZABETH TINKEY

N/F JAMES KING & JULIE CONN

N/F MOELAN LLC

S.R.3008 MUD PIKE

S.R.3019

UNNAMED TRIBUTARY A

UNNAMED TRIBUTARY B

UNNAMED TRIBUTARY C

UNNAMED TRIBUTARY D

UNNAMED TRIB. TO COXES CREEK

SOUTH GLADE CREEK

EXIST. CULVERT 18" CMP

EXIST. CULVERT 24" TERRA COTTA

EXIST. CULVERT 21" CMP

EXIST. BRIDGE 28' SPAN

PROPOSED 15" CMP ROAD CULVERT

PROPOSED HAUL ROAD

PROPOSED 12" CMP CULVERT

EXISTING MINING SED. POND

EXISTING MINING SED. POND

CUT 1

CUT 2

CUT 1&2 SPOIL

SP-1

TP-1

CD-2

FINAL HIGHWALL

TEXAS EASTERN GAS PIPELINE

GATE

LAT: 39°56'54" LONG: -79°01'24" NAD 27

LAT: 39°56'46" LONG: -79°00'38" NAD 27

LAT: 39°56'14" LONG: -79°01'24" NAD 27

LAT: 39°56'18" LONG: -79°00'17" NAD 27

PREVIOUSLY PERMITTED AREAS

- (A) YELLOW RUN COAL CO. SURFACE MINE PERMIT #4075SM2
- (B) J. LLOYD McCLINTOCK SURFACE MINE PERMIT #56850110
- (C) J. LLOYD McCLINTOCK SURFACE MINE PERMIT #56830111
- (D) TOMCAT COAL SURFACE MINE PERMIT #56030101
- (E) LK MINING SURFACE MINE PERMIT #56960105
- (F) SVONAVEC, INC. COAL REFUSE DISPOSAL PERMIT #56890703 1000' N-NW OF NORTHERN MAP LIMIT

BOND DATA

	DESCRIPTION
	MINING AREA
	STAGE I

NOTE: Initial location of storage tank will be adjacent to coal storage area. Tank is portable and equipped with skids. No dike is proposed.

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

NOTE: Right-of-way on all roads is 33' unless otherwise indicated. Nothing will be disturbed within the right-of-way.

ROCKWOOD, PA 7.5 MIN. QUADRANGLE

NO.	DATE	DESCRIPTION	BY
3.	4/28/09	STAGE I BOND RELEASE	RT
2.	1/19/07	REVISION 1	GMB
1.	10/11/06	INITIAL SUBMITTAL	GMB

DRAWING FILE NAME: AMI-Horizon.dwg

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL CHARLES LIGHTFOOT ENGINEER

EXHIBIT 9: CONVENTIONAL BOND MAP

AMERIKOHL MINING
HORIZON VIEW MINE

MILFORD TOWNSHIP, SOMERSET CO., PA
SCALE: 1" = 200' DATE:

Earthtech, Inc.
336 Bloomfield Street, Suite 201 Johnstown, PA 15904
Telephone: (814) 266-6402 Fax: (814) 266-6530
www.scientificengineers.com

Z:\Mining\Amerikohl\Horizon\DWG & DATA\AMI-Horizon (Backup with SMP Exhibits).dwg, 4/28/2009 11:34:11 AM, 1:1, R THAYER

Figure 7

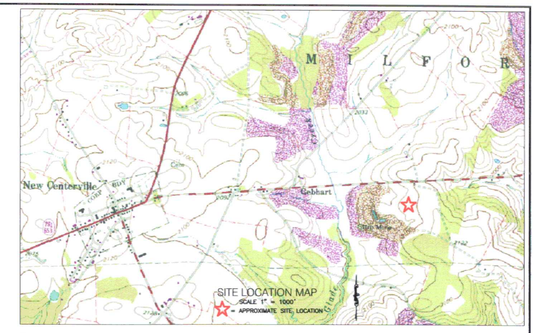
NOTE: THIS EXHIBIT WAS PREPARED IN ACCORDANCE WITH ACCEPTED ENGINEERING, GEOLOGY, AND SURVEYING PRACTICES. THE FEATURES WITHIN 1000' OF THE PERMIT AREA WERE PREPARED WITH THE AID OF USGS MAPS, AERIAL PHOTOGRAPHY, FIELD OBSERVATION, AND COUNTY TAX RECORDS. THE FEATURES OUTSIDE OF THE 1000' PERIMETER ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND THEIR ACCURACY IS NEITHER STATED NOR IMPLIED TO BE OTHER THAN GENERAL INFORMATION. PROPERTY LINES DO NOT REPRESENT ACTUAL PROPERTY SURVEYS.

LAND USE LEGEND
WITHIN 1000' OF PERMIT AREA

- FORESTLAND
- UNMANAGED NATURAL HABITAT
- RESIDENTIAL
- CROPLAND
- PASTURELAND (OCCASIONALLY CUT FOR HAY)
- PREVIOUSLY AFFECTED AREA

POST MINING PLANTING

MIXTURE NO.	PREMINING	POST MINING
SEED2	PASTURELAND	PASTURELAND



All map symbols are standard U.S.G.S. Quadrangle symbols unless otherwise indicated.

Surface Mining Permit Limit 41.4 ac.
Property Line
Barriers
Contour
Index Contour 2100
Roads
Tree Line
Power Line
Telephone Line
Power & Telephone Line
Well
Wetland
Spring
Stream – Perennial – intermittent
Drainage Pattern
Occupied Dwelling ■ Unoccupied ☒ Barn/Shed
Previously Affected areas
Road & Stream Variance Area

NORMA and LYNN E. & ELAINE BRUGH
HORIZON VIEW REAL ESTATE, L.P.
HERBERT & LILLIAN MILLER
GERALD D. & JANET KING (14)
JOHN & CAROL MILLER (15)
N/F DAVID & ELIZABETH SVONAVEC
N/F JAMES & ELIZABETH TINKEY (13)
N/F JAMES KING & JULIE CONN
N/F MOELAN LLC
UNNAMED TRIBUTARY A
UNNAMED TRIBUTARY B
UNNAMED TRIBUTARY C
UNNAMED TRIBUTARY D
UNNAMED TRIB. TO COXES CREEK
SOUTH GLADE CREEK
MUD PIKE
S.R.3008
S.R.3019
EXIST. BRIDGE 28' SPAN
EXIST. CULVERT 18" CMP
EXIST. CULVERT 24" TERRA COTTA
EXIST. CULVERT 21" CMP
EXISTING MINING SED. POND
EXISTING MINING SED. POND
GATE
TEXAS EASTERN GAS PIPELINE
LAT: 39°56'54" LONG: -79°10'18" NAD 27
LAT: 39°56'46" LONG: -79°08'51" NAD 27
LAT: 39°56'18" LONG: -79°09'17" NAD 27
LAT: 39°56'14" LONG: -79°10'24" NAD 27

PREVIOUSLY PERMITTED AREAS

- (A) YELLOW RUN COAL CO. SURFACE MINE PERMIT #4075SM2
- (B) J. LLOYD McCLINTOCK SURFACE MINE PERMIT #56850110
- (C) J. LLOYD McCLINTOCK SURFACE MINE PERMIT #56830111
- (D) TOMCAT COAL SURFACE MINE PERMIT #56030101
- (E) LK MINING SURFACE MINE PERMIT #56960105
- (F) SVONAVEC, INC. COAL REFUSE DISPOSAL PERMIT #56890703 1000' N-NW OF NORTHERN MAP LIMIT

NOTES:

NO PONDS WILL REMAIN PERMANENTLY.

ENTIRE AREA WILL BE RETURNED TO APPROXIMATE ORIGINAL CONTOUR.

EROSION AND SEDIMENTATION CONTROL FACILITIES WILL BE REMOVED WHEN PLANTING IS APPROVED.

HAULROAD WILL BE REMOVED AFTER COMPLETION OF MINING.

PONDS AND DITCHES ARE SHOWN FOR LOCATION PURPOSES ONLY.

VEGETATIVE COVER – SEE MODULE 23.

THERE WILL BE NO RESTORED SLOPES GREATER THAN 20 DEGREES.

FINAL DRAINAGE PATTERN ⟶

NO FACILITIES FOR ENHANCEMENT OR PROTECTION OF FISH AND WILDLIFE ARE PROPOSED.

NO EXCESS SPOIL AREAS

NO AREAS CURRENTLY PROPOSED FOR LAND APPLICATION OF SEWAGE SLUDGE OR FLYASH.

NO PRIME FARMLAND SOILS ON PERMIT.

RECEIVED
OCT 16 2006
DEP CAMBRIA OFFICE

GRAPHIC SCALE

200 0 100 200 400 800
(IN FEET)
1 inch = 200 ft.

NOTE: Right-of-way on all roads is 33' unless otherwise indicated. Nothing will be disturbed within the right-of-way.

ROCKWOOD, PA 7.5 MIN. QUADRANGLE

DRAWING FILE NAME: AMI-Horizon.dwg

NO.	DATE	DESCRIPTION	BY
1.	10/11/06	INITIAL SUBMITTAL	GMB

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL HIRAM C. RIBBLETT ENGINEER No. 34784

EXHIBIT 18: LAND USE/RECLAMATION MAP

AMERIKOHL MINING
HORIZON VIEW MINE

MILFORD TOWNSHIP, SOMERSET CO., PA
SCALE: 1" = 200' DATE: 10-13-06

950209

Earthtech, Inc.
336 Bloomfield Street, Suite 201 Johnstown, PA 15904
Telephone: (814) 266-6402 Fax: (814) 266-6530
www.scientificengineers.com

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5600-FM-MR0033 Rev. 2/2002

DEP

Figure 8

DE

15/07

HORIZON VIEW

RECLAMATION STATUS REPORT

Inspection Report

Stage I

Date [redacted]

Report No. 309011

Weather Sunny 80°

On Site Times 11:00 -

PERMITTEE	TOWNSHIP	COUNTY	PERMIT NO.
Amerikohl Mining	Milford	Somerset	56060110

ADDRESS
1354 State Rd 711
Stahlstown, Pa 15687

PARTIAL ☐
FOLLOW-UP ☒
AERIAL ☐

VIOLATIONS NOTED ☐ FOLLOW-UP INSP. REQUIRED ☐
PREVIOUS VIOLATIONS: COMPLIANCE ORDER ☐
CORRECTED ☐ FTC ORDER ☐ CEASE ORDER ☐
UNCORRECTED ☐ OUTSTANDING ENFORCEMENT ☐

LICENSE NO. & EXP. DATE

OPERATIONAL STATUS: REG

GENERAL MINING INFORMATION:

a. Areas-Seams-Pit Dimensions (L/W/H)-Method: L.F (Mining Complete)

PERFORMANCE STANDARDS

Obs.	STANDARD	Viol.	Comp. Date
	8. Treatment Facilities		
X	7. Sediment Control Measures		
X	9. Sediment Ponds		
X	31. General Backfilling		
X	56. Backfilling-Final Slopes		

MINING AREA EVALUATED	17.1 ACRES
SUPPORT AREA EVALUATED	0 ACRES
MINING AREA DELETED	0 ACRES
SUPPORT AREA DELETED	0 ACRES

RECLAMATION STATUS QUESTIONS	YES	NO	N/A
MINING RESTORATION			
1. Is backfilling completed as per the approved plan?	X		
2. Is all debris, junk, and nonessential equipment removed?	X		
3. Are all coal stockpiles removed?	X		
4. For prime farmland only, are all slopes less than 8%			X
HYDROGEOLOGIC INFORMATION			
5. Does analysis of surface & groundwater monitoring data indicate degradation has not occurred?	X		
6. Do post-mining discharges on the permit meet effluent criteria?			X
If not, indicate monitoring points or sample numbers —			X
7. Do post-mining discharges adjacent to the permit meet effluent criteria?			X
If not, indicate monitoring points or sample numbers ---			X
8. Has a Hydrogeologist evaluated the discharges associated with this permit?			X
If yes, date of report Hydrogeologist			
9. Have Subchapter F or G requirements been met?			
EROSION AND SEDIMENTATION CONTROL INFORMATION			
10. Have erosion and sedimentation controls been implemented?	X		
11. Do sediment basin discharges meet effluent criteria?	X		
Sample Numbers —			
REQUIRED FOR COAL REFUSE DISPOSAL ONLY			X
12. Is site topsoiled and planted?			
RECOMMENDATIONS AND GENERAL OBSERVATIONS			
13. Is the site ready for topsoil replacement and planting? soils being spread.	X		
14. DO YOU RECOMMEND APPROVAL OF THIS RECLAMATION REQUEST?	X		

COMMENTS AND RECOMMENDATIONS - Operator has spread topsoil on 3/4 of this job already. Will be finishing soon and will then seed and mulch. 7 acres of site planted last fall w/ good catch of growth.

Person Contacted MAILED Title

Signature

Discharge/Seeps ☐ Yes ☒ No

Samples Collected ☒ Yes ☐ No

Range of Samples Collected 417 to 420

Investigator Signature & I.D. No. M. Rg 4336

The Operator's signature acknowledges that he has read the report, including the reverse side, and that he was given the opportunity to discuss it with the investigator. The signature does not necessarily means he agrees with the report.

☐ White - District File ☐ Yellow - Permittee ☐ Pink - Inspector ☐ Goldenrod - Federal File

Horizonview GPS Track and Cross-sections

Figure 9

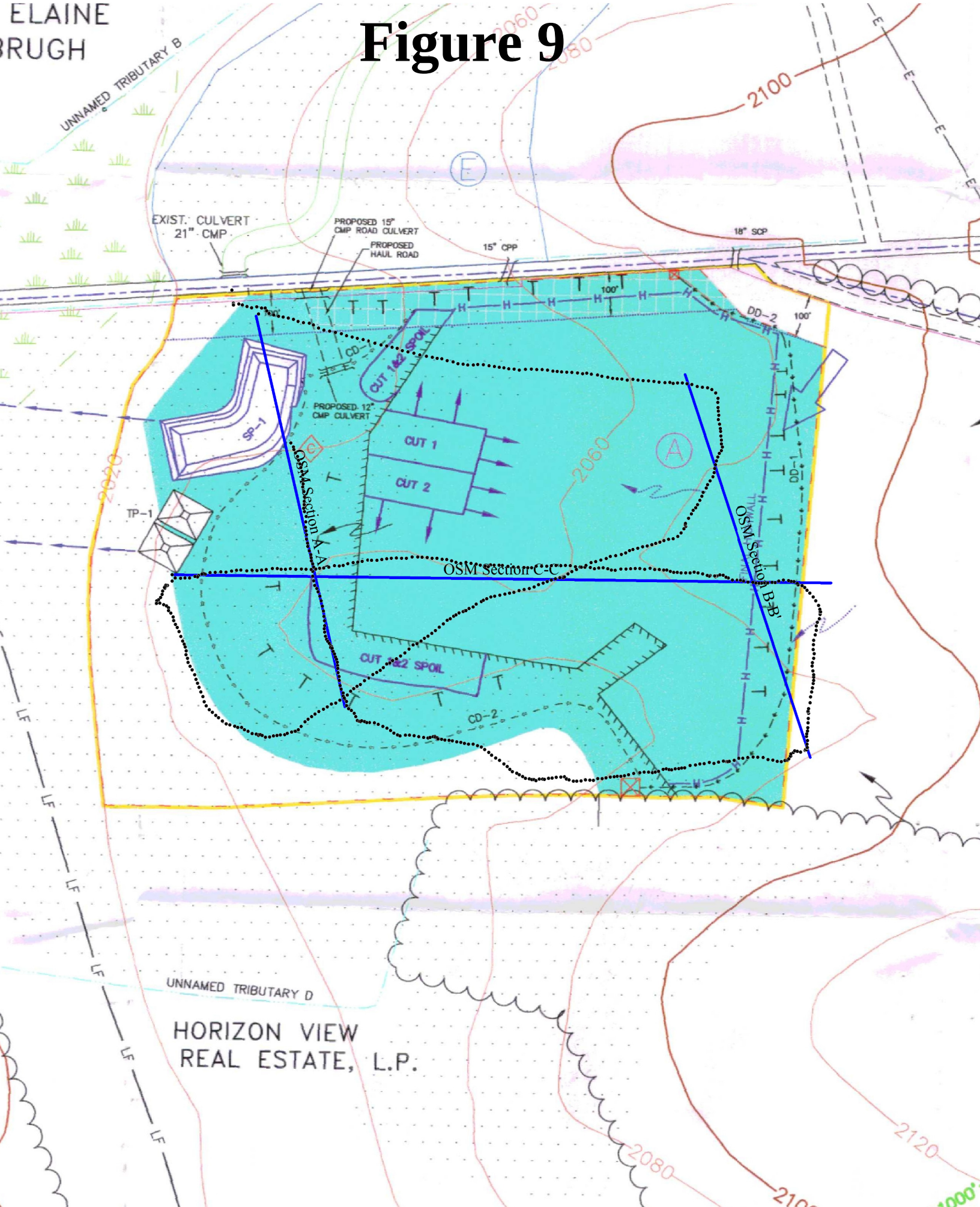
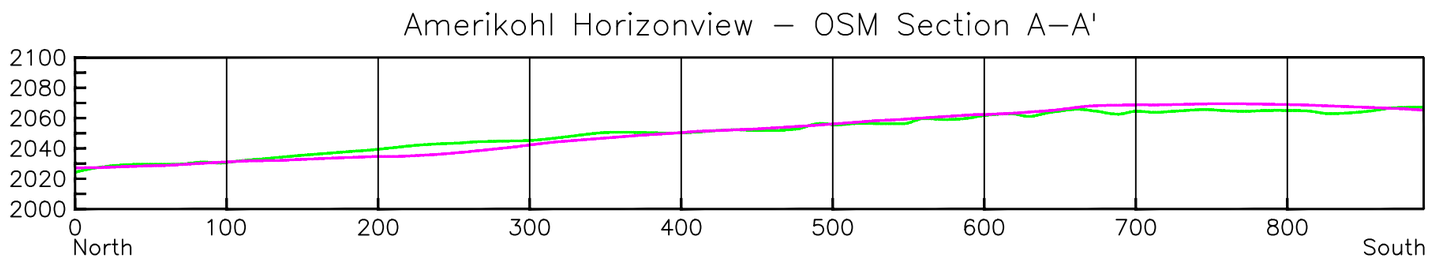
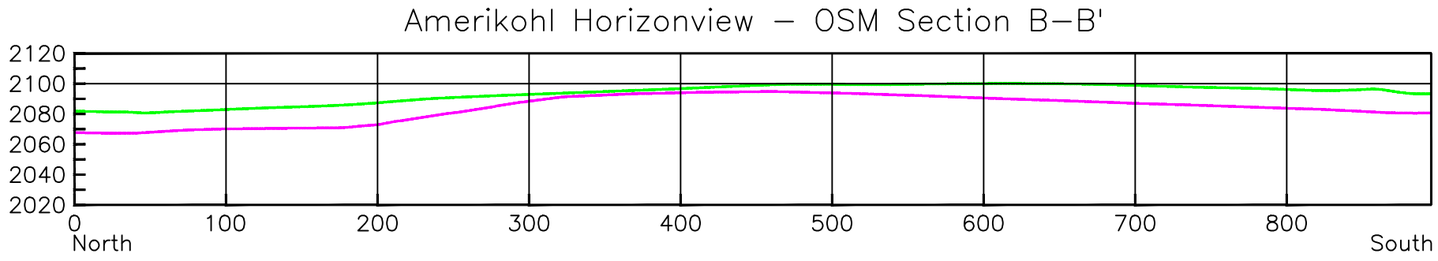


Figure 10





TOPOGRAPHIC MAP
ORIGINAL GRADE

FIELD GPS
VERIFIED GRADE

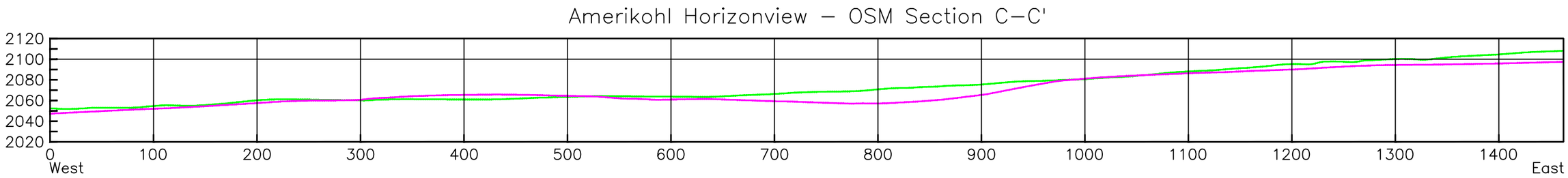
APPROXIMATE ORIGINAL CONTOUR

PA 56060110 AMERIKOHL MINING
HORIZON VIEW MINE

SECTIONS A-A' and B-B'

GPS CROSS SECTION FROM TOPO WITH
FIELD GPS CROSS SECTION

Figure 11



0' 100' 200' 300'

TOPOGRAPHIC MAP ORIGINAL GRADE

FIELD GPS VERIFIED GRADE

APPROXIMATE ORIGINAL CONTOUR

PA 56060110 AMERIKOHL MINING HORIZON VIEW MINE

SECTION C-C'

GPS CROSS SECTION FROM TOPO WITH FIELD GPS CROSS SECTION

Photo 4

Unmined adjacent area

Amerikohl Horizon View

Reclaimed Mine site

Photo 5

Amerikohl Horizon View

Reclaimed Mine site

Photo 6

Attachment 1

Qualitative AOC Evaluation Data Collection Form for Amerikohl Horizon View Operation

1. Is there any evidence of the highwall or low wall? No. The photos show the mined area was "blended" into the unmined areas.

2. Is there any spoil left ungraded? No.

3. Are there any depressions without adequate drainage? All affected areas appeared to contain positive drainage.

4. Are non approved mining structures removed (buildings, etc.)? There are no structures on site.

5. Do the size and shape of the sub watershed "resemble" the pre-mining watersheds? Larger, smaller, shape, shifting of surface water divides? Visually, the post-mining watershed resembled the pre mining watersheds.

6. Does the reclaimed topography "resemble and blend" with the surrounding topography? Yes

7. Does the reclaimed topography complement the approved post-mining land use? Yes

8. Do any of the post-mining land features look odd, incorrect, or out of place? No.

9. Based on professional judgment, is the quality of reclamation consistent with reclamation commonly found on other surface mines in Pennsylvania? (below average, average, above average) Above average

10. Using a visual estimation, does the reclaimed site visually resemble the approved reclamation plan? Yes

11. Has all mining debris and junk been removed (Question on Stage 1 inspection form)? Yes

12. Has all coal stockpiles been removed (Question on Stage 1 inspection form)? Yes

13. From the visual site inspection, was AOC achieved? Yes, the reclamation blends into the surrounding landscape.

14. Other Comments: None.

2. **Forcey Coal - Walker Operation (SMP# 17010114) –** This operation is located in Penn Township in Clearfield County and affected 82 acres. The permit was issued in November 2002 and mining began the same year. The maximum high wall height was 85 ft.

   Permit Review - A permit review was conducted on February 3, 2010 in the Moshannon district mining office. The permit file was reviewed and discussions were held with PADEP staff. Module 10 stated that "all areas to be affected will be restored to approximate original contour (Figure 12)." This permit contained a small amount of remining to aid in abating several acidic discharges. The operations map is shown in Figure 13 and the reclamation map is shown in Figure 14. Comparisons of the two maps reveal the pre-mining topographical map was submitted as the reclamation topography. This permit contained a small area of prime farmland that required the operator to special handle the soil and reclaim the area to less than an 8% slope. The site achieved Stage I bond release in 2007 and the Stage I inspection report is shown in Figure 15.

   Site Inspection/Qualitative AOC Evaluation – The site was visited on February 3 and the site inspection occurred on February 24, 2010. Dale Saladay (Inspector) represented PADEP and Tom Koptchak (Reclamation Specialist) and Brent Means (Hydrologist) represented OSM. The objective of the site inspection was to: (1) walk several transects across the site comparing the actual reclamation topography to the Module 18 reclamation plan; (2) identify areas without positive drainage; (3) walk the areas near the reclaimed high wall and low wall to determine to evaluate if the reclamation "blended" into the unmined areas; and (4) field-evaluate the reconstruction of drainage areas. The entire site was walked and, visually, all areas contained positive drainage. Figure 16 is the approved reclamation map with two embedded photos. These panoramic photos provide perspective of the reclamation. The arrows in Figure 16 match point in the photograph to topographical points on the reclamation map. The photos were taken in the same direction that the arrows are pointing. These photos show the actual reclamation topography contains features that were required by the approved reclamation map. For example, the bottom photo in Figure 16 contains an arrow that matches a hill in the photo to a hill on the reclamation map. The top photo contains an arrow that matches a small hill top shown in the photo to a ridge on the reclamation map. Other field validation that occurred during the site inspection showed the post-mining morphology was very similar to the approved reclamation morphology. Photo 7 was taken at point P1 on Figure 16 and shows nice reclamation from the edge of the old high wall down to the residence. Photo 8 was also taken at point P1 and documents how the reclaimed land "blends" into the unmined forest. The permit contained a small area that was classified as prime farm land. The location of the prime farmland is shown on the reclamation map (Figure 14). The prime farm land classification offers special protection to both how the

soil is handled and reclaimed. Part of the AOC evaluation conducted at Stage I release involves determining whether all prime farm land areas have been reclaimed to less than an 8% slope (Figure 15). The field inspection validated that the prime farm land was reclaimed in accordance with the permit. Photos 7 and 9 shows the prime farm land area after reclamation. The permit also contained several landslide scars on a steep hillside on the eastern side of the permit. The operator had trouble stabilizing the hillside during reclamation. While the landslide scars are still visible in Photo 10 the site is now stabilized and achieved Stage I bond release. Overall, the quality of the reclamation at this site was exceptional, except for a small area in the southern portion of the permit. After Stage II release, the operator reclaimed the sedimentation ponds, but performed poor reclamation on one of the ponds in the southern portion of the permit. All of the reclaimed land surrounding the pond is gentle-sloping, in accordance with the reclamation plan, however, the "reclaimed" footprint of the pond is obvious and doesn't "resemble" or "blend" into the surrounding landscape. It appears as though the operator just flattened the outer-most berm to achieve positive drainage and left an awkward-looking land feature. Photo 11 shows the footprint of the reclaimed pond. Other than this reclaimed pond, the reclamation was exceptional and achieved AOC standards. The details of OSM's qualitative evaluation are documented in Attachment 2.

Quantitative AOC Evaluation – The topographic contours submitted on the operations map were digitized to develop the pre-mining topographical surface. Lidar data was used to characterize the reclamation topography shortly after Stage I was approved. Arc GIS and Earth Vision were used to create an "elevation-difference map" and four digital pre and post-mining cross sections across the mine site. The elevation-difference map is shown in Figure 17. The elevation-difference map was created by subtracting the post-mining elevation model from the pre-mining elevation model. The areas outlined in green in Figure 17 reveal the areas where the post-mining topography is ~ 20 ft higher than the pre-mining topography. The areas outlined in yellow are areas where the post-mining topography is ~ 10 lower than the pre-mining elevation. The blue areas in Figure 17 illuminate the areas where the post-mining topography is approximately 20 to 50 ft higher than the pre-mining topography. Figure 17 shows that most of the permit area was reclaimed to within 20 ft of the original surface elevation. The larger differences in surface elevation, marked blue, are grouped on the right-hand side and towards the top of Figure 17. The differences on the right-hand side of the figure are a result of the reclamation of abandoned mine lands. The differences near the top of the figure are a result of the unreclaimed sediment control structures in place at the time the lidar data were collected. The photos taken during the site inspection show a reclaimed landscape that blends and resembles the surrounding topography. Figure 18 shows a histogram of the elevation-difference data used to generate the color fill map in Figure 17. The 310,198 elevation-difference data points used to generate Figure 18 show that 25% of the

reclaimed area was reclaimed to within 3 ft of the pre-mining land surface and 75% of the area was reclaimed to with 15 ft. These statistics include the large elevation differences due to the presence of the sedimentation structures when the site was flown to collect lidar data. These statistics confirm the excellent reclamation. Figure 17 also shows the locations of the four cross sections. The location and orientation of the cross section line, titled Residential AOC section, was selected because it covered the entire mine site, from topographical high to low. It also included areas that were unmined, like the dwelling, the gas well, and the spring, that can be used as unmined elevation reference points. The location of the blue cross section line, titled PFL Slope Section, was selected to evaluate the reclamation of the prime farm lands. The location of the purple cross section line, titled Steep Slope Section, was selected to evaluate the reclamation on a portion of the mine that had several landslides during reclamation. Lastly, the location of the black cross section, titled PFL AOC Section, was selected because it covers the entire mine site, including prime farm land areas. The results of the cross sections are shown in Figures 19 through 22. Figure 19 shows the cross section labeled as PFL AOC Section in Figure 17. This cross section is located in the southern portion of the permit and cuts through the area designated as prime farm lands. The PFL AOC section shows the post-mining topography retains the shape of the pre-mining surface is slightly higher in elevation because of spoil swell. Figure 20 shows the results of the cross section labeled as Residential AOC Section in Figure 17. Both cross sections show little difference between the pre and post-mining surface elevation and certainly the reclaimed surface "resembles" the pre-mining surface topography. Figures 21 and 22 contain the Prime Farmland and Steep Slope cross section. The Prime Farmland cross section shows the post-mining elevation is 15 ft higher in some areas but contains slopes within the prime farmlands reclamation standards. Like the other cross sections, the Steep Slope cross section shows the reclaimed land surface is slightly higher than the original surface but retains the shape of the pre-mining topography.

Permit-Specific Findings that relate to AOC for the Walker operation

- The median difference between the pre and post-mining elevation was 10.2 ft;

- 25% of the site was reclaimed to within 3 ft of the original land surface and 75% of the site was reclaimed to within 15 ft of the land surface;

- The operator performed exceptional reclamation as evidenced by the photos and the quantitative analysis;

- The quantitative analysis was in good agreement with the visual qualitative analysis;

- For this site, the visual inspection method used to evaluate AOC proved to be sufficient.

Figure 12

Module 10.2 Pit Dimensions

Maximum length of cut	-	200′ Lower Freeport	(Bond Calc. Worksheet)
		210′ Upper Kittanning	(Bond Calc. Worksheet)
		550′ Lower Kittanning	(Bond Calc. Worksheet)
Maximum width of cut	-	100′ Coal Width In Pit	(Bond Calc. Worksheet)
		500′ Highwall To Reclaimed Spoil	
Maximum highwall height	-	85′ Lower Kittanning	
	-	85′ Upper Kittanning	
	-	75′ Lower Freeport	
	-	45′ Upper Freeport	

Due to the configuration of the site and the fact that four seams are proposed to be surface mined and one seam auger mined, the operator is requesting approval to have an approved pit width of 500′ and to operate two pits simultaneously. Equipment to be available at the site will include a D-11 dozer, a 992C loader and two 50 ton rock trucks or equivalents.

Module 10.3 Existing Structures

No existing structures will be used.

Module 10.4 Final Grade and Drainage

All backfilling and grading will be approximate original contour type restoration done in accordance with the requirements of the Department of Environmental Protection. Normal passages of equipment during backfilling and final grading will provide adequate compaction and stabilization. The final drainage patterns have been shown on Module 18.

Module 10.5 Modifications to Approximate Original Contour

All areas to be affected will be restored to approximate original contour as described in 10.4 above.

Module 10.6 Reclamation Cost

The actual cost of reclamation of the site will vary depending on the size of the pit(s) opened up, and the degree to which backfilling, regrading and planting are kept concurrent. Since these factors can and do change as mining progresses through the site, the actual reclamation cost/liability is variable. As a best estimate of the costs for the various components of reclamation which will be required at this site, the Department's guidelines for conventional bonding will be employed. The components of the conventional bonding rate schedule which are anticipated to be relevant to this site are as follows:

Grading (<500 foot push) - $ 0.55/yd.^{3}
Grading (>500 foot push) - $ 0.80/yd.^{3}
Selective Grading - $800.00/Acre
Topsoil Handling(<500 foot push) - $ 0.55/yd.^{3} ($ 887/acre @ 1′ thick)
Topsoil Handling(>500 foot push) - $ 0.80/yd.^{3} ($1291/acre @ 1′ thick)
Revegetation - $1,160/acre
Reforestation - $0.15/tree ($60/acre when planting 400 trees/acre)
Pond Removal - $3,500/pond
Alkaline Addition - $5.00/ton

See Bond Calculation Worksheet for proposed 03 bonding increment.

Figure 13

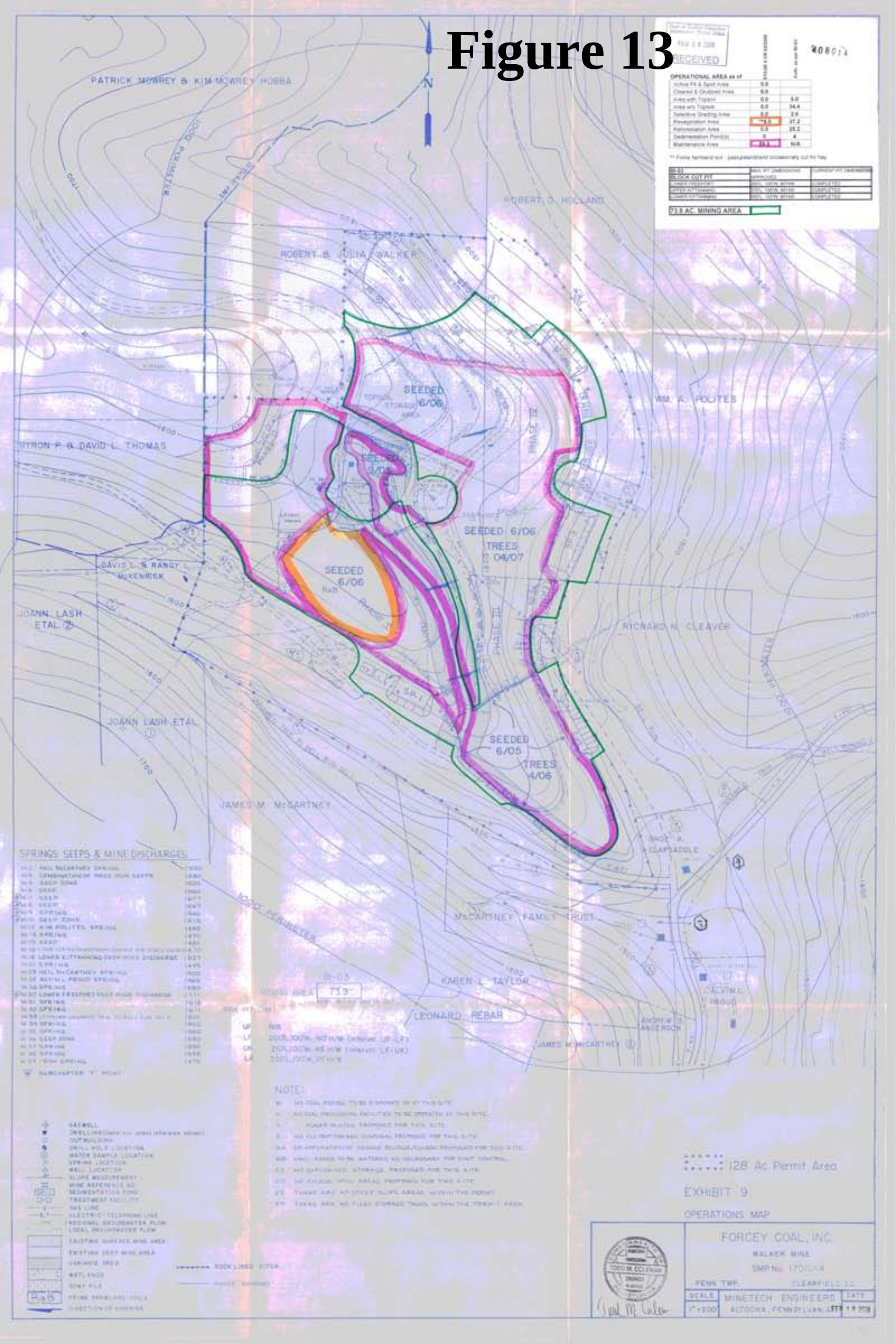
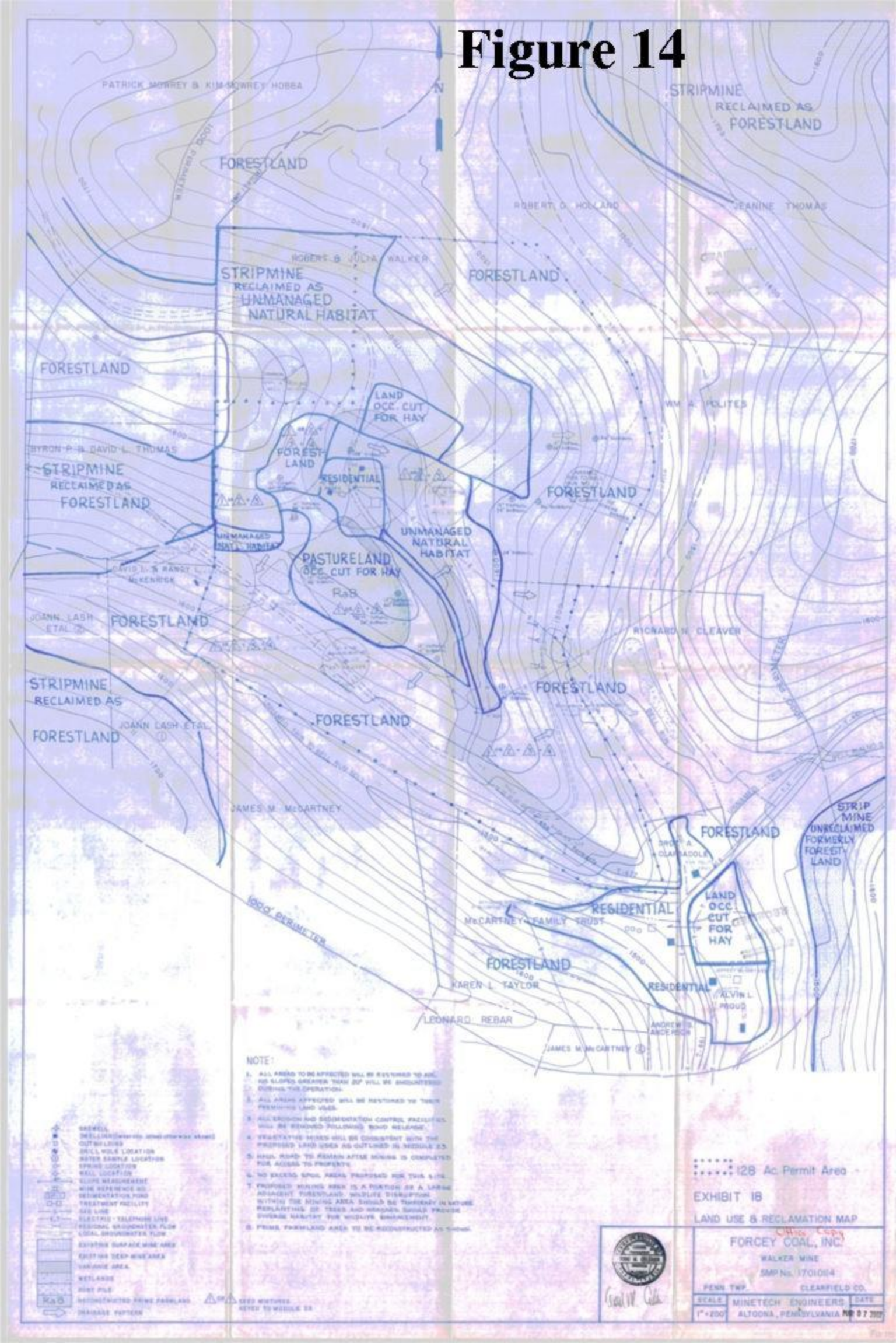

PATRICK MOWREY & KIM MOWREY HOBBA
ROBERT B. JULIA WALKER
ROBERT D. HOLLAND
WM. A. POLITES
BYRON P. & DAVID L. THOMAS
DAVID L. & RANDY L. McKENRICK
JOANN LASH ETAL (2)
JOANN LASH ETAL (1)
RICHARD N. CLEAVER
JAMES M. McCARTNEY
McCARTNEY FAMILY TRUST
KAREN L. TAYLOR
LEONARD REBAR
ANDREW B. ANDERSON
CALVIN L. KROUD
SEEDED 6/06
SEEDED 6/06 TREES 04/07
SEEDED 6/05 TREES 4/06
PHASE IX
PHASE III
PERIMETER ROAD
128 Ac Permit Area
EXHIBIT 9
OPERATIONS MAP
FORCEY COAL, INC.
WALKER MINE
PENN TWP.
MINETECH ENGINEERS
ALTOONA, PENNSYLVANIA

Figure 14


PATRICK MURREY & KIM MURREY HOBBA
FORESTLAND
STRIPMINE RECLAIMED AS FORESTLAND
ROBERT G. HOLLAND
JEANINE THOMAS
ROBERT & JULNA WALKER
STRIPMINE RECLAIMED AS UNMANAGED NATURAL HABITAT
FORESTLAND
LAND OCC. CUT FOR HAY
WM. A. POLITES
BYRON P. & DAVID L. THOMAS
STRIPMINE RECLAIMED AS FORESTLAND
FOREST LAND
RESIDENTIAL
UNMANAGED NATURAL HABITAT
PASTURELAND OCC. CUT FOR HAY
RaB
DAVID L. & RANDY L. McKENRICK
JOANN LASH ETAL
FORESTLAND
RICHARD N. CLEAVER
STRIPMINE RECLAIMED AS FORESTLAND
JOANN LASH ETAL
JAMES M. McCARTNEY
STRIP MINE UNRECLAIMED FORMERLY FORESTY LAND
LAND OCC. CUT FOR HAY
RESIDENTIAL
McCARTNEY FAMILY TRUST
KAREN L. TAYLOR
ALVIN L. PROUD
ANDREW S. ANDERSON
LEONARD REBAR
JAMES M. McCARTNEY
100' PERIMETER
NOTE:
128 Ac. Permit Area
EXHIBIT 18
LAND USE & RECLAMATION MAP
FORCEY COAL, INC.
WALKER MINE
SMP No. 17010104
PENN TWP. CLEARFIELD CO.
SCALE 1" = 200'
MINETECH ENGINEERS
ALTOONA, PENNSYLVANIA
DATE

5600-FM-MR0033 Rev. 5/96

Figure 15

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF MINING AND RECLAMATION

RECLAMATION STATUS REPORT

Inspection Report
Stage I

Date 12-6+28-05
Report No. 405046
On Site Times _____

Weather COLD, SNOW, SNOW COVER

PERMITTEE	TOWNSHIP	COUNTY	PERMIT NO.
FORCEY COAL	PENN	CLFD	17010114

ADDRESS			LICENSE NO. & EXPR. DATE
PO BOX 225 MADERA, PA 16661	PARTIAL ☐ VIOLATIONS NOTED ☐ FOLLOW-UP INSP. REQUIRED ☐ FOLLOW-UP ☐ PREVIOUS VIOLATIONS: COMPLIANCE ORDER ☐ AERIAL ☐ CORRECTED ☐ FTC ORDER ☐ CEASE ORDER ☐ COMPLETE ☑ UNCORRECTED ☐ OUTSTANDING ENFORCEMENT ☐		1436 OPERATIONAL STATUS REGRADED

GENERAL MINING INFORMATION:

a. Areas-Seams-Pit Dimensions (L/W/H)-Method: REGRADED

PERFORMANCE STANDARDS

Obs.	STANDARD	Viol.	Comp. Date
✓	8. Treatment Facilities		
✓	7. Sediment Control Measures		
✓	9. Sediment Ponds		
✓	31. General Backfilling		
✓	56. Backfilling-Final Slopes		

MINING AREA EVALUATED	20.0 ACRES
SUPPORT AREA EVALUATED	ACRES
MINING AREA DELETED	24.4 ACRES
SUPPORT AREA DELETED	ACRES

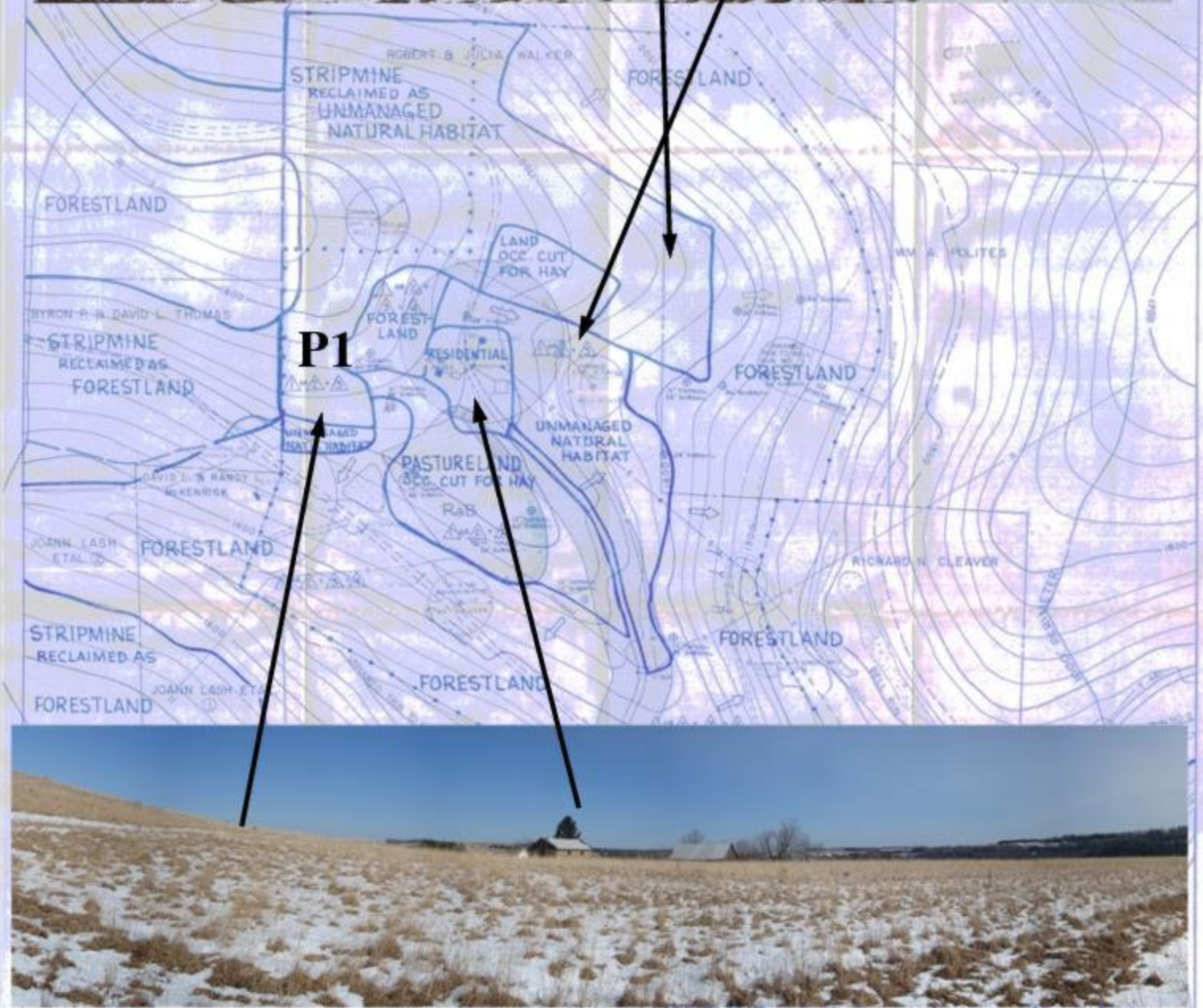
RECLAMATION STATUS QUESTIONS	YES	NO	N/A
MINING RESTORATION			
1. Is backfilling completed as per the approved plan?	✓		
2. Is all debris, junk, and nonessential equipment removed?	✓		
3. Are all coal stockpiles removed?	✓		
4. For prime farmland only, are all slopes less than 8%	✓		
HYDROGEOLOGIC INFORMATION			
5. Does analysis of surface & groundwater monitoring data indicate degradation has not occurred?	✓		
6. Do post-mining discharges on the permit meet effluent criteria?			✓
If not, indicate monitoring points or sample numbers —			✓
7. Do post-mining discharges adjacent to the permit meet effluent criteria?	✓		
If not, indicate monitoring points or sample numbers —			✓
8. Has a Hydrogeologist evaluated the discharges associated with this permit?	✓		
If yes, date of report SOB CD UFA Hydrogeologist MARK HILLER			
9. Have Subchapter F or G requirements been met?	✓		
EROSION AND SEDIMENTATION CONTROL INFORMATION			
10. Have erosion and sedimentation controls been implemented?	✓		
11. Do sediment basin discharges meet effluent criteria?			✓
Sample Numbers —			
REQUIRED FOR COAL REFUSE DISPOSAL ONLY			✓
12. Is site topsoiled and planted?			
RECOMMENDATIONS AND GENERAL OBSERVATIONS			
13. Is the site ready for topsoil replacement and planting? ACCOMPLISHED ON 12.4 A.	✓		
14. DO YOU RECOMMEND APPROVAL OF THIS RECLAMATION STATUS REQUEST?	✓		

COMMENTS AND RECOMMENDATIONS NO STG II RELEASE REQUESTED. ALL STDS FOR COMPLETE INSP CHECKED

Person Contacted	Title KEYED IN JAN 11 2006
Signature BY MAIL DRS	Discharge/Seeps ☐ yes ☑ no SNOWBOUND Samples Collected ☐ yes ☑ no FROZEN / ROCKWATER Range of Samples Collected 000 to 000
	Investigator Signature & I.D. No. [4] [4] [0] [S]

The Operator's signature acknowledges that he has read the report, including the reverse side, and that he was given the opportunity to discuss it with the investigator. The signature does not necessarily mean he agrees with the report.

DISTRICT FILE


STRIPMINE
RECLAIMED AS
UNMANAGED
NATURAL HABITAT
FORESTLAND
FORESTLAND
LAND
OCC. CUT
FOR HAY
FOREST
LAND
RESIDENTIAL
P1
STRIPMINE
RECLAIMED AS
FORESTLAND
FORESTLAND
UNMANAGED
NATURAL
HABITAT
PASTURELAND
OCC. CUT FOR HAY
RaB
FORESTLAND
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ANDERSON
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128 Ac. Permit Area
EXHIBIT 18
LAND USE & RECLAMATION MAP
FORCEY COAL, INC.
WALKER MINE
SMP No. 17010104
PENN TWP. CLEARFIELD CO.
SCALE
1"=200'
MINETECH ENGINEERS
ALTOONA, PENNSYLVANIA
DATE

Figure 16

Forcey Coal, Inc. Walker Mine - Sections and Topographic Changes Due to Mining

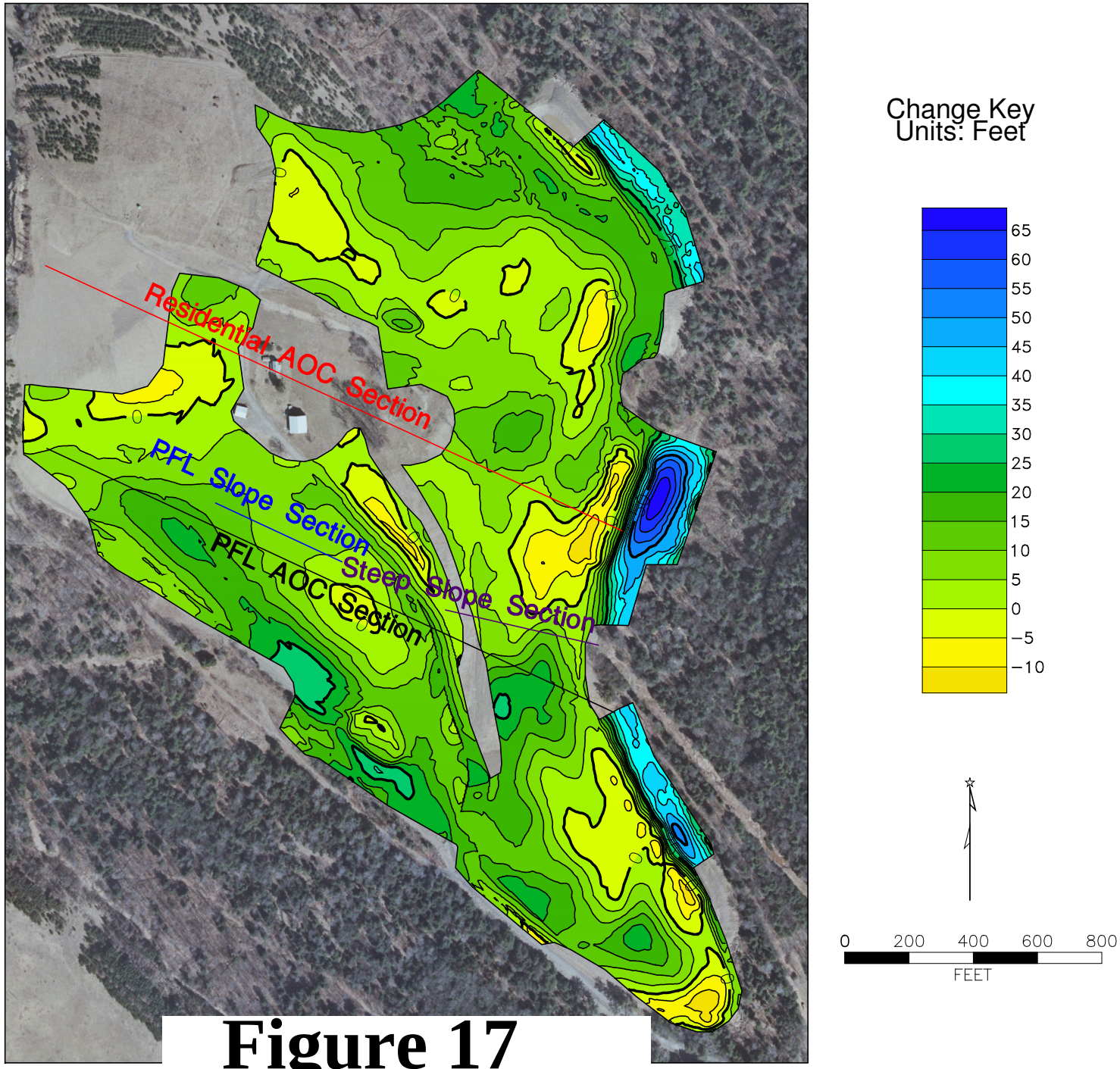
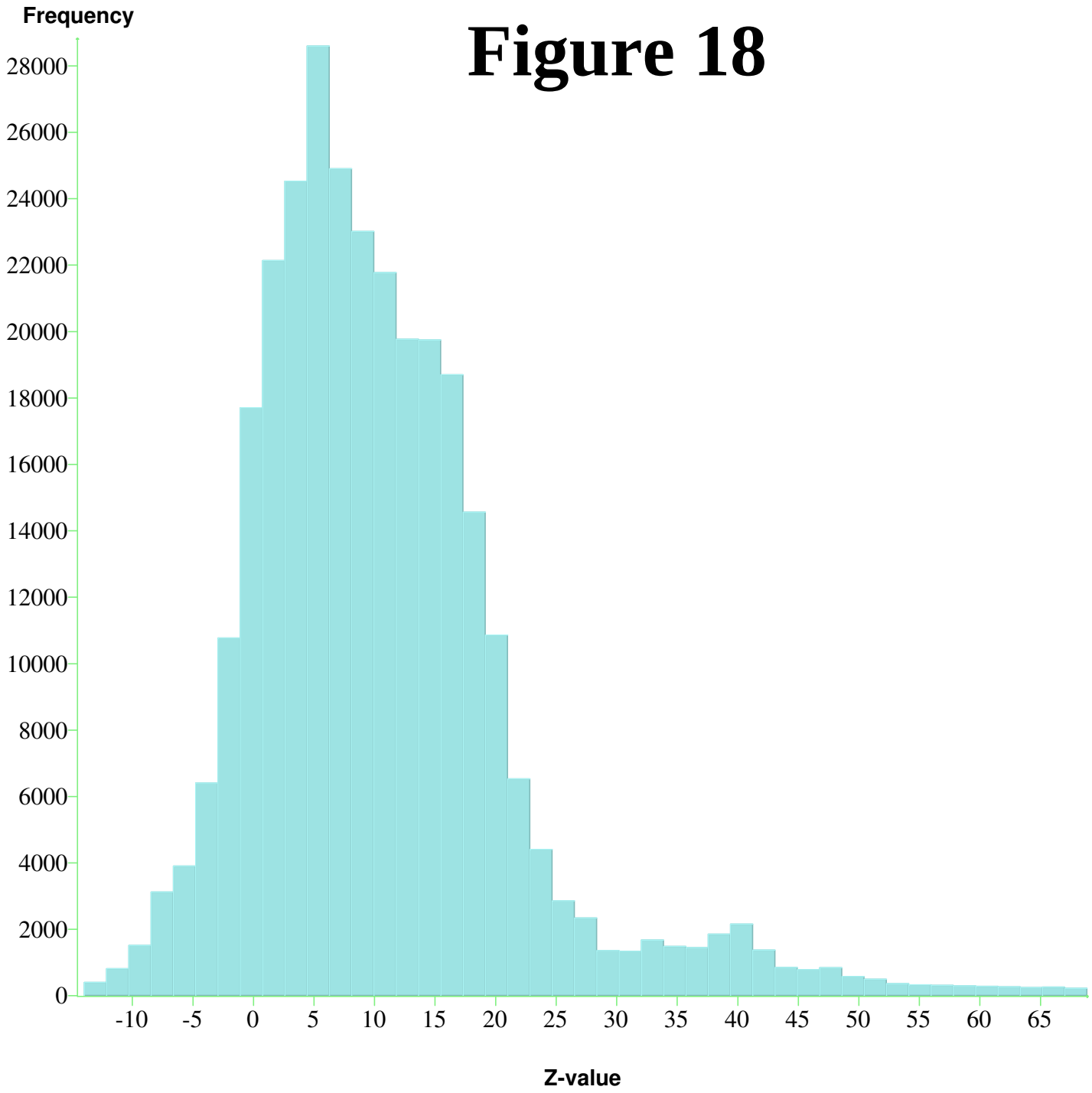


Figure 17

Figure 18



Plot Statistics

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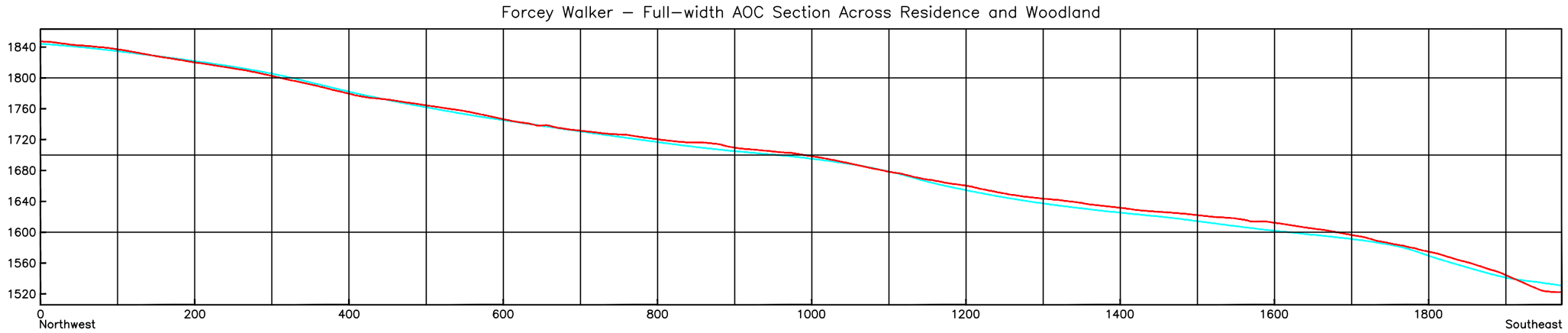
Maximum: 68.838	Coeffecient of Variation:1.0864
Median: 8.5234	Upper Quartile: 15.351
Minimum: -14.487	Lower Quartile: 3.0126
Kurtosis: 3.8556	Skewness: 1.5016

Histogram plot of from postmine_minus_premine_nullout.2grd made on 05/05/10 10:36:39

Figure 19

Results of PFL AOC Section. Location of x-section shown in Figure 17



PERMIT ORIGINAL GRADE

REMOTE SENSING VERIFIED GRADE

APPROXIMATE ORIGINAL CONTOUR

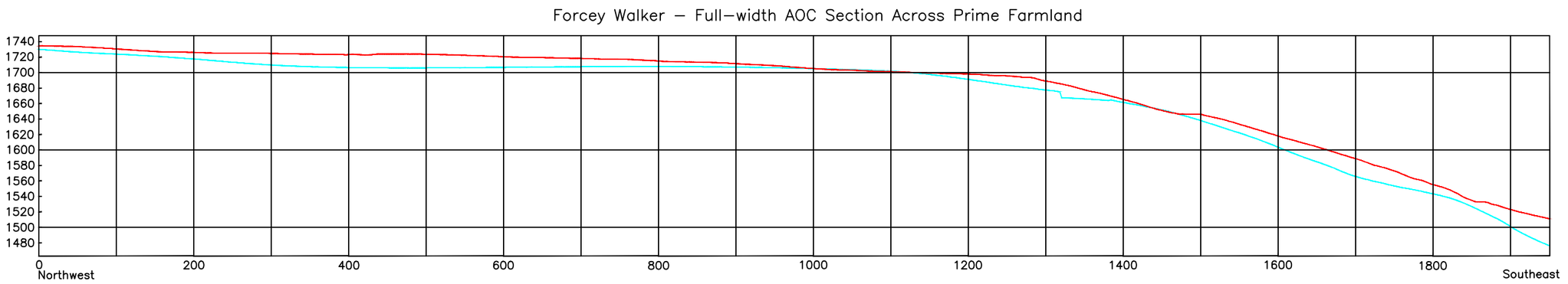
PA FORCEY/WALKER

STEEP SLOPE AREA

FULL-WIDTH CROSS SECTION FROM PERMIT REMOTE SENSING CROSS SECTION

Figure 20

Location of Residential AOC x-section shown in Figure 17



PERMIT ORIGINAL GRADE

REMOTE SENSING VERIFIED GRADE

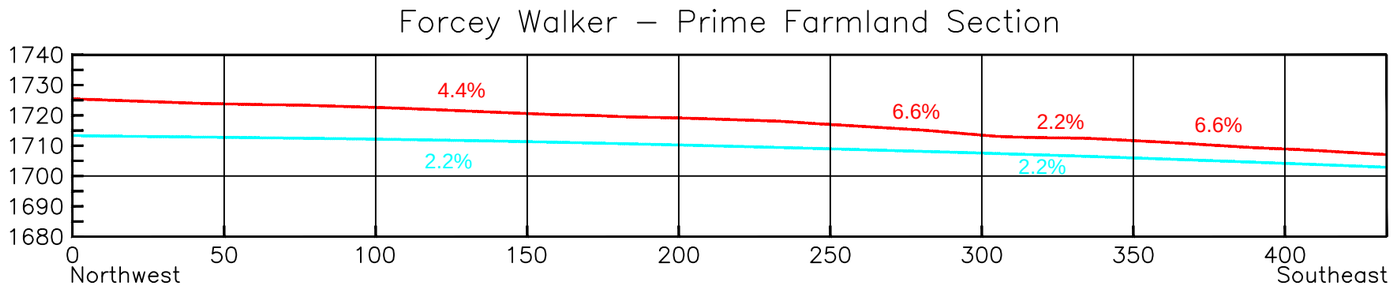
APPROXIMATE ORIGINAL CONTOUR

PA FORCEY/WALKER

PRIME FARMLAND AREA

FULL-WIDTH CROSS SECTION FROM PERMIT REMOTE SENSING CROSS SECTION

Figure 21



PERMIT ORIGINAL GRADE

REMOTE SENSING VERIFIED GRADE

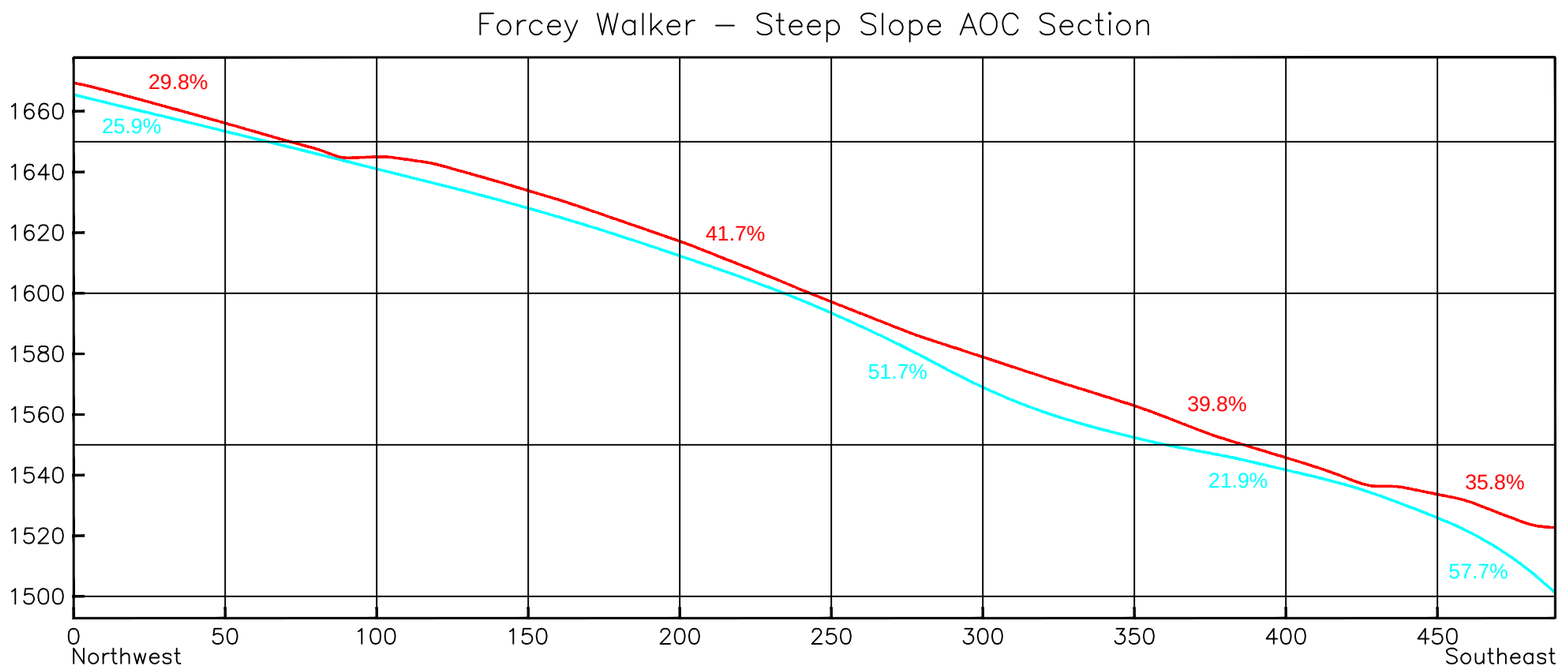
APPROXIMATE ORIGINAL CONTOUR

PA FORCEY/WALKER

PRIME FARMLAND AREA

CROSS SECTION FROM PERMIT
REMOTE SENSING CROSS SECTION

Figure 22



PERMIT ORIGINAL GRADE

REMOTE SENSING VERIFIED GRADE

APPROXIMATE ORIGINAL CONTOUR

PA FORCEY/WALKER

STEEP SLOPE AREA

CROSS SECTION FROM PERMIT
REMOTE SENSING CROSS SECTION

Photo 6

Photo 7

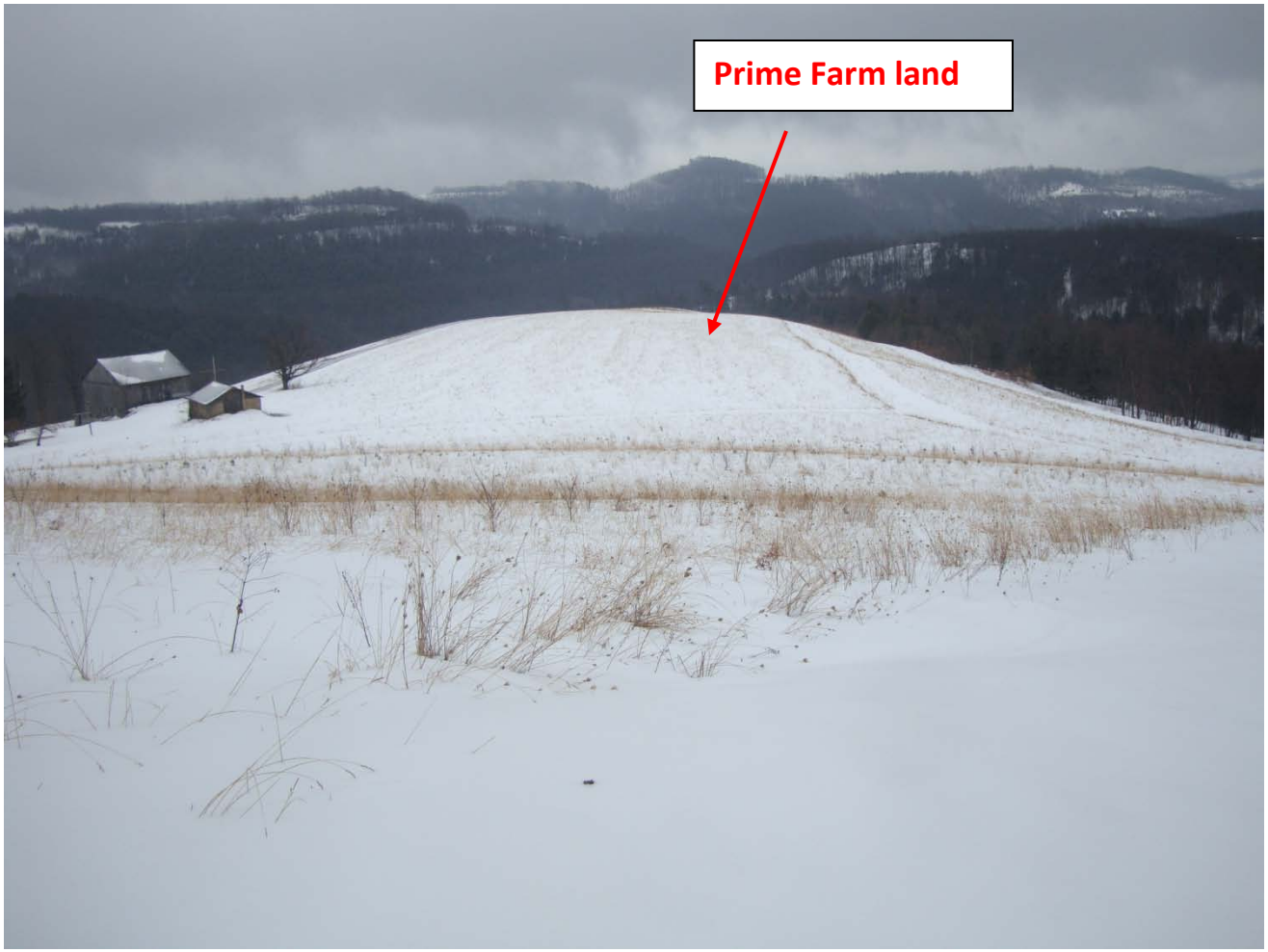


Photo 8

Photo 9

Photo 10

Photo 11

Attachment 2

Qualitative AOC Evaluation Data Collection Form for Forcey Coal, Walker mine

1. Is there any evidence of the highwall or low wall? No. The photos show the mined area was "blended" into the unmined areas.

2. Is there any spoil left ungraded? No
3. Are there any depressions without adequate drainage? All affected areas appeared to contain positive drainage.

4. Are non approved mining structures removed (buildings, etc.)? There are no structures on site.

5. Do the size and shape of the sub watershed "resemble" the pre-mining watersheds? Larger, smaller, shape, shifting of surface water divides? Visually, the post-mining watershed resembled the pre mining watersheds.

6. Does the reclaimed topography "resemble and blend" with the surrounding topography? Yes

7. Does the reclaimed topography complement the approved post-mining land use? Yes

8. Do any of the post-mining land features look odd, incorrect, or out of place? Yes. Overall, the quality of reclamation on the site was exceptional; however, one pond was poorly reclaimed. This pond was reclaimed after Stage II approval and it appears as though the operator just removed one of the pond berms. The footprint of the pond is still visible and looks awkward.

9. Based on professional judgment, is the quality of reclamation consistent with reclamation commonly found on other surface mines in Pennsylvania? (below average, average, above average) Above average

10. Using a visual estimation, does the reclaimed site visually resemble the approved reclamation plan? Yes

11. Has all mining debris and junk been removed (Question on Stage 1 inspection form)? Yes

12. Has all coal stockpiles been removed (Question on Stage 1 inspection form)? Yes

13. From the visual site inspection, was AOC achieved? Yes. It is difficult to tell the site was mined. The reclamation looks "natural" and blends into the surrounding landscape.

14. Other Comments: None.

3. **MB Energy - Brink Operation (SMP# 17970109) –** This 258-acre permit, located in Chest Township Clearfield County, was issued in 1997 and contained 51 acres of remining that would eliminate 3,600 ft of highwall and eight acidic discharges. The operational plan was to develop a 320 ft high wall to remove five seams of coal within five years.

Permit Review - A permit review was conducted on February 3, 2010 in the Moshannon district mining office. The permit file was reviewed and discussions were held with PADEP staff. Module 10 showed the coal company's operational plan would modify the existing hill to a lower, broader crest and change the existing steep unstable slope on the western side of the permit to a "moderate slope" (Figure 23). In Module 10.5, Modifications to Approximate Original Contour, the operator stated they planned to return the permit site to a modified approximate original contour (Figure 23). The proposed modified approximate original contour entailed lowering the pre-mining elevation of the hill top by 40 ft. In the context of this report, the term hill top refers to several knoll-like land features that protrude from the top of the ridge. During the permit review, OSM interpreted the submitted "modified approximate contour" as the operator requesting an AOC variance. However, PADEP stated that they viewed the proposed modified approximate original contour reclamation plan as achieving their interpretation of AOC. Therefore, while the permit application contains information that leads a permit reviewer to believe the proposed reclamation plan will not be AOC, PADEP viewed the reclamation plan achieving their interpretation of AOC and did not require landowners' consent to implement the plan. It is unclear as to whether the operator was requesting variance because while they used the term "modified approximate original contour" in Module 10, the operator stated on the reclamation map (Figure 24) that all areas will be reclaimed to "approximate original contour." This discrepancy created confusion and DEP interpreted the proposed reclamation as AOC. This permit is unusual for Pennsylvania as the reclamation map (Figure 24) proposes reclamation contours that differ from the pre-mining contours shown in the operations map (Figure 25). The approved reclamation contours are shown in yellow in Figure 24. This is one of the few permits in Pennsylvanian that contained an engineered reclamation plan.

PADEP performed the AOC evaluation during the Stage 1 completion report in August 2006 (Figure 26). The Stage 1 inspection report documents that the on-the-ground reclamation was completed per the approved reclamation plan.

Site Inspection/Qualitative AOC Evaluation – The site was visited on February 3 and February 22, 2010, however, the actual site inspection was performed on February 22nd. Steve Starner (Inspector Supervisor) represented PADEP and Tom Koptchak (Reclamation Specialist) and Brent Means (Hydrologist) represented OSM. The

objective of the site inspection was to: (1) walk several transects across the site comparing the actual reclamation topography to the Module 18 reclamation plan; (2) identify areas without positive drainage; (3) walk the areas near the reclaimed high wall and low wall to determine to evaluate if the reclamation "blended" into the unmined areas; and (4) field-evaluate the reconstruction of sub watersheds.

The fact that this mine site is large and encompasses a long ridgeline makes obtaining a picture showing the entire mine difficult. Figure 27 shows the pre mining topography contained four hill tops outlined by the 1700 ft contour line. The pre-mining elevation at the top of two of the hills was approximately 1740 ft. The site inspection revealed that only one of the two 1740 ft hill tops was mined through and reclaimed. Approximately 10.2 acres of the other hill top remained undisturbed. Photo 12 provides a view of both hill top at the time of the site inspection. The location and direction that Photo 12 was taken is shown as point P1 on Figure 27. Photo 12 shows the unmined hill top is higher than the reclaimed hill top and during the site inspection the reclaimed hill top was estimated to be approximately 40 ft lower than the original elevation. This visual observation is consistent with the permit application that stated the hill top would be lowered by approximately 40 ft. However, the fact that the original mining plan was not fully implemented did affect the reclamation of other areas. The change in mining plan affected the volume of spoil that was produced from mining (from swell). The approved reclamation plan was dependent on generating the volume of spoil from mining the entire site. During the site inspection, it was apparent that the approved reclamation plan was not fully implemented. The approved reclamation plan in Figure 28 shows that some of the spoil was planned to be used to reclaim some abandoned mine lands, which were not part of the remining permit, in the northern and southern portion of the permit. These areas are outlined in green in Figure 28 and contain yellow contours, which represent the topography of the approved reclamation plan. Examination of Figure 28 shows the land is still forested within the areas outlined in green and was not disturbed. For example point P1 on Figure 28 shows that the reclamation plan should reduce the original contour by 20 ft, from 1500 ft to 1480 ft. Photo 13 is a picture of point P2 and shows the on-the-ground reclamation activities didn't encompass this area like the permit predicted. It is hypothesized that the operator planned on reclaiming these abandoned mine lands with excess spoil produced by mining through the hill top. It is also hypothesized the operator did not implement the reclamation plan in these areas because the operator decided not to mine through one of the hill top and did not generate the excess spoil. However, the approved reclamation plan (Figure 24) was based on the full implementation of the mining plan and was not revised to reflect the operational change. The operator should have submitted a revised reclamation plan that detailed the new reclamation plan. The regulatory authority would have reviewed the new reclamation plan to ensure the plan would achieve the State's interpretation of AOC and achieve the standard reclamation

practices required by DEP. During the OSM inspection, the site was still inspected for AOC compliance using a combination of the pre-mining topographic map and the approved reclamation map. In addition to evaluating the location of on-the-ground reclamation, the site inspection also evaluated the reconstruction of drainage areas. The approved reclamation map required the construction of two sub drainages on the northern side of the ridge, denoted as A and B on the map (Figure 24). Photo 14 verifies the construction of the two sub drainages. During the site inspection, the site was walked to evaluate the "blending" of the reclamation into the surrounding topography. Photo 15 shows an example of how the reclaimed high wall "blends" into the unmined hill. Other than the reclamation plan not being revised to show the operator's plan to not reclaim the some of the AML areas, the reclaimed topography "resembled" the topographic map, noting that the hill tops were lowered and the reclamation slope was not as steep as the pre-mining slope. OSM determined the site achieved AOC and the qualitative evaluation is documented in Attachment 3.

Quantitative AOC Evaluation –An electronic copy of the reclamation map was obtained from M.B. Energy's consultant and was the basis to generate a pre-mining elevation model. Lidar data was used to characterize the reclamation topography shortly after Stage I was approved. Earth Vision software was used to create elevation models and the pre-mining model is shown in Figure 29 and the post-mining model is shown in Figure 30. Figure 29 shows the site can be characterized as a ridge line with abandoned high walls lining the hill sides. Figure 30 shows that most of the AML features on the remining permit were eliminated. Earth Vision was used to create an elevation-difference map that quantified the change in the topography (Figure 31). The elevation-difference map was created by subtracting the post-mining elevation model from the pre-mining elevation model. Figure 31 shows changes between the pre mining and post mining topography ranged from 160 ft lower to 160 ft higher. The dark blue areas in Figure 31 represent the remining areas where the reclamation surface elevation is up to ~140 ft higher than the original surface elevation because the operator was required to fill in abandoned pits to achieve AOC in the remining areas.. On the other hand, the areas denoted in yellow, orange, and red are areas that are reclaimed to a much lower surface elevation that are not part of the remining area. The two concentric yellow features located directly west of the unmined hill top represent the lowering of the existing hill tops by approximately 40 ft, which is consistent with the permit. The large concentric orange and red circle to the east of the unmined hill top shows the reclamation lowered the original surface elevation the ridge by approximately 160 ft. Visual examination of Figure 31 shows that most of the reclamation was within +/- 25 ft of the original land surface and the large deviation from the pre-mining topography is relatively constrained to the western side of the permit. The five cross sections, shown in Figures 32 through 36, further substantiated the reclamation topography closely mimicked the pre-mining

elevation in all but the western side of the permit. Figure 37 is a histogram of the elevation-difference data used to create the elevation-difference map in Figure 31. The histogram shows that, of the 1.1 million elevation-difference data points, 25% of the mine site was reclaimed to within 10.5 ft and 75% of the site was reclaimed to within 19.4 ft of the original area. These statistics include the changes in the remining topography. This analysis shows that a large difference between pre and post-mining elevations is confined to the western portion of the permit where mining last occurred. It's fairly clear that the change in operational plan (less spoil) coupled with the remining obligation to reclaim the large pits resulted in a spoil deficiency situation in the last mining area. Cross section BB shown in Figure 33 illustrates the issue. The location of cross section BB is shown in Figure 31. In the eastern section of the cross section, the reclamation was very consistent with the approved reclamation plan. The eastern-most hill top was lowered by approximately 40 ft, which is consistent with the approved reclamation plan. However, as the mining plan changed as the mining progressed toward the west, the reclamation surface started to drastically differ from the approved reclamation topography. A revised reclamation plan should have been submitted as the mining operation deviated from the approved mining plan. Therefore, the surface owners still thought the approved reclamation plan was being implemented and never had an opportunity to review or comment on how the change in operations would affect the reclamation of their property. There is no evidence that the property owners or DEP were aware that the surface elevation would be lowered by 160 ft in the western part of the permit. With that said, there were no objections to Stage I bond release and DEP concluded the site achieved AOC. Moreover, the OSM site inspection used the same field techniques as the DEP inspectors to evaluate AOC. The OSM site inspection was completed before any knowledge of the results of the quantitative analysis. OSM performed a visual comparison of the reclamation map to the site reclamation and noted differences between the two but did not identify the lowering of the western-most hill top by 160 ft. The permit stated that the western-most slope would be reduced to a gentler grade, but the lowering of the hill top was not obvious in the field. A visual observation of the reclaimed land surface shown in Figure 30 shows a "natural-looking" land surface and the loss of 160 ft in elevation in the western portion of the permit is not obvious without close examination. The reclamation blended into the surrounding topography and without a point of known elevation to reference, the reduction in elevation was not apparent in the field. There are very few ridge mines in the bituminous region of Pennsylvania. Most mining operations are contour strip or box cut. Achieving AOC is much easier with those mining methods as the operator is likely to achieve AOC by just regrading to the original unmined ground at the top of the high wall and the bottom of the low wall. Achieving AOC in a ridge operation is more difficult. If the entire ridge is mined, there are no unmined areas left on top of the hill that can be used as a point of reclamation reference. Since DEP's current definition for AOC only includes qualitative metrics, neither

operators nor DEP employ GPS or surveying techniques in evaluating AOC and without a unmined visual reference, AOC in ridge removal operations is difficult to evaluate. This report concludes these are the reasons why this operation was found to achieve AOC despite being 160 ft lower in the western portion of the permit.

It is unknown if the surface owner is aware or satisfied with the reclamation at this site. The fact that the operator did not revise his reclamation plan could have caused a serious issue if the surface owner objected to Stage I bond release. The approved reclamation plan showed that the remining areas could be reclaimed without compromising the original contour on the virgin ground. The approved reclamation plan was not specific enough to determine if the operator had planned to only use the AML spoil piles to reclaim the AML highwalls or if the operator determined there was inadequate AML spoil to reclaim the highwalls and they planned on using a combination of AML spoil and spoil swell from the virgin areas to reclaim the remining areas to AOC. It is hypothesized that the operator ended up using much of the spoil produced from mining the virgin areas to reclaim the remining areas to AOC, and in the process compromised AOC on the western-portion of the permit. For large remining operations, the permit application is not detailed enough to determine where the spoil to reclaim the AML areas will originate from or evaluate the post-mining topography on the remining areas.

Permit-Specific Findings that relate to AOC for the Brink operation

- The original mining plan changed which affected the implementation of the approve reclamation plan;
- The mining company failed to follow the approved reclamation plan;
- The mining company did not submit a revised reclamation plan nor did DEP require a permit revision as the operational plan changed;
- DEP concluded the site achieved AOC during the State I inspection;
- OSM's field inspection noticed the site reclamation deviated from the approved reclamation plan;
- The OSM field inspection concluded the site achieved AOC;
- Quantitative analysis showed a hill top in the western side of the permit was lowered by 160 ft, however, the analysis showed the majority of the site was reclaimed to

within +/- 20 ft of the original land surface;

- The lowered hill top area was ~ 30 acres of the 258 acre permit

- There is no evidence that the land owners or DEP were aware that the reclamation would significantly alter from the approved reclamation plan in the western portion of the permit;

- OSM concludes the lowering of the hill top is a result of a change in the mining plan, which resulted in less spoil being available to complete the approved reclamation plan as the mining progressed westward;

- A permit revision should have been required to identify the change in reclamation topography. A revision to the reclamation plan would have afforded DEP with the opportunity to ensure the new reclamation plan is consistent with their interpretation of AOC and the post-mining land use and would have allowed the land owner to evaluate and comment on the change.

- There was poor agreement between the quantitative analysis and the visual qualitative analysis in the western portion of the permit;

- For the Brink permit, PADEP's method used during the Stage I inspection to compare the approved reclamation plan to the site reclamation proved to be insufficient to identify the 160 ft elevation change identified during the quantitative analysis.

Figure 23

M.B. ENERGY, INC.
Brink-Scollon No. 5 Mine

ER-MR-311:Rev.9/93

Module 10: Operational Information

10.1 Equipment and Operation Plan.

For each phase of mining, identify the type and method of mining; engineering techniques; major equipment to be used; starting and finishing point; and the anticipated sequence in which the phases are to be mined. Provide a description or explanation of the relative sequence of mining, including the relative timing of various phases and the estimated life of the mine.

The Brink-Scollon No. 5 Mine site is designed as a one phase operation that incorporates several sub-phases. Upon installation of the erosion and sedimentation controls applicable to the sub-phase, actual surface mining operations can commence as depicted on the Exhibit 9.0 Operations Map. Operations will begin in the eastern sector of the permit area on the Cabot Oil & Gas Corp. pipeline and progress in westerly direction. The minerals to be removed are the Mahoning coal seam, where encountered incidentally, the Lower Freeport (3) coal seam, the Lower Freeport (2) coal seam, the Lower Freeport (1) coal seam and the Upper Kittanning coal seam.

This proposed permit area is for the continuation of the adjacent Brink-Scollon No. 2 and 3 operations. Mining at the site will be by the expanded haul back method. Initial spoil will be placed to the east on the active Brink-Scollon No. 2 and 3 mines. The active operation is a modern, State of the Art haul back operation where a minimum of two separate benches are constantly maintained. A large stripping shovel removes the overburden in lifts and loads the strata onto several 185 ton off-road trucks. Then, typical of haul back operations, spoil from the active block is placed in the preceding cut approximately 600 feet away. This operation is designed to rapidly remove overburden, engage all equipment in continuous production hours and remove and place overburden at its final position. Many months were spent on the adjacent Brink-Scollon operation to stockpile the initial spoil from the large pit. Now that operations have progressed to where spoil is placed behind the coal removal in the pits, production has increased, and the long terms goals of this particular permit are to:

1. **Actively daylight the entire hilltop lying west of the active pit, while permanently placing spoil behind the pit in the previously mined areas.**

(10.1 Equipment and Operation Plan)

2. **The hilltop as it now exists will be modified to a lower, broader hilltop.**

3. **The unstable hillside which now lies on the east side of SR 36 will be drawn back, the final slope greatly reduced and the slope stabilized.**

Because of the large scope of a project such as this and the high overburden heights (maximum 320 feet), the operator is requesting permission to implement the following special mining variances:

1. **The maximum pit size on any one individual seam will be 2000 feet x 600 feet for coal removal and 2000 feet x 300 feet for inwardly sloping spoil. One individual set of treatment basins will be provided for each pit designed at this size.**

2. **Since it is imperative that both the equipment and the operators be productive, two pits will be maintained as described above.**

The present equipment found on the site is as follows:

(1) Caterpillar Model 5230 - 22 yard hydraulic shovel
(3) Caterpillar Model 785-B - 185 ton off road trucks
(1) Caterpillar Model D -11N Bulldozer
(1) Caterpillar Model D -9L Bulldozer
(1) Caterpillar Model 245 hydraulic shovel
(2) Caterpillar Model 988-B front end loaders
(1) Caterpillar Model 992-C front end loader

The total estimated life of the mining operation is projected to be four (4) to five (5) years.

10.4 Final Grade and Drainage.

Identify the final grading and drainage pattern, including topographic contours on Module 18 and a description of compaction and stabilization techniques. Operations involving steep slopes (greater than 20°) must include a stability analysis.

Final diversions will be installed only if needed to control erosion. The Exhibit 18.0 Map shows the projected post-mining drainage pattern.

Steep slopes currently exist near Route 36, and these slopes have started to fail in the roadway cut. A detailed Mining Plan will be submitted to PennDOT if this phase of mining is pursued. Basically, the steep slope areas will be benched down by the present equipment working on the Brink-Scollon #3 mine site. A large shovel and several off-road trucks will reduce the steep slope completely by excavation and loading from the hilltop side. This massive method of hilltop removal will completely eliminate any steep slopes and reduce the final slope to a moderate slope rather than the existing steep slope.

10.5 Modifications to Approximate Original Contour.

Where the proposed final grade is other than approximate original contour, provide justification for the alternate reclamation proposal. Include a detailed description of the factors which prevent restoration to approximate original contour as well as plans and cross-sections which describe the alternate reclamation and demonstration that the proposed final contour is consistent with the proposed post-mining land use. Alternate reclamation proposals for areas which have been previously mined and unreclaimed must include a demonstration of the environmental benefits of reaffecting the area.

All areas on the permit site will be returned to a modified approximate original contour and revegetated as outlined on the Exhibit 18 Land Use and Reclamation Map. This modified backfill will result from the large expanse of spoil removal and the proposed mining plan. The operator has virtually spent millions of dollars to open the adjacent Brink-Scollon No. 3 mine by placing initial spoil in a neutral area. Mining will now progress westerly through the hilltops, reducing the overall height by approximately 40 feet. When the operation is completed at the western permit boundary near SR 36, the now unstable road bank will have been drawn back and a gentle final grade established.

Figure 24

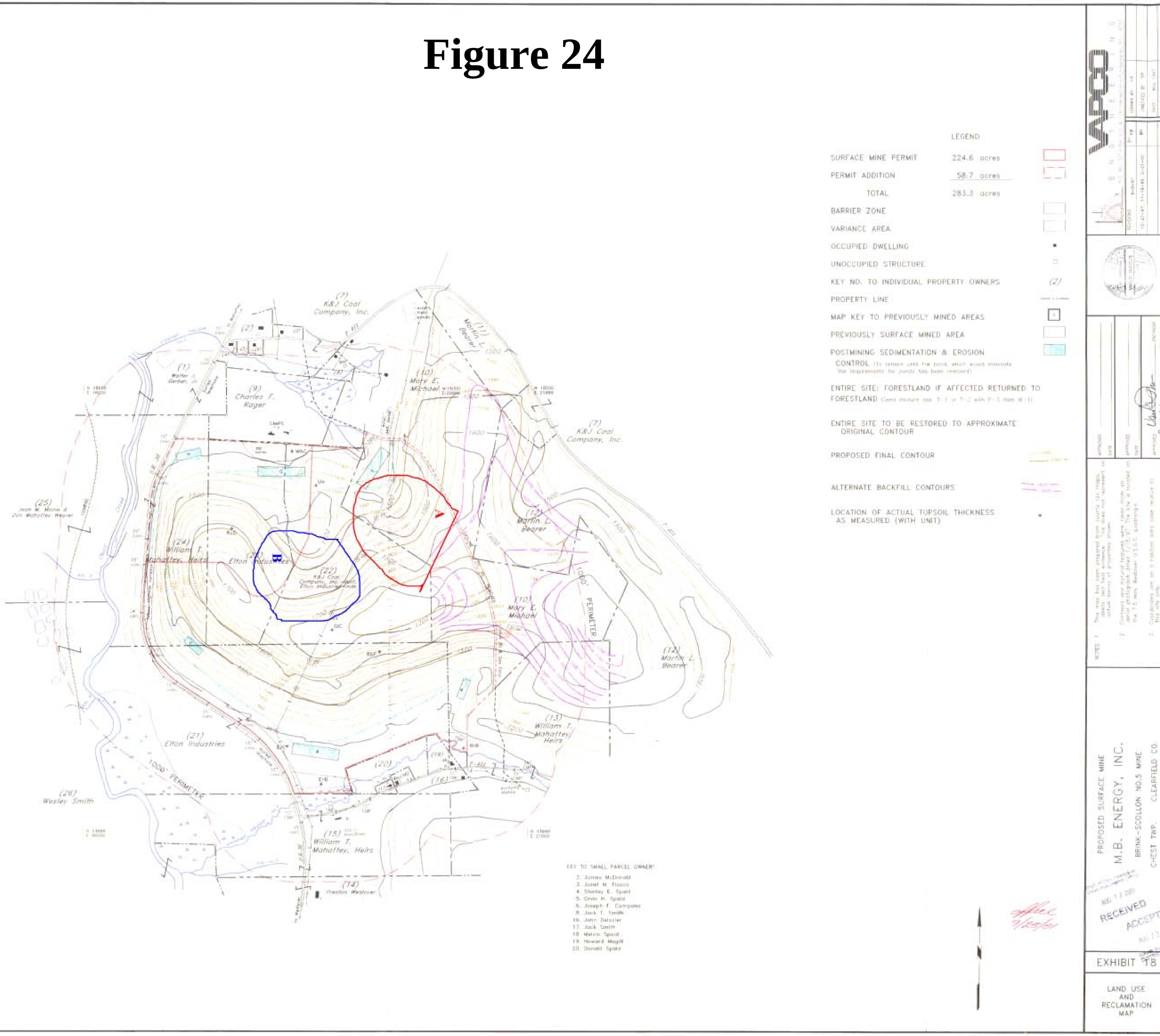
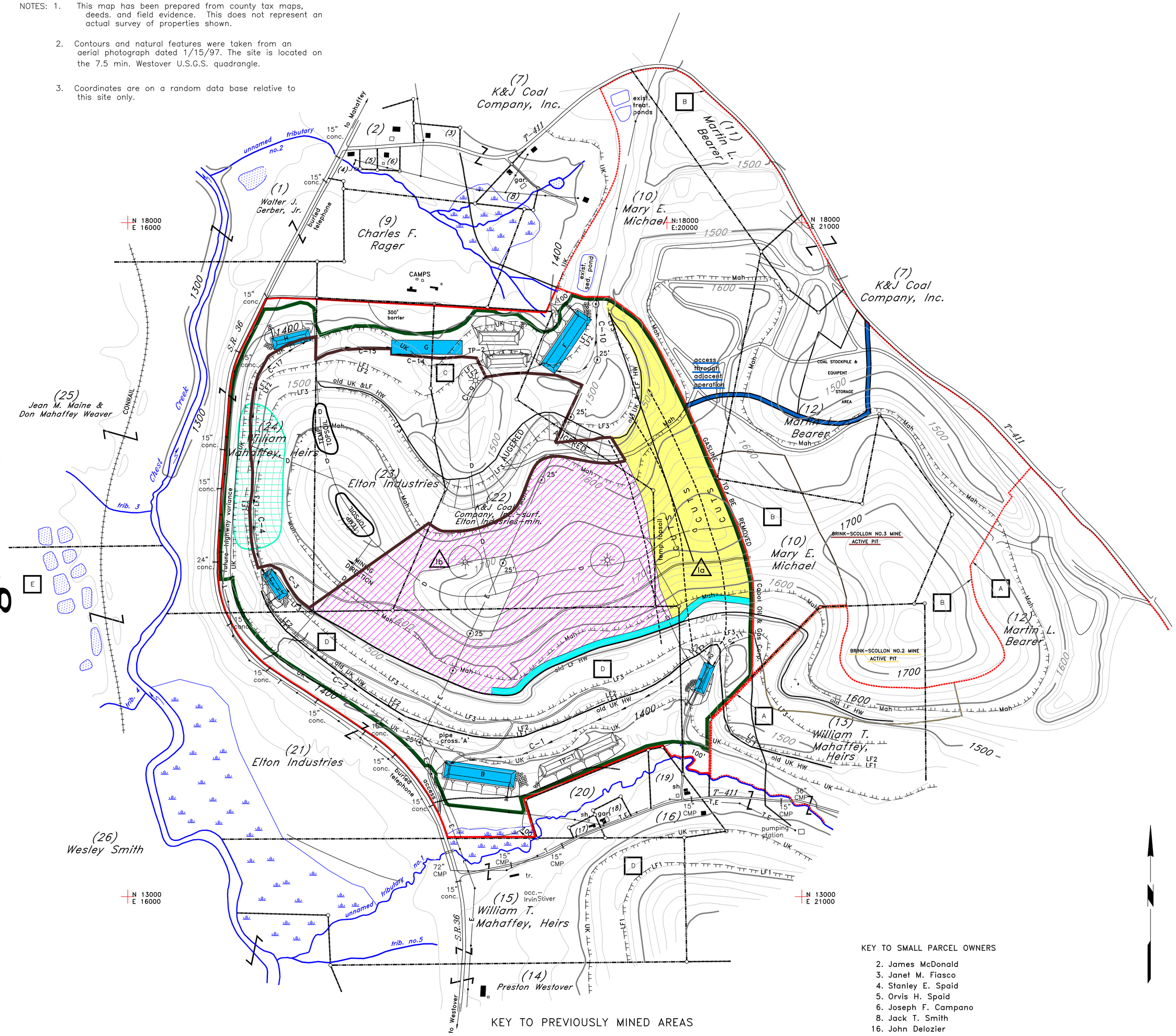

LEGEND
SURFACE MINE PERMIT 224.6 acres
PERMIT ADDITION 58.7 acres
TOTAL 283.3 acres
BARRIER ZONE
VARIANCE AREA
OCCUPIED DWELLING
UNOCCUPIED STRUCTURE
KEY NO. TO INDIVIDUAL PROPERTY OWNERS (2)
PROPERTY LINE
MAP KEY TO PREVIOUSLY MINED AREAS
PREVIOUSLY SURFACE MINED AREA
POSTMINING SEDIMENTATION & EROSION CONTROL
ENTIRE SITE: FORESTLAND IF AFFECTED RETURNED TO FORESTLAND
ENTIRE SITE TO BE RESTORED TO APPROXIMATE ORIGINAL CONTOUR
PROPOSED FINAL CONTOUR
ALTERNATE BACKFILL CONTOURS
LOCATION OF ACTUAL TOPSOIL THICKNESS AS MEASURED (WITH UNIT)
A
B
K&J Coal Company, Inc.
Charles F. Rager
Mary E. Michael
Martin L. Bearer
William T. Mahaffey Heirs
Elton Industries
Wesley Smith
Preston Westover
1000' PERIMETER
KEY TO SMALL PARCEL OWNERS
2. James McDonald
3. Janet M. Fiazza
4. Stanley E. Spaid
5. Orvis H. Spaid
6. Joseph F. Campana
8. Jack T. Smith
16. John Delozier
17. Jack Smith
18. Melvin Spaid
19. Howard Magill
20. Donald Spaid
PROPOSED SURFACE MINE
M.B. ENERGY, INC.
BRINK-SCOLLON NO.5 MINE
CHEST TWP. CLEARFIELD CO.
RECEIVED
ACCEPTED
EXHIBIT 18
LAND USE AND RECLAMATION MAP

Figure 25

NOTES: 1. This map has been prepared from county tax maps, deeds, and field evidence. This does not represent an actual survey of properties shown.

2. Contours and natural features were taken from an aerial photograph dated 1/15/97. The site is located on the 7.5 min. Westover U.S.G.S. quadrangle.

3. Coordinates are on a random data base relative to this site only.



KEY TO PREVIOUSLY MINED AREAS

Map Key	Type	Status	Operator	Operation	Permit No.	Coal Seams
A	Surface	Active	M.B. Energy, Inc.	Brink-Scollon No.2	17860146	UK, LF, UF, Mah
B	Surface	Active	M.B. Energy, Inc.	Brink-Scollon No.3	17900115	UK, LF, UF, Mah
C	Surface	Abandoned	Benjamin Coal Co.	Five Points	15245	MK, UK
D	Surface	Abandoned	Benjamin Coal Co.	Five Points	15246	MK, UK
E	Prep. Plant	Abandoned	Benjamin Coal Co.	No.3 Plant	17841605	-----

KEY TO SMALL PARCEL OWNERS

2. James McDonald
3. Janet M. Fiasco
4. Stanley E. Spaid
5. Orvis H. Spaid
6. Joseph F. Campano
8. Jack T. Smith
16. John Delozier
17. Jack Smith
18. Melvin Spaid
19. Howard Magill
20. Donald Spaid

LEGEND

SURFACE MINE PERMIT	283.3 acres	
BARRIER ZONE		
VARIANCE AREA		
OCCUPIED DWELLING		■
UNOCCUPIED STRUCTURE		□
KEY NO. TO INDIVIDUAL PROPERTY OWNERS		(2)
PROPERTY LINE		
MAP KEY TO PREVIOUSLY MINED AREAS		A
PREVIOUSLY SURFACE MINED AREA		
MAHONING COAL SEAM OUTCROP		Mah
LOWER FREEPORT (3) COAL SEAM OUTCROP		LF3
LOWER FREEPORT (2&1) COAL SEAM OUTCROP		LF2 LF1
UPPER KITTANNING COAL SEAM OUTCROP		UK
SEDIMENTATION POND		A
TREATMENT FACILITY		TP-1
COLLECTION DITCH		C-1
DRAINAGE DIVIDE		D
SOILS QUALIFIED AS PRIME FARMLAND (NEGATIVE DETERMINATION)		
TOPSOIL STOCKPILE		Topsoil
SEQUENCE OF MINING		1a
STEEP SLOPE AREA		

CONVENTIONAL BOND

MINING AREA	258 acres
OPERATIONAL AREA	74.2 acres

ENTIRE SITE STAGE III

MBO ENGINEERING
P.O. Box 327 • Rte. 219 & 119 Intersection • Punxsutawney, PA 15767

REVISIONS	BY	DRAWN BY	KB
12-11-03	KB	CHECKED BY	SH
3-25-04	KB	DATE	May 1997
3-23-05	KB	SCALE	1"=400'
7-21-06	KB	FILE NO.	

APPROVED / DATE — ENGINEER
APPROVED / DATE
APPROVED / DATE — REG. NO.

SEAL

PROPOSED SURFACE MINE
M.B. ENERGY, INC.
BRINK-SCOLLON NO.5 MINE
CHEST TWP. CLEARFIELD CO.

EXHIBIT 9

OPERATIONS MAP

Figure 26

5600-FM-MR0033 Rev. 5/96

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF MINING AND RECLAMATION

TLC 10/2/06

RECLAMATION STATUS REPORT
Inspection Report
Stage I

Weather Clear 80's

Date 8/16/06
Report No. 406035
On Site Times Am

PERMITTEE	TOWNSHIP	COUNTY	PERMIT NO.
M.B. Energy Inc. ADDRESS 175 McKnight Rd. Blairsville, PA. 15717	Chest	Cfd	17970109
	PARTIAL ☐ FOLLOW-UP ☐ AERIAL ☐	VIOLATIONS NOTED ☐ FOLLOW-UP INSP. REQUIRED ☐ PREVIOUS VIOLATIONS: COMPLIANCE ORDER ☐ CORRECTED ☐ FTC ORDER ☐ CEASE ORDER ☐ UNCORRECTED ☐ OUTSTANDING ENFORCEMENT ☐	LICENSE NO. & EXPR. DATE 1450 OPERATIONAL STATUS regraded/planted

GENERAL MINING INFORMATION:

a. Areas-Seams-Pit Dimensions (L/W/H)-Method: Mining Completed

PERFORMANCE STANDARDS

Obs.	STANDARD	Viol.	Comp. Date
M	8. Treatment Facilities		
✓	7. Sediment Control Measures		
✓	9. Sediment Ponds		
✓	31. General Backfilling		
✓	56. Backfilling-Final Slopes		

MINING AREA EVALUATED	283.3 ACRES
SUPPORT AREA EVALUATED	ACRES
MINING AREA DELETED	ACRES
SUPPORT AREA DELETED	ACRES

RECLAMATION STATUS QUESTIONS	YES	NO	N/A
MINING RESTORATION			
1. Is backfilling completed as per the approved plan?	✓		
2. Is all debris, junk, and nonessential equipment removed?	✓		
3. Are all coal stockpiles removed?	✓		
4. For prime farmland only, are all slopes less than 8%	✓		
HYDROGEOLOGIC INFORMATION			✓
5. Does analysis of surface & groundwater monitoring data indicate degradation has not occurred?			
6. Do post-mining discharges on the permit meet effluent criteria?	✓		
If not, indicate monitoring points or sample numbers ---			✓
7. Do post-mining discharges adjacent to the permit meet effluent criteria?			
If not, indicate monitoring points or sample numbers ---		✓	
8. Has a Hydrogeologist evaluated the discharges associated with this permit?			
If yes, date of report Hydrogeologist Bisko	✓		
9. Have Subchapter F or G requirements been met? SUB F			
EROSION AND SEDIMENTATION CONTROL INFORMATION	✓		
10. Have erosion and sedimentation controls been implemented?			
11. Do sediment basin discharges meet effluent criteria? no discharges observed	✓		
Sample Numbers ---			✓
REQUIRED FOR COAL REFUSE DISPOSAL ONLY			
12. Is site topsoiled and planted?			
RECOMMENDATIONS AND GENERAL OBSERVATIONS			
13. Is the site ready for topsoil replacement and planting?			
14. DO YOU RECOMMEND APPROVAL OF THIS RECLAMATION STATUS REQUEST? topsoiled planted	✓		
	✓		

COMMENTS AND RECOMMENDATIONS No equipment on site reveal trees along TWP road being painted or disassembled for removal.

Person Contacted

Title

Signature

Discharge/Seeps ☐ yes ☐ no
Samples Collected ☐ yes ☐ no 3/8/06 - 5/3/06
Range of Samples Collected _____ to _____

Investigator Signature & I.D. No. Nancy Rice AA1B

The Operator's signature acknowledges that he has read the report, including the reverse side, and that he was given the opportunity to discuss it with the investigator. The signature does not necessarily mean he agrees with the report.

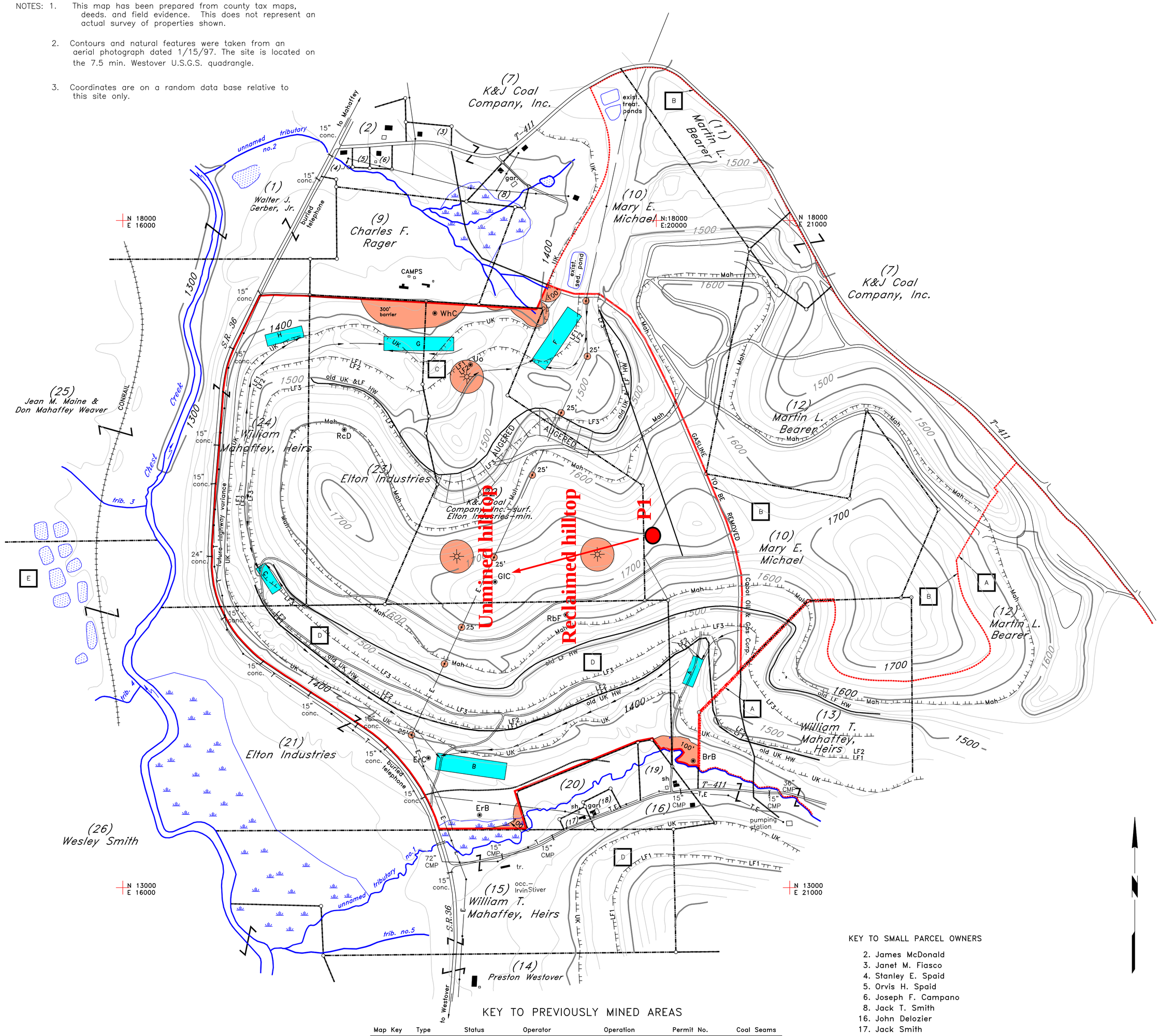
INSPECTOR

Figure 27

NOTES: 1. This map has been prepared from county tax maps, deeds, and field evidence. This does not represent an actual survey of properties shown.

2. Contours and natural features were taken from an aerial photograph dated 1/15/97. The site is located on the 7.5 min. Westover U.S.G.S. quadrangle.

3. Coordinates are on a random data base relative to this site only.



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16. John Delozier
17. Jack Smith
18. Melvin Spaid
19. Howard Magill
20. Donald Spaid

LEGEND

SURFACE MINE PERMIT 283.3 acres

BARRIER ZONE

VARIANCE AREA

OCCUPIED DWELLING

UNOCCUPIED STRUCTURE

KEY NO. TO INDIVIDUAL PROPERTY OWNERS (2)

PROPERTY LINE

MAP KEY TO PREVIOUSLY MINED AREAS A

PREVIOUSLY SURFACE MINED AREA

CONTROL
POSTMINING SEDIMENTATION & EROSION
(To remain until the bond, which would eliminate the requirements for ponds has been released)

ENTIRE SITE: FORESTLAND IF AFFECTED RETURNED TO FORESTLAND (Seed mixture nos. T–1 or T–2 with P–3 then W–1)

ENTIRE SITE TO BE RESTORED TO APPROXIMATE ORIGINAL CONTOUR

PROPOSED FINAL CONTOUR

ALTERNATE BACKFILL CONTOURS

LOCATION OF ACTUAL TOPSOIL THICKNESS AS MEASURED (WITH UNIT)

MBD ENGINEERING
P.O. Box 327 • Rte. 219 & 119 Intersection • Punxsutawney, PA 15767

REVISIONS	BY	DRAWN BY	KB	FILE NO.
		CHECKED BY	SH	
		DATE	May 1997	
		SCALE	1"=400'	

SEAL

ENGINEER

REG. NO.

APPROVED DATE

APPROVED DATE

APPROVED DATE

PROPOSED SURFACE MINE
M.B. ENERGY, INC.
BRINK–SCOLLON NO.5 MINE
CHEST TWP. CLEARFIELD CO.

EXHIBIT 18

LAND USE AND RECLAMATION MAP

Figure 28

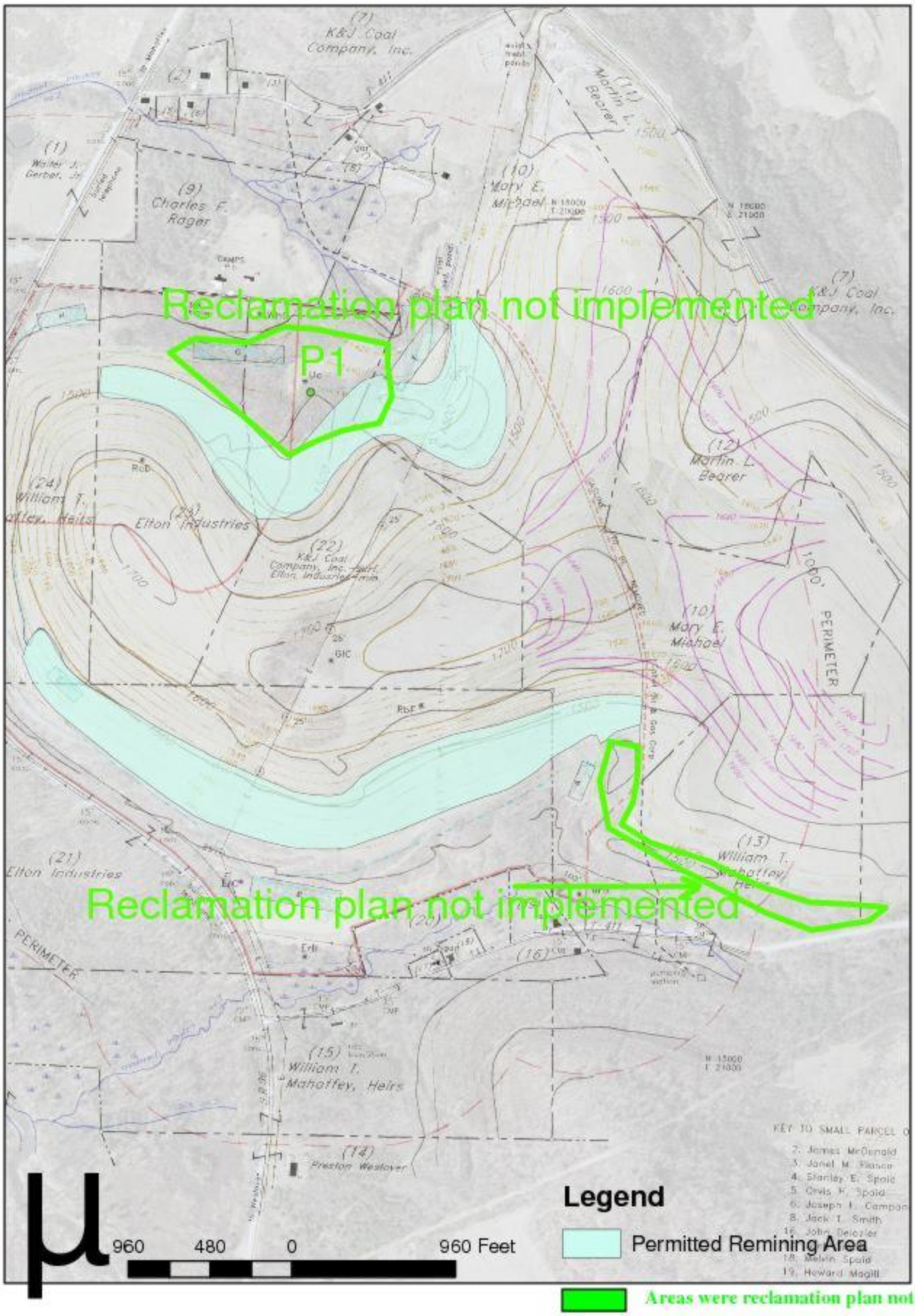

Reclamation plan not implemented
P1
Reclamation plan not implemented
PERIMETER
PERIMETER
(7) K&J Coal Company, Inc.
(9) Charles F. Rager
(10) Mary E. Michael
(12) Martin L. Bearer
(24) William T. Mahaffey, Heirs
(23) Elton Industries
(22) K&J Coal Company, Inc. - part, Elton Industries - min
(21) Elton Industries
(15) William T. Mahaffey, Heirs
(14) Preston Westover
960 480 0 960 Feet
Legend
Permitted Remining Area
Areas were reclamation plan not implemented

Figure 29

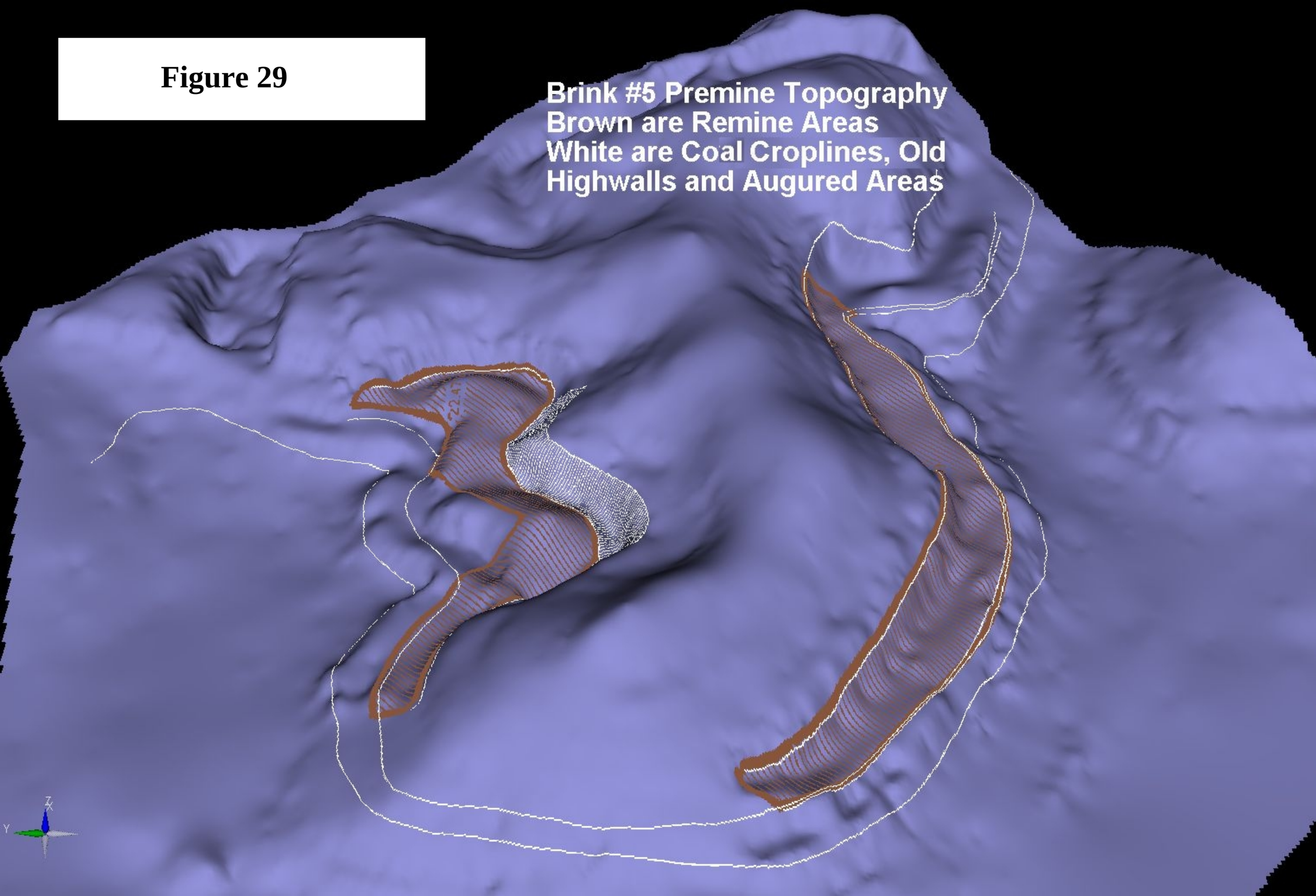
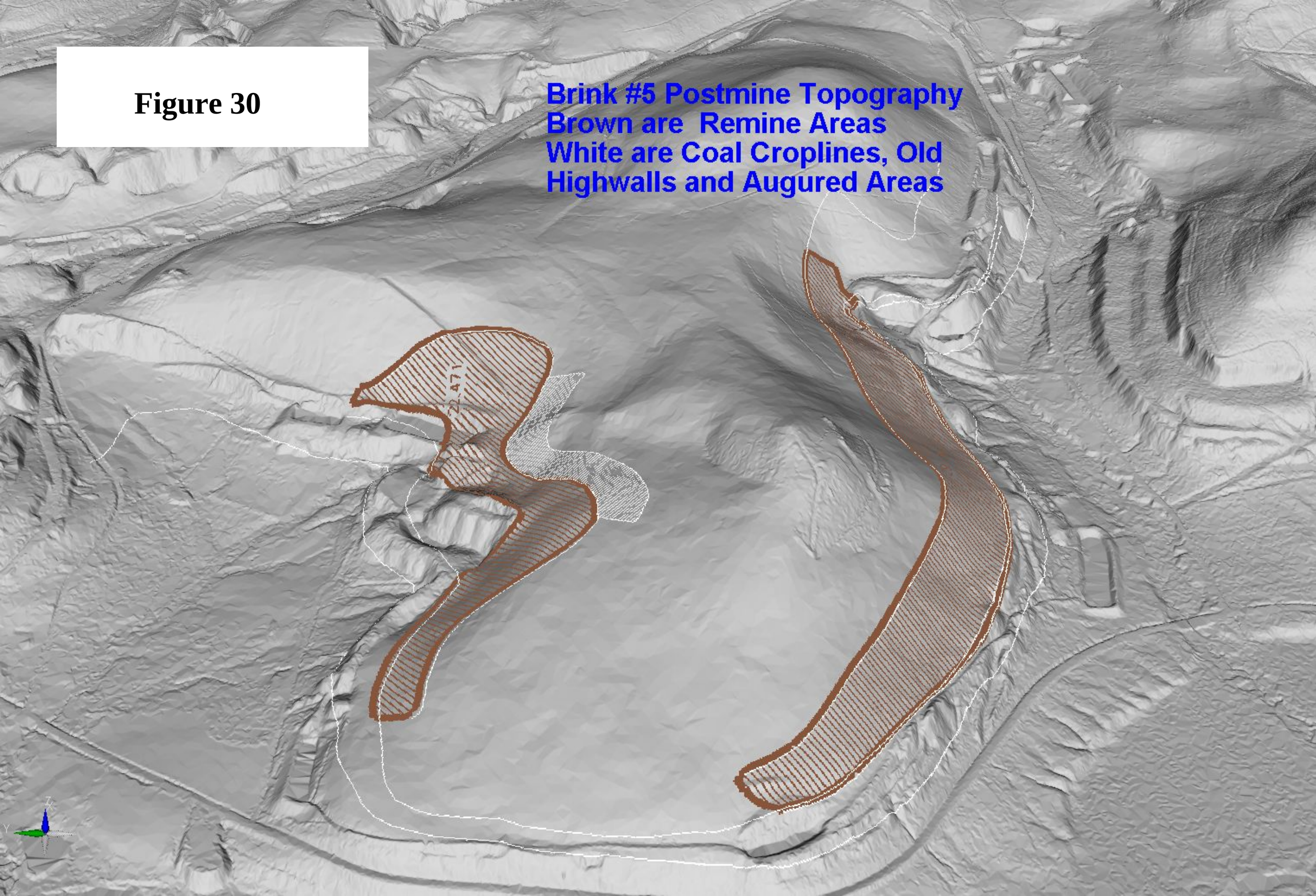

Brink #5 Premine Topography
Brown are Remine Areas
White are Coal Croplines, Old
Highwalls and Augured Areas
Z
Y

Figure 30


Brink #5 Postmine Topography
Brown are Remine Areas
White are Coal Croplines, Old
Highwalls and Augured Areas

M.B. Energy Brink #5 - Sections and Topographic Changes Due to Mining

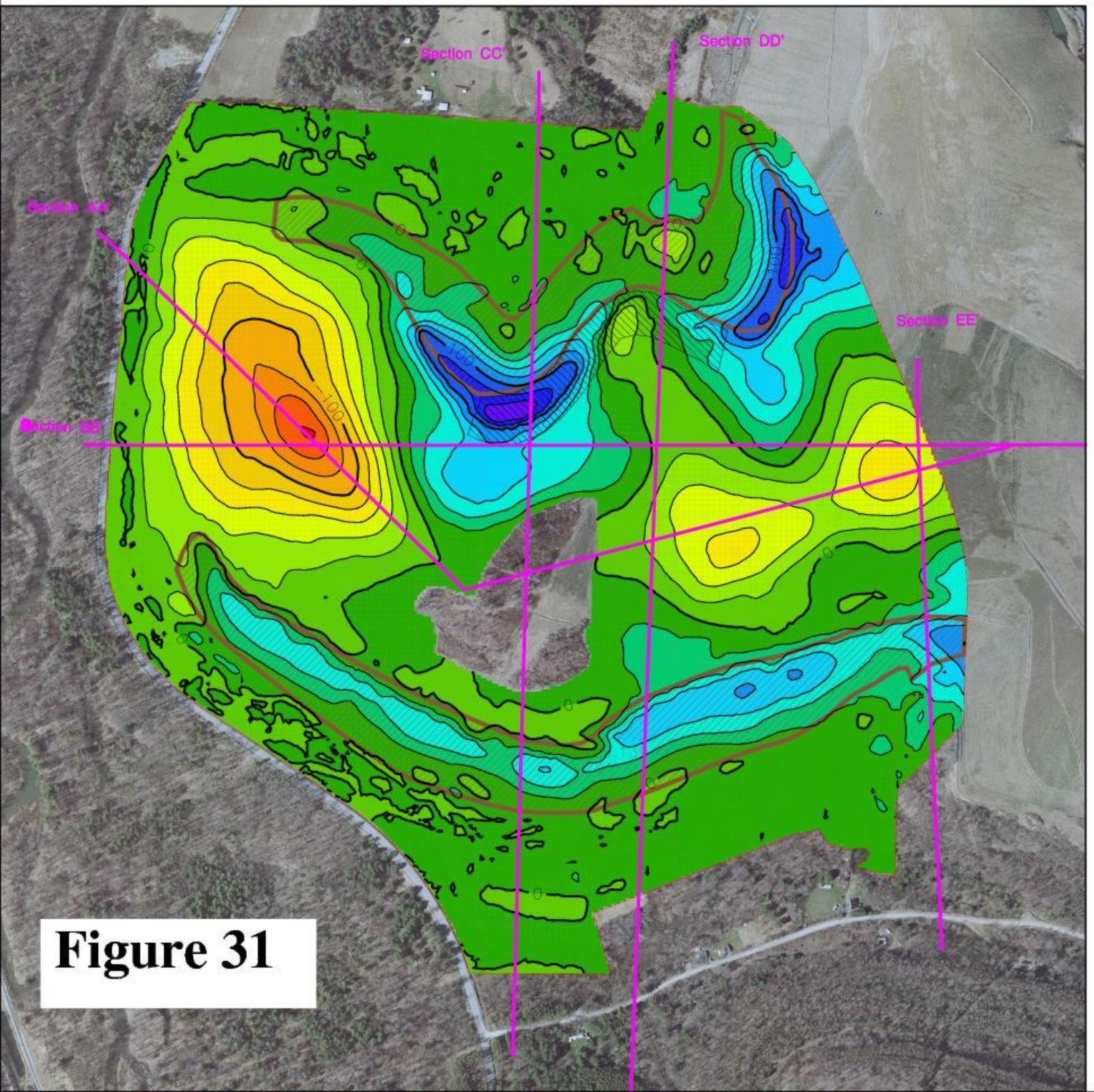


Figure 31

LEGEND

Change Key
Units: Feet

140
120
100
80
60
40
20
0
−20
−40
−60
−80
−100
−120
−140
−160

Remining Area

Existing Augured Area

OSM Sections

600 400 200 0 500 1000 1500
FEET

Figure 32

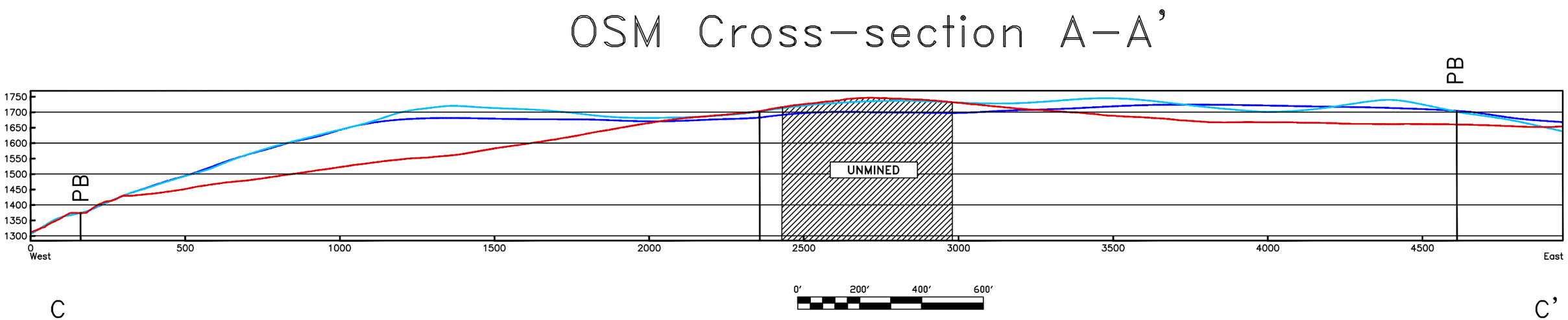

OSM Cross-section A-A'
PB
PB
UNMINED
1750
1700
1650
1600
1550
1500
1450
1400
1350
1300
0
500
1000
1500
2000
2500
3000
3500
4000
4500
West
East
C
C'
0'
200'
400'
600'
PERMIT ORIGINAL GRADE
PERMIT POST-MINING GRADE
REMOTE SENSING
VERIFIED POST-MINING GRADE
APPROXIMATE ORIGINAL CONTOUR
PA M.B. ENERGY, INC. BRINK #5
CROSS SECTION A-A'
OSM CROSS SECTION
WITH PRE AND POST MINING DATA

Figure 33

Mining direction

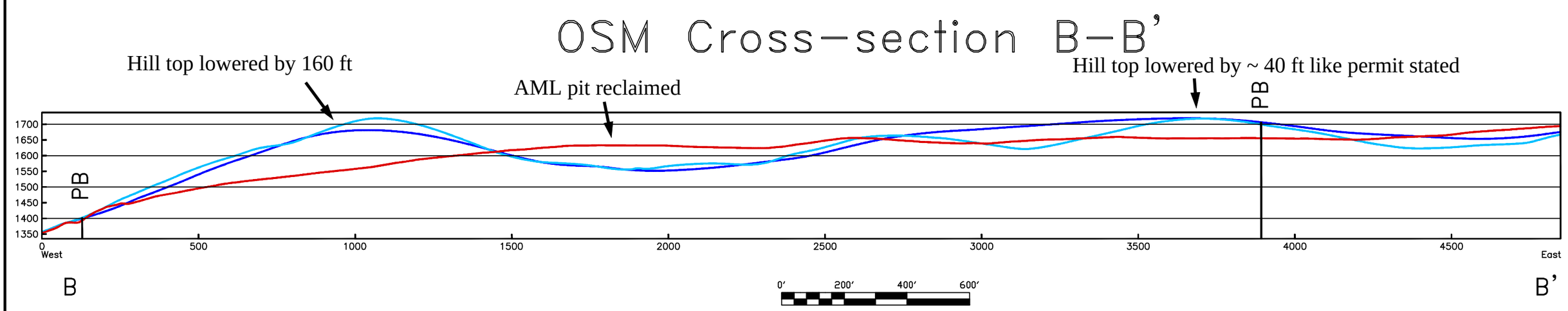


Figure 34

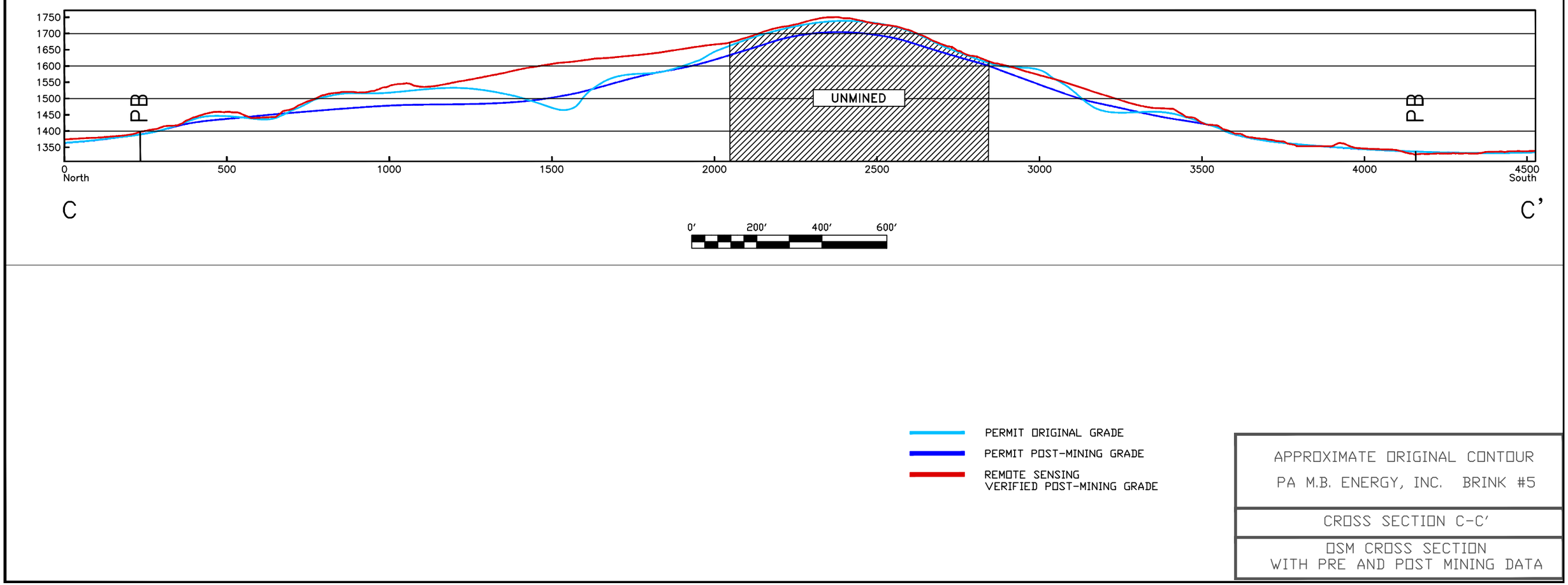

OSM Cross-section C-C'
1750
1700
1650
1600
1550
1500
1450
1400
1350
PB
UNMINED
PB
0
North
500
1000
1500
2000
2500
3000
3500
4000
4500
South
C
C'
0'
200'
400'
600'
PERMIT ORIGINAL GRADE
PERMIT POST-MINING GRADE
REMOTE SENSING
VERIFIED POST-MINING GRADE
APPROXIMATE ORIGINAL CONTOUR
PA M.B. ENERGY, INC. BRINK #5
CROSS SECTION C-C'
OSM CROSS SECTION
WITH PRE AND POST MINING DATA

Figure 35

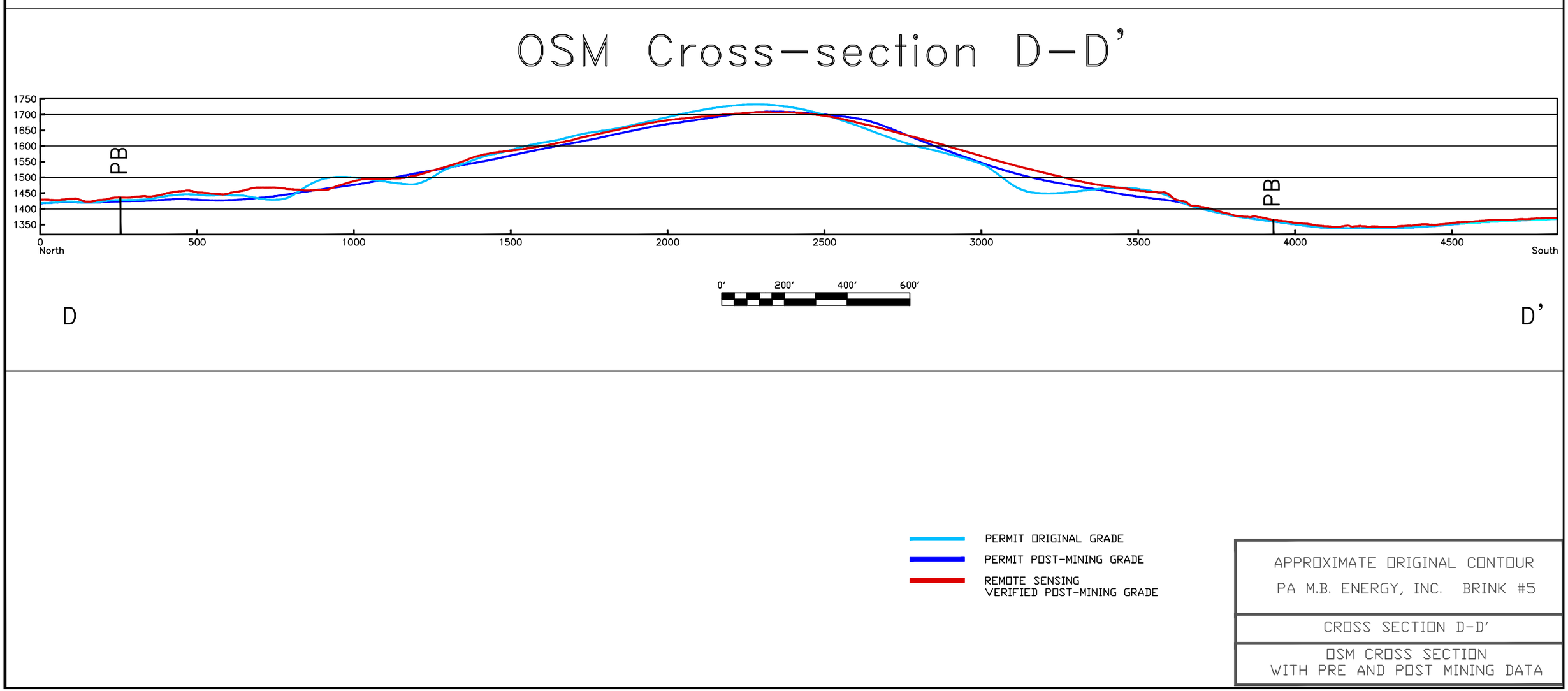
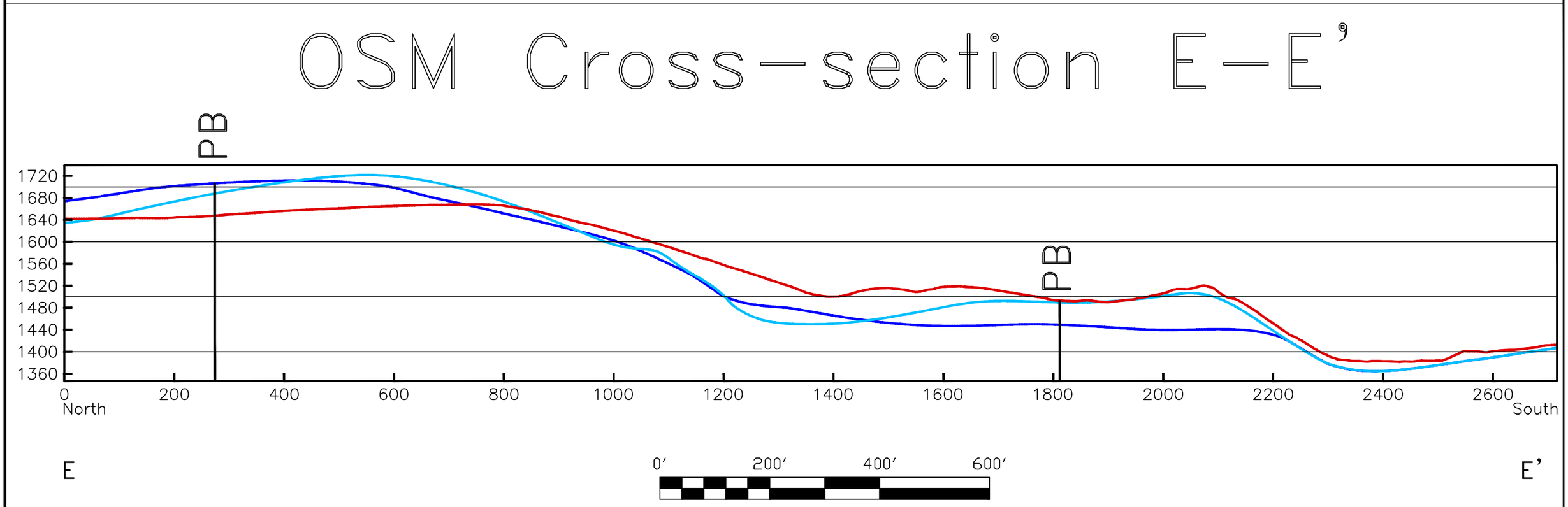
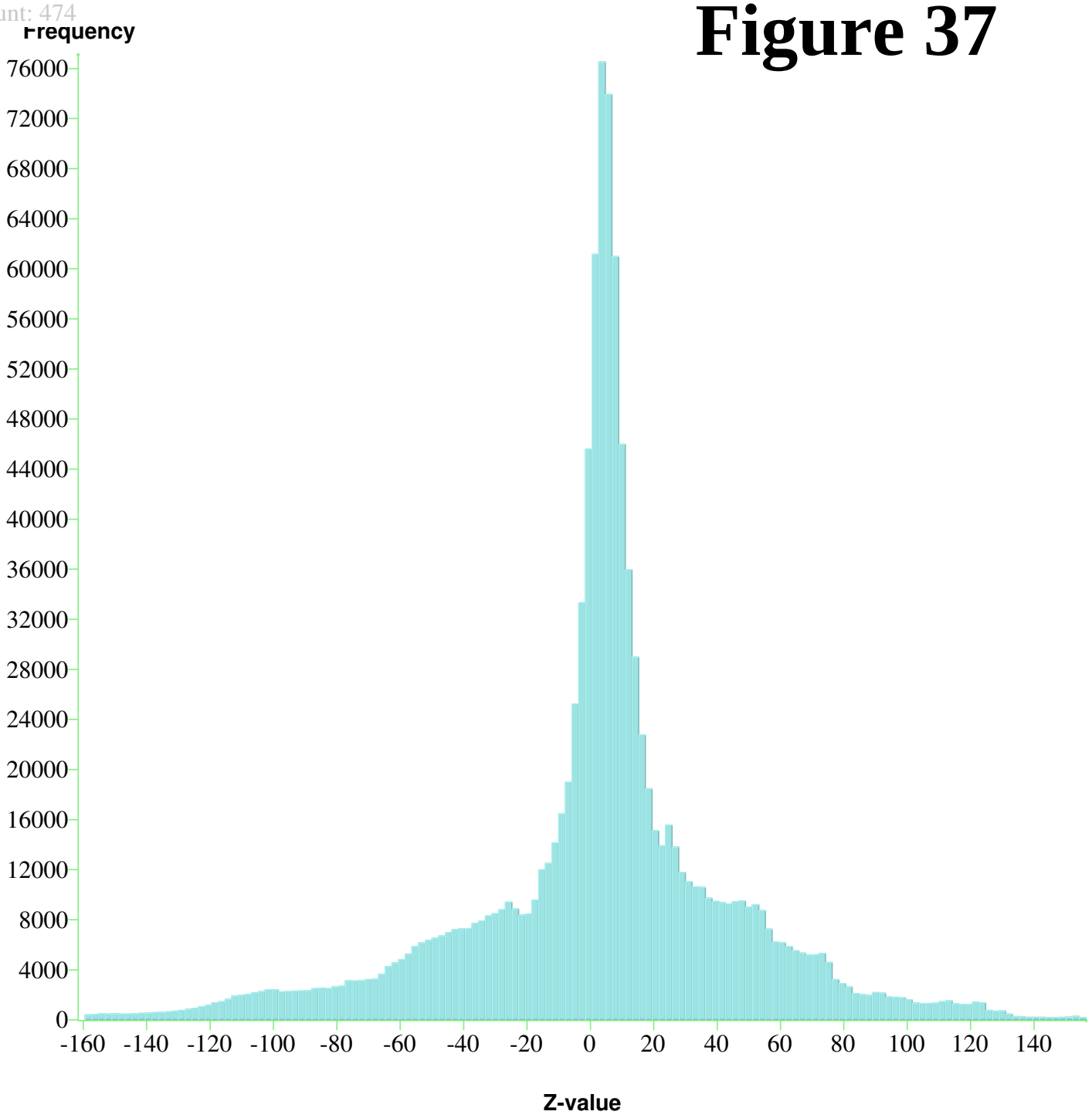

OSM Cross-section D-D'
1750
1700
1650
1600
1550
1500
1450
1400
1350
PB
PB
0
North
500
1000
1500
2000
2500
3000
3500
4000
4500
South
0'
200'
400'
600'
D
D'
PERMIT ORIGINAL GRADE
PERMIT POST-MINING GRADE
REMOTE SENSING
VERIFIED POST-MINING GRADE
APPROXIMATE ORIGINAL CONTOUR
PA M.B. ENERGY, INC. BRINK #5
CROSS SECTION D-D'
OSM CROSS SECTION
WITH PRE AND POST MINING DATA

Figure 36


OSM Cross-section E-E'
PB
PB
1720
1680
1640
1600
1560
1520
1480
1440
1400
1360
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
North
South
E
E'
0'
200'
400'
600'
PERMIT ORIGINAL GRADE
PERMIT POST-MINING GRADE
REMOTE SENSING
VERIFIED POST-MINING GRADE
APPROXIMATE ORIGINAL CONTOUR
PA M.B. ENERGY, INC. BRINK #5
CROSS SECTION E-E'
OSM CROSS SECTION
WITH PRE AND POST MINING DATA

Lower: -155.087
Upper: -152.968
Count: 474

Figure 37



Plot Statistics

Number of Data: 1139625

Mean: 2.3886	Number of Nulls: 5487138
Variance: 1806.29	Standard Deviation: 42.5
Maximum: 156.352	Coeffecient of Variation:17.793
Median: 4.0769	Upper Quartile: 19.404
Minimum: -161.443	Lower Quartile: -10.514
Kurtosis: 1.8001	Skewness: -0.37763

Histogram plot of from Y:\TechUsers\Dunn\aoc_ar\pa\brink\postmine_topo_change_trim.2grd made on 04/20/10 14:07:39

Photo 12

Photo 13

Photo 14

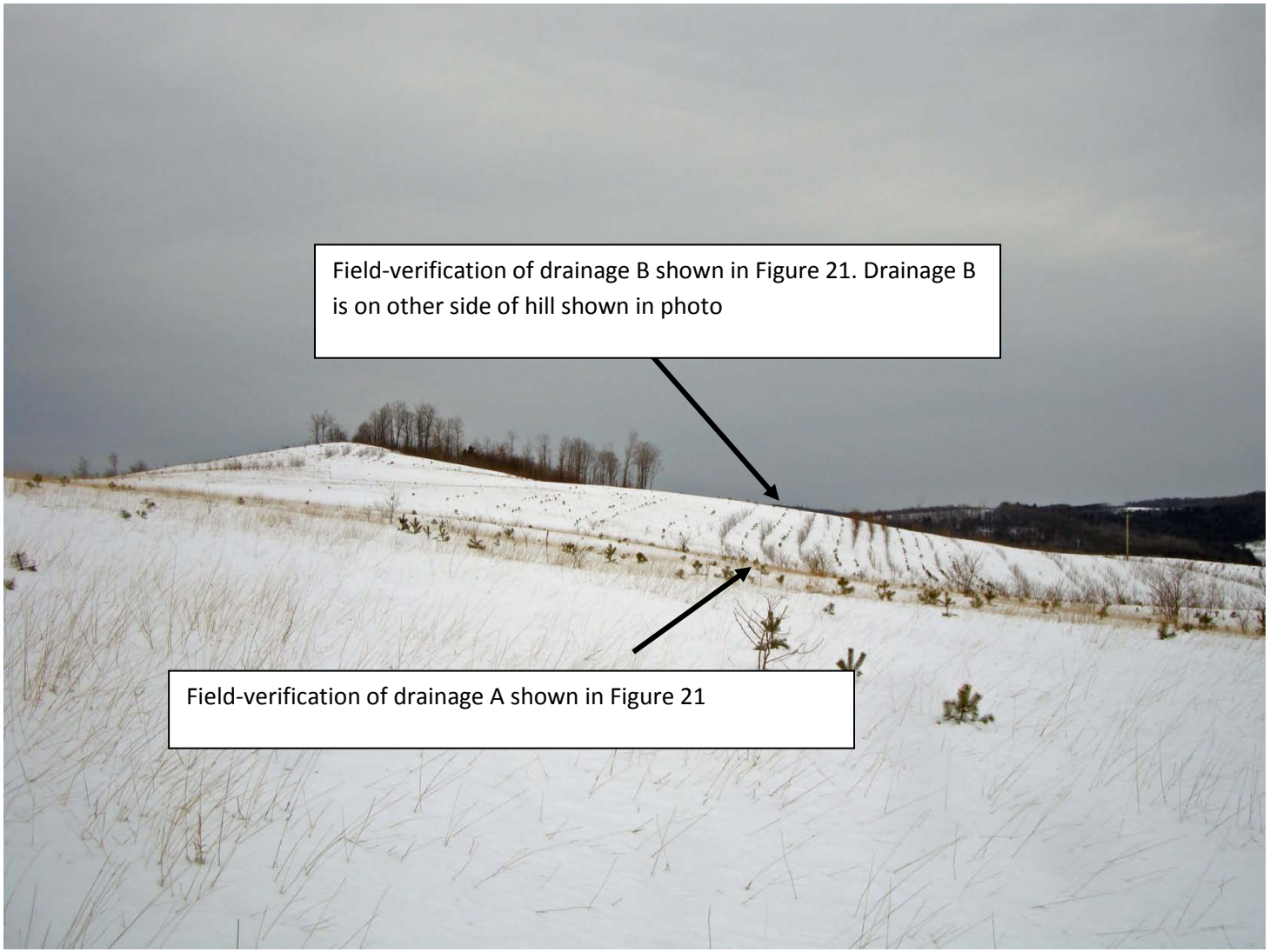

Field-verification of drainage B shown in Figure 21. Drainage B is on other side of hill shown in photo
Field-verification of drainage A shown in Figure 21

Photo 15

Photo showing the blending of the reclaimed land into the unmined land

Attachment 3

Qualitative AOC Evaluation Data Collection Form for M.B. Energy, Brink Operation

1. Is there any evidence of the highwall or low wall? No. The photos show the mined area was "blended" into the unmined areas.

2. Is there any spoil left ungraded? There are no ungraded spoils within the affected area. However, the approved reclamation plan showed that some AML lands adjacent to the affected area would be regraded and covered with (excess?) spoil. The approved reclamation plan was never fully implemented because the actual area that was mined was less than what was originally approved in the permit. They never mined a small area that would have generated the highest high wall and most spoil (from swell). Therefore, some of the AML lands that were to be regraded and covered with spoil never were reclaimed and some of the AML lands that were reclaimed as part of a remining permit were not reclaimed according to the approved reclamation map. Basically, the original mining plan was never fully implemented, which affected the reclamation plan; the company did not submit a permit revision that detailed the changes.

3. Are there any depressions without adequate drainage? All affected areas appeared to contain positive drainage.

4. Are non approved mining structures removed (buildings, etc.)? Yes

5. Do the size and shape of the sub watershed "resemble" the pre-mining watersheds? Larger, smaller, shape, shifting of surface water divides? The post-mining watershed generally resembled the pre mining watersheds. See the Brink write up for more analysis.

6. Does the reclaimed topography "resemble and blend" with the surrounding topography? Yes

7. Does the reclaimed topography complement the approved post-mining land use? Yes

8. Do any of the post-mining land features look odd, incorrect, or out of place? No

9. Based on professional judgment, is the quality of reclamation consistent with reclamation commonly found on other surface mines in Pennsylvania? (below average, average, above average) Average.

10. Using a visual estimation, does the reclaimed site visually resemble the approved reclamation plan? In some areas it does and in other areas it does not. The site did not generate as much excess spoil as originally thought since some of the area was not mined. A visual comparison of reclaimed site and the approved reclamation map shows that the surface elevation of some of the slopes should have been higher and the surface elevation of some of the reclaimed AML lands should have been higher. The post-mining reclamation topography "resembles" the approved reclamation plan (in shape, but not elevation in some areas) and the surrounding area.
11. Has all mining debris and junk been removed (Question on Stage 1 inspection form)? Yes

12. Has all coal stockpiles been removed (Question on Stage 1 inspection form)? Yes

13. From the visual site inspection, was AOC achieved? The approved reclamation map defines the AOC standard for the site. Therefore, in the strictest sense, the approved AOC was not implemented. However, in absence of a permit revision, PADEP used the pre mining topography as the standard for AOC. PFD can conclude that the reclamation "blends" into the surrounding area and "resembles" the pre mining topography.

14. Other Comments: The company should have submitted a permit revision that contained a reclamation map that complemented the change in the mining operation. PADEP did not require a permit revision as the operation plan changed and evaluated the reclamation against the pre mining topography and not against the approved reclamation plan. PADEP concluded the site achieved AOC.

4. **Coal Loaders - Stanislaw #2 (SMP# 65000101) –** This operation is located in Fairfield Township near Ligonier in Westmoreland County. The site affected 18.1 acres. The permit was issued September 2000 and consisted of removing pillars and the outcrop barrier of an abandoned Pittsburgh mine. The maximum high wall height was 55 ft and the thickness of the coal was 6 to 10 ft.

   Permit Review - A permit review was conducted on March 13, 2010 in the Greensburg district mining office. The permit file was reviewed and discussions were held with PADEP staff. In Module 10 of the permit application, the operator stated that the "permit site will be returned to approximate original contour "(Figure 38). The operations map is shown in Figure 39 and contains the pre-mining contours. The reclamation map is shown in Figure 40 and reveals that the pre-mining contours were submitted as the reclamation contours. This permit contained a small area of prime farmland.

   Site Inspection/Qualitative AOC Evaluation – The site inspection was conducted on March 14th. Andy Walker (inspector) represented PADEP and Tom Koptchak (Reclamation Specialist) and Brent Means (Hydrologist) represented OSM. The mine site can be characterized as a gently-rolling plateau with a steeply-sloping hillside. Figure 41 is the reclamation map with several photos taken during the site inspection. The embedded photo titled "south east photo" is a picture showing the south eastern portion of the permit. The photo was captured while standing in the south east and looking towards the north. The photo shows the permit is a gently-rolling plateau that contains a steep slope on the east side. The photo was taken at P1 on Figure 41. The owner of the land is a farmer and the post-mining land use for the top of the plateau is farmland. According to the inspector, the owner wanted the site reclaimed in a manner that would maximize the area that could be farmed; therefore, he desired a relatively flat hill top with steep, short side slopes. As the photo shows, the top of the mine site was successfully planted with corn last season, which was the second successful growing season. The berm shown in the photo was intentionally left as a safety precaution for the farmer. The landowner requested that the operator leave a small stockpile of top soil. The soil pile is shown in the south east photo in Figure 41. The request was not documented in the permit and OSM verbally requested the inspector to require the documentation. The reclamation topography of watershed #1 shown in Figure 41 "closely resembles" the pre-mining topography. The photo labeled as Watershed #1 in Figure 41 provides a perspective of looking up at the top of the watershed from the location marked P2 in Figure 38. The photo shows the reclamation "blends" into the unmined areas and a visual comparison between the reclamation topography and pre-mining topography show agreement. The photo titled "Northern Photo" in Figure 41 was taken at P3 looking towards the south east. The photo shows the relatively flat hill top is consistent with the proposed topography in the reclamation map. The permit contained several areas

designated as prime farm land (Figure 40), however, during the site inspection, it appeared as though only the southernmost area designed as prime farm lands was affected. Photo 16 provides a view of the post-mining topographical slope placed on the prime farm land areas. During the site inspection a GPS-enabled field computer containing post-reclamation Lidar data calculated a reclamation slope of 16% on the prime farm land area. The Stage I completion report requires inspectors to make sure that prime farm lands are reclaimed to less than an 8% slope. However, analysis of the pre-mining topography shows the pre mining slope on the area designated as prime farm lands was 10.5%. The origin or justification for the prime farm land of reclamation standard of 8% is not found in a regulatory definition or technical guidance document.

Overall the site contained excellent AOC reclamation. The reclaimed site resembled the pre mining topography and blended into the unmined adjacent areas. There were no remnants of existing high walls or low walls and the entire site appeared to obtain positive drainage. OSM determined the site achieved AOC and the qualitative evaluation is documented in Attachment 4.

Permit-Specific Findings that relate to AOC for the Stainslaw operation

- OSM's site inspection determined the site achieved AOC;

Figure 38

V. P. Smith Company, Inc.
Stanislaw No. 2 Mine

ER-MR-311:Rev.9/93

10.5 Modifications to Approximate Original Contour.

Where the proposed final grade is other than approximate original contour, provide justification for the alternate reclamation proposal. Include a detailed description of the factors which prevent restoration to approximate original contour as well as plans and cross-sections which describe the alternate reclamation and demonstration that the proposed final contour is consistent with the proposed post-mining land use. Alternate reclamation proposals for areas which have been previously mined and unreclaimed must include a demonstration of the environmental benefits of reaffecting the area.

All areas on the permit site will be returned to approximate original contour, and revegetation will be as outlined on the Exhibit 18 Land Use and Reclamation Map.

10.6 Reclamation Cost.

Provide an estimate of the cost of each stage of reclamation for each phase of mining. Include operational costs per hour of each major piece of equipment, number of operating hours required, the costs of materials, revegetation, and the costs of removal of diversions, impoundments, structures and equipment.

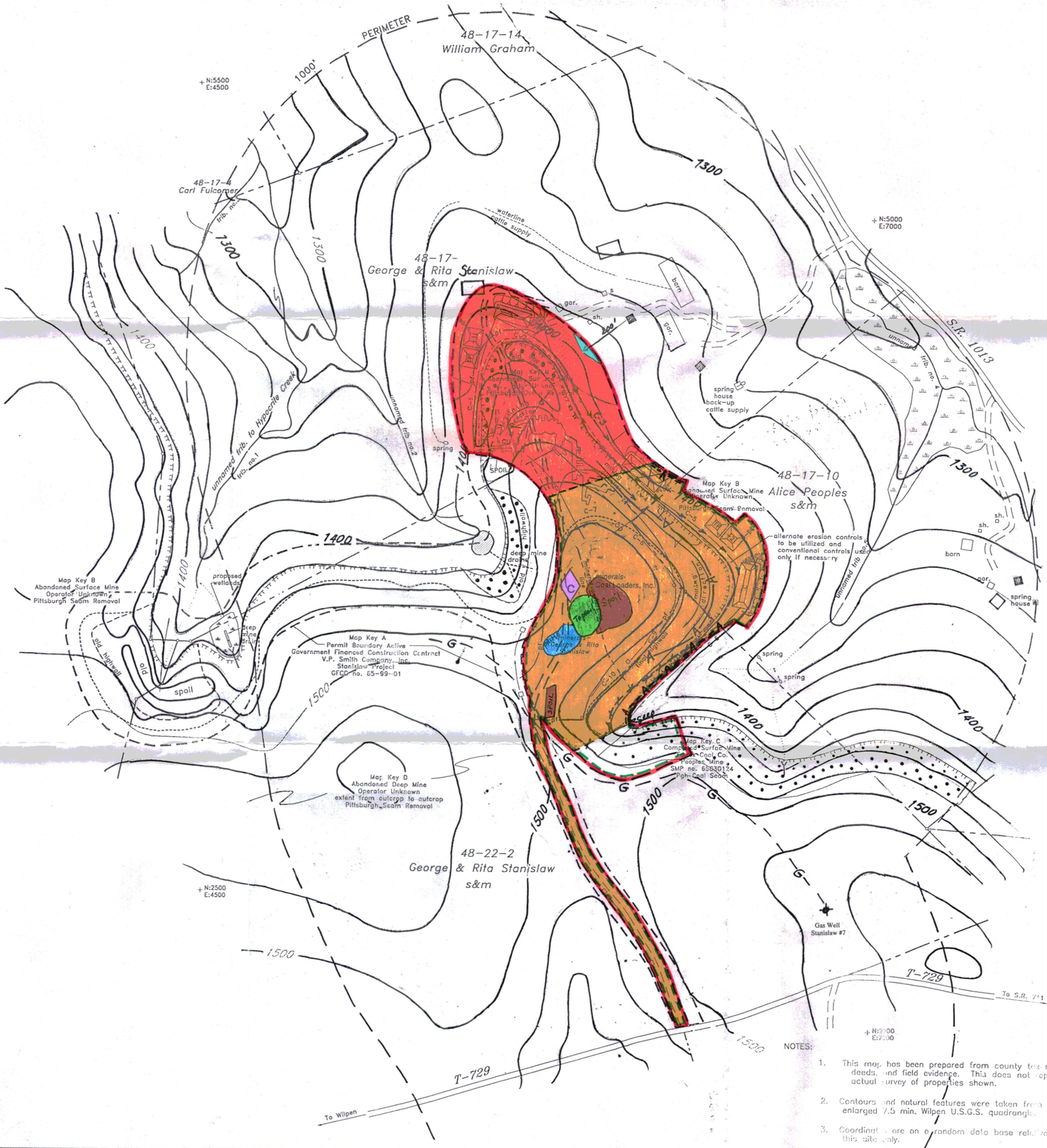
Since the modified block-cut method of mining is to be utilized, spoil will be placed immediately behind the active pit. The spoil areas then require only rough grading.

It is anticipated that final grading will be accomplished by utilizing one (1) Komatsu 355 bulldozer or its equivalent.

This major piece of equipment has been estimated to have an operational cost of approximately $90.00 per hour, including capital costs, investment, interest, insurance, taxes, fuel, lube oils, filters, tires or tracks, and operator wages.

The reclamation cost breakdown is operationally detailed as follows: one (1) bulldozer, approximately four (4) weeks to rough grade the entire site.

Figure 39



NOTES:

1. This map has been prepared from county tax maps, deeds, and field evidence. This does not represent an actual survey of properties shown.
2. Contours and natural features were taken from an enlarged 7.5 min. Wilpen U.S.G.S. quadrangle.
3. Coordinates are on a random data base relative to this site only.

SCALE: 1" = 200'

LEGEND

PERMIT BOUNDARY	~~23 acres~~ 25.0 acres
BARRIER AREA	
VARIANCE AREA	
OCCUPIED DWELLING	
UNOCCUPIED STRUCTURE	
PRIVATE WATER SUPPLY w=well, s=spring	
KEY TO INDIVIDUAL PROPERTY OWNERS	48–17–9
PROPERTY LINE	
WETLANDS	
PREVIOUSLY SURFACE MINED AREAS	
PITTSBURGH COAL SEAM OUTCROP	
ABANDONED DEEP MINE ENTRY	
SEDIMENTATION POND	A
TREATMENT FACILITY	TP–1
COLLECTION DITCH	C–1
ALTERNATE EROSION CONTROL DEVICES (Berming, filter fencing, hay bales, or any combination.)	EXISTING —A— PROPOSED —A—
DIVERSION DITCH	D–1
LEVEL LIP SPREADER	
SEDIMENT TRAP	
DRAINAGE DIVIDE	D
TOPSOIL STOCKPILE	Topsoil
PRIME FARMLAND STOCKPILE	PRIME
SOILS QUALIFIED AS PRIME FARMLAND	pf
SEQUENCE OF MINING	1a
COAL STOCKPILE AREA	C
SPOIL STORAGE AREA	SPOIL

CONVENTIONAL BOND DATA	
MINING AREA	
OPERATIONAL AREA	
STAGE II AREA	

This exhibit map was originally prepared by Vapco Engineering. Portions of this exhibit map have been prepared/revised by Earthtech, Inc. in accordance with accepted engineering, geology and surveying practices beginning in January 2005. The features outside of the 1000-foot perimeter are for informational purposes only and their accuracy is neither stated nor implied to be other than general information. Property lines do not represent actual property surveys. The permittee is responsible for the PA One Call "Call Before You Dig" Law. Pennsylvania law requires three working days notice 1-800-242-1776.

Earthtech, Inc.
Uniontown Office
P.O. Box 44 - Lamont Furnace, PA 15456
Telephone: (724) 439-1313 Fax: (724) 439-0633

HIRAM C. RIBBLETT — PROFESSIONAL ENGINEER — No. 16316E — COMMONWEALTH OF PENNSYLVANIA — SEAL

Hiram C. Ribblett 11-10-05

APPROVED / DATE / REG. NO.

SMP No. 65000101

COAL LOADERS, INC.

STANISLAW NO. 2 MINE

FAIRFIELD TWP., WESTMORELAND CO.

RECEIVED DEP
NOV 10 2005
GREENSBURG DISTRICT OFFICE

EXHIBIT 9

OPERATIONS MAP

Figure 40

LEGEND

PERMIT BOUNDARY ~~23 acres~~ 25.0 acres	
BARRIER AREA	
VARIANCE AREA	
OCCUPIED DWELLING	
UNOCCUPIED STRUCTURE	
PRIVATE WATER SUPPLY w=well, s=springwell,	▲
KEY TO INDIVIDUAL PROPERTY OWNERS	48-17-9
PROPERTY LINE	— - - —
WETLANDS	
PREVIOUSLY SURFACE MINED AREAS	
FORESTLAND IF AFFECTED RETURNED TO FORESTLAND (Seed mixture nos. T-1 or T-2 with P-3 then W-1)	
PASTURELAND OR LAND OCCASIONALLY CUT FOR HAY IF AFFECTED RETURNED TO PASTURELAND OR LAND OCCASIONALLY CUT FOR HAY (Seed mixture nos. T-1 or T-2 then P-2)	
PASTURELAND OR LAND OCCASIONALLY CUT FOR HAY (PREVIOUSLY SURFACE MINED AREA) IF AFFECTED RETURNED TO PASTURELAND OR LAND OCCASIONALLY CUT FOR HAYFOR (Seed mixture nos. T-1 or T-2 then P-2)	
POSTMINING SEDIMENTATION & EROSION CONTROL (To remain until the bond, whichever would eliminate the requirements for ponds has been released)	
ALTERNATE EROSION CONTROLS	- - - - -
POST MINING DRAINAGE PATTERN	
RE-CONSTRUCTED PRIME FARMLAND (IF AFFECTED)	
ALL AFFECTED AREAS TO BE RETURNED TO APPROXIMATE ORIGINAL CONTOUR	

This exhibit map was originally prepared by Vapco Engineering. Portions of this exhibit map have been prepared/revised by Earthtech, Inc. in accordance with accepted engineering, geology and surveying practices beginning in January 2005. The features outside of the 1000-foot perimeter are for informational purposes only and their accuracy is neither stated nor implied to be other than general information. Property lines do not represent actual property surveys. The permittee is responsible for the PA One Call "Call Before You Dig" Law. Pennsylvania law requires three working days notice 1-800-242-1776.

FORESTLAND AREA TO BE RETURNED TO A POST-MINING LAND USE OF PASTURELAND OR LAND OCCASIONALLY CUT FOR HAY(ALICE PEOPLES TRACT). SEE DOCUMENTATION IN MODULE 20.

SCALE : 1" = 200'

NOTES:

1. This map has been prepared from county tax maps, deeds, and field evidence. This does not represent an actual survey of properties shown.
2. Contours and natural features were taken from an enlarged 7.5 min. Wilpen U.S.G.S. quadrangle.
3. Coordinates are on a random data base relative to this site only.

Earthtech, Inc.
Uniontown Office
P.O. Box 4A - Lamont Furnace, PA 15456
Telephone: (724) 439-1313 Fax: (724) 439-0633

HIRAM C. RIBBLETT — ENGINEER — No. 36574E — REGISTERED PROFESSIONAL — COMMONWEALTH OF PENNSYLVANIA
9-12-05

	APPROVED	DATE	ENGINEER
	APPROVED	DATE	REG. NO.
	APPROVED	DATE	

SMP No. 65000101

COAL LOADERS, INC.

STANISLAW NO. 2 MINE

FAIRFIELD TWP. WESTMORELAND CO.

RECEIVED DEP SEP 19 2005 GREENSBURG DISTRICT OFFICE

EXHIBIT 18

LAND USE AND RECLAMATION MAP

Figure 41

P3

P2

P1

HAY IF AFFECTED RETURNED TO PASTURELAND OR
LAND OCCASIONALLY CUT FOR HAY

PASTURELAND OR LAND OCCASIONALLY CUT FOR HAY (PREVIOUSLY SURFACE MINED AREA) IF AFFECTED RETURNED TO PASTURELAND OR LAND OCCASIONALLY CUT FOR HAY/OR

POSTMINING SEDIMENTATION & EROSION CONTROL

ALTERNATE EROSION CONTROLS

POST MINING DRAINAGE PATTERN

RE-CONSTRUCTED PRIME FARMLAND (IF AFFECTED)

ALL AFFECTED AREAS TO BE RETURNED TO APPROXIMATE ORIGINAL CONTOUR

AND RECLAMATION MAP

Photo 16

Photo showing the reclamation of the prime farm lands.

Attachment 4

Qualitative AOC Evaluation Data Collection Form for Coal Loaders
Stanislaw No. 2 mine

1. Is there any evidence of the highwall or low wall? No. The photos show the mined area was "blended" into the unmined areas.

2. Is there any spoil left ungraded? Yes. As the write up explains, there is a pile of top soil that was not reclaimed. The land owner, a farmer, verbally requested that the company leave a small pile of top soil for his future use. OSM requested that the State inspector obtain written approval for the request and documented in the permit.

3. Are there any depressions without adequate drainage? All affected areas appeared to contain positive drainage.

4. Are non approved mining structures removed (buildings, etc.)? There are no structures on site.

5. Do the size and shape of the sub watershed "resemble" the pre-mining watersheds? Larger, smaller, shape, shifting of surface water divides? Visually, the post-mining watershed resembled the pre mining watersheds.

6. Does the reclaimed topography "resemble and blend" with the surrounding topography? Yes

7. Does the reclaimed topography complement the approved post-mining land use? Yes

8. Do any of the post-mining land features look odd, incorrect, or out of place? No.

9. Based on professional judgment, is the quality of reclamation consistent with reclamation commonly found on other surface mines in Pennsylvania? (below average, average, above average) Above average

10. Using a visual estimation, does the reclaimed site visually resemble the approved reclamation plan? Yes

11. Has all mining debris and junk been removed (Question on Stage 1 inspection form)? Yes

12. Has all coal stockpiles been removed (Question on Stage 1 inspection form)? Yes

13. From the visual site inspection, was AOC achieved? Yes, the reclamation blends into the surrounding landscape.

14. Other Comments: None.

5. **RFI Energy- Callender Operation (SMP# 6050109) –** This operation is located in Perry Township in Clarion County. This 85 acre permit was originally issued in 2006 and achieved Stage I bond release in October 2008.

   Permit Review - A permit review was conducted on March 22, 2010 in the Knox district mining office. The permit file was reviewed and discussions were held with PADEP staff. A large portion of the permit involved remining and reclaiming 3,100 ft of abandoned high wall. The operator proposed AOC as the reclamation standard for the areas not include in the remining permit (Figure 42). The operations map is shown in Figure 43 and the reclamation map is shown in Figure 44. A comparison of the operations map and reclamation map shows that the pre-mining contours were submitted as the reclamation contours. The permit had two stream reconstruction projects, a wetland mitigation project, and proposed to leave two ponds as permanent structures. The site did not contain prime farmland.

   Site Inspection/Qualitative AOC Evaluation – The site inspection was conducted on March 23th. Dave Updegrave (Inspector), John Sims (Inspector Supervisor), Mark Odenthal (Compliance Specialist), and Joe Ferrara (Compliance Manager) represented PADEP and Brent Means (Hydrologist) represented OSM. The mine site can be characterized as a contour strip mine. Photo 17 is a panoramic photo of the entire mine site. The photo shows the two intermittent stream valleys that were mined through and one of the reconstructed stream channels. The photo also shows the reclamation topography "blends" into the surrounding terrain and provides for a continuation of the intermittent stream valleys through the mine site. Photo 18 shows how the reclaimed hillside is a continuation of the same morphology shown in the unmined forested area. The quality of reclamation at this site was above average and contained positive drainage and no remnants of high or low walls. OSM determined the site achieved AOC and the qualitative evaluation is documented in Attachment 5.

   Permit-Specific Findings that relate to AOC for the Callender operation

   - OSM's site inspection determined the site achieved AOC;

Figure 42

Module 10: Operational Information

10.1 Equipment and Operation Plan

For each phase of mining, identify the type and method of mining; engineering techniques; major equipment to be used; starting and finishing point; and the anticipated sequence in which the phases are to be mined. Provide a description or explanation of the relative sequence of mining, including the relative timing of various phases and the estimated life of the mine. (**Note:** Phases should be numbered in the anticipated sequence to be mined and keyed to the Exhibit 9 Operations Map.)

Refer to Module 10.1 Addendum

10.2 Pit Dimensions

Identify the length and width of each cut and the maximum highwall height to be encountered. Where the proposed unreclaimed pit dimensions exceed 1500 feet in length or 300 feet in width, provide a demonstration that the additional distance is needed for reason of multiple seam mining, size or amount of equipment to be used, topography or method of mining. (**Note:** This demonstration must be provided when backfilling and grading is proposed for more than 300 horizontal feet from the face of the highwall and more than 1500 linear feet of pit open at one time.)

Refer to Module 10.2 Addendum

10.3 Existing Structures

Identify and describe the intended use of all existing structures or facilities to be used in connection with or to facilitate coal mining activities. (Common existing structures include impoundments, ponds, stream crossing facilities, water obstructions and coal processing waste dams.) Provide detailed plans and drawings which identify the current condition of these structures or facilities. Provide a demonstration that these structures or facilities comply with applicable regulations and engineering standards, cross-sections and plan view drawings, and engineer certification.

An existing access road and stream crossing (36" CPP Smooth Bore) will be used to access the proposed site. Refer to Module 12.3 for capacity calculations.

10.4 Final Grade and Drainage

Identify the final grading and drainage pattern, including topographic contours on Exhibit 18 and a description of compaction and stabilization techniques. Operations involving steep slopes (greater than 20°) must include a stability analysis.

Refer to Exhibit 18 map.

10.5 Modifications to Approximate Original Contour

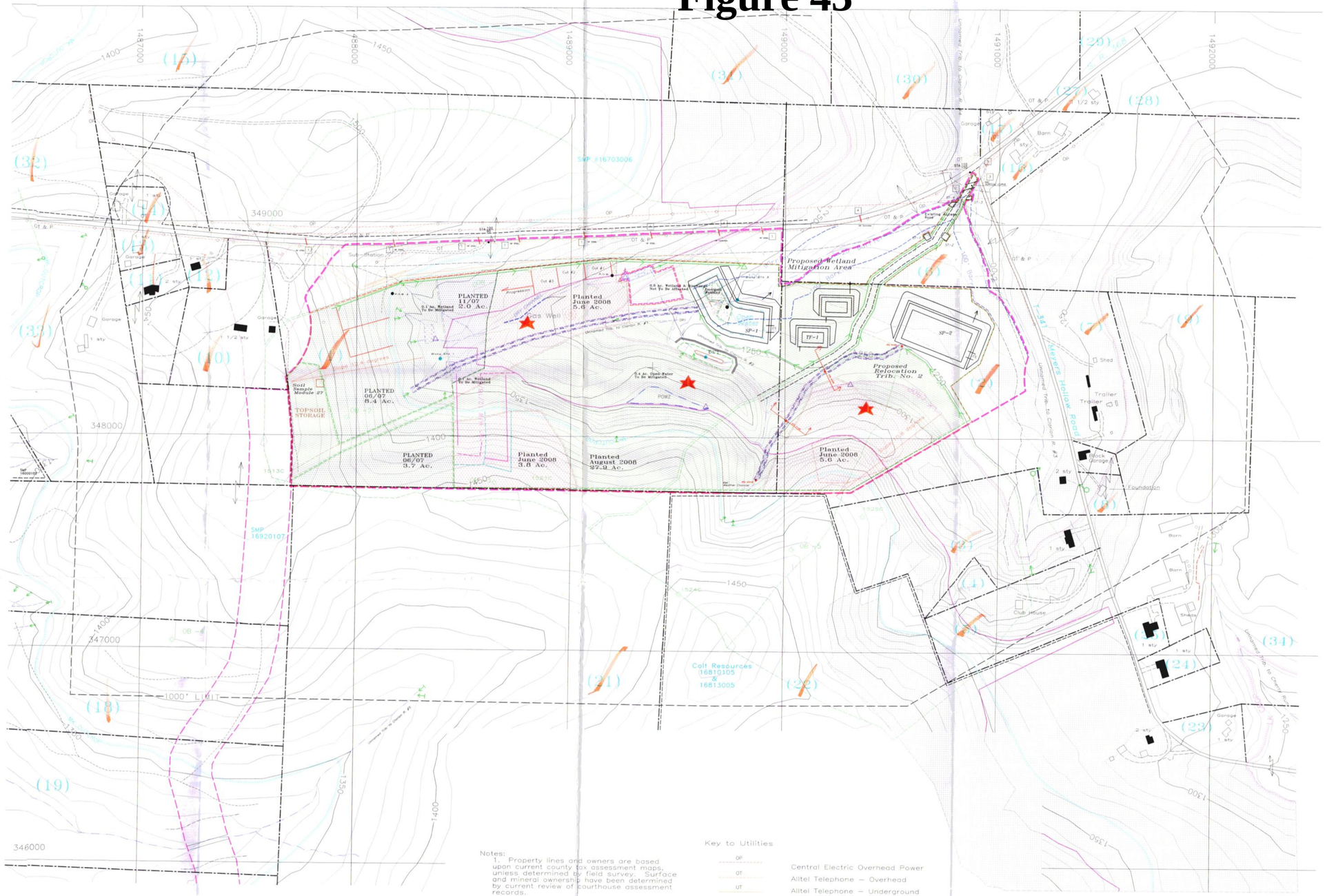
Where the proposed final grade is other than approximate original contour, provide justification for the alternate reclamation proposal. Include a detailed description of the factors which prevent restoration to approximate original contour as well as plans and cross-sections which describes the alternate reclamation and demonstration that the proposed final contour is consistent with the proposed postmining land use. Alternate reclamation proposals for areas which have been previously mined and unreclaimed must include a demonstration of the environmental benefits of reaffecting the area.

N/A

10.6 Reclamation Cost

Provide an estimate of the cost of each stage of reclamation for each phase of mining. Include supporting calculations for the estimates.

Figure 43



LOCATION MAP
Scale: 1"=2000'

PROPERTY OWNER INDEX

1 C&K Coal Company
2 Barbara A. Callander
3 David C. & Bonnie K. Elliott
4 Pine Hollow Rod & Gun Club
5 Pine Hollow Rod & Gun Club
6 William C. Say et ux.
7 Harry Richard Dehart
8 Leslie E. Callander et ux.
9 Winan O. McCall
10 Larry E. & Judy M. Morrison
11 Frank & Sally Ann Alcorn
12 Howard D. Marling et ux.
13 Richard E. Weigle et ux.
14 Dennis L. & Wanda L. Sebring
15 Dana L. Logue et ux.
16 Karen Wetzel
17 Van A. Kriebel et al.
18 C&K Coal Company
19 C&K Coal Company
20 C&K Coal Company
21 Jeanette M. Elliott
Anne & Guido H. Stempel
22 Richard F. Terwilliger
23 Amy L. & Vincent L. Callander
24 Allen R. McCall et ux.
25 Winan O. McCall et ux.
26 Jolinda Frattini
Jerrod Karns
Judith Karns Kosonen
27 William Stockdill
28 Jack K. & Tracy A. Hetrick
29 Martha M. Con Dunkle
30 Bradley D. Wetzel et al.
31 Bradley D. Wetzel et al.
32 Kurt A. Maihle et ux.
33 Allen F. Maihle, Jr. et ux.
34 Winan O. McCall

Proposed S.M.P. Area – 85 Ac.
Proposed Barrier Area
Proposed Variance Area
Existing Surface Mined Areas
Sedimentation Pond / Trap
Diversion / Collection Ditch
Treatment Facility
Energy Dissipator (level spreader)
Temporary Top Material Storage
Prime Farmland Soil
Mine Discharge
First Cut and Direction
Point of Beginning
Final Highwall
Wetlands

Conventional Bonding
Operational Area 57.0 Ac.
Mining Area – Total 71.0 Ac.

Soil Sample

KEY TO CULVERTS

1 18" Steel
2 36" CPP Smooth Bore
3 48" CPP (Smooth Bore)
4 18" Concrete
5 5' Dia. Arch

Notes:
1. Property lines and owners are based upon current county tax assessment maps, unless determined by field survey. Surface and mineral ownership have been determined by current review of courthouse assessment records.

Key to Utilities

OP — Central Electric Overhead Power
OT — Alltel Telephone – Overhead
UT — Alltel Telephone – Underground
Private Water Line

REVISED: 12-20-06 MONITORING PROGRAM (EX. 6.2)
REVISED: 01-04-07 OPERATIONS AREA
REVISED: 01-15-08 Operations Area
REVISED: 05-19-08 Permit Revision
REVISED: 07-14-08 Stage 1 Completion
REVISED: 08-17-09 Completion

EXHIBIT 9
OPERATIONS MAP 2 09-039

RFI ENERGY INC.
1513 Shannon Tipple Road Box 162
Sligo, PA 16255

SURFACE MINING PERMIT #16050109

CALLANDER OPERATION

PERRY TOWNSHIP CLARION COUNTY
DATE: August 17,2009 SCALE: 1"= 200'

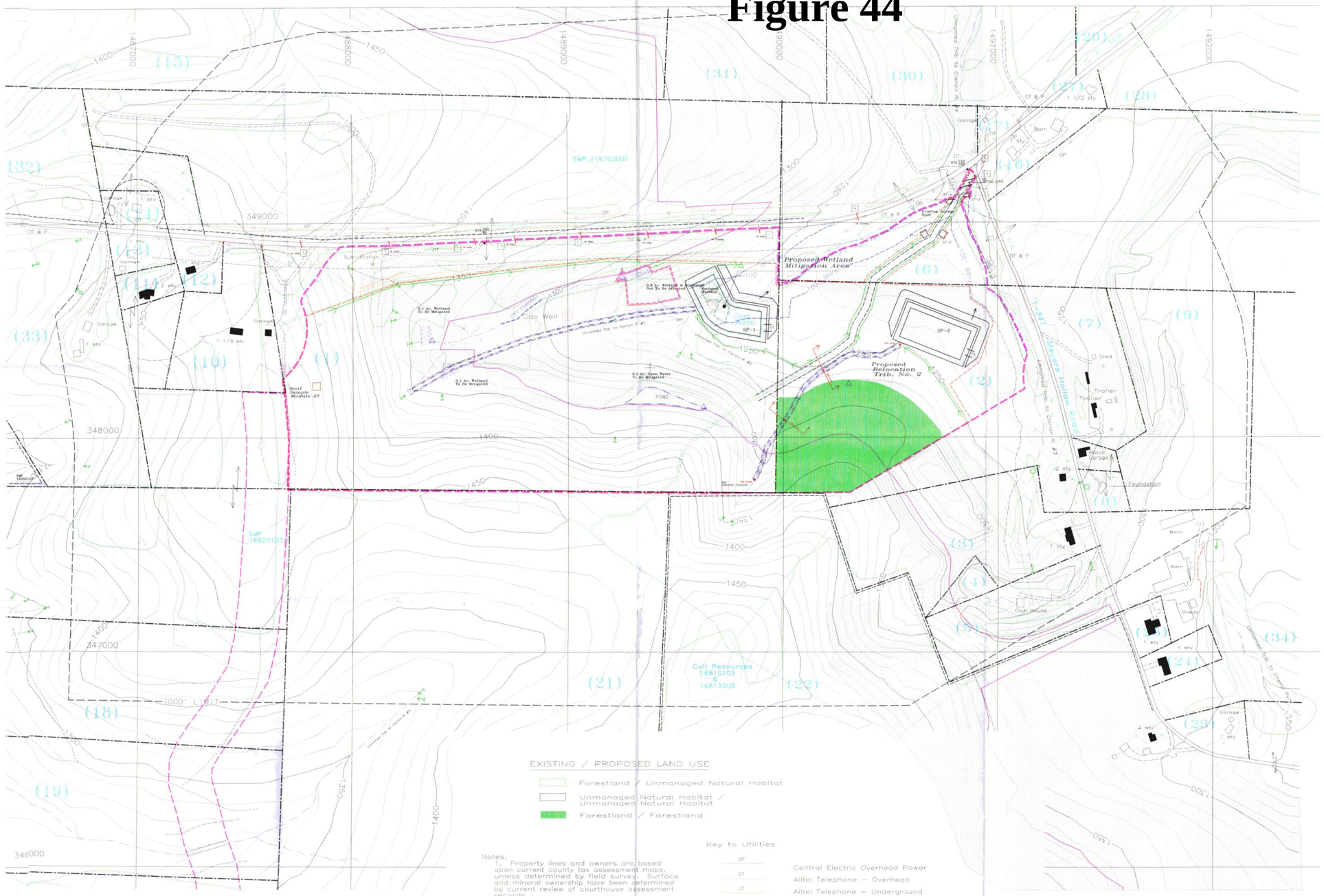
PREPARED BY
McQuade Engineering & Consulting
12021 E REIDSBURG ROAD
CLARION, PA 16214 814-764-5360

APPROVED:
ENGINEER
REG. NO.: PE055347
DATE: 8-17-09

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL GUY EUGENE MCQUADE, JR ENGINEER PE-055347
SEAL

DRAWN BY: G.E.M. CHECKED BY: G.E.M. PIT547A_R

Figure 44



LOCATION MAP
Scale: 1"=2000'

PROPERTY OWNER INDEX

1 C&K Coal Company
2 Barbara A. Callander
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9 Winan O. McCall
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12 Howard D. Marling et ux.
13 Richard E. Weigle et ux.
14 Dennis L. & Wanda L. Sebring
15 Dana L. Logue et ux.
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26 Jolinda Frattini
Jerrod Karns
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31 Bradley D. Wetzel et al.
32 Kurt A. Maihle et ux.
33 Allen F. Maihle, Jr. et ux.
34 Winan O. McCall

Proposed S.M.P. Area
Proposed Barrier Area
Proposed Variance Area
Existing Surface Mined Areas
SP/ST Sedimentation Pond / Trap
Diversion / Collection Ditch
Treatment Facility
Energy Dissipator (level spreader)
Drainage Divide
Prime Farmland To Be Restored
Wetlands

Refer to Module 23 for Seed Mixture Key

All Areas will be Restored to A.O.C.

EXISTING / PROPOSED LAND USE

Forestland / Unmanaged Natural Habitat
Unmanaged Natural Habitat / Unmanaged Natural Habitat
Forestland / Forestland

Key to Utilities

OP Central Electric Overhead Power
OT Alltel Telephone – Overhead
UT Alltel Telephone – Underground
Private Water Line

Notes:
1. Property lines and owners are based upon current county tax assessment maps, unless determined by field survey. Surface and mineral ownership have been determined by current review of courthouse assessment records.

2. Erosion and sedimentation control structures will remain as part of the post mining land use.

KEY TO CULVERTS

1 18" Steel
2 36" CPP Smooth Bore
3 48" CPP (Smooth Bore)
4 18" Concrete
5 5' Dia. Arch

OFFICE
7/14/08

16050109

REVISED: 01-15-08 Operations Area
REVISED: 05-19-08 Permit Revision

EXHIBIT 18
LAND USE & RECLAMATION MAP

RFI ENERGY INC.
1513 Shannon Tipple Road Box 162
Sligo, PA 16255

SURFACE MINING PERMIT #16050109

CALLANDER OPERATION

PERRY TOWNSHIP CLARION COUNTY
DATE: July 10, 2008 SCALE: 1"= 200'

PREPARED BY
McQuade Engineering & Consulting
12021 E REIDSBURG ROAD
CLARION, PA 16214 814-764-5360

APPROVED:
ENGINEER
REG. NO.: PE055347
DATE: 7-16-08

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
GUY EUGENE MCQUADE, JR
ENGINEER
PE-055347

SEAL

DRAWN BY: G.E.M. | CHECKED BY: G.E.M. | PIT547A_R

Photo 17

Reconstructed Intermittent stream drainages

Intermittent stream reconstruction

Photo of the entire Callander Operation

Photo 18

Photo showing how the reclaimed hillside blends into the surrounding topography

Attachment 5

Qualitative AOC Evaluation Data Collection Form for R.F.I. Energy, Callender Operation

1. Is there any evidence of the highwall or low wall? No. The photos show the mined area was "blended" into the unmined areas.

2. Is there any spoil left ungraded? No.

3. Are there any depressions without adequate drainage? No.

4. Are non approved mining structures removed (buildings, etc.)? There are no structures on site.

5. Do the size and shape of the sub watershed "resemble" the pre-mining watersheds? Larger, smaller, shape, shifting of surface water divides? There were two reconstructed watersheds that contained AML, so it is difficult to compare the pre and post-mining watersheds since the pre-mining were disturbed by past mining and were not reclaimed.

6. Does the reclaimed topography "resemble and blend" with the surrounding topography? Yes

7. Does the reclaimed topography complement the approved post-mining land use? Yes

8. Do any of the post-mining land features look odd, incorrect, or out of place? No.

9. Based on professional judgment, is the quality of reclamation consistent with reclamation commonly found on other surface mines in Pennsylvania? (below average, average, above average) Above average

10. Using a visual estimation, does the reclaimed site visually resemble the approved reclamation plan? Yes, except for the remining areas. The reclamation map contained the pre-mining topography for the remining areas.

11. Has all mining debris and junk been removed (Question on Stage 1 inspection form)? Yes

12. Has all coal stockpiles been removed (Question on Stage 1 inspection form)? Yes

13. From the visual site inspection, was AOC achieved? Yes, the reclamation blends into the surrounding landscape.

14. Other Comments: None.

Summary

HFO performed qualitative AOC evaluations at five bituminous surface mining sites using the same techniques employed by State Inspectors at the Stage I bond release inspection. The qualitative metrics contained in the State's definition of AOC were applied to each of the five reclaimed mine sites and OSM made an AOC compliance determination for each of the sites. For three of the five sites, OSM used elevation data to perform a detailed quantitative analysis that quantitatively described how reclamation topography changed from the pre-mining topography. The qualitative inspections were completed before the quantitative analysis to provide an unbiased inspection. The qualitative OSM inspections concluded that all five sites achieved compliance with the approved definition of AOC. Furthermore, the quantitative analyses showed that most of the mine sites are reclaimed to within 20 ft of the original land surface. On the other hand, one quantitative analysis revealed that a hill top was lowered by 160 ft at one of the sites. Approximately 31 acres of the hill top were lowered between 30 and 160 ft. In light of the quantitative analysis, HFO concluded this portion of the permit did not achieve AOC. The lowered hill top constitutes 12% of the permit area and is limited to a single area in the western portion of the permit. HFO concludes from past oversight inspection activity results that the AOC issue at this site is not commonplace in surface mining permits in Pennsylvania. Site selection was specifically designed to select permits that contained mining methods and topography that would pose an AOC challenge. Variance from the qualitative elements of the approved AOC definition were not identified for the contour strip or box-cut mining sites in this study and those are the most commonly used mining methods in Pennsylvania. HFO believes AOC-related issues are infrequent when these mining methods are used because these mining methods, inherently, provide "elevation targets" that can be used during reclamation to achieve AOC. The elevation targets are the unmined areas above the highwall and below the low wall. Grading to these points virtually provides reclamation that resembles the original topography and approximate the original elevation. This study did disclose enhanced measurement techniques are needed to ensure close adherence to requirement to more closely resemble pre-mining configuration. Ridge mining operations are rare in Pennsylvania and, as this study indicate, a more detailed AOC analysis is required since "elevation targets" do not exist for these types of operations. Since contour strip and box-cut mining methods are by far the most commonly used mining methods, HFO concludes the current AOC evaluation techniques used by the State is a reasonable approach to document achievement the qualitative metrics prescribed in the approved Pennsylvania program. Improved measurement and modeling techniques would assure post mining land configuration more closely resembles pre-mining land conditions such as morphology, undulations, dendritic patterns and other features which may otherwise be overlooked.

Findings

After collecting data from DEP staff interviews and the qualitative and quantitative analyses, the HFO makes the following AOC program findings:

1. There are few AOC variances issued for surface mines;

2. Reclamation plans are not engineering-intensive in Pennsylvania;

3. Permits do not contain sufficient information to perform an AOC permit review analysis for previously mined areas as the pre-mining topographical map is commonly submitted as the reclamation map;

4. There are very few AOC-related inspection issues or citizen's complaints in Pennsylvania;

5. State inspectors perform a mostly visual AOC evaluation using a combination of the reclamation map their knowledge of the topography prior to mining and when deemed necessary evaluate slope and other metrics at time of Stage I bond release

6. State inspectors perform the AOC evaluation on remining reclamation by applying the qualitative metrics contained in the AOC definition (e.g. blends, no highwall remnants, etc);

7. AOC evaluations require more attention and enhanced evaluation techniques for mine sites that lack unmined elevation targets

Recommendations

1. Improved evaluation and documentation of pre-mining land configuration utilizing up to date methodologies coupled with enhance modeling techniques would provide better documentation of expected post mining land configuration.

2. Improved post mining land configuration evaluation utilizing up to date measurement techniques is needed to fully document achievement of final land configuration which closely resembles pre-mining conditions inclusive of morphology, undulations, dendritic patterns and other features currently not being documented.

3. Improved inspection and enforcement procedures need to be made to assure mining and reclamation proceed in accordance with the plan approved in the permit and, when operations deviate from plan, operations are curtailed until the approved plans are revised or errant activities are corrected.

4. Permit maps and cross sections could be submitted in electronic formats.

5. PADEP should develop a mine permitting program with the capability to apply GIS tools, in conjunction with electronic data provided by permit applicants and readily available from public sources, to more accurately evaluate pre and post-mining topography.

6. PADEP inspection staff should use readily available GPS tools to collect data and verify reclamation topography in the field. This information would verify and provide sufficient documentation of post mining land configuration.

Response to National Questions on Pennsylvania's AOC Program

1. Is there an agreement between the regulatory authority and OSM as to the interpretation of AOC as envisioned by Directive REG-8, Appendix 1? No formal agreement exists and Pennsylvania has no interpretation of AOC other than their definition of contouring. Their definition of *contouring* is" *Reclamation of the land affected to approximate original contour so that it closely resembles the general surface configuration of the land prior to mining and blends into and complements the drainage pattern of the surrounding terrain with no high wall, spoil piles or depressions to accumulate water and with adequate provision for drainage*."

2. Are there any outstanding program amendments or 30 CFR 732 letters related to AOC or post-mining land uses associated with AOC waivers? No.

3. Has OSM or the State received any citizen complaints related to AOC in the past three years and what was the ultimate outcome of the complaint(s)? No.

4. Does the State have a process for applying its interpretation of AOC to the evaluation of backfilling and grading plans, and is the process documented and reproducible from site to site? The Pennsylvania program contains no additional program guidance that further interprets their definition for AOC. Permits are designed and evaluated to produce reclaimed sites consistent with the qualitative metrics of the approved definition. The inspection and enforcement program is designed to provide compliance with approved mining and reclamation plans. Oversight bond release inspection activity shows this is occurring, this study identified a remining site which did not conform with approved reclamation plan. PADEP avers they allowed a variance to the approved plan due the premature truncation of mining but did not require a permit revision.

5. Does the State's interpretation of AOC appear to meet the State program definition of AOC? Yes, PADEP relies solely on their regulatory definition for interpreting AOC. No other interpretation, such as policy or guidance, exists in their program.

6. Do the permit documents reflect the State interpretation of AOC? {Note: If the State grants variances to AOC, the review should include a sample of those permits with an AOC variance to determine if a reviewer could generally make a distinction between a permit returning to AOC and one granted an AOC variance. Also, the reviewers should pay close attention to drainage patterns including the size of the watersheds before mining and that proposed by the re-grading plans to determine if drainage patterns or watershed areas have been altered.} Very few AOC variances are granted in the bituminous coal fields of Pennsylvania. There are only three areas in the permit application that mention AOC (Module 10, the operations plan, & Module 18, Reclamation Map.). The only other document in the permit is the inspector's Stage I field inspection form. The Pennsylvania program doesn't contain a quantitative

interpretation of AOC and the permit documents do not provide any insight into their interpretation.

7. Are there sufficient cross-sections or contour maps in the permit to properly evaluate AOC? Operators submit the pre-mining topographical map as the reclamation map. The permit application does not require the submittal of a cross section.
   It is the author's opinion that the contour maps submitted with the permit are sufficient, except for remining operations.

8. If an AOC variance has been granted, are the reasons documented and in accordance with regulatory requirements for that State and OSM's June 22, 2000, Post-Mining Land Use Policy? Very few AOC variances are given in the bituminous mines in Pennsylvania. In fact, staff interviews could not specifically recall any permits but knew a few AOC variances were granted in the past.

9. Do you believe the State's process for evaluating permits is adequate to ensure that backfilled and graded areas will achieve AOC? OSM agreed with the State's AOC determination on the permits reviewed with the exception of a portion of a remining permit which was found not to be in compliance with the approved reclamation plan. As long as the AOC definition uses qualitative metrics, it is difficult to require change, however, improvements in measurement and modeling of pre-and post-mining land configuration is recommend to fully document adherence to program requirement to "closely resemble pre-mining land configuration". Measurement techniques currently available would prove valuable in documenting compliance with the approved reclamation plan. This case also identifies the need for the Pennsylvania inspection process to be improved to assure operators are in compliance with the approved operation and reclamation plans and, when changes to plans are indicated, mining operations are curtailed until permit revisions are approved.

10. Does the State have methods to check the operator's compliance with his backfilling and grading plan? PADEP inspectors determine operator compliance with operation and reclamation plans during routine inspections throughout life of permit to assure compliance with the backfilling and regrading plan. Inspectors normally take field measurements of spoil volume and elevations to supplement visual observations.

11. Is the State routinely using these methods or verifying operator-supplied information at some point prior to Phase I bond release? The inspectors will routinely check during their monthly inspections to make sure spoil is being regraded and moved in the correct direction.

12. If grading problems are identified, does the State require additional grading or permit revision? OSM has no documentation from this study or any antidotal evidence to conclude that additional grading requirements would result in a permit revision. PADEP policy requires inspectors to assure compliance with approved permit. If significant deviation is detected the operator is required to revise the permit to accommodate the change, or to comply with approved permit. Minor grading concerns are commonly dealt

with in the field. For example, if the inspector feels the operator is leaving too much spoil down slope, that will result in a "bulge" at the bottom of the slope, the inspector will verbally inform the operator that more spoil needs to pushed up slope to create a more uniform slope.

13. Has OSM done any spot checking of sites to verify compliance with the approved permit regarding backfilling and grading? PFD inspectors routinely use tough book field computers during oversight inspections. The computers contain integrated GPS and the inspectors load and geo-reference the mining maps, including the pre-mining contours, for the inspection. During the inspection they perform spot checks at different locations to evaluate the progress of the operation and reclamation plan. If deviations from operation or reclamation plans are detected PADEP is immediately notified and appropriate action taken or a Ten Day Notice is issued to resolve identified violation. It should also be noted that OSM will conduct follow up inspections until the identified problem is corrected, even when PADEP takes action to correct.

14. Based on the entirety of this process, is there a need for further checking of on-the-ground conditions? No. AOC issues are routinely reviewed during planned bond release inspections to evaluate reclamation success. Given current inspection resources, our oversight can only provide a random look at mine sites, and follow up on all problems identified.

15. OSM will collect data using GPS, field surveys, or other appropriate methods on areas of the selected permits where backfilling and grading are complete. Based on the field data collected, was the site reclaimed to AOC in conformity with the approved mining and reclamation plan? Yes, for all but one of the permits. One permit had a hill top that was lowered by up to 160 ft from the original elevation. The hill top represented ~ 31 acres and constituted 12% of the entire permit area. Most of the permit area "resembled" the approved reclamation topography; HFO determined that AOC was not achieved for that hill top area.

16. If there are differences between the approved AOC configuration for the site and the actual land form following backfilling and grading, are these differences significant? Three quantitative evaluations were completed and elevation difference histograms were created for two of the evaluations. The histograms showed the frequency of the results of comparing the post-mining elevation to the pre-mining elevation. The histograms were used to evaluate the reclamation topography. The histogram showed that 75% of the elevation difference data points were within 15 ft for the Walker permit and within 20 ft for the Brink permit. This can be interpreted to mean that 75% of the mined areas, represented by data points collected during the study, were reclaimed to within 20 ft of the original land surface. Interpreting the quality of reclamation that is contained in the other 25% of the data is difficult. For the Brink permit, the 160 ft reduction in elevation for one of the hill tops is represented in the other 25% of the data. However, also represented in that data, is the reclamation of the remining areas in which the post-reclamation topography drastically differs from the pre-mining topography. The Walker permit is complicated by the fact that the Stage I sedimentation ponds and diversions still

existed at the time that the elevation data were collected. The surface elevation of one of the ponds was 30 ft higher than the original elevation and it is assumed that the final reclamation topography will be lower once the ponds are reclaimed. Moreover, AML lands were reclaimed during mining at the Walker permit even though the site was not permitted as a remining operation. Additional histogram statistics are provided below for further data interpretation. Other than the one hill top being reduced by 160 ft, HFO did not find any other significant differences in reclamation topography.

Permit	# data points	Mean	Max	Min	Mean	Stand Dev	Coef variation	Lower Quart
Walker	310,198	10.2	68.8	-14.4	10.2	11.1	1.08	3.01
Brink	1,139,625	2.3	156.3	-161	2.3	42.5	17.7	-10.5

17. Do differences, if any, between land forms following backfilling and grading and the approved AOC configuration observed on the sampled sites indicate a systematic problem in the State's methods for checking operator compliance with the approved backfilling and grading plan? With the exception of the small portion of the previously discussed remining site the PADEP process for determining compliance with the approved backfilling and grading plan is adequate. Improved documentation of adherence to the approved definition of AOC, particularly the requirement to "closely resemble pre-mining land configuration, would require enhanced measurement and modeling techniques utilized for pre and post mining land configuration and elevation identification.

Based on the review, does the OSM office find that the State's implementation of its approved program is achieving AOC? Yes, with the exception of the problems identified with the remining permit no environmental or permitting problems were disclosed.

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF MINING AND RECLAMATION

December 1, 2010

Mr. George J. Rieger
Chief
Office of Surface Mining Reclamation and Enforcement
Pittsburgh Field Division
Harrisburg Field Office
415 Market Street
Suite 304
Harrisburg, PA 17101

Dear Mr. Rieger:

Please accept the following comments regarding your office's oversight report concerning approximate original contour (AOC) reclamation issues in Pennsylvania.

It is clear from the Commonwealth's Title V regulatory history and from the results of the OSM Pittsburgh Field Division Oversight Study on AOC (AOC Study) that surface mining sites in Pennsylvania are being reclaimed to the AOC standards set forth the Commonwealth's approved coal mining program. In fact, the AOC Study states that OSM oversight inspections concluded that the five mining sites reviewed achieved compliance with the Commonwealth's approved definition of AOC; and, that AOC-related issues are not a problem in Pennsylvania. Unfortunately, the AOC Study does not rest there.

Despite the findings outlined above, the AOC Study questions Pennsylvania's AOC compliance and evaluation procedures by inventing an arbitrarily set of quantitative metrics to measure AOC compliance at the five targeted mining sites. The AOC Study discusses the need for "enhanced and improved measurement and modeling techniques" to assure post-mining land configurations that meet AOC. By extension, the AOC Study then creates a new set of criteria to define post-mining land configuration resembling AOC. Consequently, the AOC Study unabashedly expands the approved definition of AOC to include a list of parameters including "morphology, undulations, dendritic patterns and other features". This expansion of the approved definition is then used to justify the AOC Study's recommendations for enhanced measurement and modeling techniques.

The Commonwealth's approved definition for AOC, which is contained within the definition of "contouring" at § 87.1 (relating to definitions), reads

> *... Reclamation of the land affected to approximate original contour so that it closely resembles the general surface configuration of the land prior to mining and blends into and complements the drainage pattern of the surrounding terrain with no highwall, spoil piles or depressions to accumulate water and with adequate provision for drainage.*

This definition is qualitative in nature. It is wholly inappropriate to subjectively re-define AOC with a new set of land configuration parameters and then measure compliance with those parameters with random quantitative criteria – all while ignoring the nature of approved definition and the fact that Pennsylvania is routinely and properly addressing AOC issues during mine site reclamation.

Furthermore, the AOC Study emphasizes the need for technology (e.g. electronic submittal of applications, use of GPS, and lidar). While the use of these tools may be helpful, they are not necessary to implement the qualitative standard of AOC. Imposing quantitative analysis to AOC is contrary to the regulations.

Thank you for the opportunity to comment. It is my understanding that these comments will be included as an addendum to your office's AOC report. If you have any questions regarding the comments, please feel free to contact me.

Sincerely,

Thomas Callaghan, P.G.
Director
Bureau of Mining and Reclamation

bcc: Thomas Callaghan
William Allen
File
30 Day File

TC:srb:mla