(USGS PROJECTED)

JOE'S VALLEY FAULT

FEDERAL LEASE UTU-68082

DH-6

Burn (Doelling)

FED UTU-68082 / UTU-68082 (M)

PANEL 7

PANEL 8

PANEL 9

PANEL 10

PANEL 11

PANEL 12

SECTION 35

FEDERAL LEASE UTU-68082

GENWAL STATE LEASE ML-21569

(ALL OF SECTION 36)

SEALED AREA

SECTION 36

FED UTU-68082

PANEL 1

PANEL 2

ROOM & PILLAR BARRIERS

SECTION 31

PANEL 22

PANEL 13

PANEL 14

PANEL 15

GENWAL STATE LEASE ML-21568

(ALL OF SECTION 2)

PANEL 16

PANEL 17

PANEL 18

PANEL 3

PANEL 4

PANEL 5

PANEL 6

PANEL 21

PANEL 20

PANEL 19

GENWAL LEASE SL062648

GENWAL LEASE U-54762

EVALUATION POINTS (TWO)

EVALUATION PIPE EVALUATION POINT (1)

EVALUATION POINTS (TWO)

EVALUATION POINTS (ONE) OLD SHOP PIPE

EVALUATION POINTS (TWO)

EVALUATION POINTS (TWO)

EM-179

DELLENBACK FEE

USGS-10

RECEIVED JUL 02 2007 DIVISION OF OIL, GAS & MINING

SURVEY INFORMATION:

ENTRY HT

STATION

ELEVATION

SEAL INSTALLATION

- SEALS WILL BE INSTALLED ACCORDING TO CFR 30-75.335
- INTAKE AND RETURN SEALS WILL BE INSTALLED SIMULTANEOUSLY
- PANEL SEALS AT THE HIGHEST ELEVATION WILL BE EQUIPPED WITH A TELL PIPE
- PANEL SEALS AT LOWEST ELEVATION WILL BE EQUIPPED WITH A DRAIN PIPE AND A WATER TRAP

FAN INFORMATION

FAN NUMBER 1 AND 3

MANUFACTURER - SPENDRUP C.F.M. - 155,000
MODEL NO.DV - 400-70-8-80 WATER GAUGE - 8"
HORSEPOWER - 250 DIAMETER - 5'
VOLTAGE - 460 SERIAL NO. 2741
R.P.M. - 1700 HORIZONTAL EXHAUST

AIR REVERSAL DOORS INSTALLED
FAN INSTALLATION MEETS REQUIREMENTS OF 75.310

FAN NUMBER 2 AND 4

MANUFACTURER - SPENDRUP C.F.M. - 147,000
MODEL NO.DV - 1400-70-8-4 WATER GAUGE - 7.7"
HORSEPOWER - 250 DIAMETER - 5'
VOLTAGE - 460 SERIAL NO. 2323
R.P.M. - 1700 VERTICAL EXHAUST

AIR REVERSAL DOORS INSTALLED
REFERENCE SPENDRUP DWG. NO. 12345-1
FAN INSTALLATION MEETS REQUIREMENTS OF 75.310

EVALUATION POINT LOCATIONS

1. SUMP AREA - EAST OF MAIN NORTH
   POINT-IN (X) IS LOCATED AT SPAD #31
   POINT-OUT (B) IS LOCATED AT SPAD #29
2. OLD WORKS - WEST OF MAIN NORTH
   POINT-IN (D) IS LOCATED 2 X-CUTS INBY INTAKE PORTAL, 4 X-CUTS WEST
   POINT-IN (E) IS LOCATED 2 X-CUTS INBY INTAKE PORTAL, 6 X-CUTS WEST
   POINT-OUT (U) IS LOCATED 1 X-CUT EAST OF SPAD #406, END OF VENT PIPE
3. SUMP AREA - WEST OF MAIN NORTH
   POINT-IN (T) IS LOCATED ONE X-CUT WEST OF SPAD #36
   POINT-OUT (G) IS LOCATED AT SPAD #89

NOTES

1. NO WATER POOLS EXIST ABOVE THE MINE
2. LYTROPHOTIC ZONE ARE NOT WITHIN THE SEAM
3. NO OIL OR GAS WELLS EXIST ON PROPERTY
4. NO MINES ABOVE OR BELOW PROPERTY
5. MSHA ID NUMBER #42-01715
6. BELT - AVG. HEIGHT 7'2"

LEGEND

- STOPPING
- STOPPING WITH DOOR
- EQUIPMENT DOOR
- BOX CHECK
- CURTAIN
- REGULATOR
- FIRE DOORS (OPEN UNLESS OTHERWISE NOTED)
- FUTURE MINING
- SEAL
- PROPOSED SEAL
- ROCK STORAGE
- SUMP
- CONVEYOR TRANSFER POINT
- INTAKE AIR
- RETURN/BLEEDER AIR
- BELT AIR
- PRIMARY ESCAPEWAY
- SECONDARY ESCAPEWAY
- PROPERTY CORNLR
- STOPPING/CROSS-CUT NUMBER (X6)
- OVERCAST
- OVERCAST W/ MANDOOR
- PILLARS/LONGWALL EXTRACTED
- BLEEDER MEASUREMENT POINT (5)
- CO SENSOR
- CH4 SENSOR
- PROJECTED OVERCAST (X)
- POSTED NOT MAINTAINED
- VENTILATION PIPE
- STOPPING/DAM (10)
- PROJECTED STOPPING
- BRATTICE LINE
- OVERBURDEN (500)
- TOP OF COAL SEAM (8000)
- SURFACE DRILL HOLE (DH-1)
- UNDERGROUND DRILL HOLE
- WATER MONITORING WELL
- BASELINE POINT (POINT NAME / NORTHING / EASTING / ELEVATION)

PERSON(S) RESPONSIBLE FOR THE CONTENTS OF THIS MAP:
Mr. Shane Vaden
UtahAmerican Energy, Inc.
Phone: (435) 888-4000

CERTIFIED BY SEAL

VENTILATION MAP

Crandall Canyon Mines
Crandall Canyon
Hiawatha Seam
P.O. BOX 1077
PRICE, UTAH

MSHA ID #42-01715

UtahAmerican Energy, Inc.

794 NORTH "C" CANYON ROAD, EAST CARBON, UTAH 84520
P.O. BOX 1077, PRICE, UTAH 84501
PHONE: (435) 888-4000 FAX: (435) 888-4002

DRAWN BY: PJ
SCALE: 1" = 400'
APPROVED BY: TH
DATE: JUNE 2007
PLAN: PLATE #1 of

EXHIBIT 1

AGAPITO ASSOCIATES, INC.
Mining & Civil Engineers & Geologists

715 HORIZON DRIVE
SUITE 340
GRAND JUNCTION, CO 81506
USA
VOICE 970.242.4220
www.agapito.com

July 20, 2006 226-20

Mr. Laine Adair
Andalex Resources, Inc.
195 North 100 West
Huntington, UT 84520

Re: **DRAFT—GENWAL Crandall Canyon Mine Main West Barrier Mining Evaluation**

Dear Laine,

Agapito Associates, Inc. (AAI), has completed the geotechnical analysis of GENWAL Resources, Inc.'s (GENWAL) plan for room-and-pillar mining in the Main West barriers at the Crandall Canyon Mine (Figure 1). Current plans include developing four entries in the barriers north and south of the existing mains in the area west of the 1st Right/2nd North submains under cover ranging from about 1,300 ft to 2,200 ft. Barrier mining is also planned to the east between the 1st Right/2nd North and 1st North submains under generally shallower cover. Figure 1 shows the existing mine in green and planned mining in black. The objective of the analysis was to evaluate the potential for high-stress conditions caused by a combination of deep cover and side-abutment loads from the adjacent longwall gobs, and any load transferred onto the barriers from the existing pillars in Main West. Findings of the analysis and implications for pillar design and ground control are discussed.

CONCLUSIONS

Conclusions are that the proposed Main West 4-entry layout with 60-ft by 72-ft (rib-to-rib) pillars should function adequately for short-term mining in the barriers (i.e., less than 1 year duty). Model results indicate that planned mining in the barriers will avoid the majority of the side-abutment stress transferred from the adjacent longwall panel gobs. Stress conditions are expected to be controlled by the depth of cover and not by abutment loads.

The proposed 60-ft by 72-ft pillars are not intended for long-term performance and, therefore, can accept a reduced design safety margin compared to typical life-of-mine mains pillars. Analytical results indicate that the proposed pillars result in only incrementally more geotechnical risk than associated with the historical pillars in Main West. The historical 70-ft by 72-ft pillars in Main West have performed adequately for many years longer than will be required for mining the barriers. Because rib yielding and roof sag are time-dependent effects, it is probable that mining will be completed in the barriers before rib and roof conditions show

EXHIBIT
2

advanced deterioration. The modern mining practices of GENWAL, including systematic bolting rapidly after excavation, bolting with 6 bolts per row, tight geometric control, mining with narrow entries (18 ft wide), and mining to rock instead of leaving top coal, should make this a workable design and limit geotechnical risk to an acceptable level. Increasing crosscut spacing is not expected to significantly improve ground control.

ANALYSIS

Ground conditions were simulated using the NIOSH displacement discontinuity code, LAMODEL.[1] The approach involved two stages of modeling, first, simulation of historical mining in the 1st North Left block of room-and-pillar panels and, second, simulation of future conditions in Main West. The historical and future mining areas modeled are highlighted in Figure 1. The models were used to calculate three parameters: (1) in-seam vertical stress, (2) roof-to-floor convergence, and (3) pillar (coal) yielding. These parameters provide the principal quantitative basis for comparing historical and future conditions.

Both models (historical and future mining areas) incorporated the mining geometry, sequence of mining, and variable depth of cover. To provide realistic pillar behavior, a high-resolution model was created using 5-ft-square elements. Coal strength was specified for eight levels of increasing confinement based upon depth into the rib, ranging from 2.5 to 37.5 ft.

In LAMODEL, the "method of slices" is applied to approximate the load bearing capacity of the pillars. This method assumes that the strength of any pillar element is a function of its distance from the nearest pillar rib and element size by:

$$\sigma_v = S_I[0.71 + 1.74(x/h)] \qquad \text{(Eqn. 1)}$$

where σ_v = Confined coal strength
S_I = In situ rock mass unconfined strength
x = Distance from the nearest pillar rib
h = Pillar height

Peak strain in each element is calculated by:

$$\varepsilon_v = \sigma_v / E \qquad \text{(Eqn. 2)}$$

where ε_v = Peak strain
E = Coal elastic modulus

Upon yielding, the residual stress and residual strain within a pillar element are calculated by:

[1] Heasley, K.A. (1998), *Numerical Modeling of Coal Mines with a Laminated Displacement-Discontinuity Code*, Ph.D. Thesis, Colorado School of Mines, 187 p.

$$\sigma_r = 0.2254 \times \ln(x) \times \sigma_c \qquad \text{(Eqn. 3)}$$

and

$$\varepsilon_r = 4 \times \varepsilon_c \qquad \text{(Eqn. 4)}$$

where σ_r = Residual stress
ε_r = Residual strain

The in situ unconfined coal strength and elastic modulus are estimated to be 1,640 psi, and 0.5 × 10^6 psi, respectively, for a 5-square-ft element. An average 8-ft pillar height, representative of actual and planned mining, was used in all models. The eight levels of confined coal strength and corresponding strain for a typical pillar, using Equations 1 through 4, are listed in Table 1.

Table 1. LAMODEL Confined Coal Strength

Confined Coal Distance into Rib (ft)	Confined Strength (psi)	Peak Strain	Residual Strength (psi)	Residual Strain
2.5	2,059	0.004	425	0.017
7.5	3,845	0.008	1,746	0.032
12.5	5,631	0.012	3,206	0.047
17.5	7,417	0.016	4,785	0.062
22.5	9,203	0.019	6,459	0.077
27.5	10,989	0.023	8,209	0.092
32.5	12,775	0.027	10,025	0.107
37.5	14,562	0.031	11,896	0.122

Other model properties are summarized in Table 2 and are based principally on previous modeling studies for the Crandall Canyon Mine.[2,3,4,5]

1st North Left Panels Back-Analysis

The historical mining area is relevant for calibrating the model for predicting future conditions in Main West because of (1) similar geologic conditions to that in Main West,

[2] Agapito Associates, Inc. (1995), "Technical Review of Longwall Feasibility," prepared for GENWAL Resources, Inc., November.
[3] Agapito Associates, Inc. (2000), "Barrier Pillar to Protect Bleeder for Panel 15, South of West Mains," prepared for GENWAL Resources, Inc., May 5.
[4] Agapito Associates, Inc. (1997), "Panel 6th Right Experiment Back Analysis and Model Calibration," prepared for GENWAL Resources, Inc., November 20.
[5] Agapito Associates, Inc. (2004), "GENWAL South Crandall Canyon Mine Gateroad Alternatives Geotechnical Study," prepared for GENWAL Resources, Inc., December 17

Table 2. Input Parameters for LAMODEL

Overburden	
Deformation Modulus of Roof Rock (psi)	2,000,000
Poisson's Ratio of Overburden	0.25
Lamination Thickness of Overburden (ft)	25
Unit Weight of Overburden (pcf)	158
Coal	
Elastic Modulus of Coal (psi)	470,000
Poisson's Ratio of Coal	0.34
Strain Hardening Gob	
Initial Modulus (psi)	100
Final Modulus (psi)	76,000
Final Stress (psi)	4,000
Gob Height Factor	1
Poisson's Ratio of Gob	0.25

(2) significant depth of cover (up to 1,800 ft), and (3) similar mine geometry. The historical model area includes a barrier separating the mains from gob in the 9th Left panel at depths reaching 1,800 ft, which represents the same type of high-stress, side-abutment load transfer onto a barrier mechanism anticipated in Main West.

The 1st North Left model describes an area where room-and-pillar panels were retreated under relatively deep cover during the late 1990s. Ground conditions are reported to have been good during primary mining even with side-abutment loading from adjacent gob. Occasional pillars were left behind during retreat because of locally difficult ground conditions, mainly related to peeling top coal. This was compounded by large center-entry roof spans (reaching 22 to 23 ft) mined to accommodate the continuous haulage system in use at that time. Also, short 5-ft bolts and only 5 bolts per row were used in the panels, which is considered substandard for retreat mining compared to the mine's current practice. Conclusions are that, while retreat mining was overall successful, ground conditions could have been improved by mining the top coal. It is believed that this would have eliminated the need for leaving pillars in some locations.

Main West was recently mined northward into the barrier separating the mains from Panel 9th Left—1st North, leaving a 145-ft to 170-ft-wide barrier at a depth of about 1,600 to 1,800 ft. Ground conditions in the new entries are reported to be very good with no obvious effects of side-abutment load override across the barrier. Good conditions are also attributed to better mining practices than used in the historical panels to the north, including mining the top coal (rock roof), narrower entries (nominally 18-ft wide), and better roof bolting (6 bolts per row).

Modeling results presented in Figures 2 through 10 show vertical stress, coal yielding, and convergence for three stages of mining in Panel 9th Left, (1) when the panel was fully mined on the advance, and after the panel was (2) partly and then (3) fully retreated.

Figures 2, 3, and 4 show vertical stress, yielding, and seam convergence, respectively, during the first stage. Almost all remnant pillars in the north panels are shown to be fully yielded. The stresses in the centers of these pillars exceeded 10,000 psi, resulting in convergence greater than 2.0 inches. Pillars in Panel 9th Left show limited rib yielding. Seam convergence in the panel is computed by the model to be less than 1.6 inches and average vertical stresses within the pillars around 3,000 psi, reflecting an increase of about 800 psi above in situ stress levels.

At the second mining stage, pillars next to the gob at the retreat line are shown to be yielded (Figure 6) and converged more than 2.0 inches (Figure 7) in response to abutment stresses. Based on the experience in the panel with peeling top coal, 2.0 inches of convergence is considered an indicator of potential roof and rib instability in the model.

The third stage of mining in Figures 8, 9, and 10 shows 9th Left fully retreated and Main West mined into the barrier per the current geometry. The results show no significant side-abutment stress override across the barrier on to the mains pillars, consistent with actual conditions. Pillar rib yielding is shown to be minimal and roof convergence less than 1.0 inch in the vicinity of the barrier. This behavior is considered an indicator in the model of good ground conditions.

Main West Barrier Mining Predictive Model

Future mining in the north barrier of Main West was simulated using the same model properties from the back-analysis model. The Main West model was adjusted to include the actual depth of cover which ranges from about 1,600 to 2,200 ft. The area encompassed by the model is considered representative of the range of conditions expected throughout Main West, including planned mining in the barrier south of the mains.

Results of the model are shown in Figures 11 through 19. Mining was simulated in three stages: (1) current conditions before any new mining (Figures 11 through 13), (2) early during planned mining with development part way into the barrier (Figures 14 through 16), and (3) after the barrier is fully mined (Figures 17 through 19). Planned mining includes 18-ft-wide rooms with 60 ft by 72 ft (rib-to-rib) pillars. These dimensions were rounded to 20 ft and 60 ft by 70 ft, respectively, in the model because of the 5-ft element size. Notably, the models show mining into the existing Main West entries. This may or may not be the final design. This is a conservative assumption useful for analyzing the highest pillar loading.

For the current geometry, the model shows side-abutment stresses reaching as high as 30,000 psi in the northern interior of the existing 450-ft-wide barrier. Figure 20 shows two stress profiles (A-A') through the barrier, one for the current geometry (magenta) and a second with planned mining in the barrier (blue). The location of Profile A-A' is shown in Figure 14. For the current geometry, stress levels taper to near pre-mining (in situ) stress levels approximately 100 ft into the barrier, indicating that the proposed 130-ft-wide barrier will limit exposure of the

planned entries and pillars to most of the abutment. Mining conditions are expected to reflect stress levels normally associated with development mining away from abutment stresses. Stress levels are expected to be controlled by the depth of cover, and not side-abutment stresses. This is consistent with the recent experience mining across the barrier from Panel 9th Left.

The proposed 60-ft by 72-ft (rib-to-rib) mains pillars are predicted to be about 7% weaker on average than the existing 70-ft by 72-ft pillars in Main West. This is based on five widely recognized empirical pillar strength formulas which show anywhere from a 1% to 12% drop in pillar strength with the 10 ft narrower pillar. Pillar strengths predicted by the various methods are summarized in Table 3.

Table 3. Reduction in Pillar Strength Based on Empirical Design Formulas

Empirical Formula	Pillar Design Strength		Existing to Planned Pillar Strength Change	
	Existing 70-ft × 72 ft Pillars	Planned 60-ft × 72-ft Pillars		
1,600 ft Deep				
Wilson Method	4,960 psi	4,800 psi	-160 psi	-3%
Abel Method	5,740 psi	5,690 psi	-50 psi	-1%
Bieniawski Method	3,910 psi	3,450 psi	-460 psi	-12%
ALPS-Bieniawski Method	3,410 psi	3,010 psi	-400 psi	-12%
Holland Method	3,060 psi	2,830 psi	-230 psi	-8%
			Average	**-7%**
2,200 ft Deep				
Wilson Method	6,730 psi	6,510 psi	-220 psi	-3%
Abel Method	7,370 psi	7,290 psi	-80 psi	-1%
Bieniawski Method	3,910 psi	3,450 psi	-460 psi	-12%
ALPS-Bieniawski Method	3,410 psi	3,010 psi	-400 psi	-12%
Holland Method	3,060 psi	2,830 psi	-230 psi	-8%
			Average	**-7%**

This reduced strength translates to slightly increased rib yielding (sloughage) and increased roof convergence. Figure 18 shows rib yielding predicted by the model. In the figure, rib yielding is limited to the corners of the existing 70-ft by 72-ft pillars (bottom two rows of pillars). In the proposed smaller pillars (top four rows of pillars), yielding occurs in the skin all the way around the pillar. However, the pillar cores are shown to remain competent in all locations, indicating acceptable pillar performance.

Figure 19 shows predicted roof convergence. Figure 21 compares centerline convergence along an entry in the existing mains (Profile B-B') with an entry central to the new mining (Profile C-C'). Profile locations are shown in Figure 19. The figures show that the proposed smaller pillars result in up to a 0.15 inch increase in roof convergence in the intersections, or about a 15% increase, compared to historical conditions in Main West. This reflects the increased rib yielding around the smaller pillars.

Based on modeled convergence, ground conditions are expected to be heavier compared to conditions in the mains across from Panel 9th Left, and only slightly heavier than conditions in the existing Main West entries. This suggests there will be an increased reliance on roof support, particularly under the deeper cover (>1,800 ft). However, convergence is far below the 2.0-inch level associated with roof and rib instability established by the back-analysis model.

The existing 70-ft by 72-ft pillars in Main West have performed reliably over the long-term (several years) and are considered a successful design, including under the deepest 2,200-ft cover. Some deterioration has occurred locally in Main West. This is attributed to the same historical mining practices responsible for poor roof conditions in the 1st North panel, namely, leaving variable top coal, mining extra wide entries to accommodate the continuous haulage system, using short bolts, and only bolting with 5 bolts per row. Also, where angled crosscuts were mined, disintegration of the sharp pillar corners produced spans 10 to 20 ft wider than normal. In spite of some localized time-dependent roof falls, the 70-ft by 72-ft pillar design has demonstrated it success for ensuring long-term stability when properly mined. Given the reliability of the existing mains pillars and the results of modeling, the narrower 60-ft by 72-ft pillars are not expected to substantially increase geotechnical risk for short-term mining.

Model results indicate that increasing crosscut spacing does not significantly improve conditions. Figures 22 through 24 show stress, yielding, and convergence for a 60-ft by 80-ft pillar, representing about a 20-ft increase in pillar length (between crosscuts) over the proposed design. The increased length only incrementally reduces rib yielding, corresponding to a modest decrease in entry convergence of about 2% to 4%, as shown by comparison of convergence profiles in Figure 21.

Please contact me to discuss these results, at your convenience, or if you have any questions.

Sincerely,

Leo Gilbride
Principal
[redacted]

LG/smvf
Attachments(24): Figures 1–24

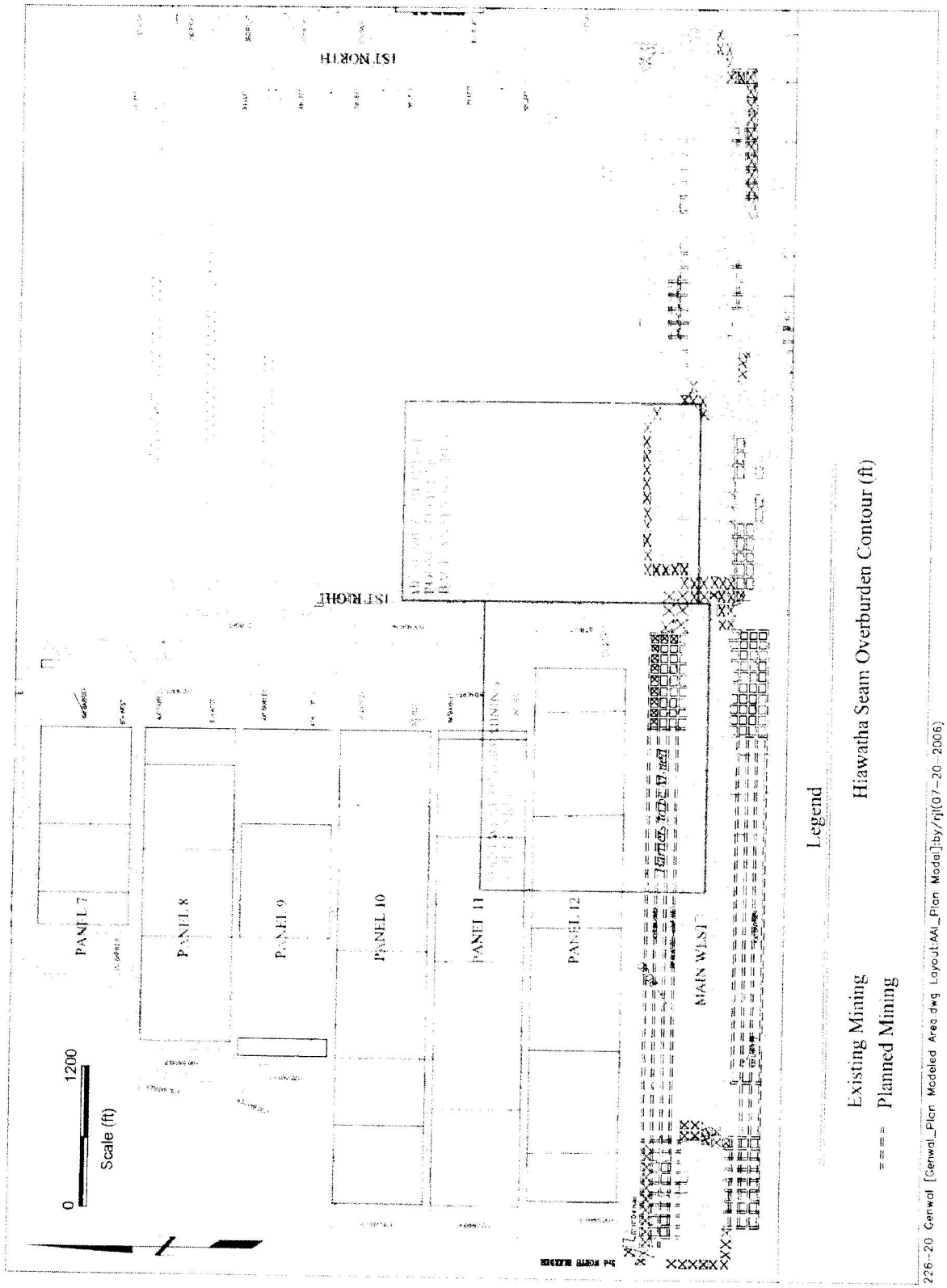


Figure 1. Main West Location Map Showing Existing and Future Mining and Modeled Areas

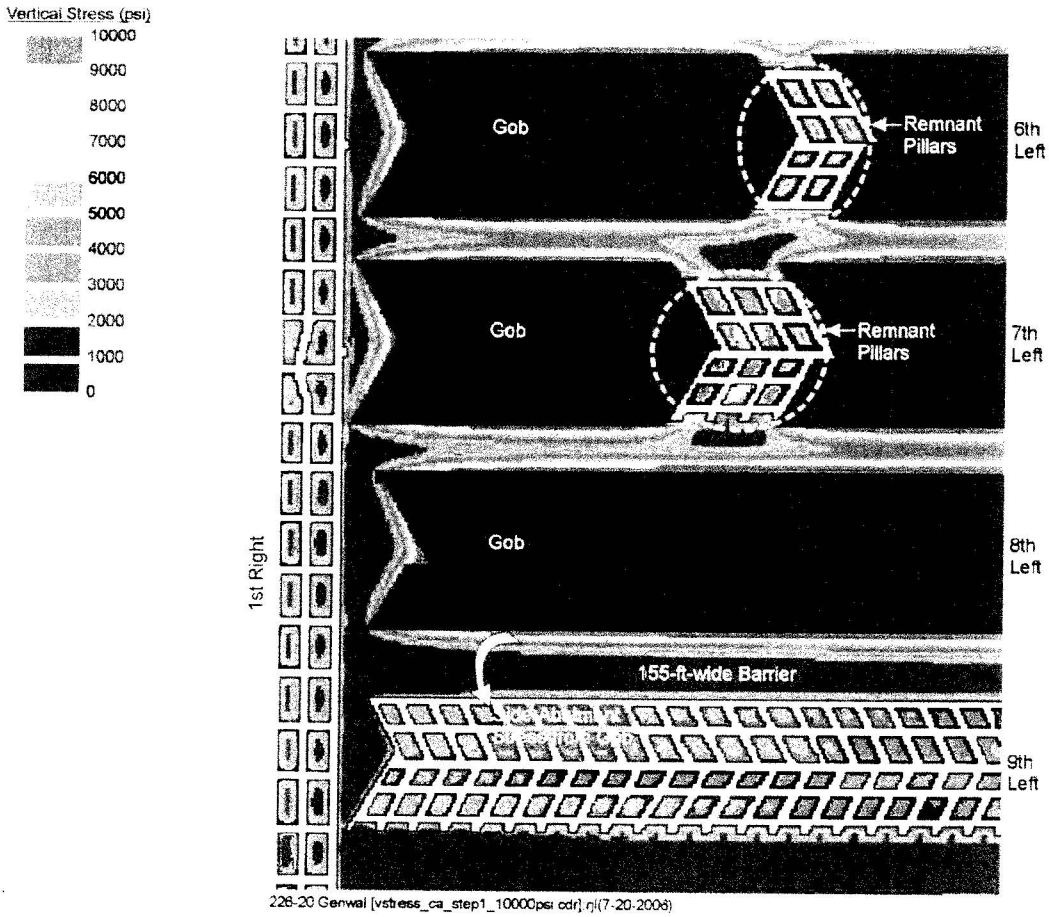


Figure 2. **Modeled Vertical Stress—Primary Mining Completed in Panel 9th Left—1st North**

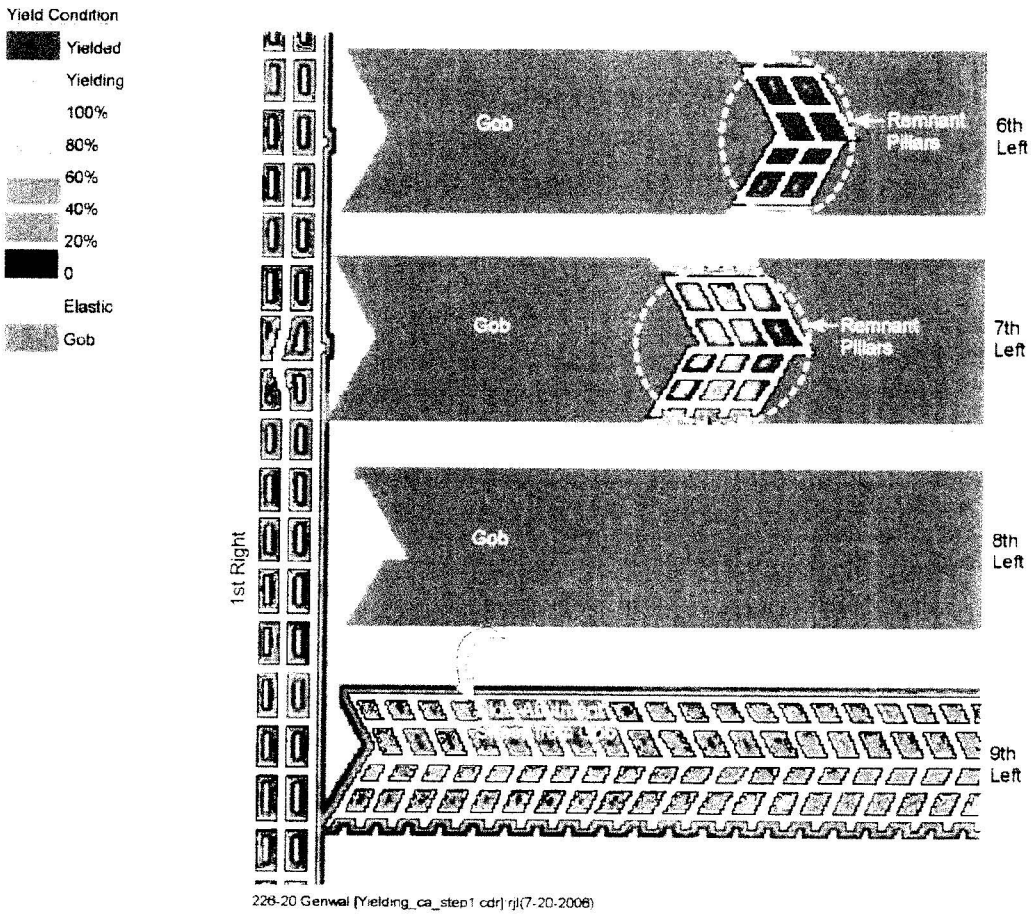


Figure 3. **Modeled Coal Yielding—Primary Mining Completed in Panel 9th Left—1st North**

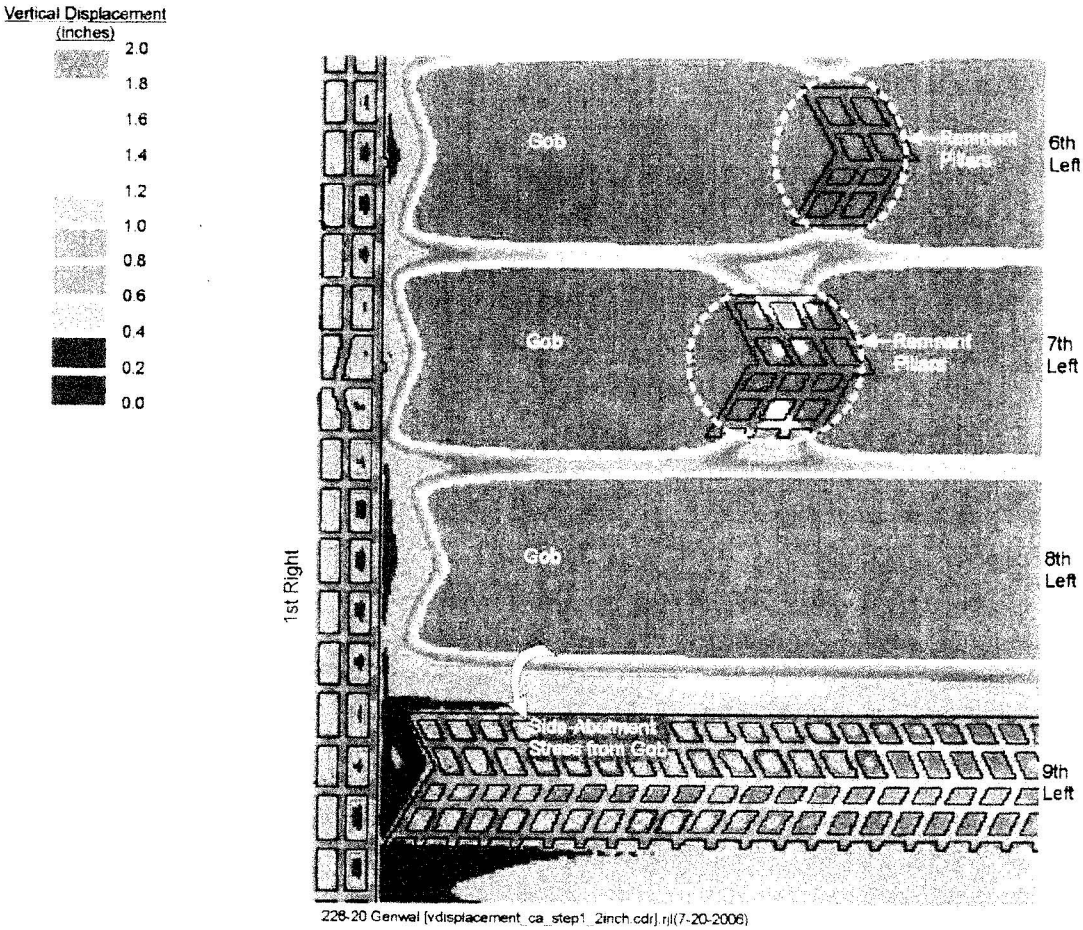


Figure 4. **Modeled Roof-to-Floor Convergence—Primary Mining Completed in Panel 9th Left—1st North**

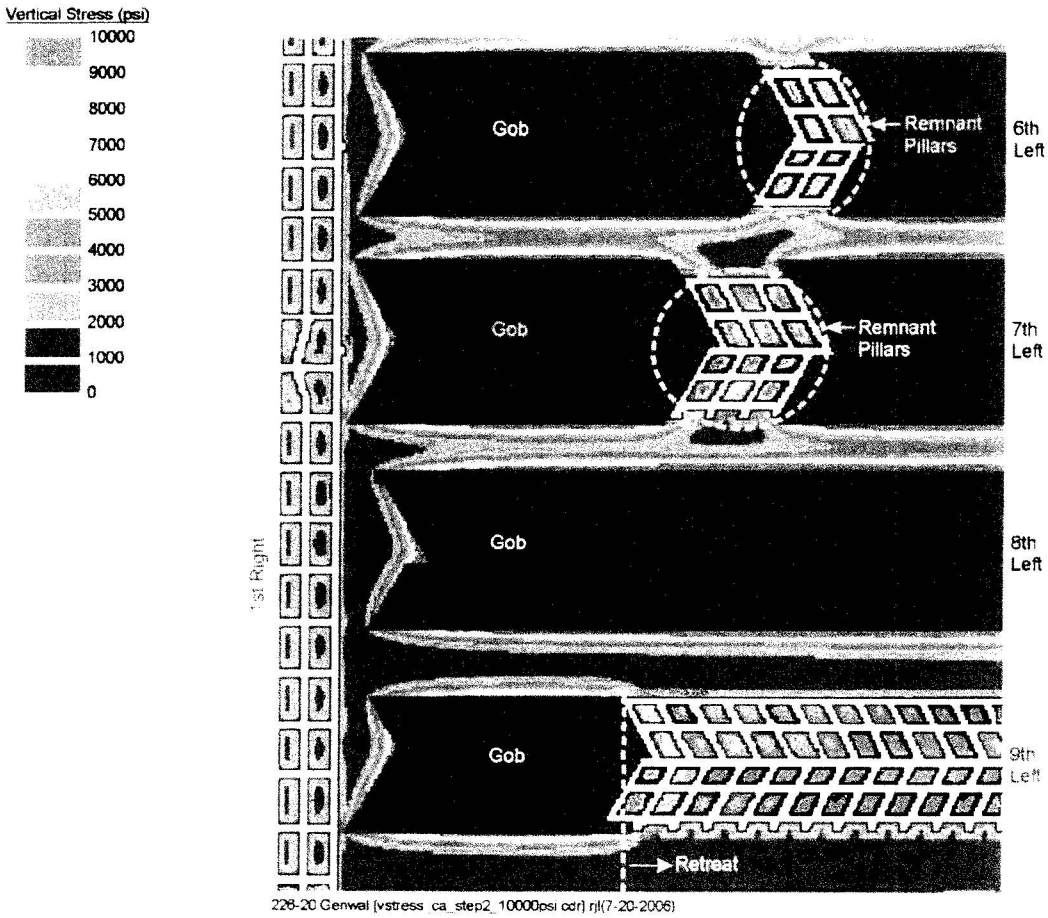


Figure 5. Modeled Vertical Stress—Partial Retreat in Panel 9th Left—1st North

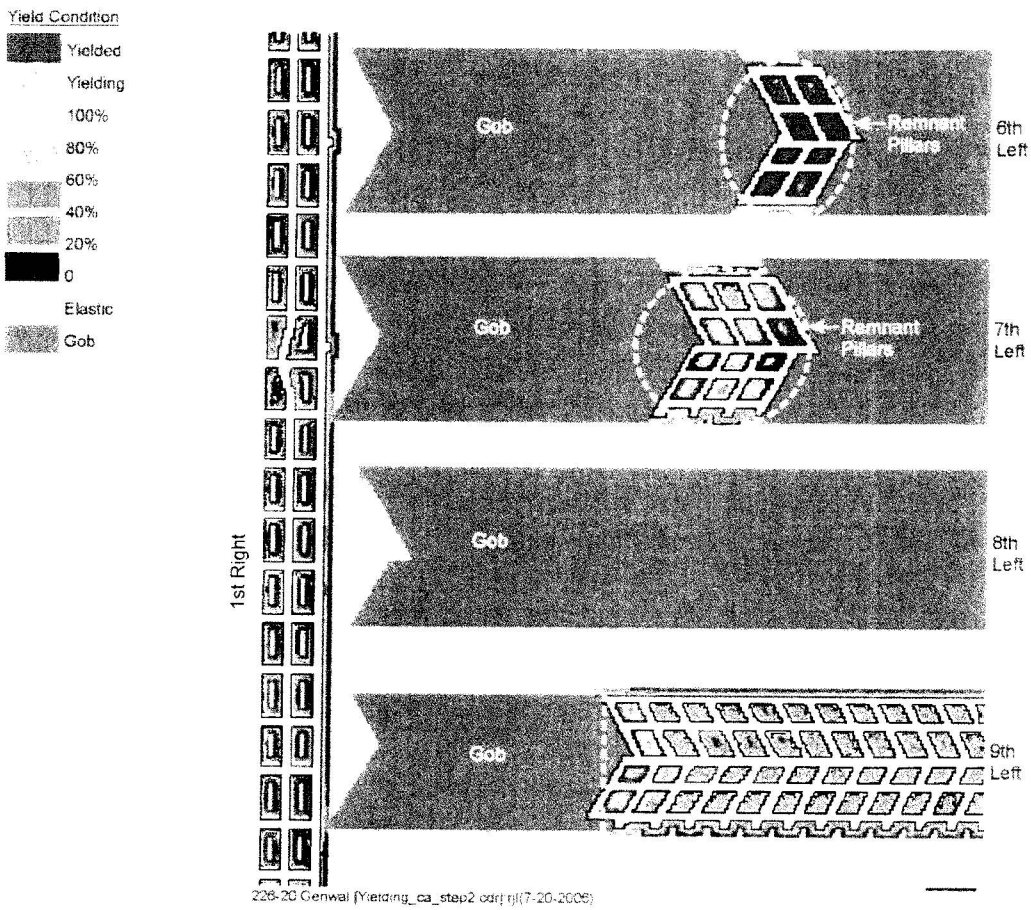


Figure 6. Modeled Coal Yielding—Partial Retreat in Panel 9th Left—1st North

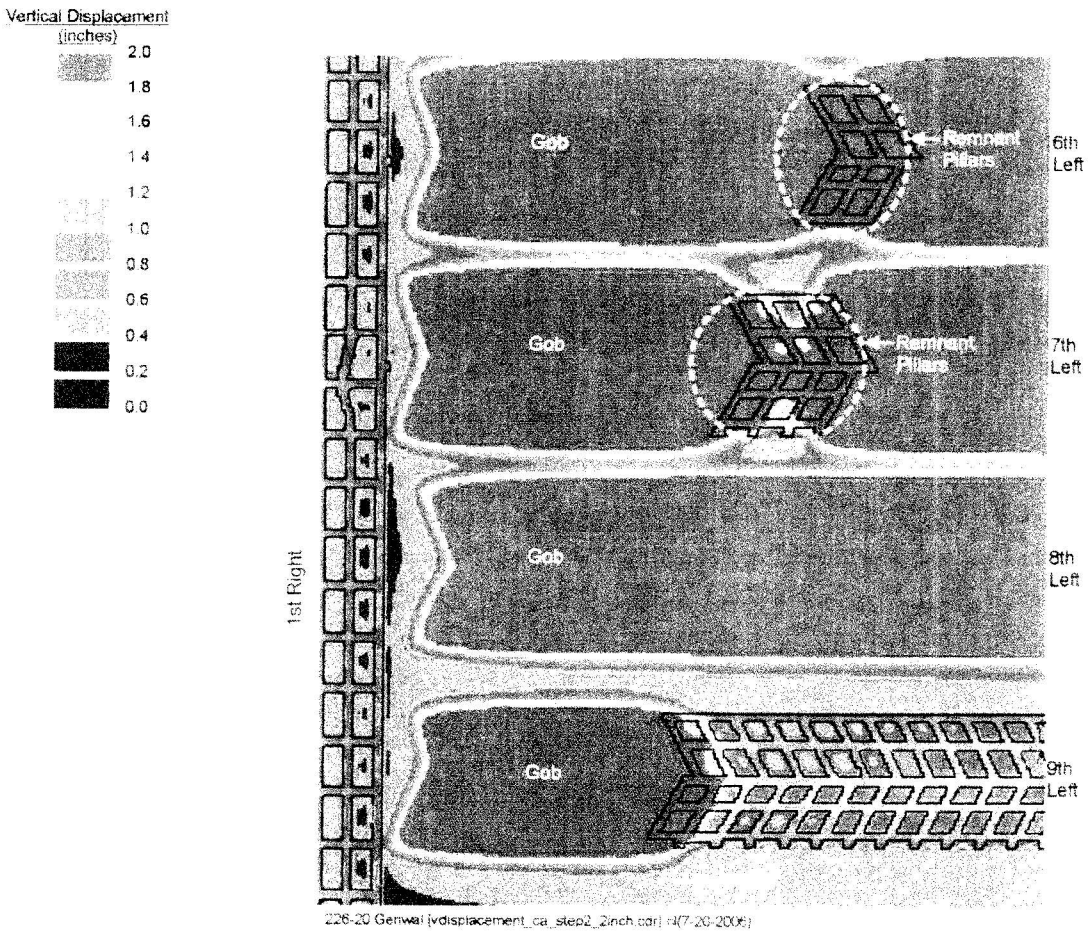


Figure 7. **Modeled Roof-to-Floor Convergence—Partial Retreat in Panel 9th Left—1st North**

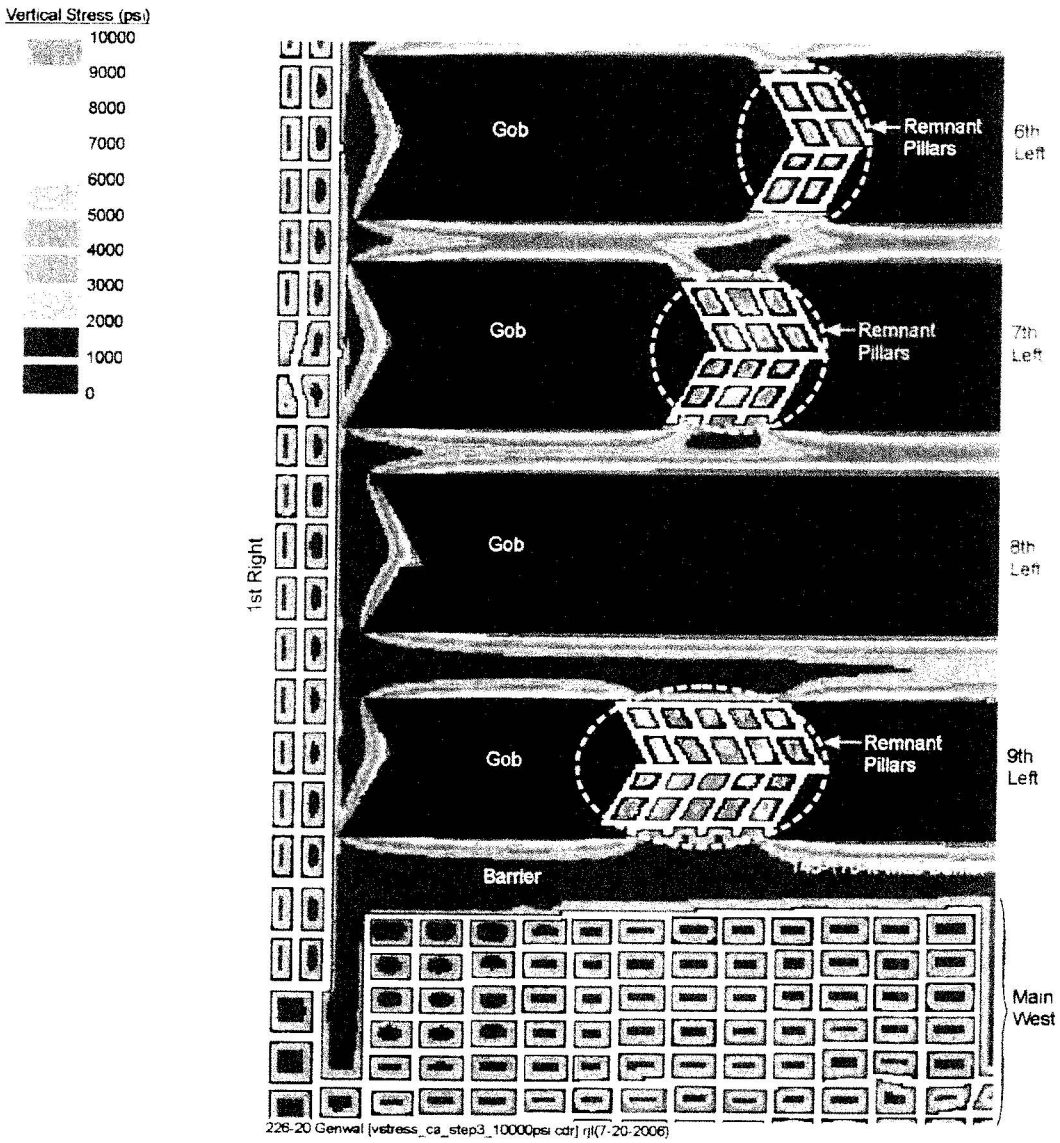


Figure 8. Modeled Vertical Stress—Retreat Completed in Panel 9th Left—1st North

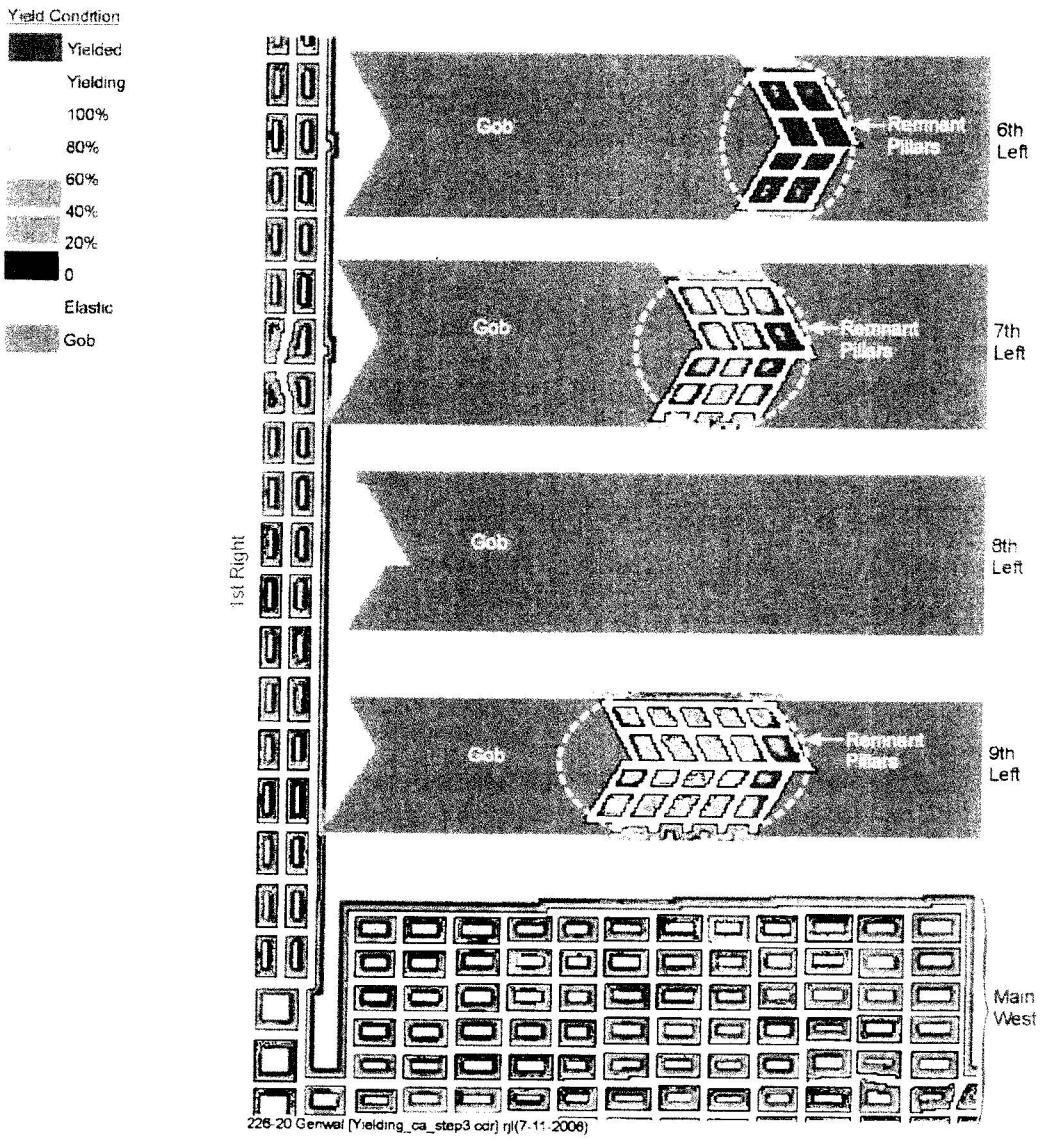


Figure 9. Modeled Coal Yielding—Retreat Completed in Panel 9th Left—1st North

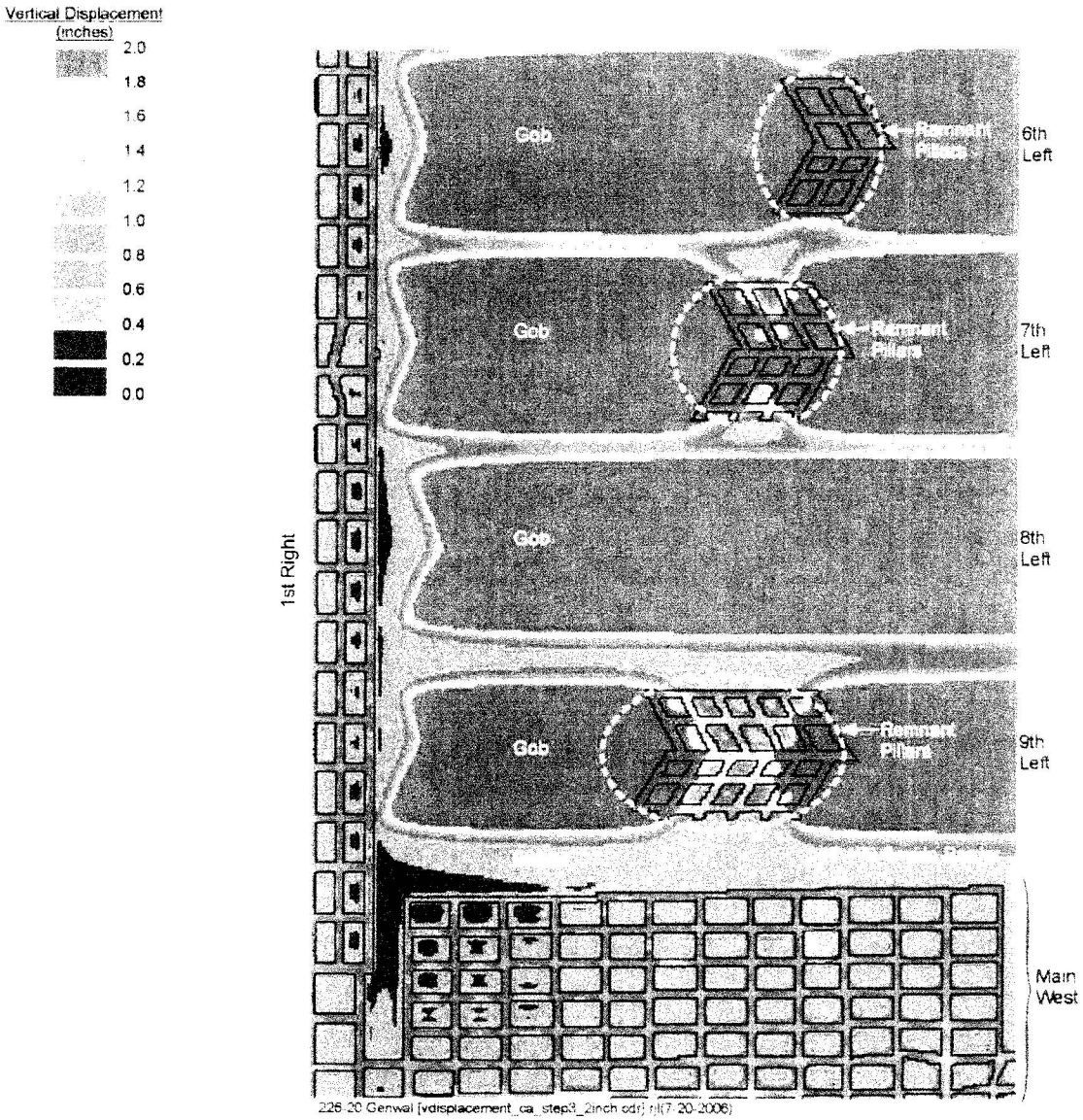


Figure 10. Modeled Roof-to-Floor Convergence—Retreat Completed in Panel 9th Left—1st North

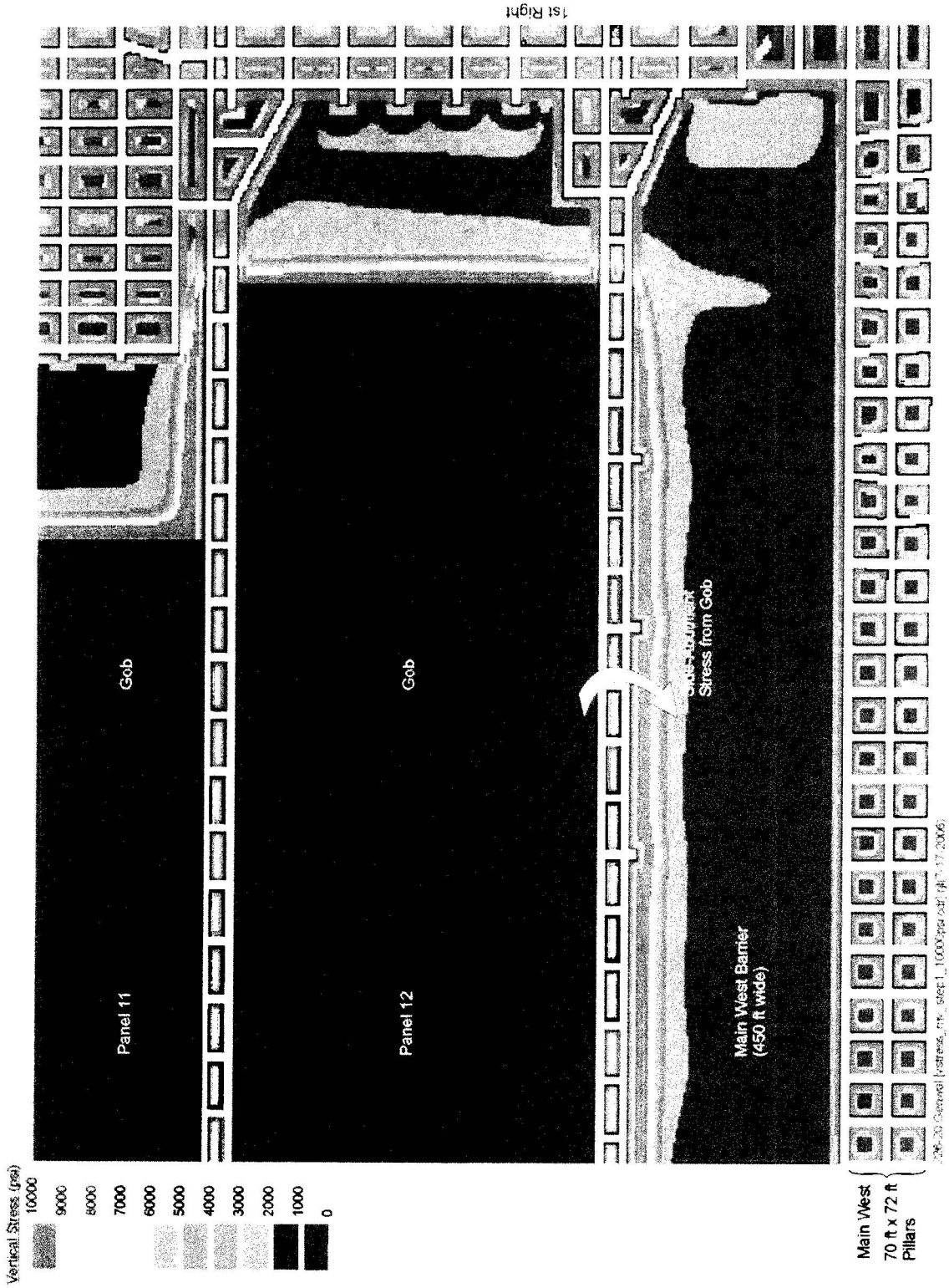


Figure 11. Modeled Vertical Stress—Current Conditions in Main West Barrier

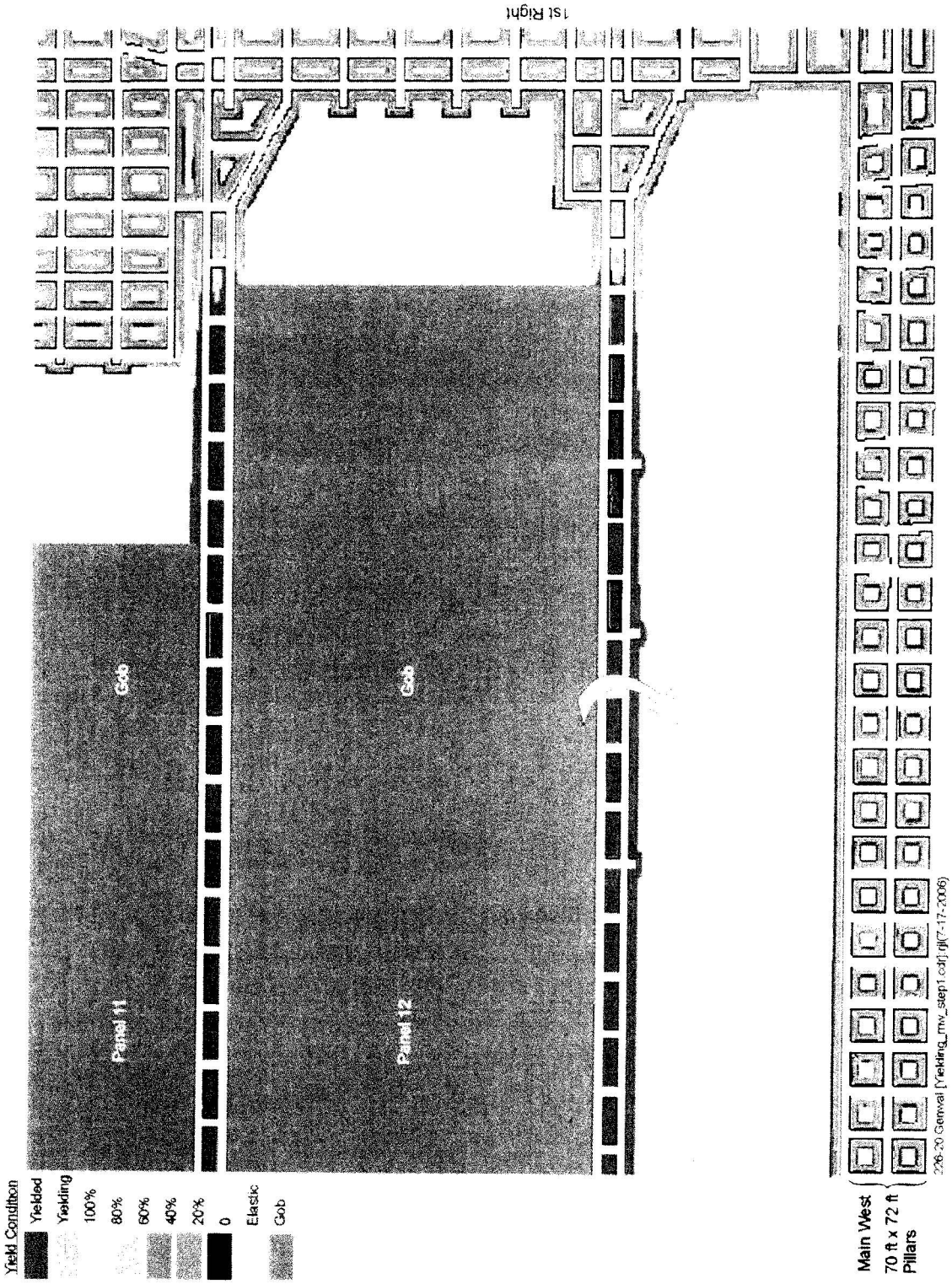


Figure 12. Modeled Coal Yielding—Current Conditions in Main West Barrier

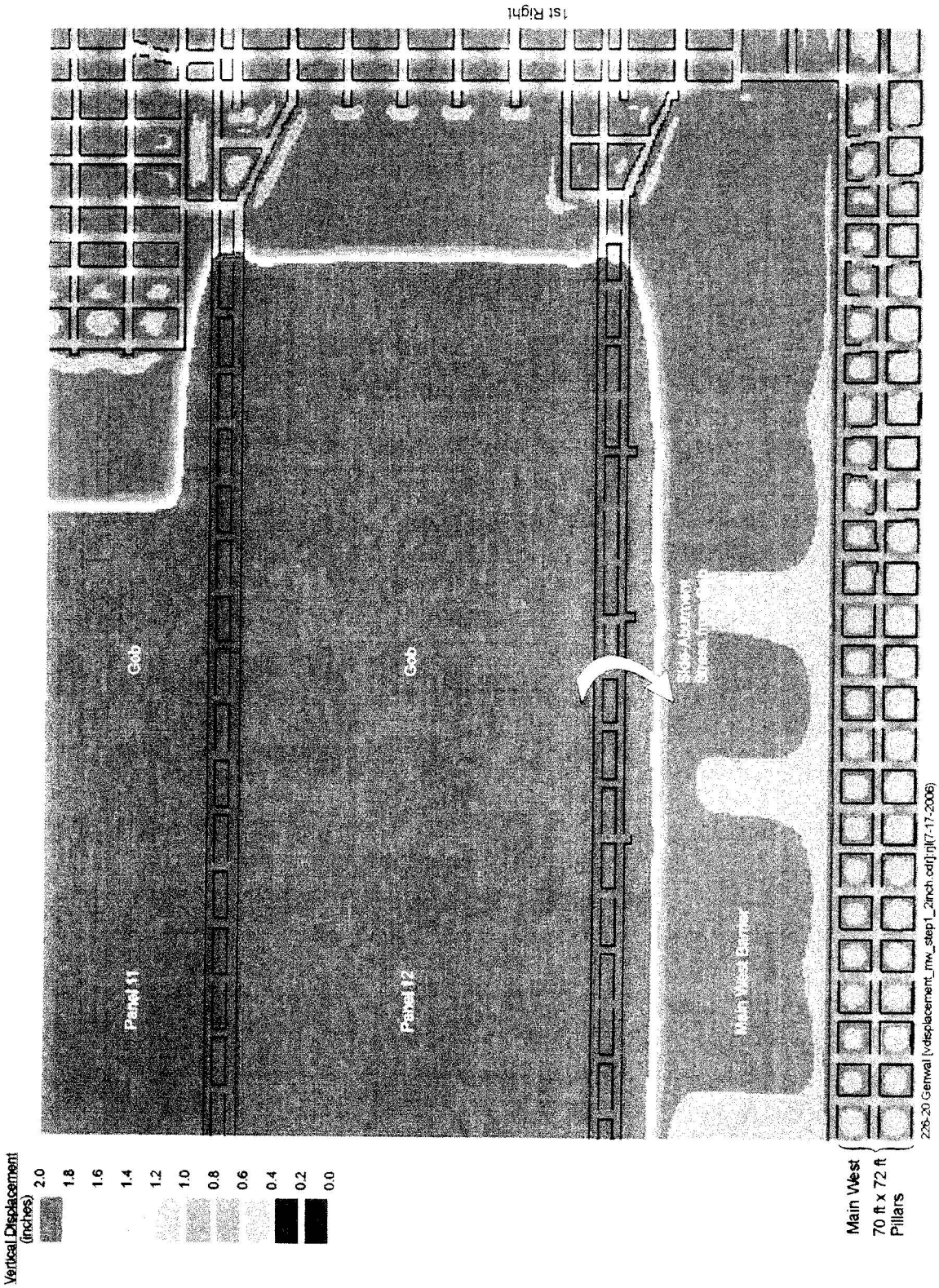


Figure 13. Modeled Roof-to-Floor Convergence—Current Conditions in Main West Barrier

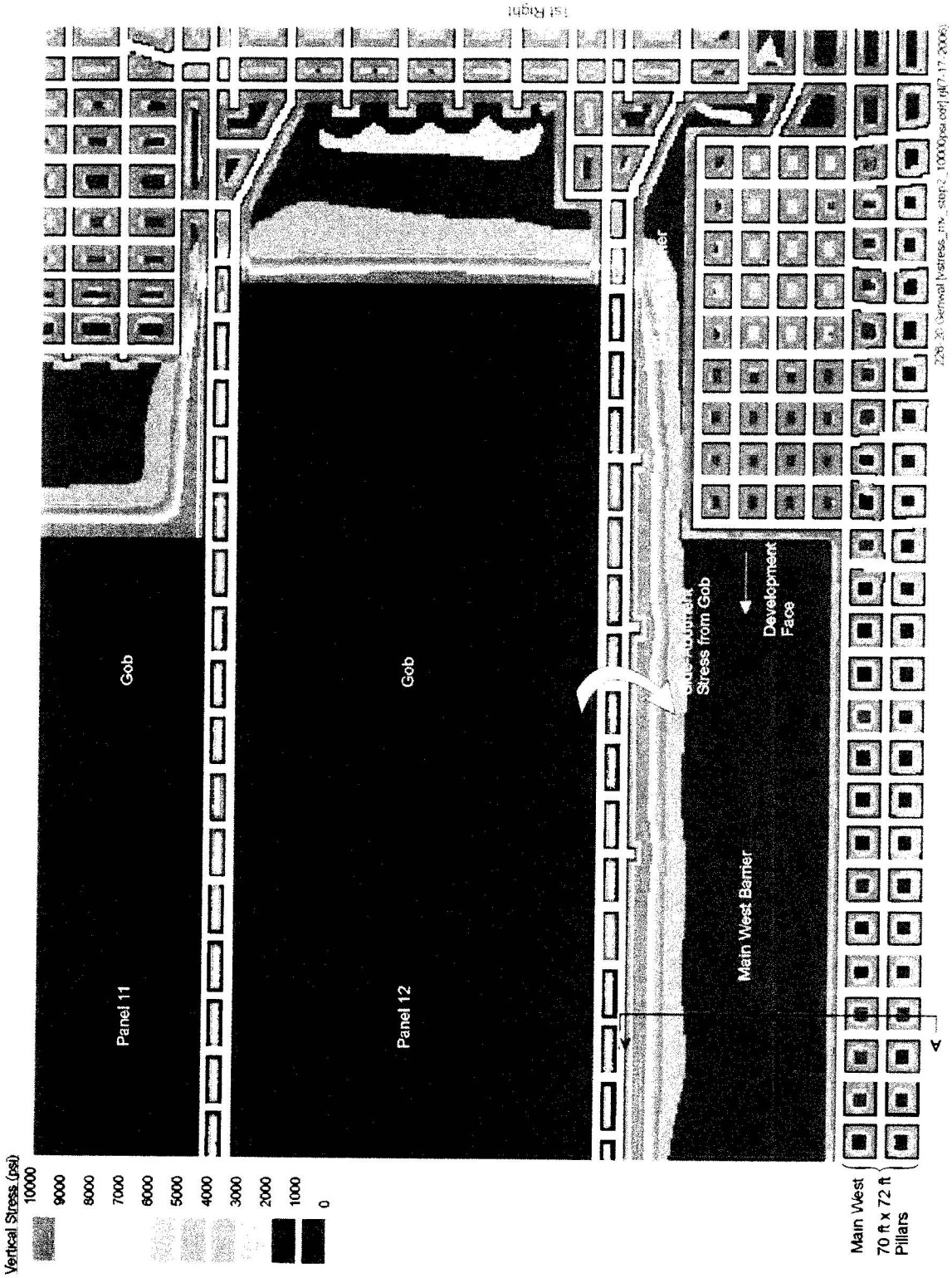


Figure 14. Modeled Vertical Stress—Partial Mining in Main West Barrier

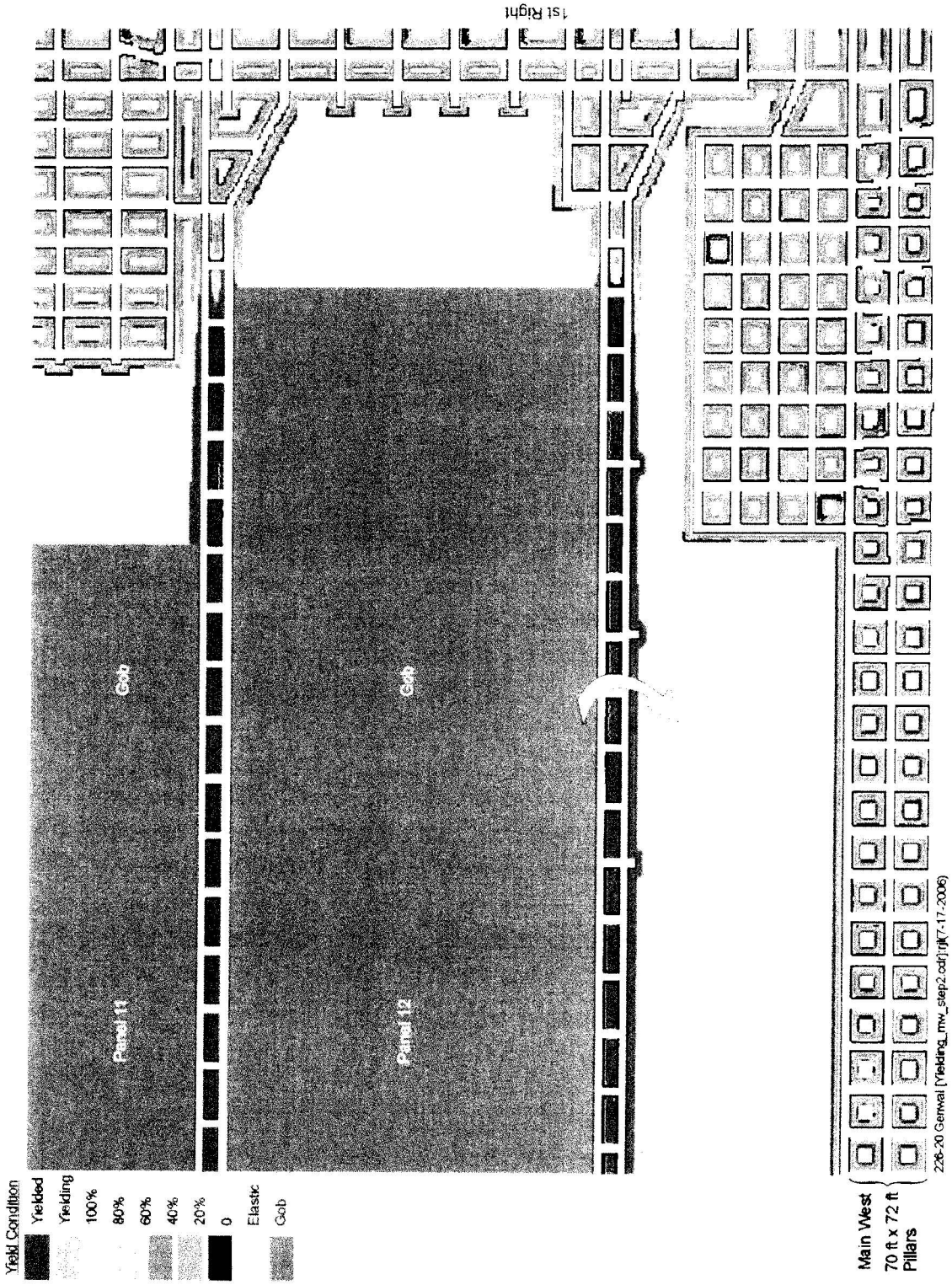


Figure 15. Modeled Coal Yielding—Partial Mining in Main West Barrier

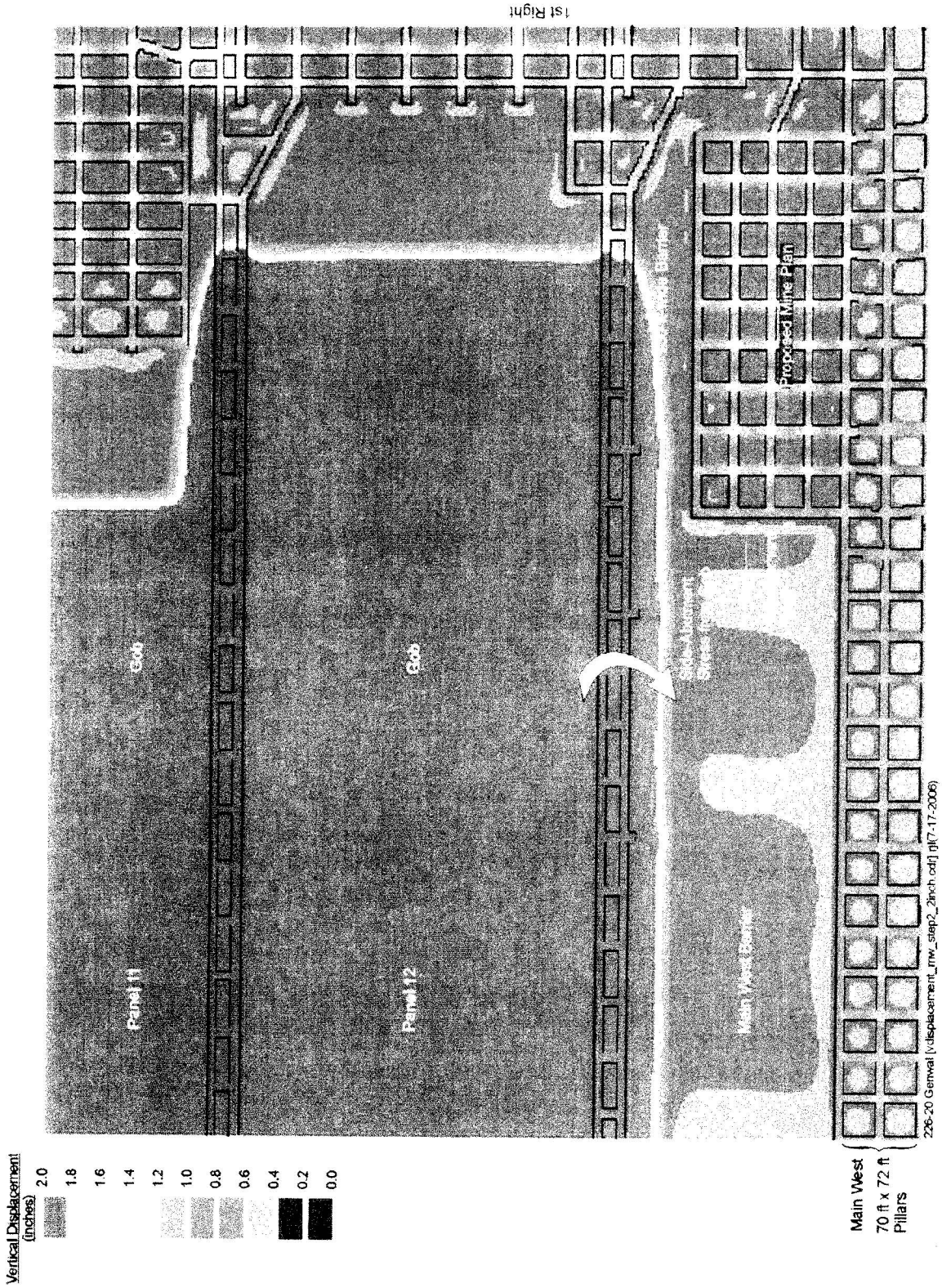


Figure 16. Modeled Roof-to-Floor Convergence—Partial Mining in Main West Barrier

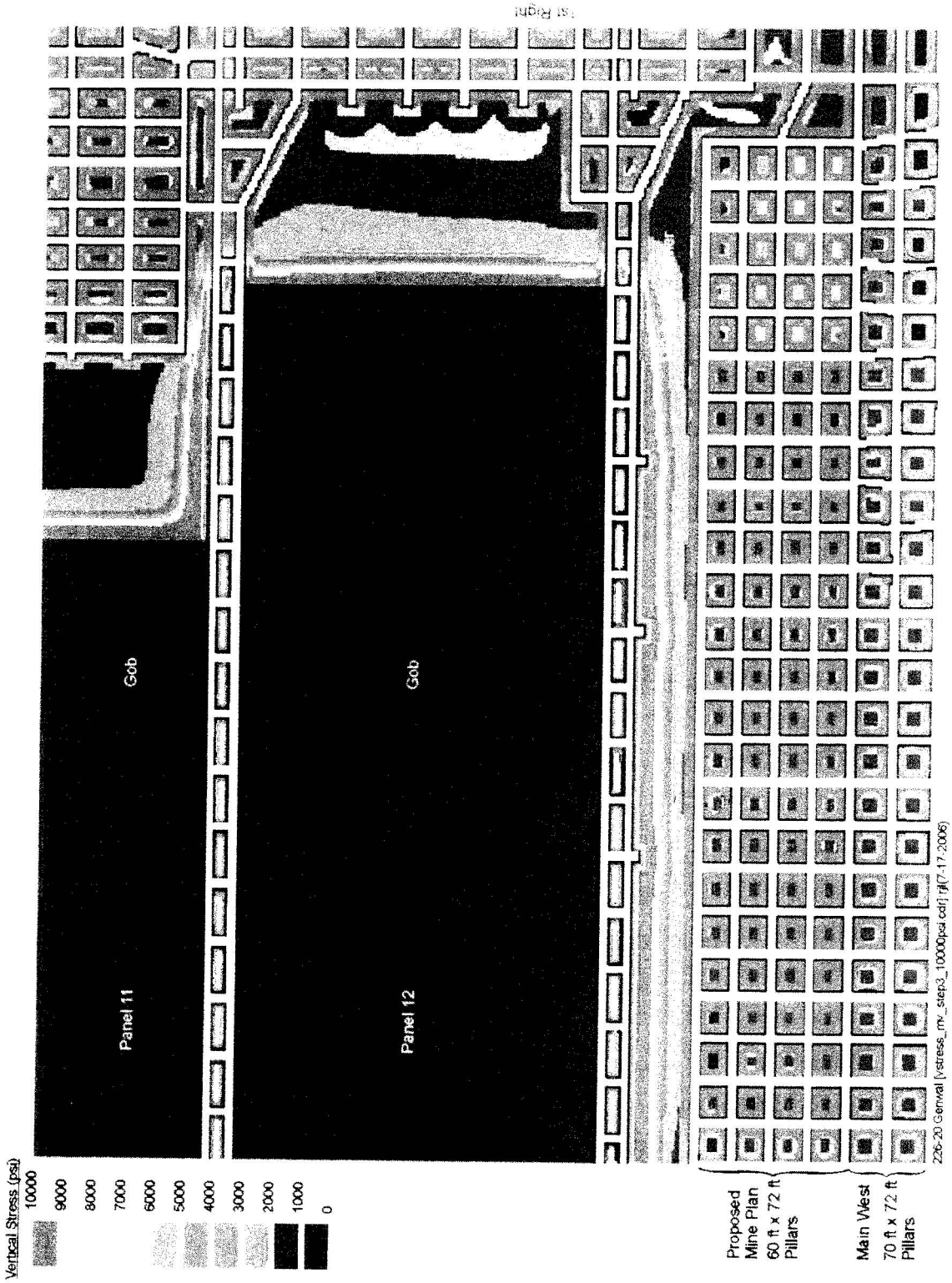


Figure 17. Modeled Vertical Stress—Mining Completed in Main West Barrier

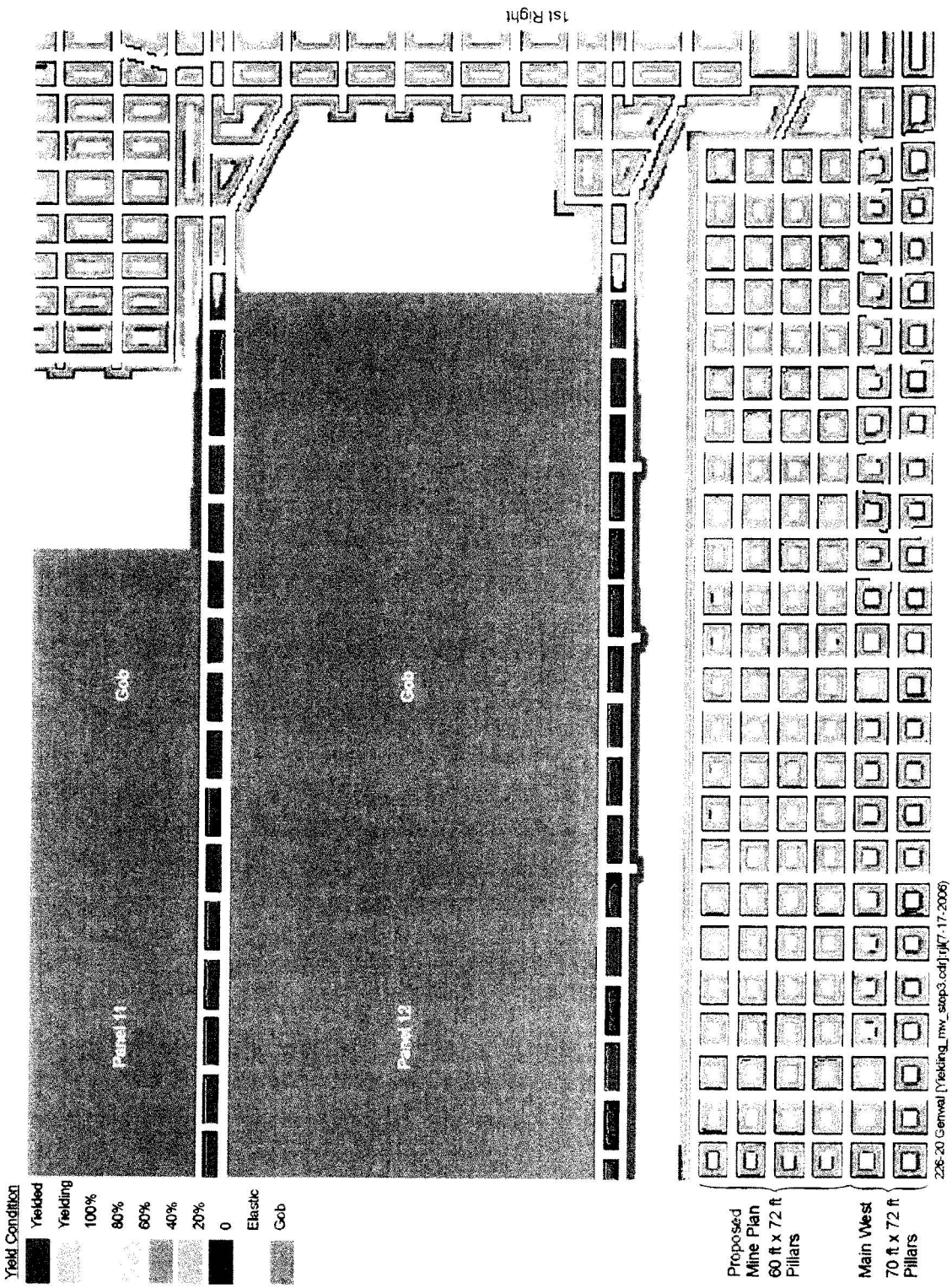


Figure 18. Modeled Coal Yielding—Mining Completed in Main West Barrier

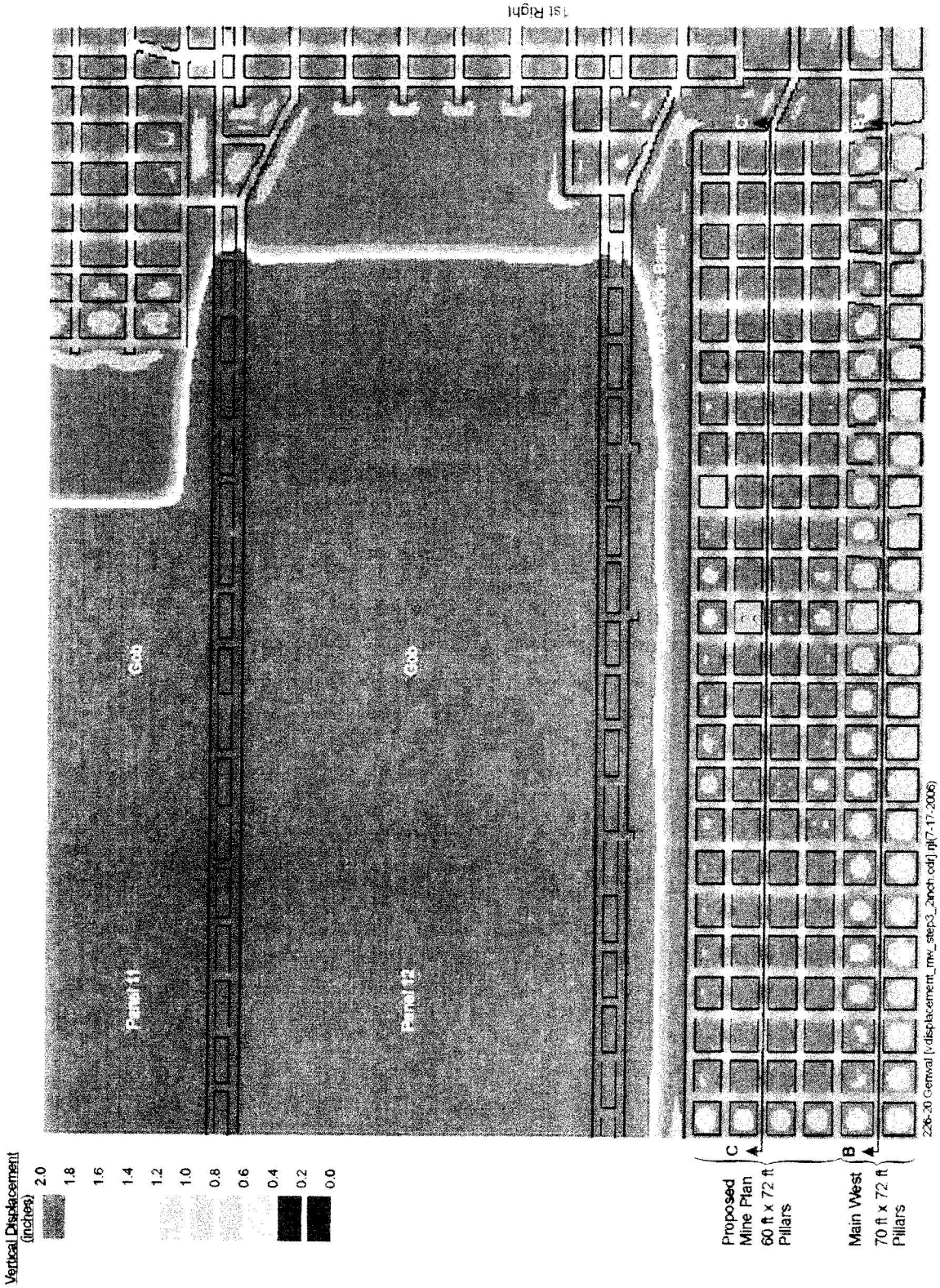


Figure 19. Modeled Roof-to-Floor Convergence—Mining Completed in Main West Barrier

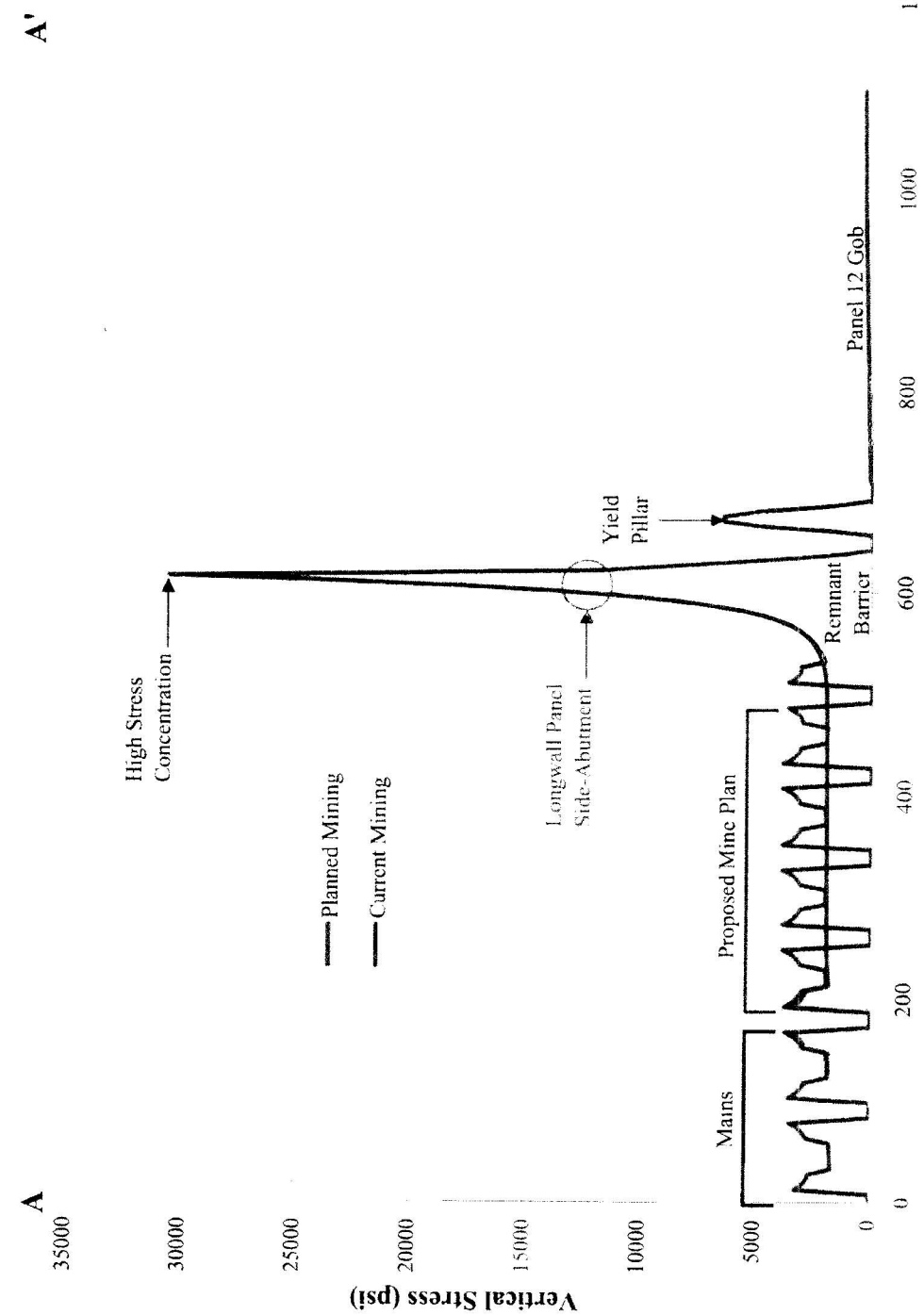


Figure 20. Modeled Vertical Stress Profiles Across Main West Barrier—Profile A-A' *(profile location shown in Figure 14)*

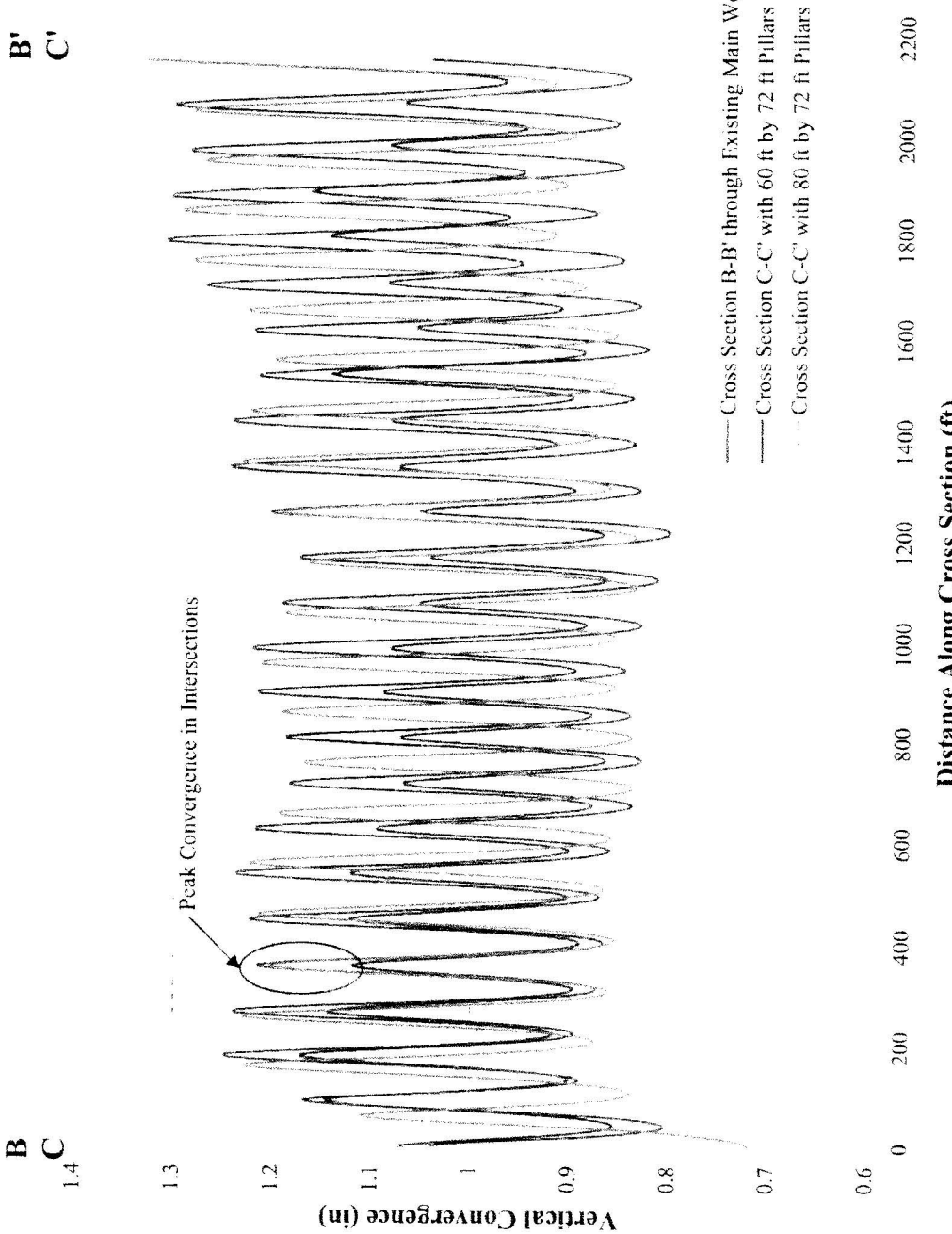


Figure 21. Modeled Roof-to-Floor Convergence Profiles Along Main West Entries—Profiles B-B' and C-C' *(profile locations shown in Figure 19)*

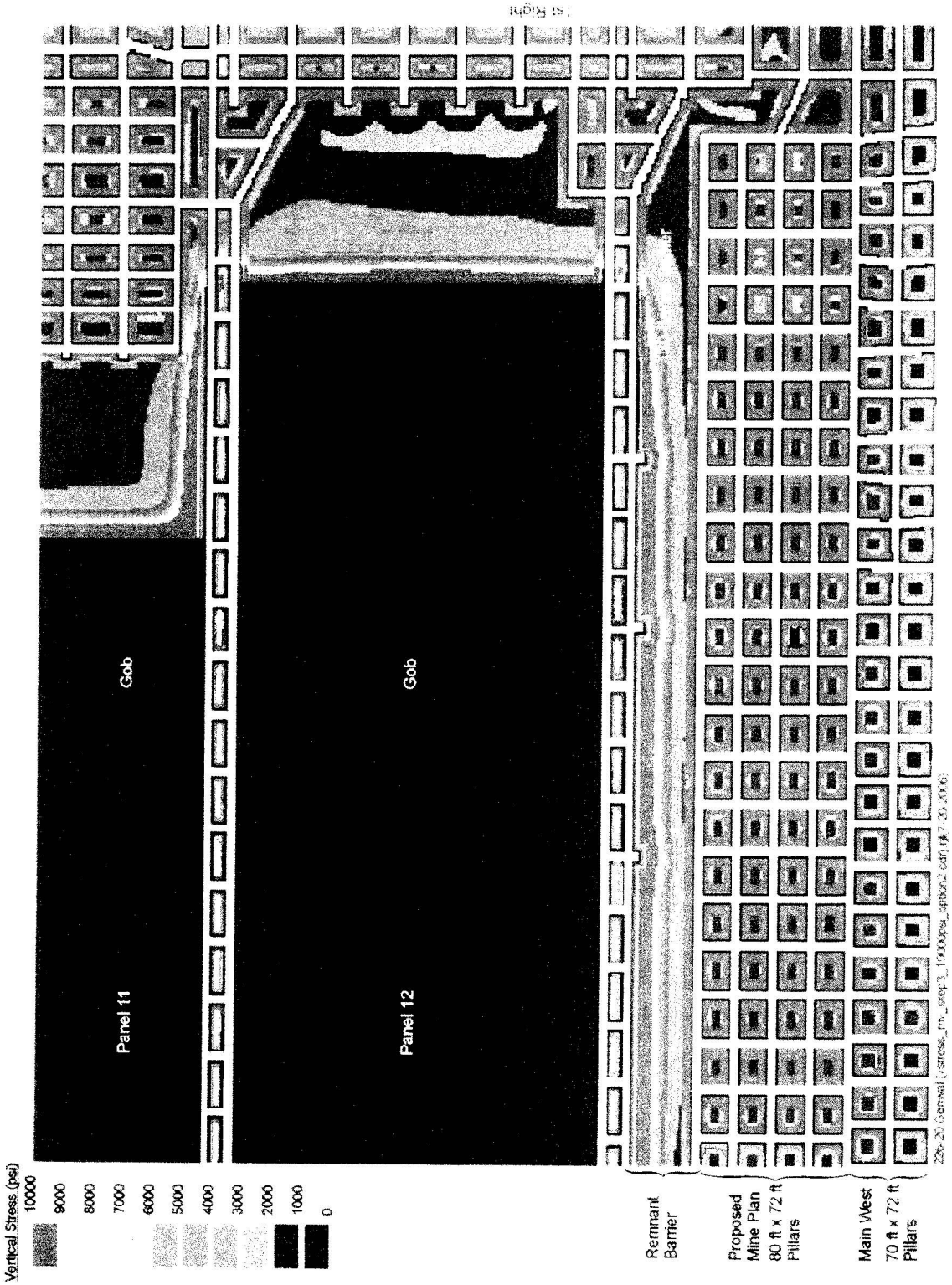


Figure 22. Modeled Vertical Stress—Main West Barrier Mining with 60-ft by 80-ft Pillars

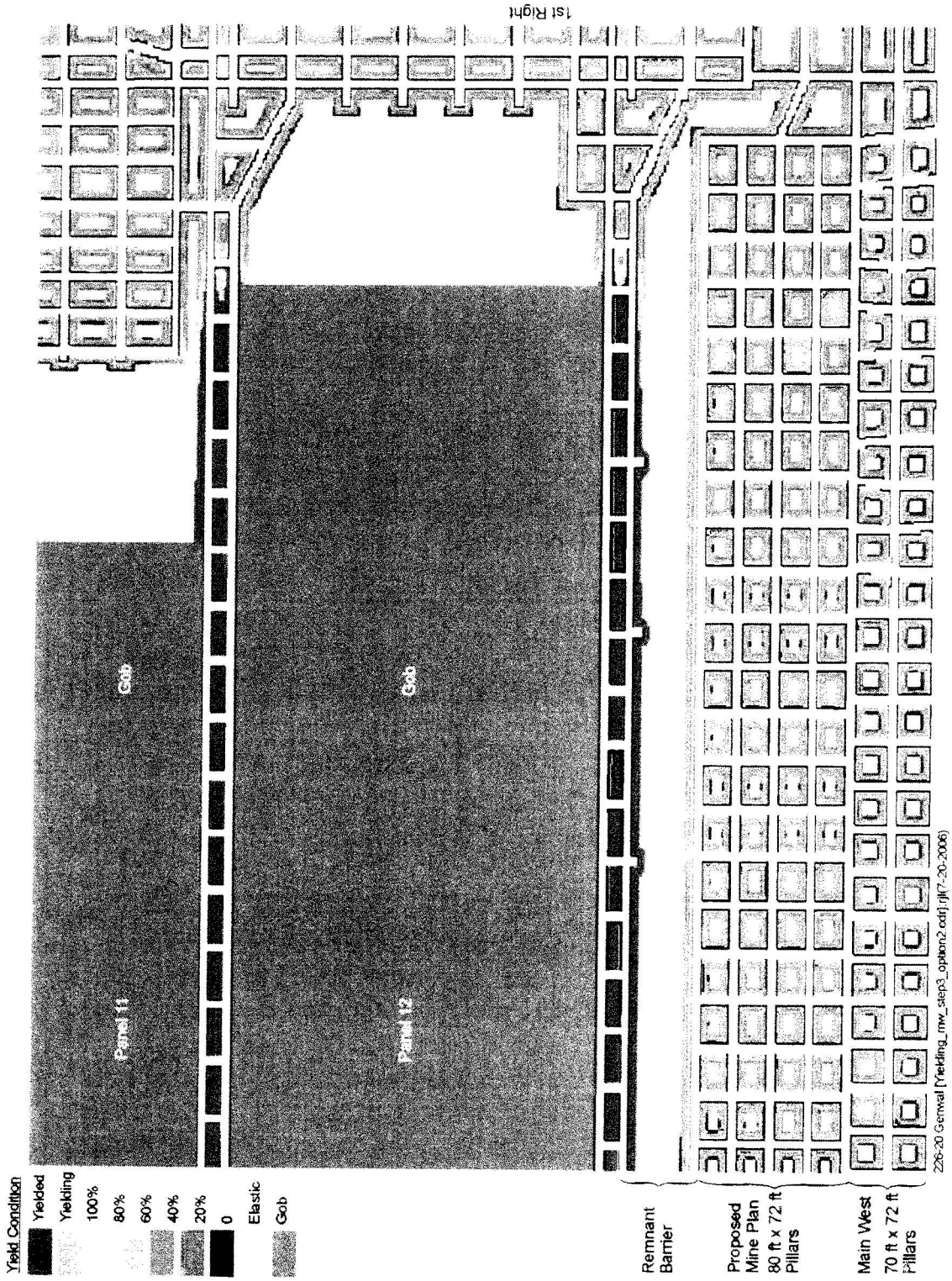


Figure 23. Modeled Coal Yielding—Main West Barrier with 60-ft by 80-ft Pillars

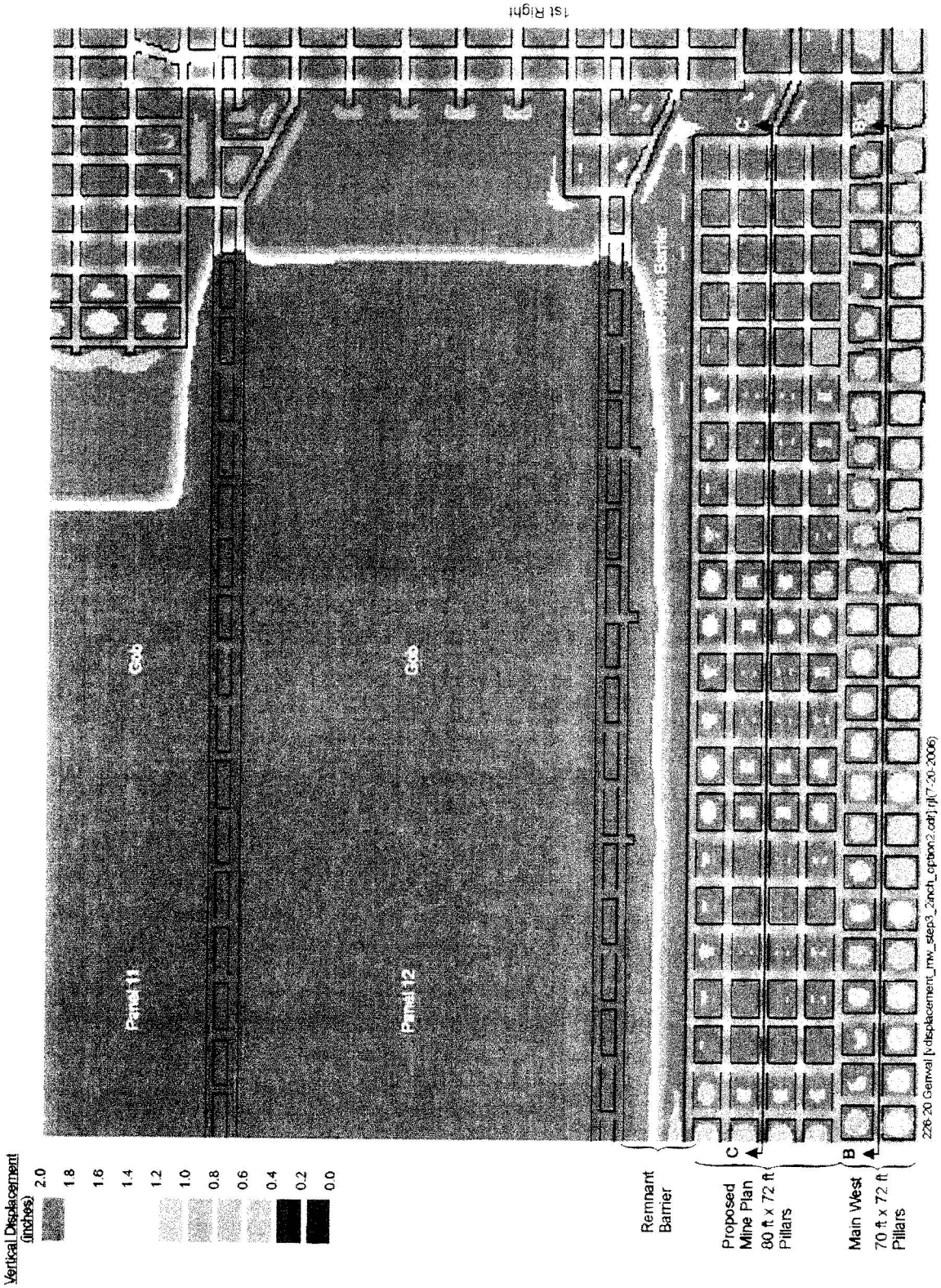
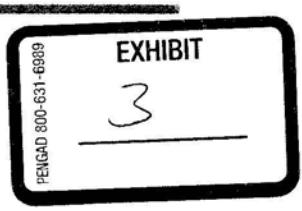


Figure 24. Modeled Roof-to-Floor Convergence—Main West Barrier with 60 ft by 80 ft Pillars

Laine Adair - (226-30) GENWAL Main West Retreat Analysis--Preliminary Results



From: "Leo Gilbride" <[redacted]>
To: "Laine Adair" <[redacted]>
Date: 8/9/2006 12:45 PM
Subject: (226-30) GENWAL Main West Retreat Analysis--Preliminary Results
CC: "AAI Archive" <[redacted]>

Laine,

I have prepared this email to summarize our preliminary analytical results for the proposed retreat mining sequence in the Main West barriers at GENWAL. We analyzed ground conditions using (1) the NIOSH ARMPS empirical design method and (2) the same LAMODEL stress and convergence model used in our Jul-20, 2006 analysis. Figure 1 shows the modeled areas.

ARMPS Modeling

The ARMPS method is an empirical design method developed by NIOSH based on 250 pillar retreat case histories. The database contains numerous cases representing ground conditions in the western U.S. and mining depths up to 2,000 ft, which makes the method relevant for conditions at GENWAL. The method computes a Stability Factor (SF) based on the ratio of pillar strength to pillar load averaged over the pillars within the active mining zone (near the edge of the gob). Lower SFs are supposed to indicate lower safety margins. Figure 2 plots the SFs as a function of mining depth for all the ARMPS case histories. The plot distinguishes between "satisfactory" and "unsatisfactory" case histories, where "unsatisfactory" case histories involved the following types of ground failures: excessive squeezing, bumps, and/or roof failure. The historical retreat panels in the 1st North Left block at GENWAL are computed to have a SF of 0.37 at a depth of 1,750 ft. Figure 3a shows the ARMPS model geometry used to compute the SF. The ARMPS database shows that industry experience is mixed for mines reporting similar SFs (0.16 to 1.05) at comparable depths (1,500 to 2,000 ft). Of these cases, slightly more than half were successful, while the remainder encountered ground control problems.

A SF of 0.53 is computed for the proposed retreat sequence in the Main West barriers under the deepest cover (Figure 3b). The ARMPS method recommends basing the depth of cover on sustained cover, and not on peak cover if the peak cover occurs over a limited area. Over Main West, 2,000 ft is the maximum sustained cover that is appropriate for the ARMPS calculation. Although a narrow ridge increases cover to 2,200 ft, this is too limited an area to significantly affect abutment loads in the ARMPS calculation. Elsewhere in the barriers and mains, a higher SF is computed. A SF of 0.67 is computed for pillaring east of the existing Main West seals (XC 118-119).

The ARMPS method recommends designing pillars for a 0.90 SF (for intermediate-strength roof) if site-specific data are not otherwise available. The authors of ARMPS suggest that the method is increasingly conservative at depth and that site-specific experience should be used to establish design SFs whenever possible. At GENWAL good success has been achieved at SFs below 0.90. Retreat conditions in the 1st North Left block were generally successful with a SF of 0.37, suggesting that a SF of about 0.40 is a reasonable lower limit for retreat mining at GENWAL. This is considered a lower limit because occasional problems with peeling top coal were encountered in the 1st North Left block. This required skipping pillars on retreat in some locations. Top coal is currently mined to minimize this

risk and is not expected to be a problem in Main West.

The lowest SF for the proposed retreat sequence in Main West barriers is 0.53 under the deepest cover, which is approximately 43% higher than the "satisfactory" SF of 0.37 for the 1st North Left block. Implications are that the proposed retreat sequence in Main West will be successful in terms of ground control, even under the deepest cover (2,200 ft).

LAMODEL Modeling

The Main West retreat sequence was modeled in 9 steps, as shown in Figures 4 through 30. The model includes the actual variable depth of cover ranging from 1,200 to 2,200 ft, as shown on the map in Figure 1. The figures present modeled (1) vertical stress, (2) coal yielding, and (3) roof-to-floor convergence. Results show that convergence will be less than 2.0 inches in and around the active pillaring sections in the barriers. Results of the 1st North Left back-analysis model, discussed in the Jul-20, 2006 letter, concluded that convergence less than 2.0 inches is indicative of stable roof and pillar conditions in the model. Conclusions from LAMODEL corroborate the ARMPS results, principally that convergence can be adequately controlled with the proposed mine plan and that ground conditions should be generally good on retreat in the barriers, even under the deepest cover (2,200 ft).

The model predicts relatively high convergence during pillaring east of the existing Main West seals (XC 118-119) due to relatively large abutment loads around the wide gob area. This retreat block is approximately 1,400 to 1,600 ft deep. Model results show convergence in excess of 2.0 inches in and around the active pillaring areas, suggesting some risk for accelerated ground deterioration and increased reliance on ground support (i.e., bolts and mesh, and mobile roof support). The amount of convergence and ground squeezing is sensitive to the extraction sequence and the rate of extraction. A constant and relatively rapid rate of pillaring is beneficial for controlling the risk of excessive squeezing and bumping. The overall level of geotechnical risk is not considered excessive given GENWAL's history and favorable ground conditions. The mining plan and pillar layout as proposed are considered viable. The plan affords the contingency to leave occasional pillars for protection during retreat if conditions warrant, thus providing additional control of the geotechnical risk.

We can prepare a letter report to present these results at your discretion. In the meantime, please contact me at any point if you wish to discuss these results and recommendations.

Sincerely,

Leo Gilbride, PE
Principal

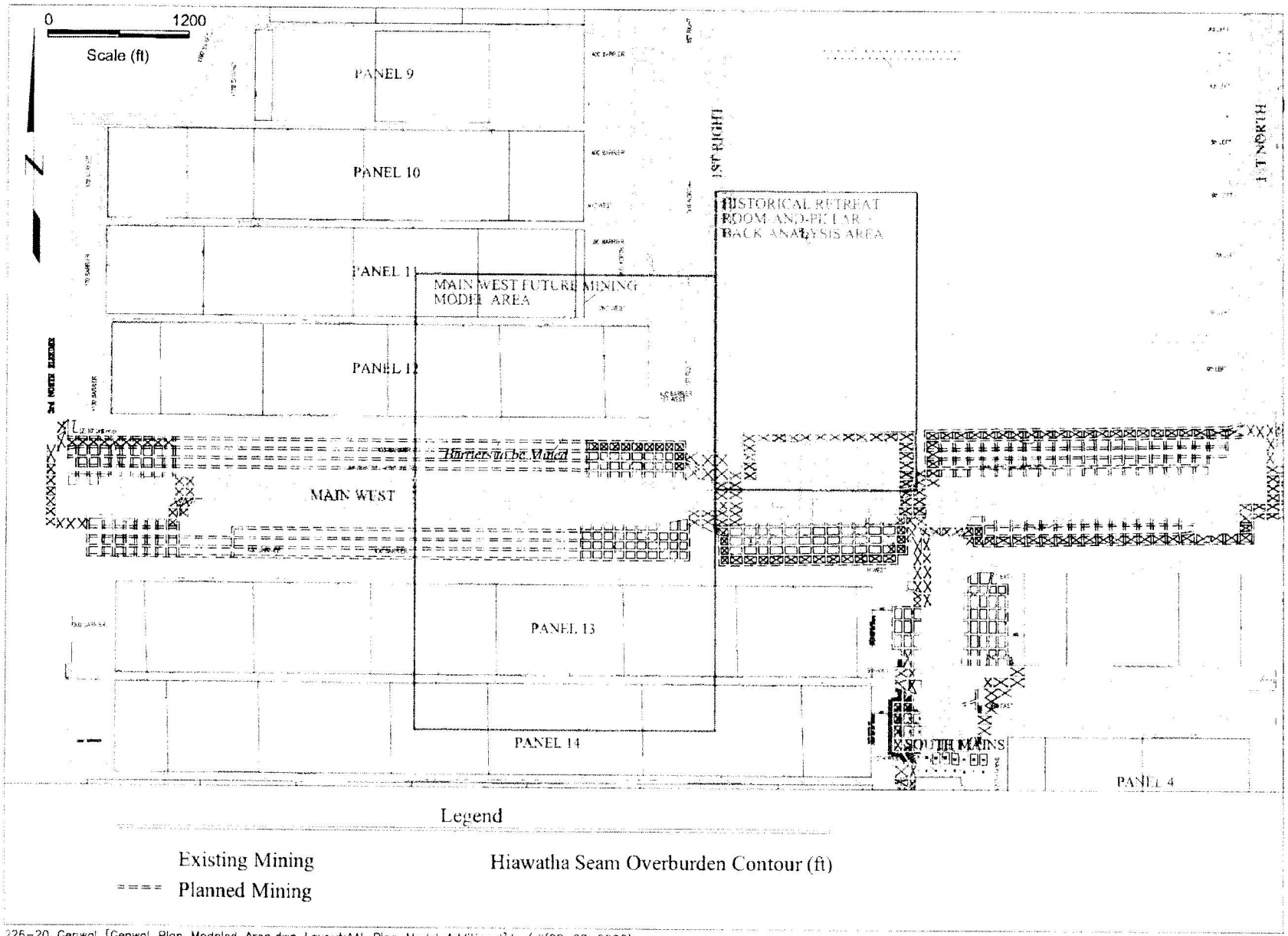


Figure 1. Main West Location Map Showing Exisitng and Future Mining and Modeled Areas

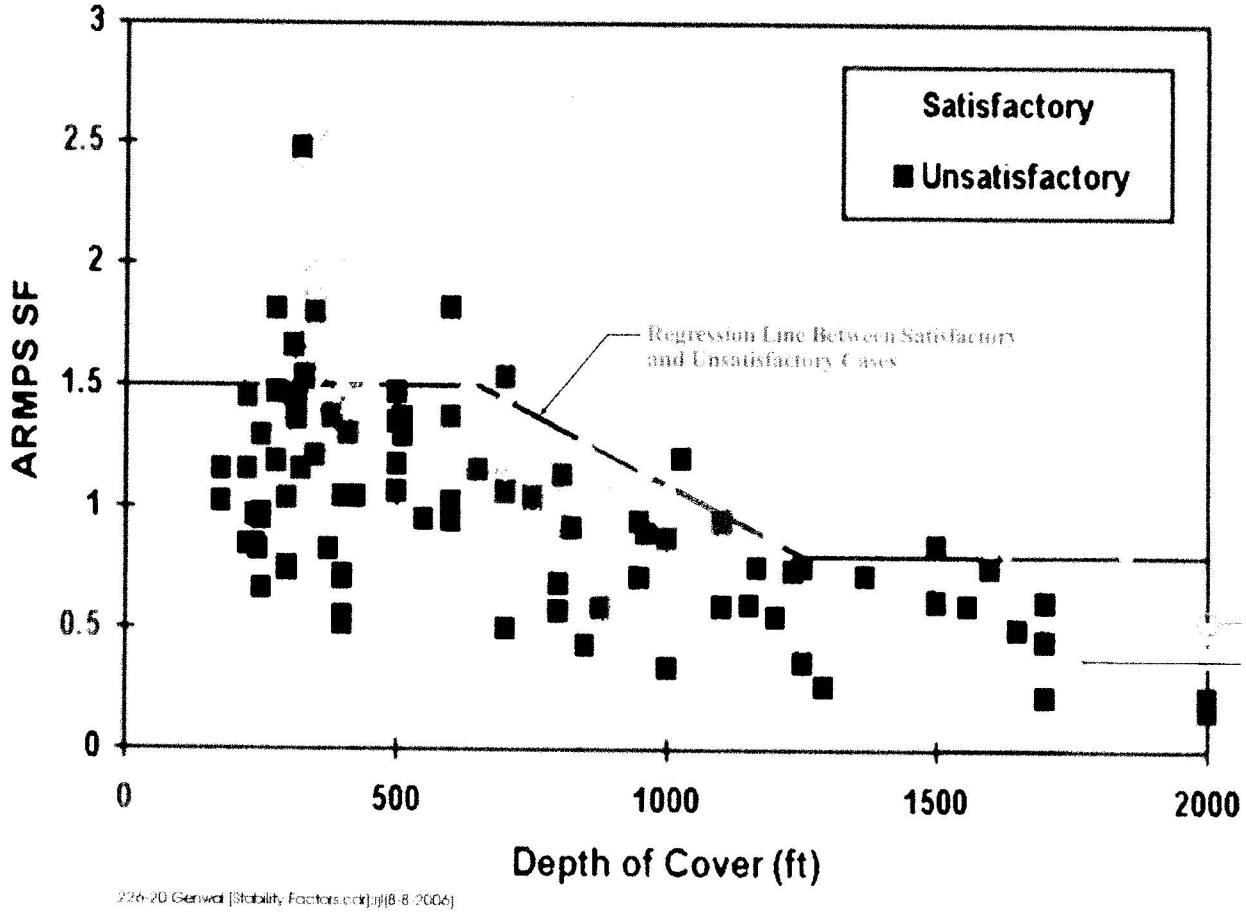
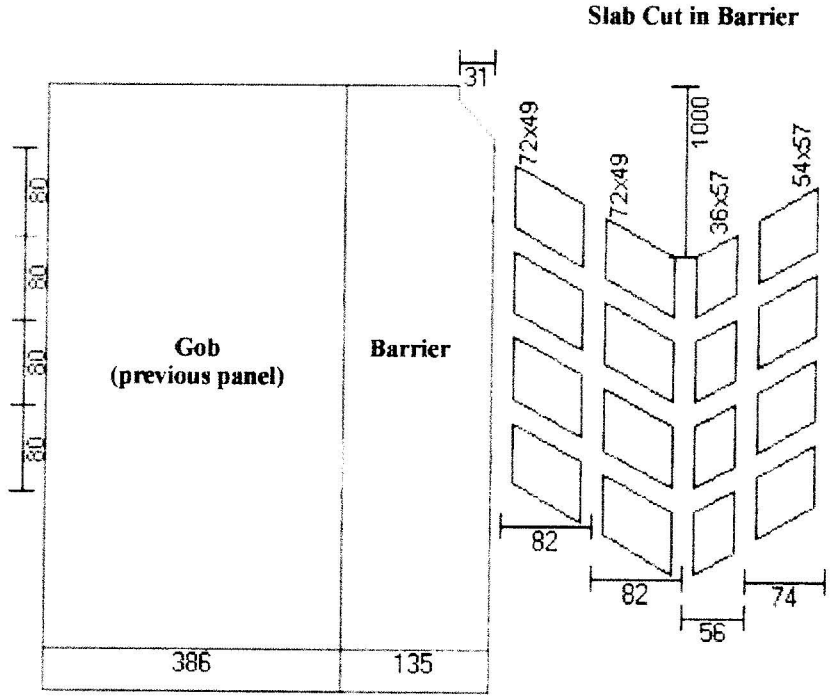
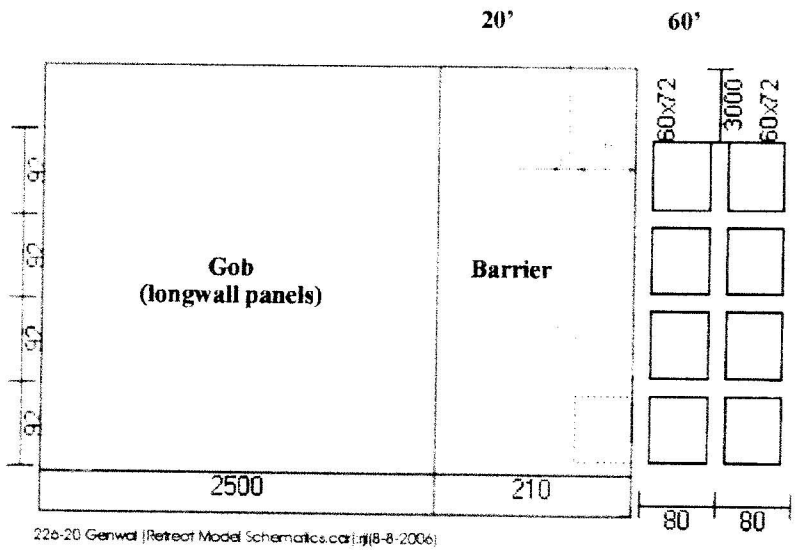


Figure 2 – Comparison of CEMVS SF Data and Proposed Bedrock Mining Stability Factors with ARMPS Case Histories

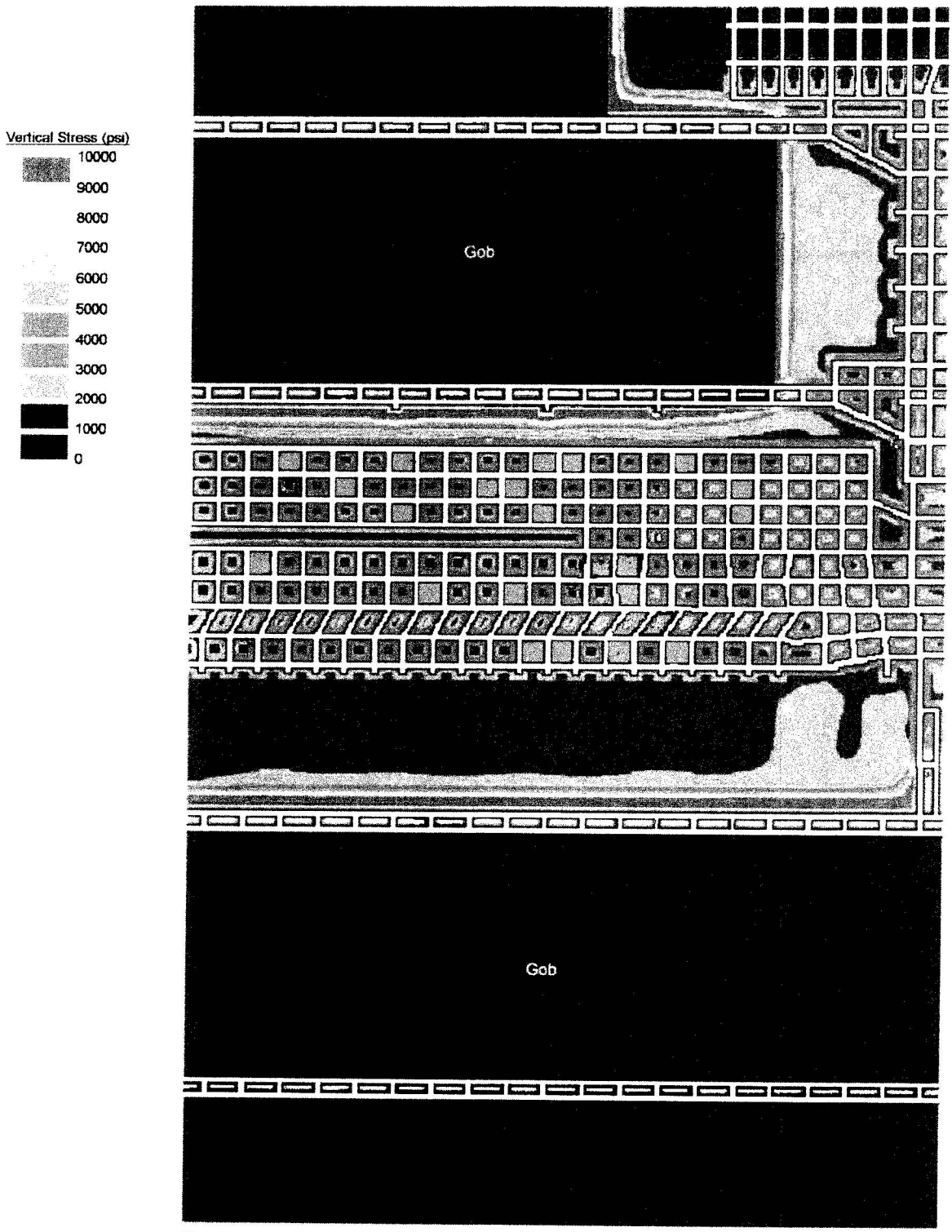


a) 1st North Left Typical Panel Retreat Geometry

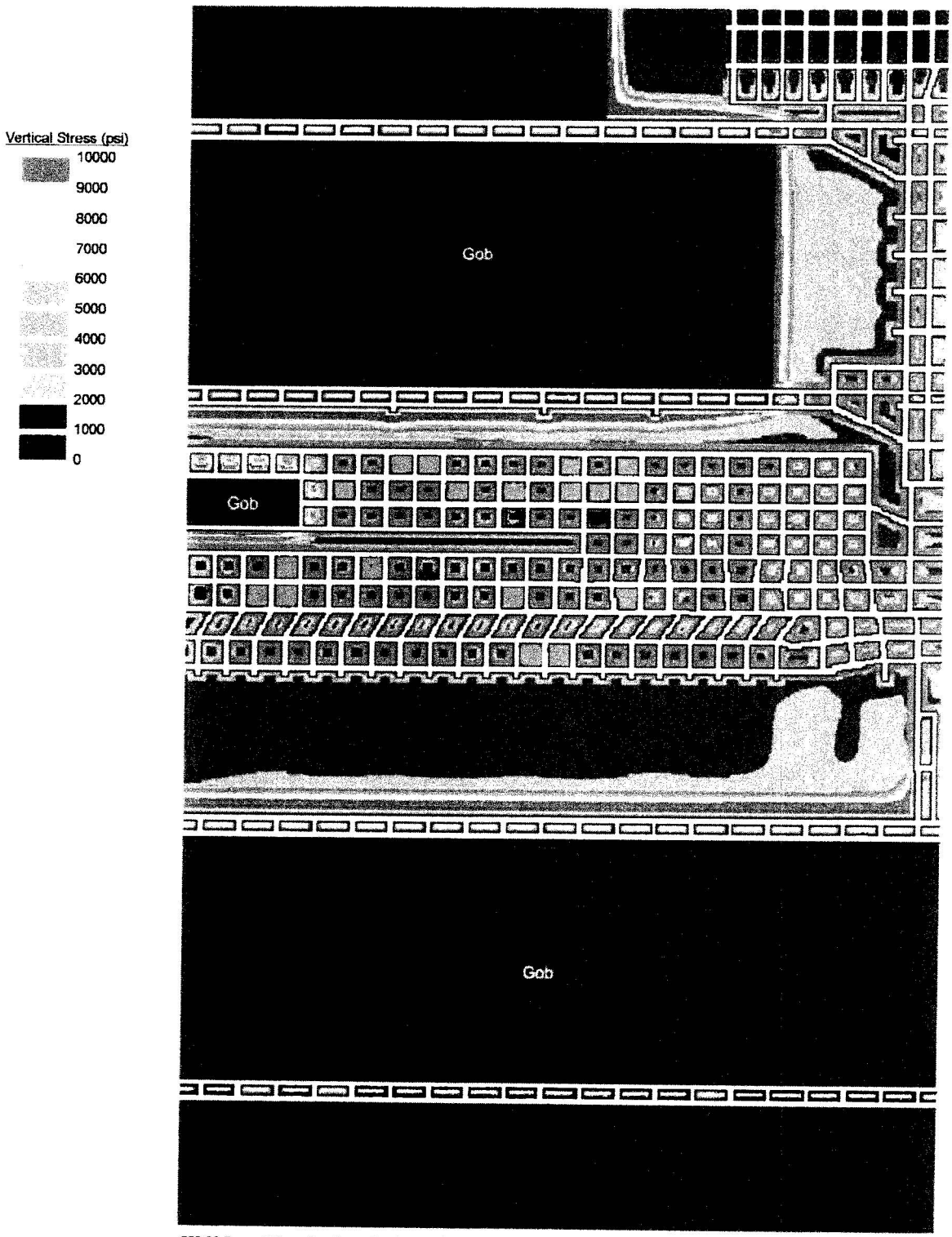


b) Main West Proposed Retreat Geometry

Figure 3. ARMPS Retreat Model Schematics



226-20 Genwal (Phase 2_vstress_1.cdr) rjl(8-9-2008)



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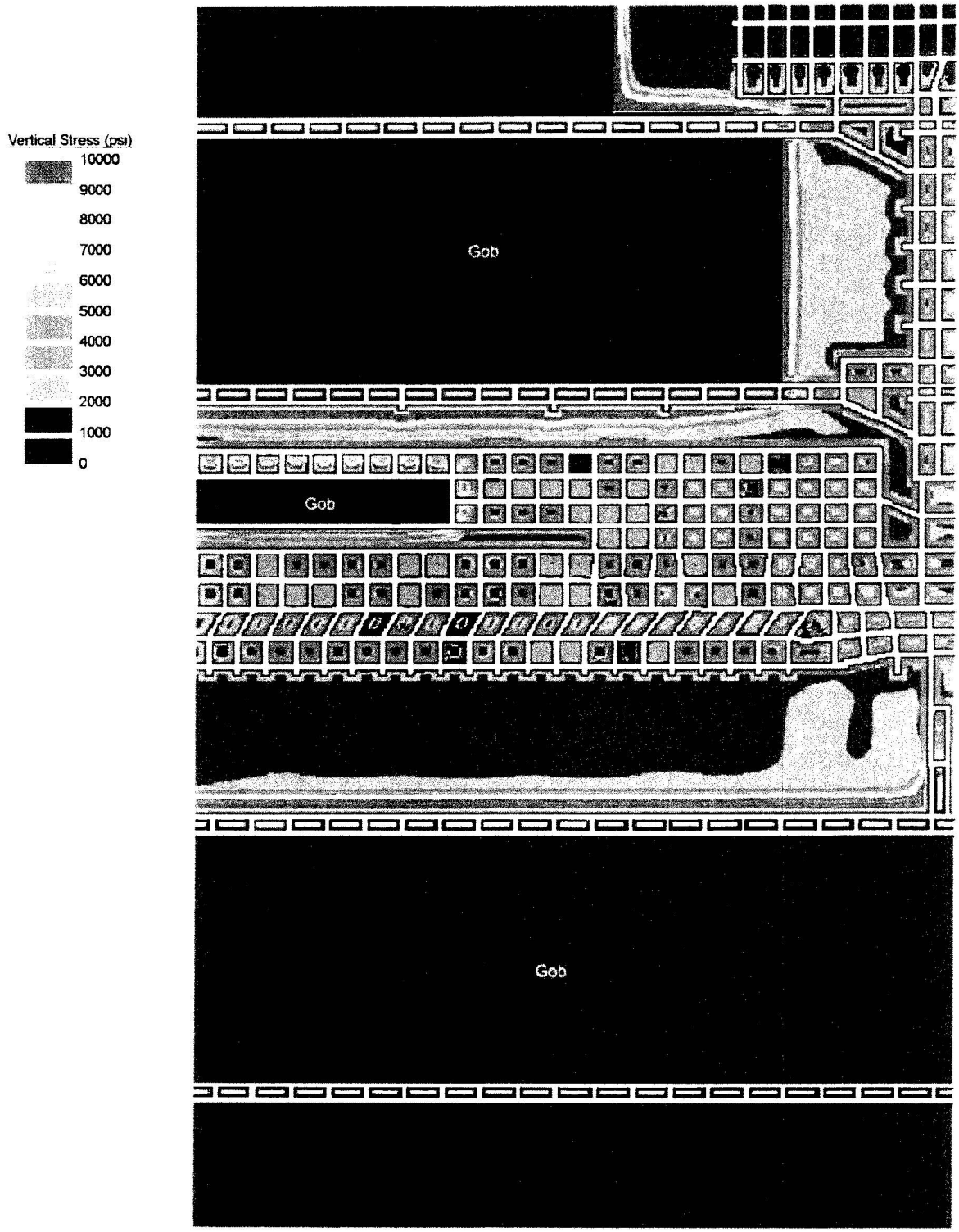

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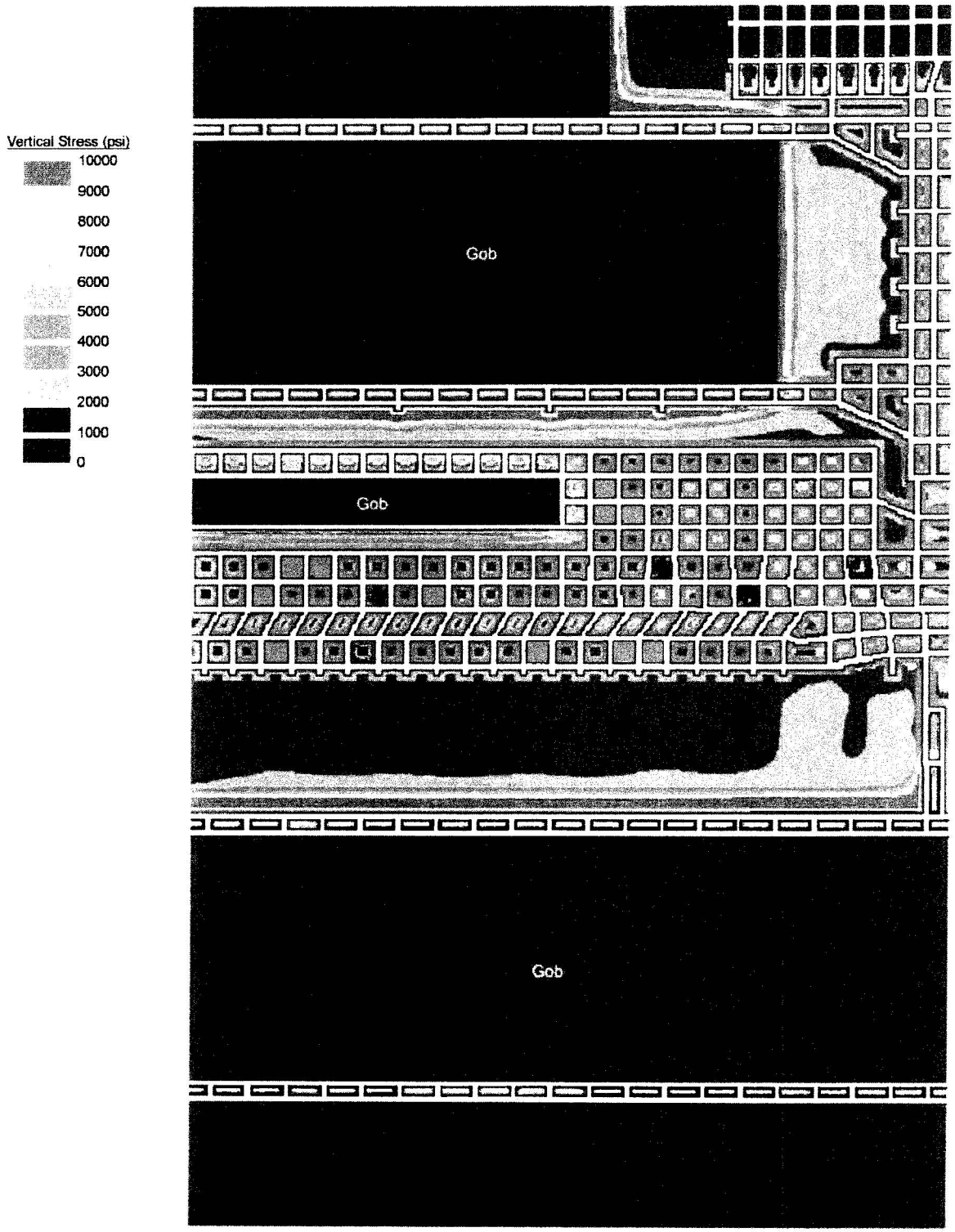

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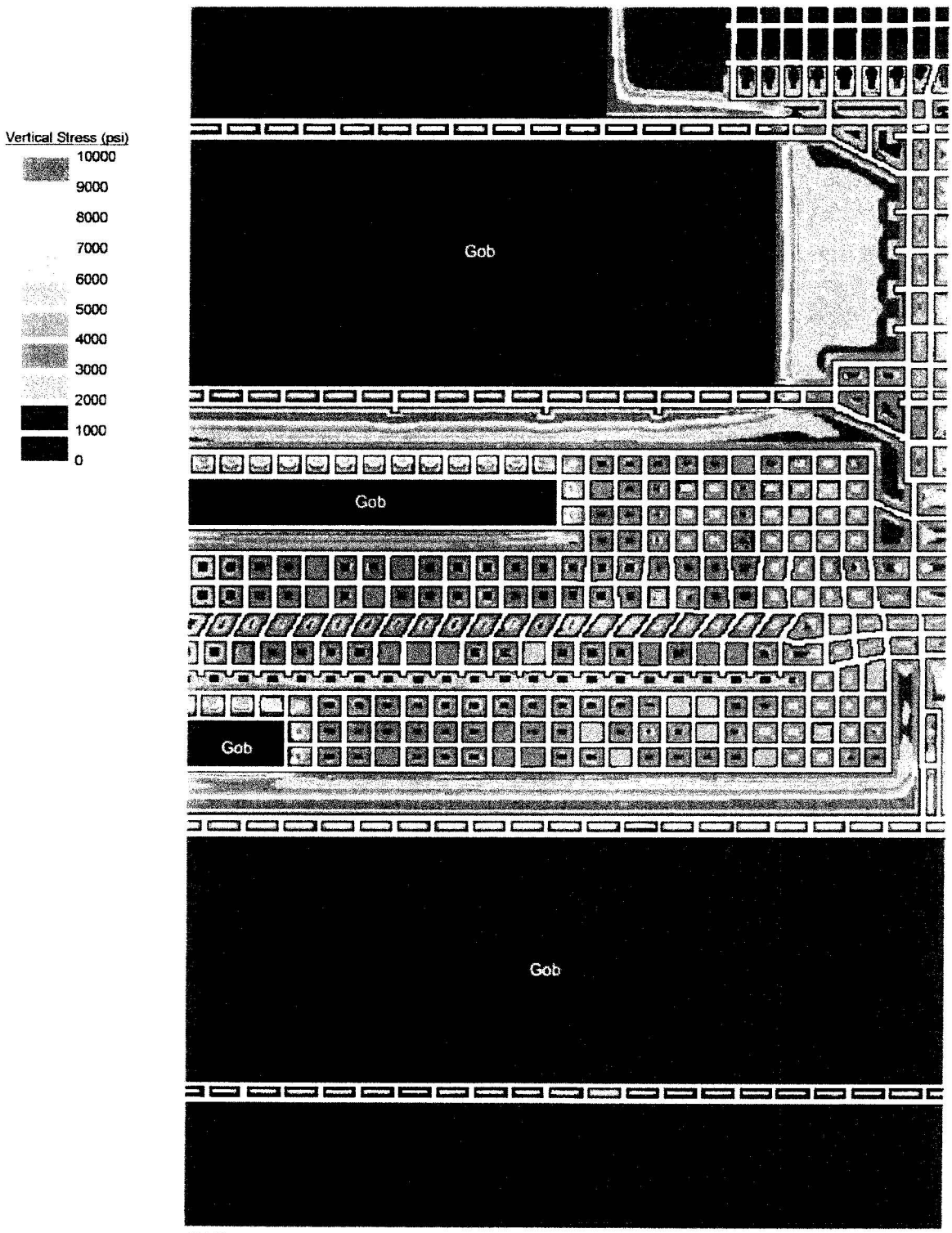

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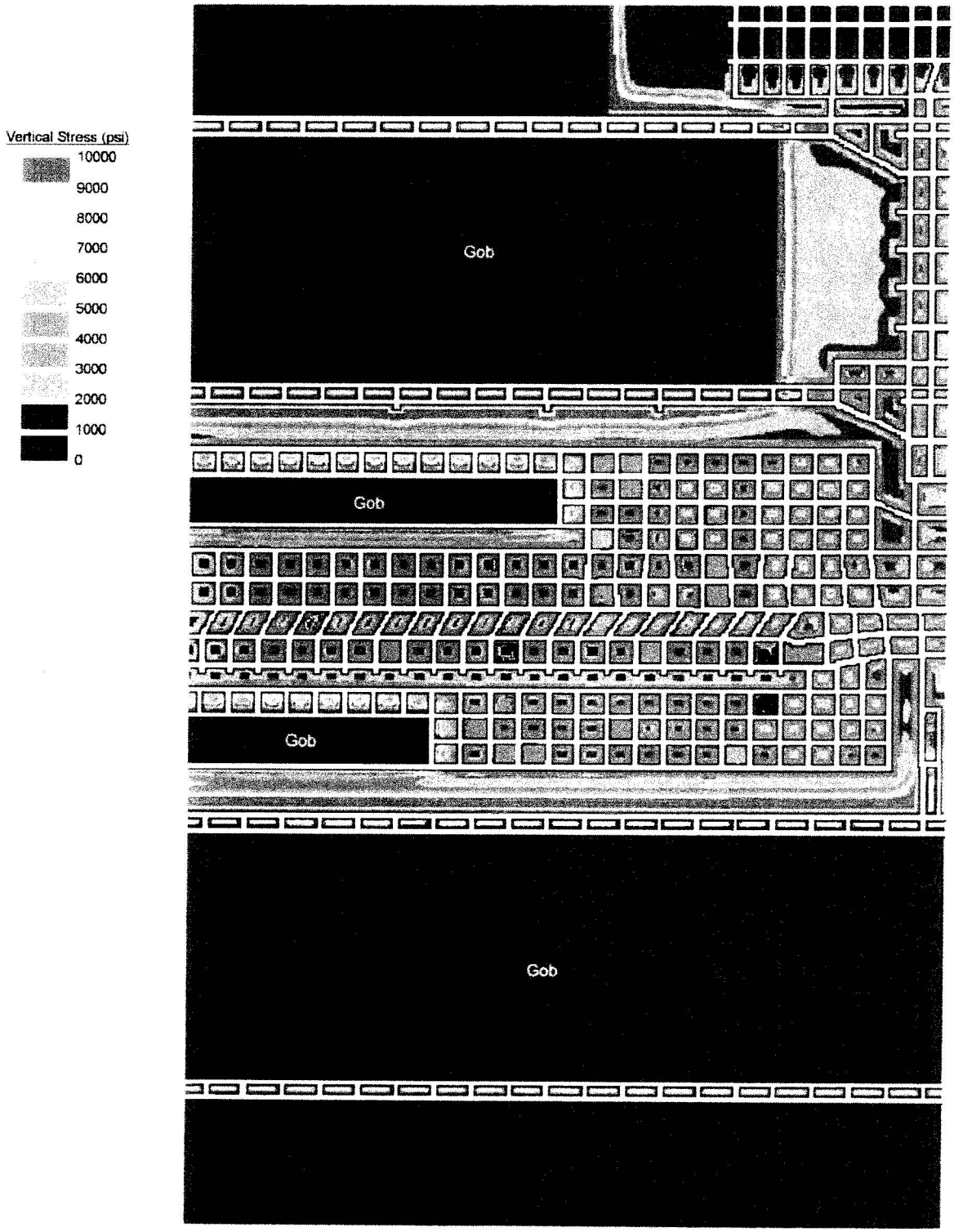

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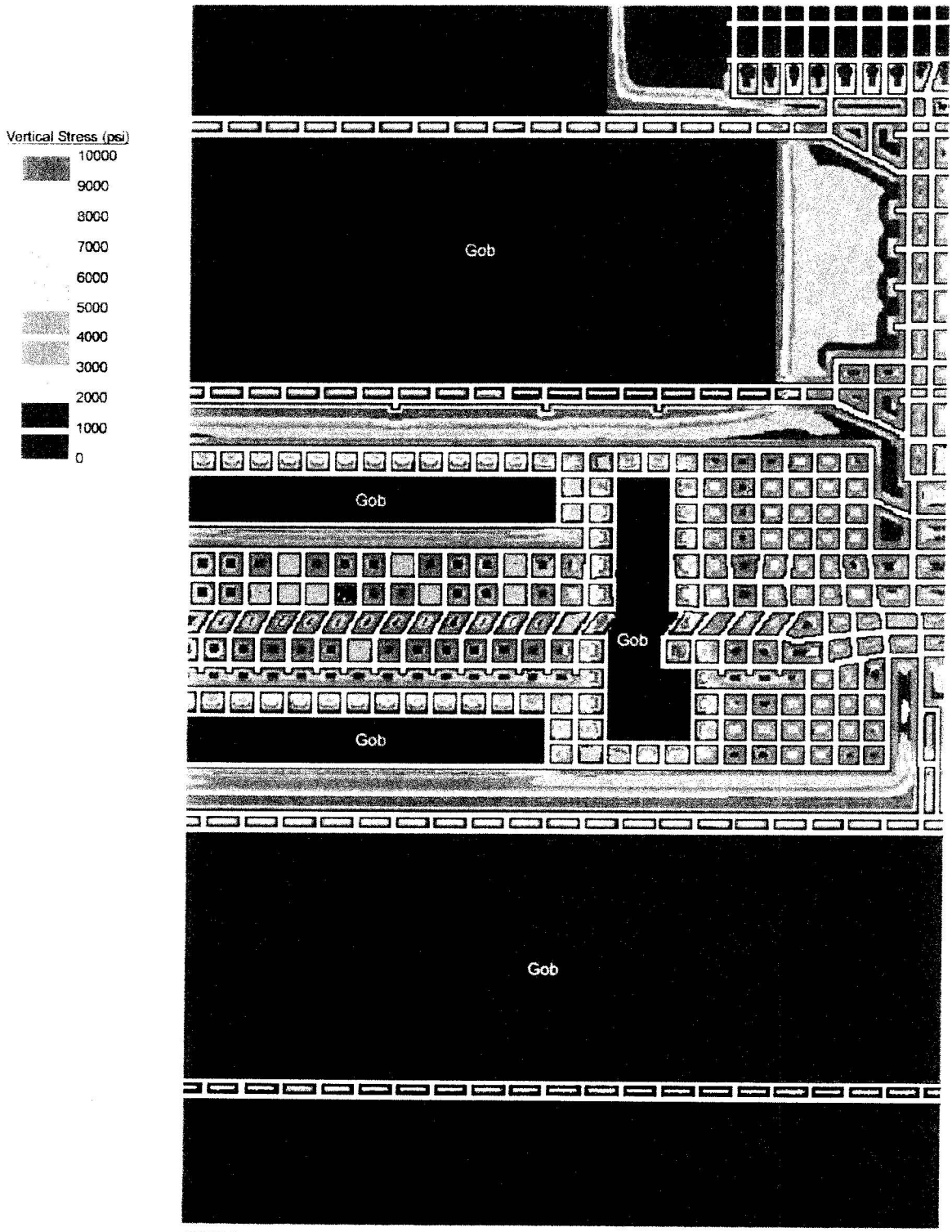

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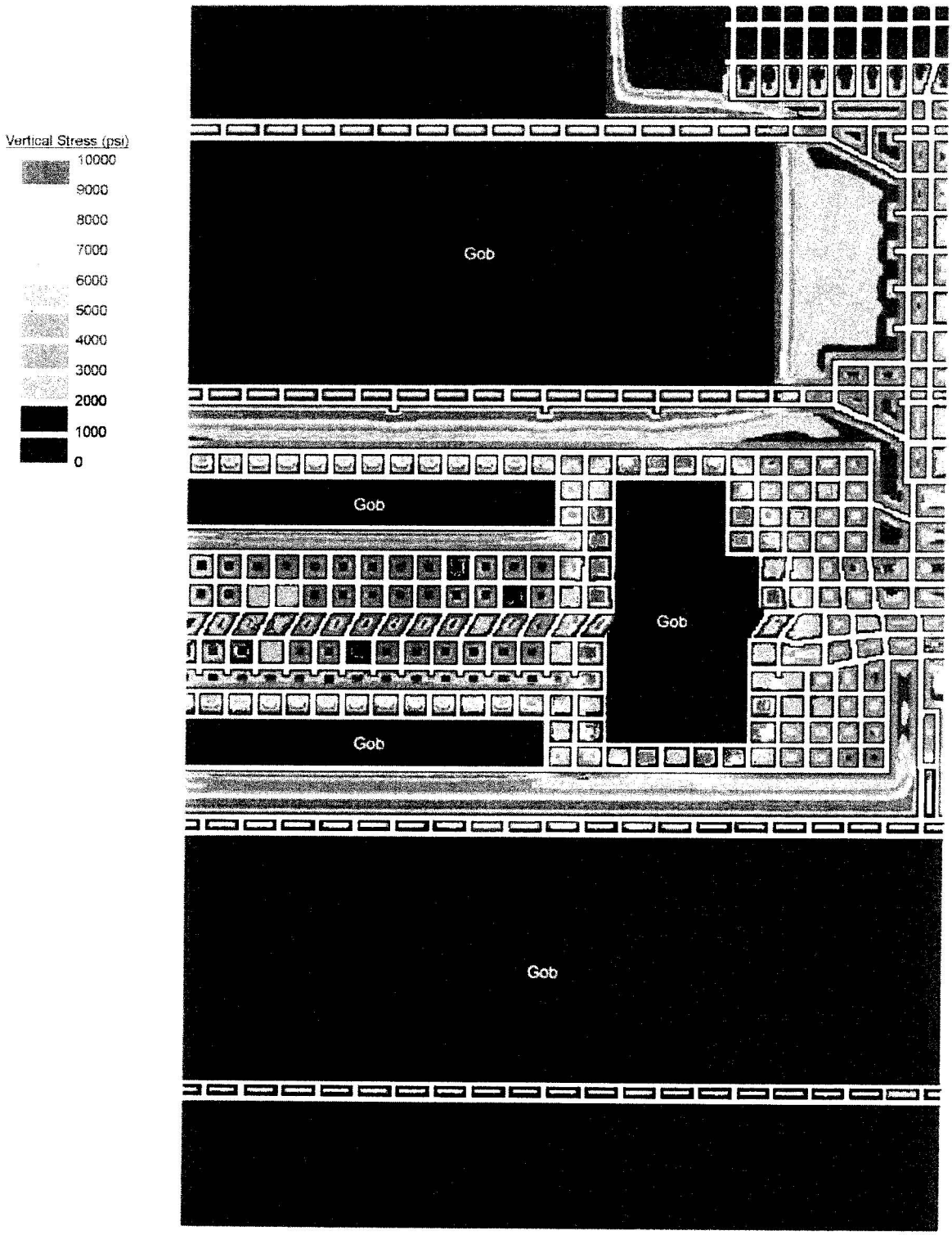

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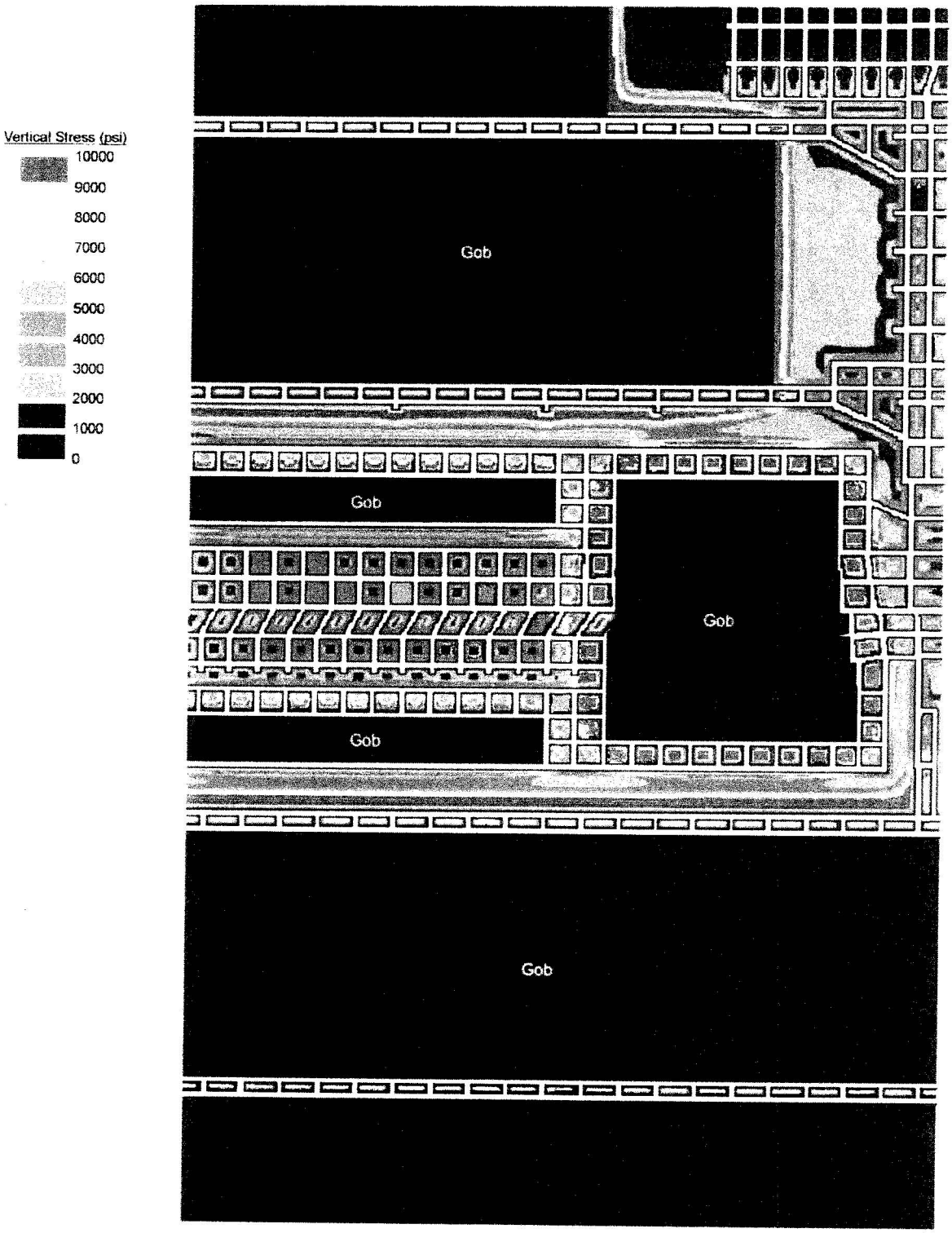

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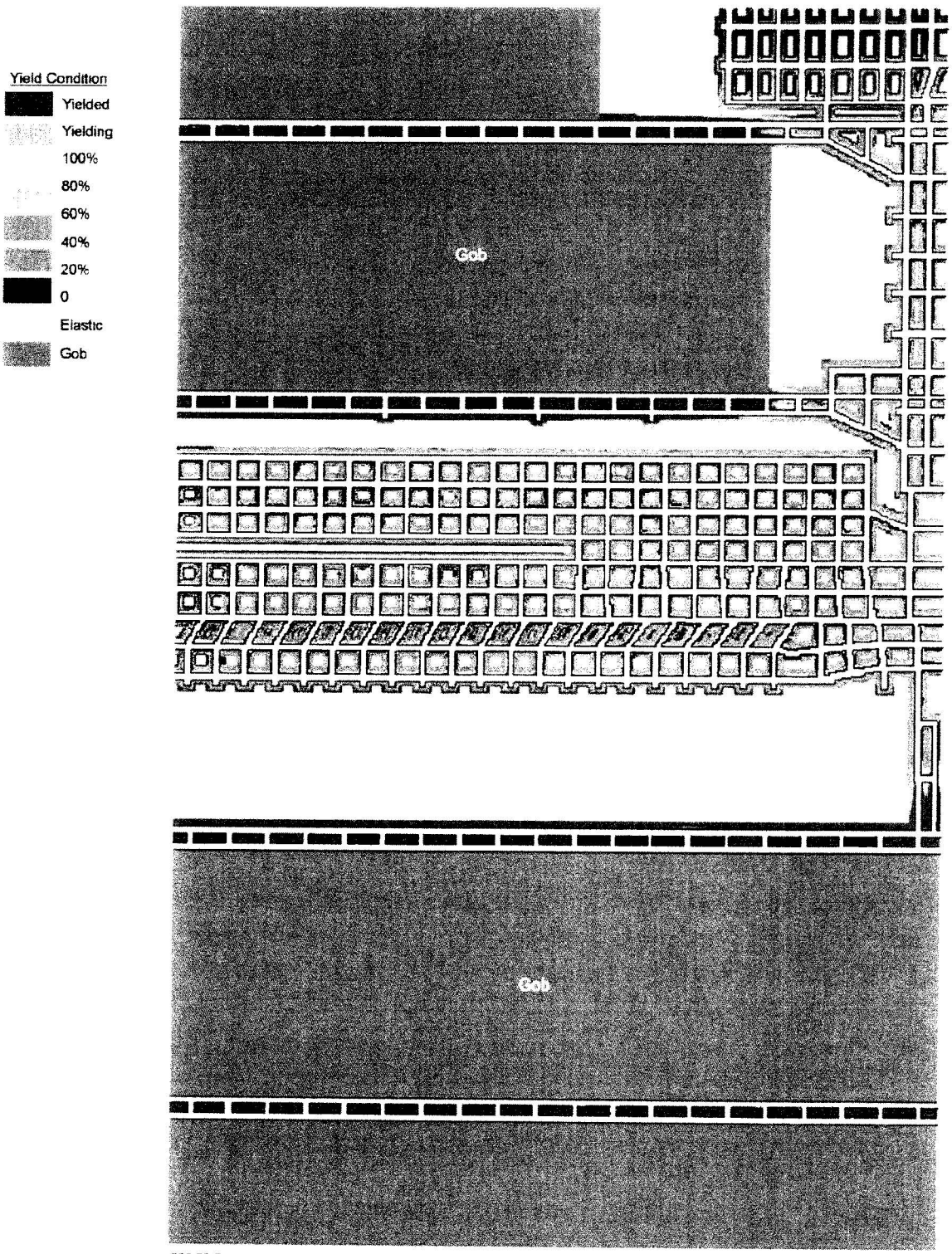

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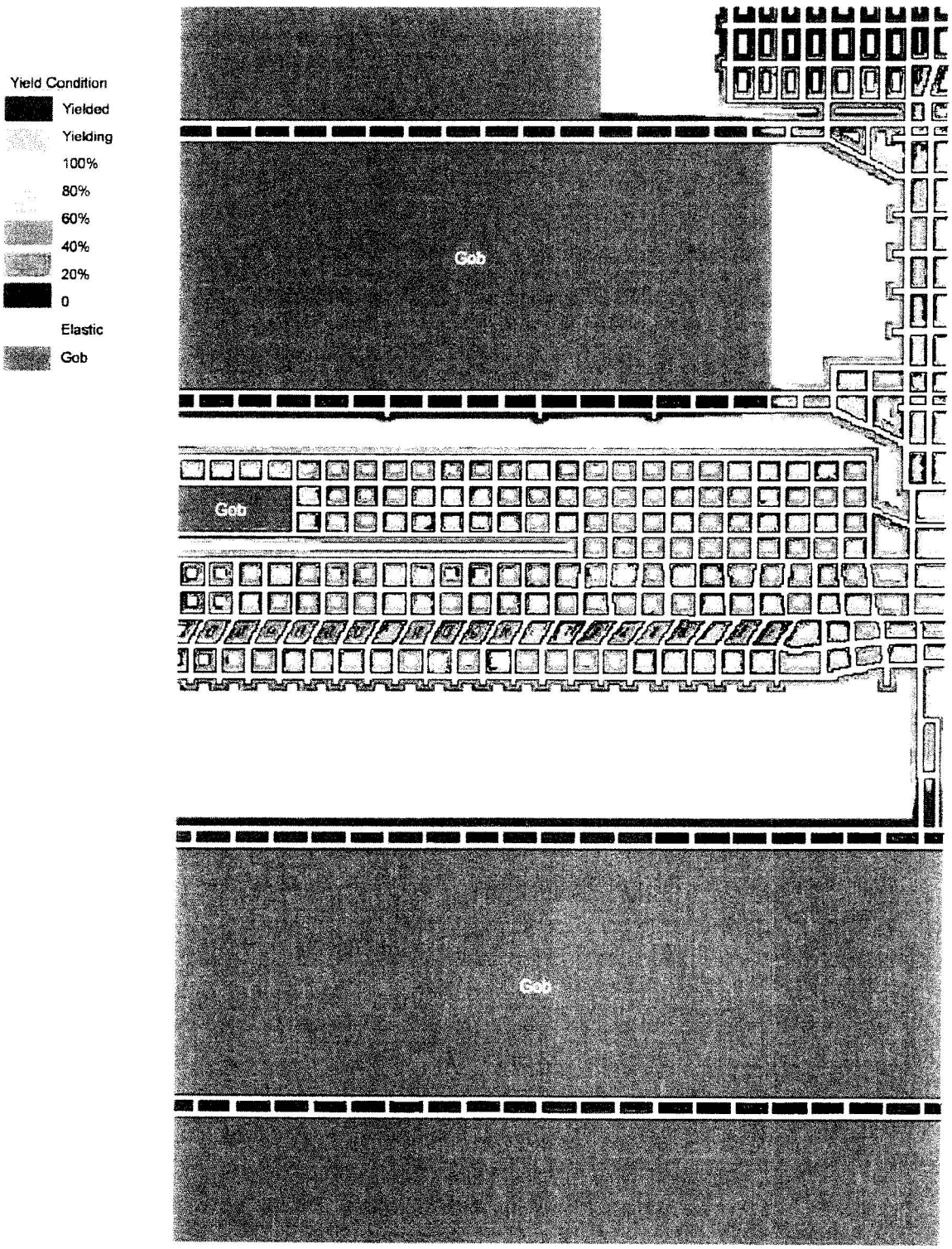

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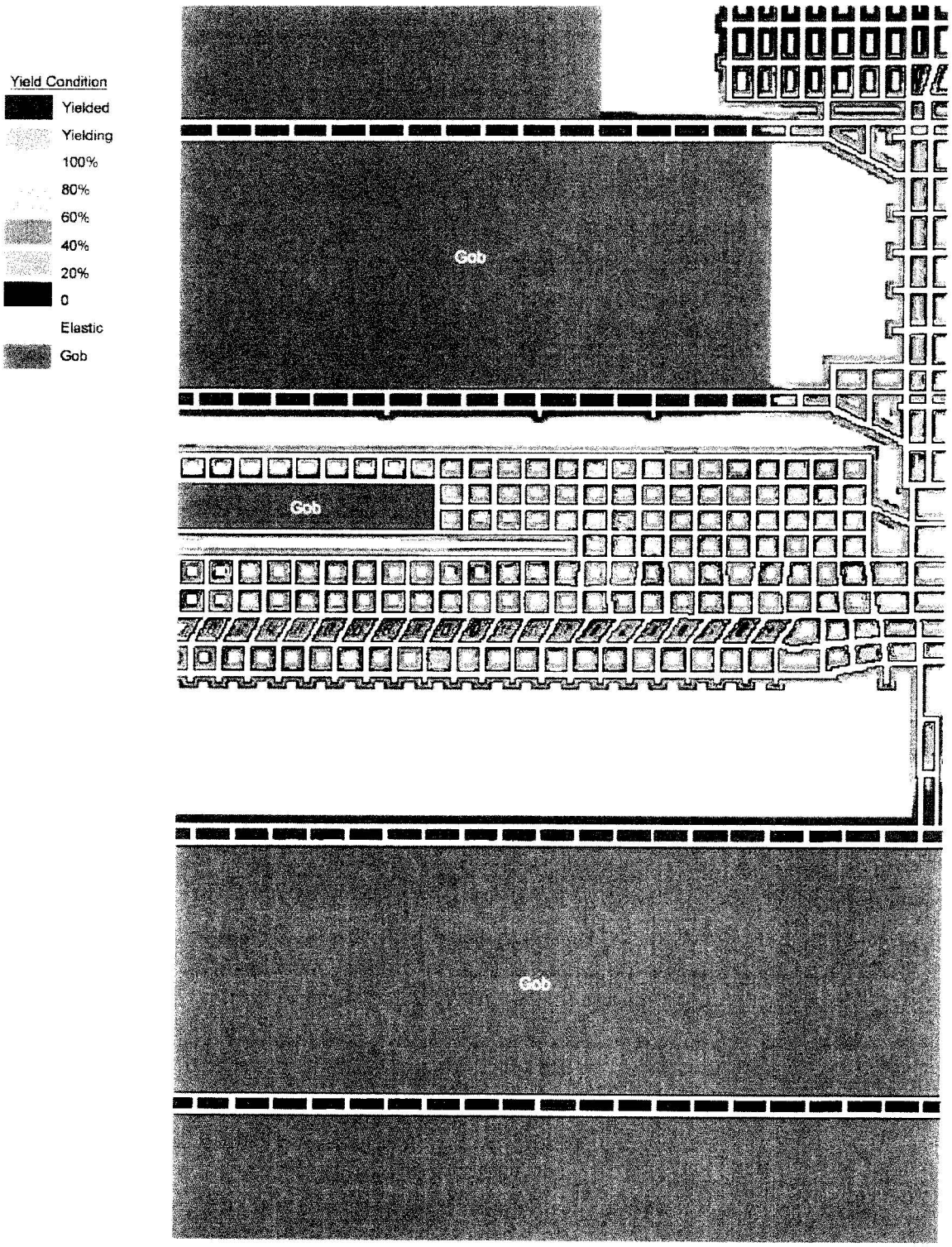

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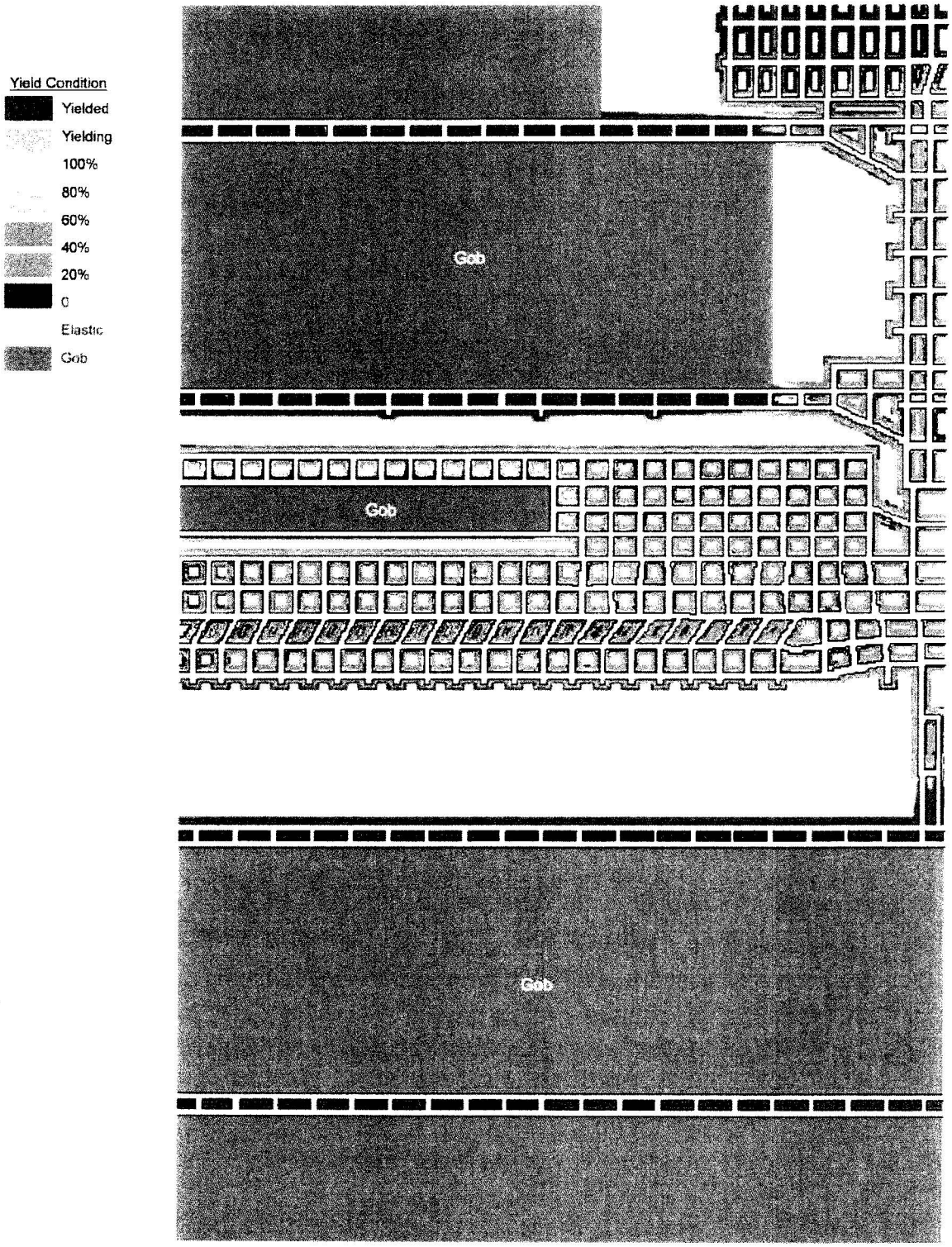

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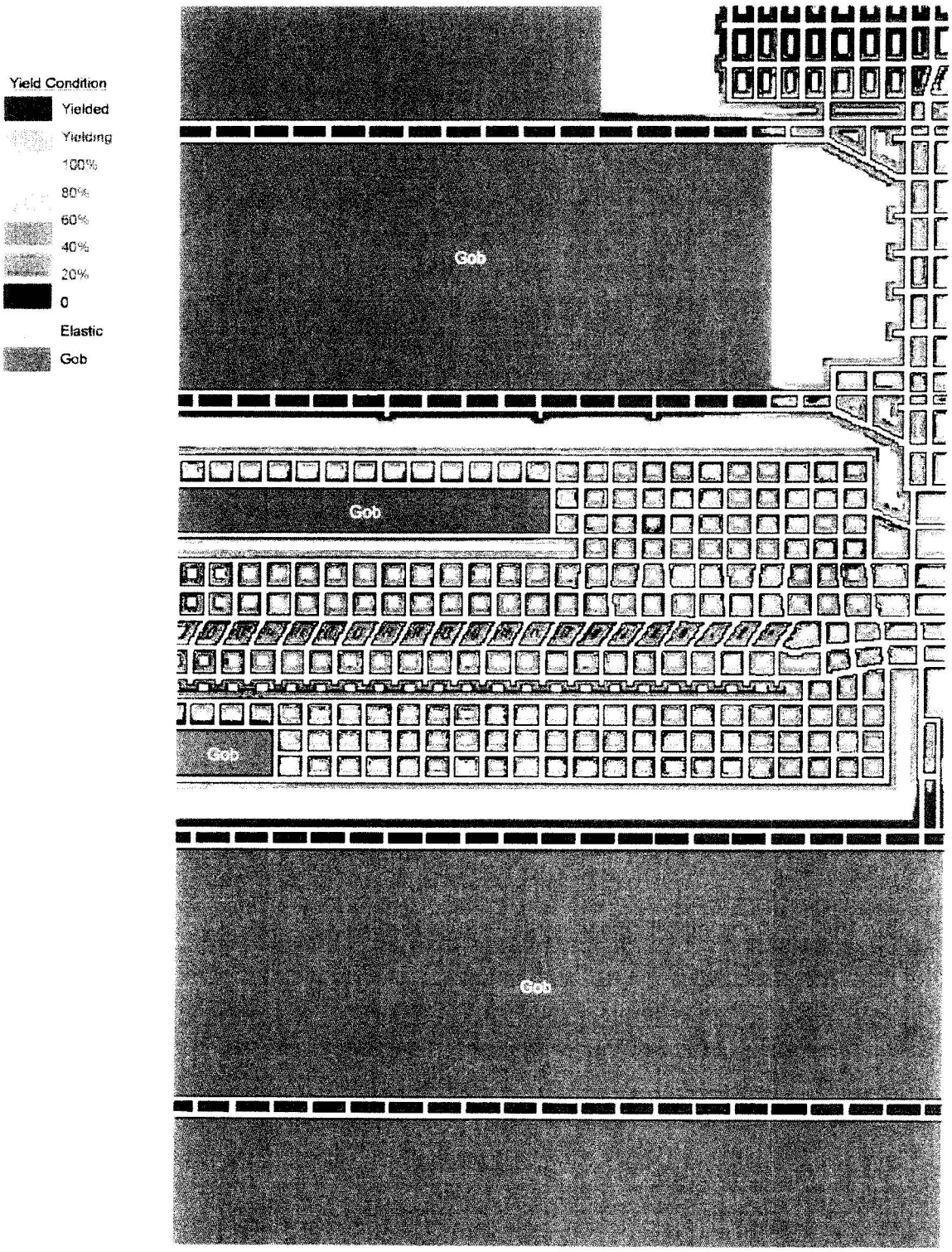

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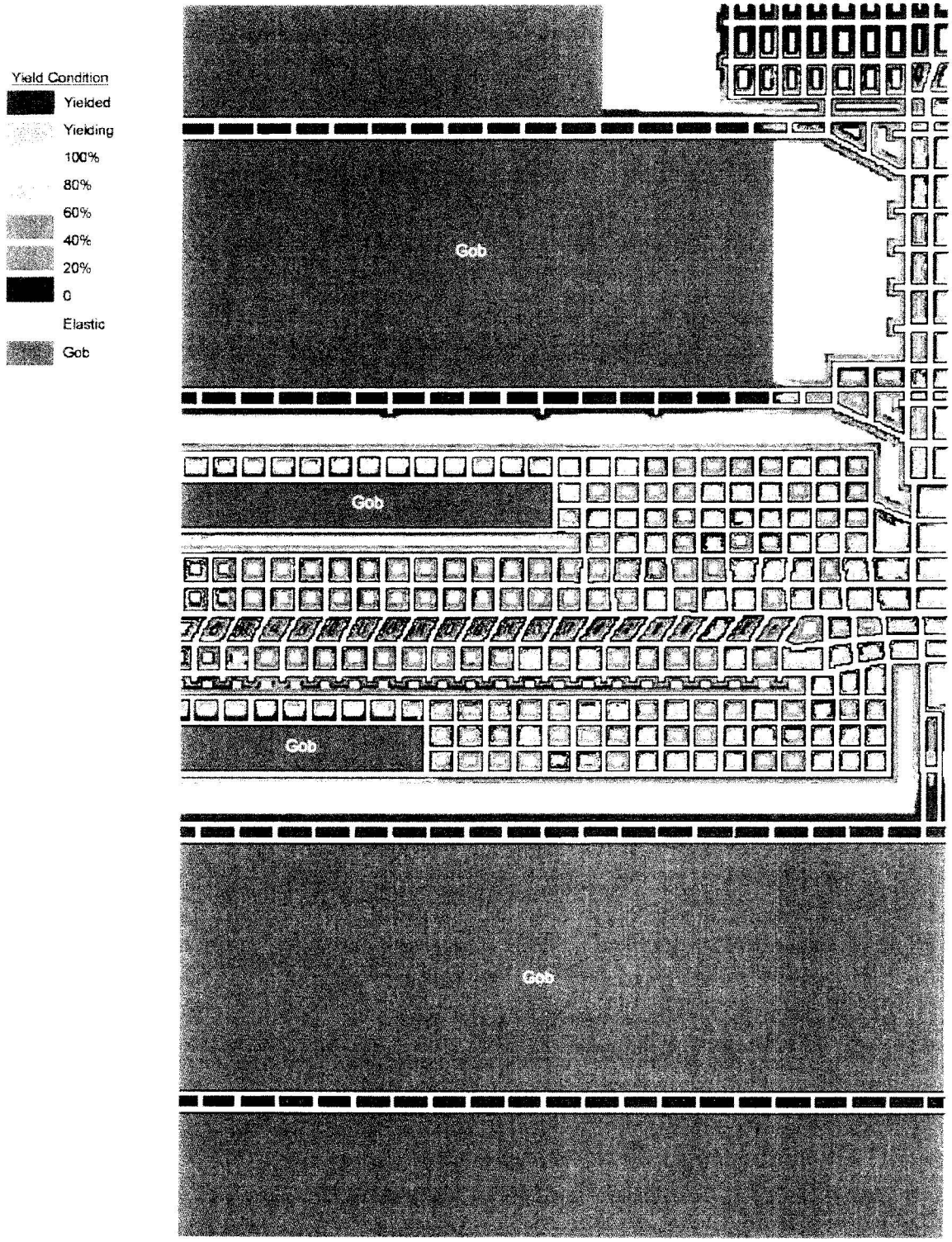

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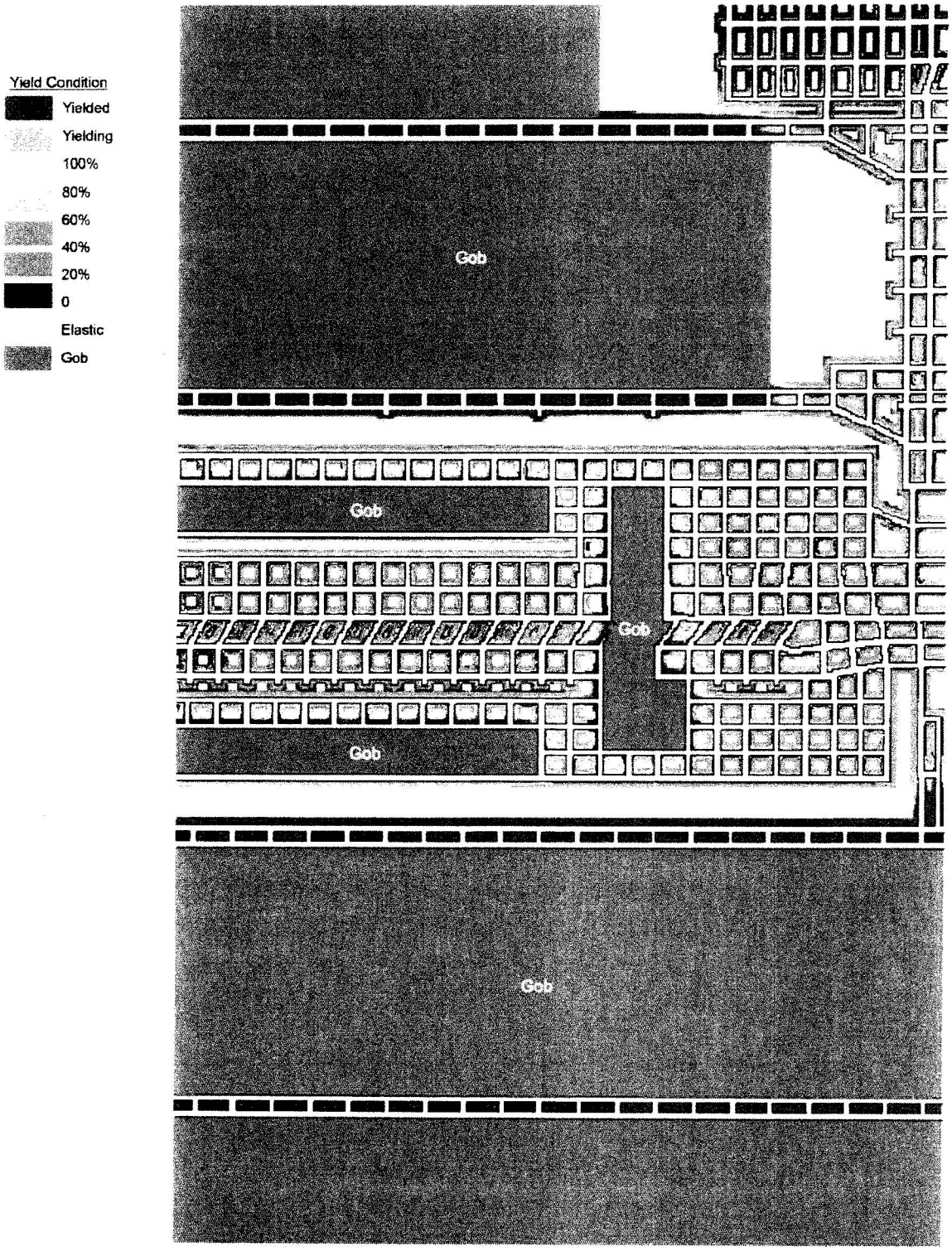

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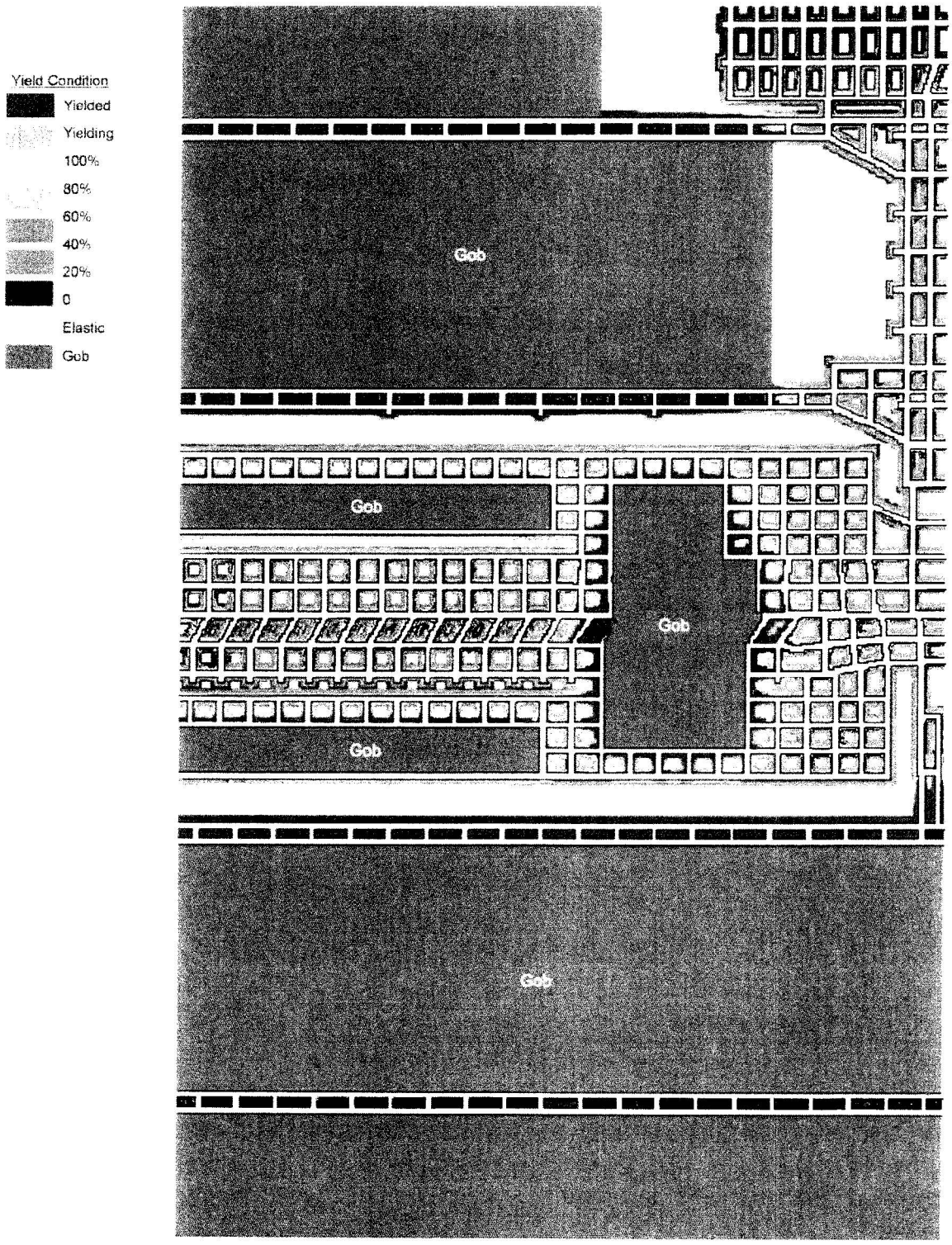

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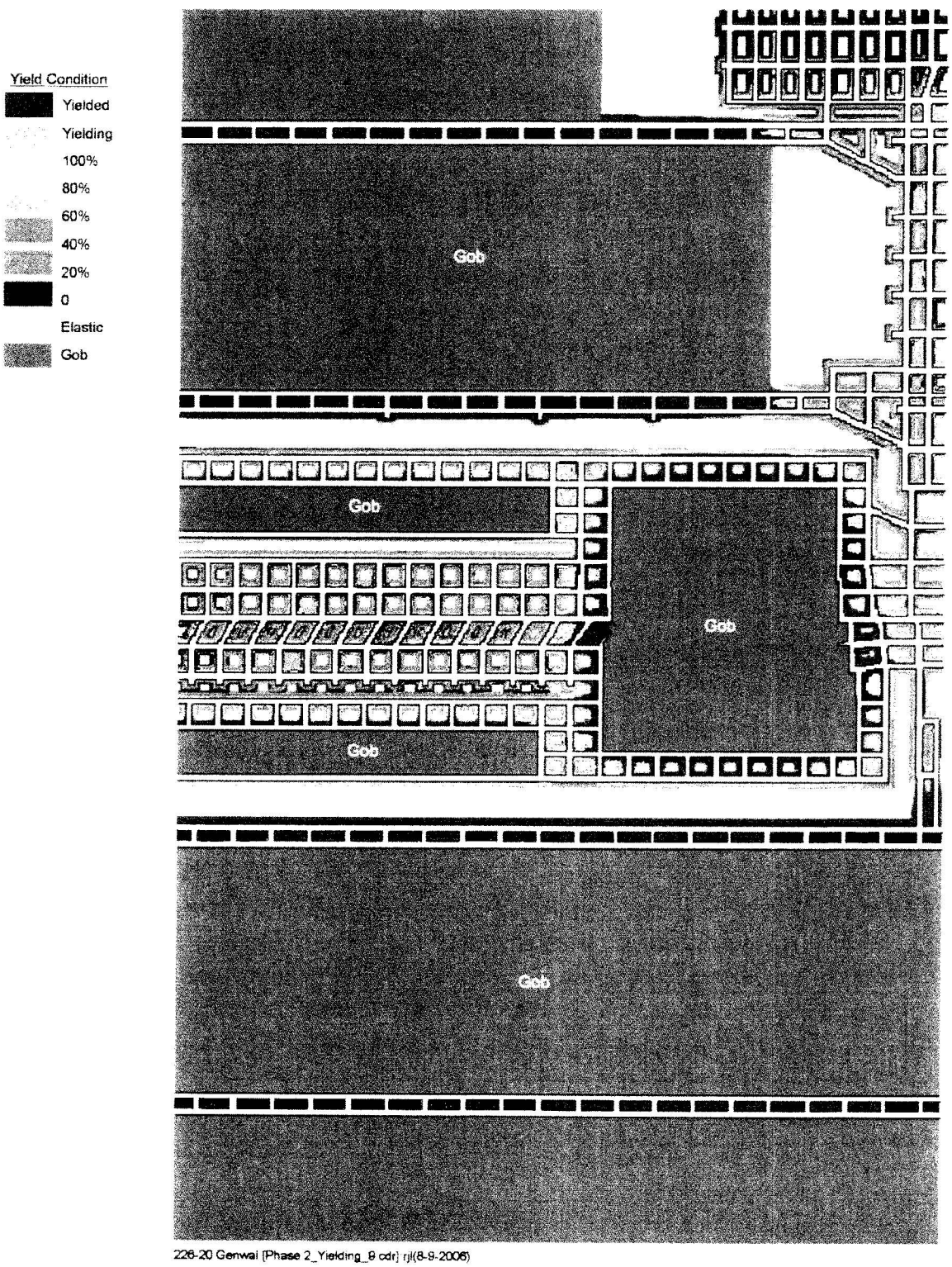

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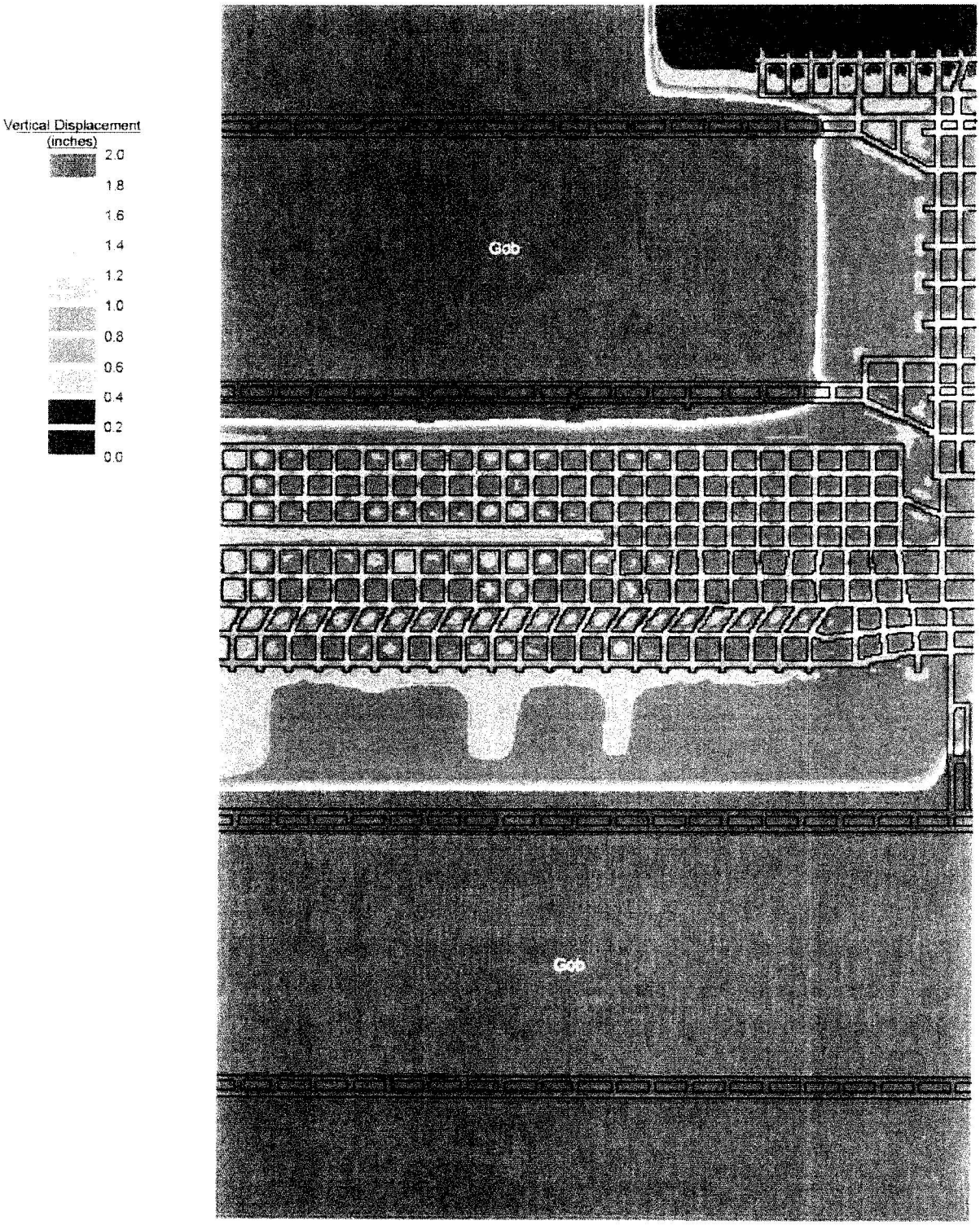

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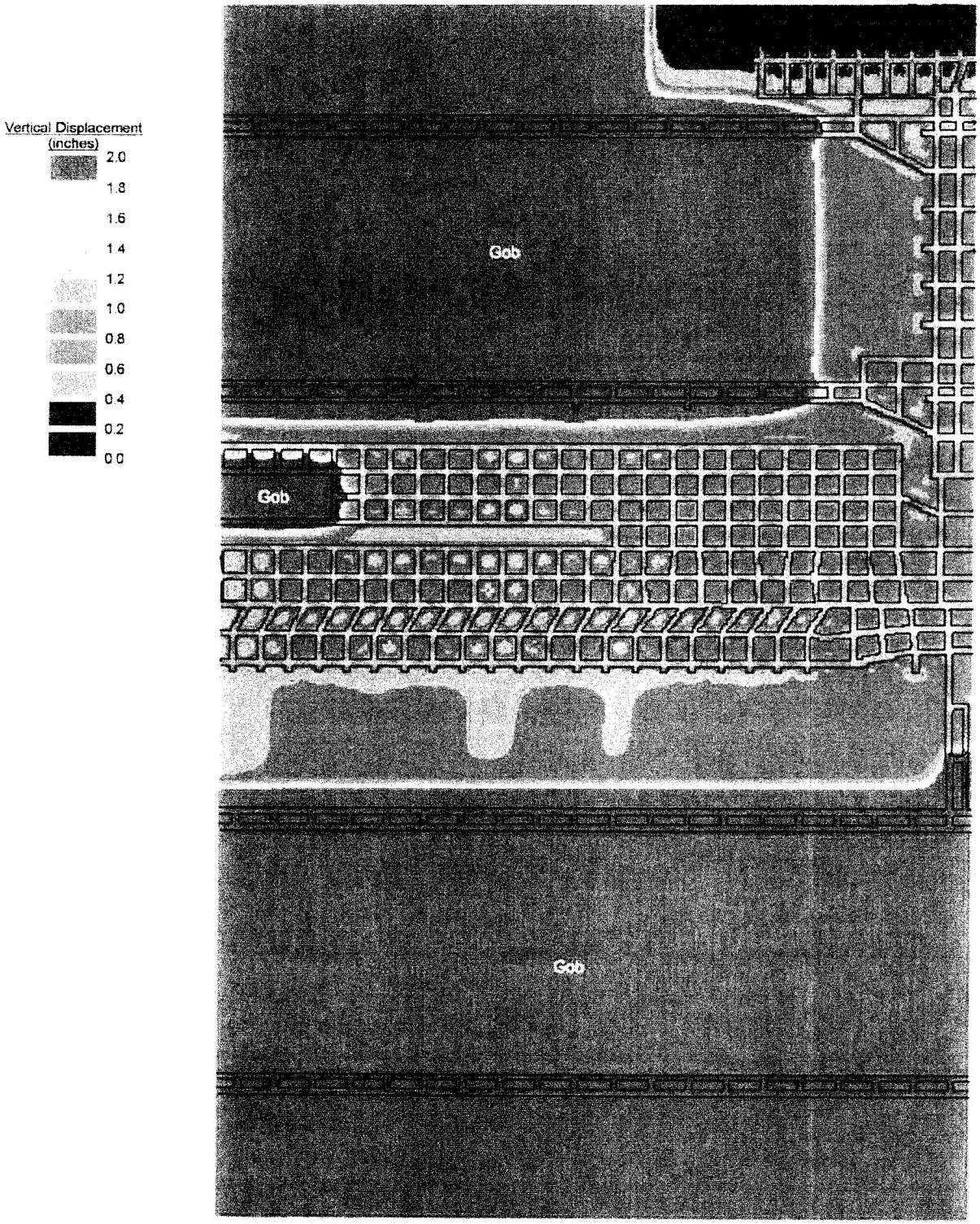

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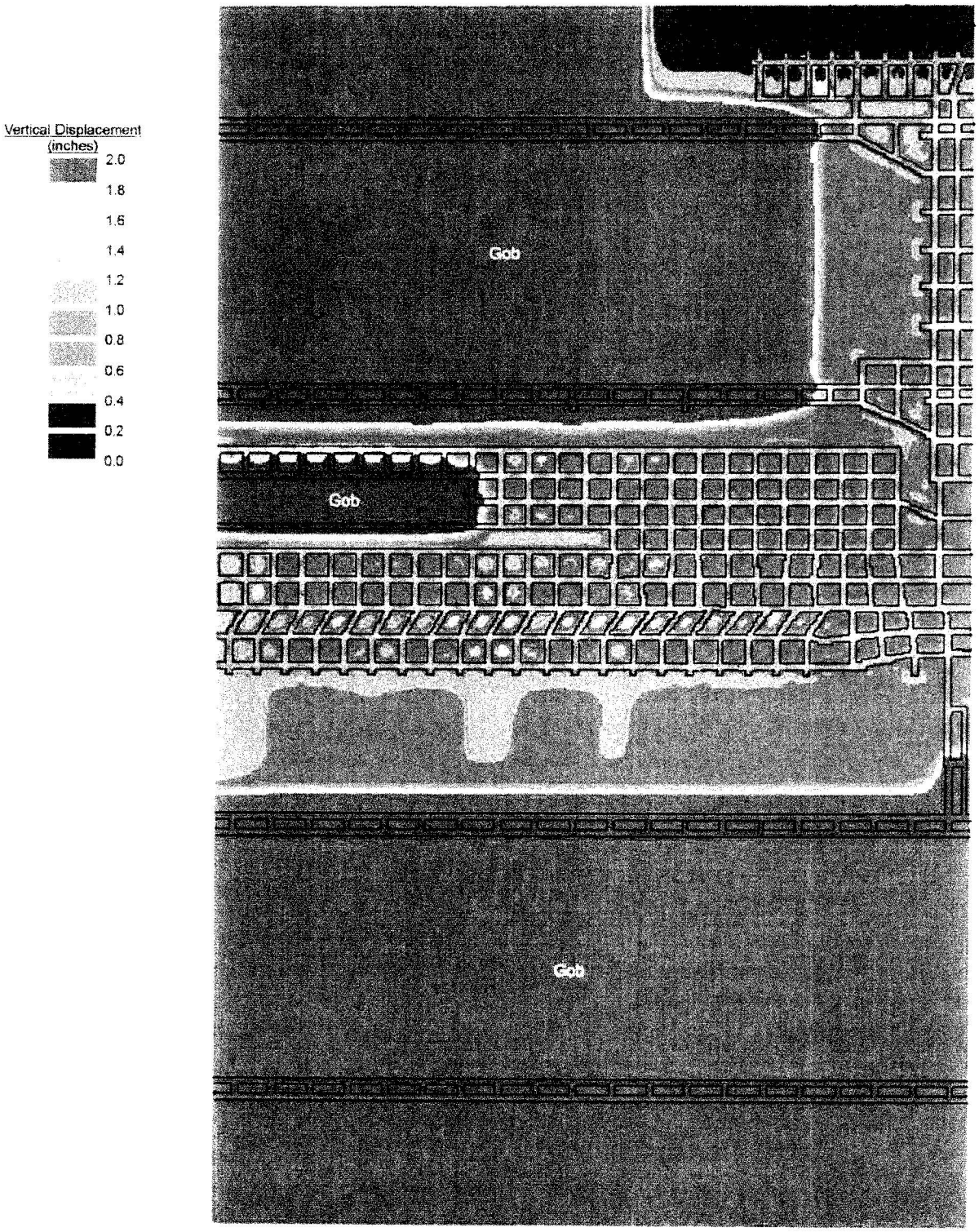

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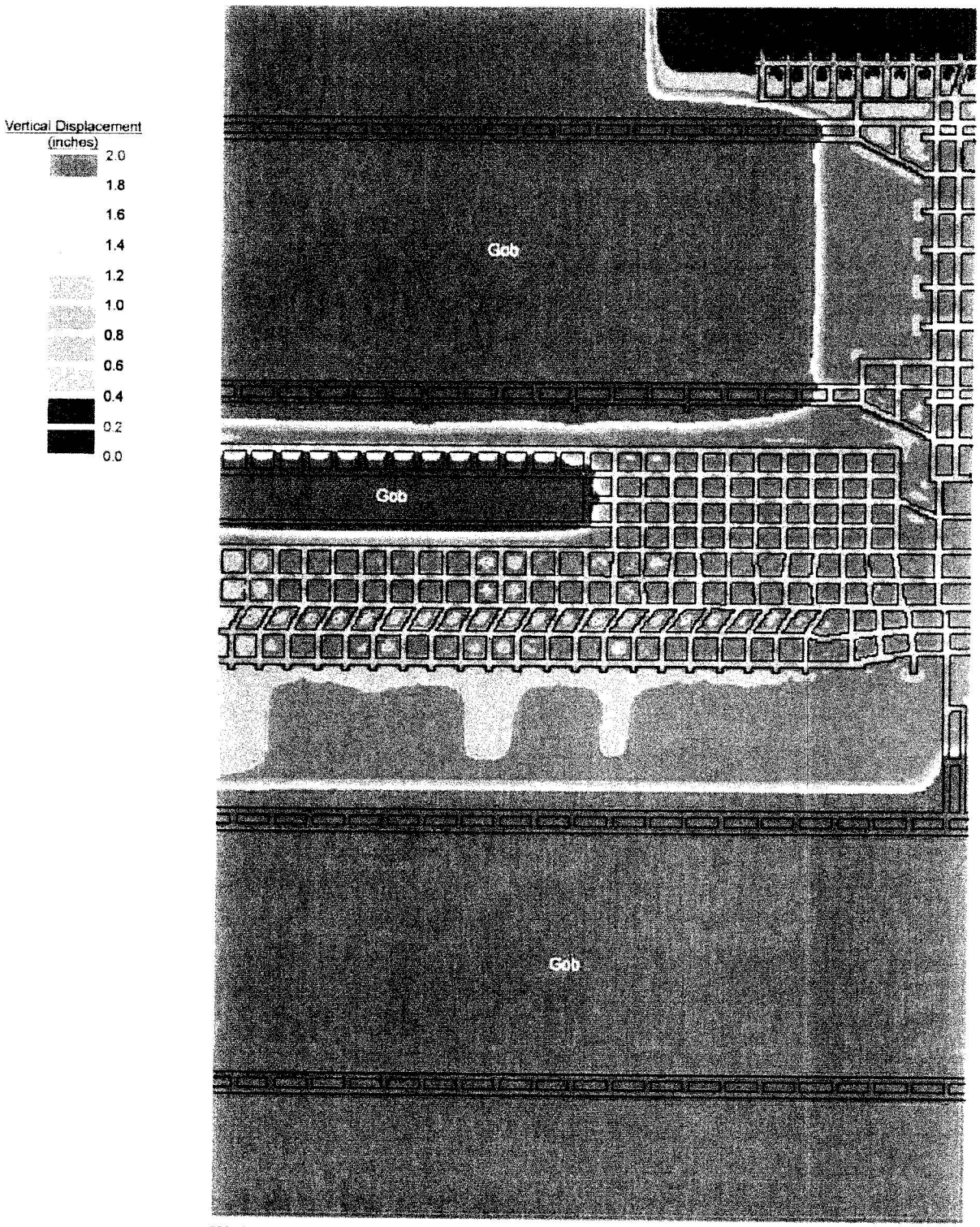

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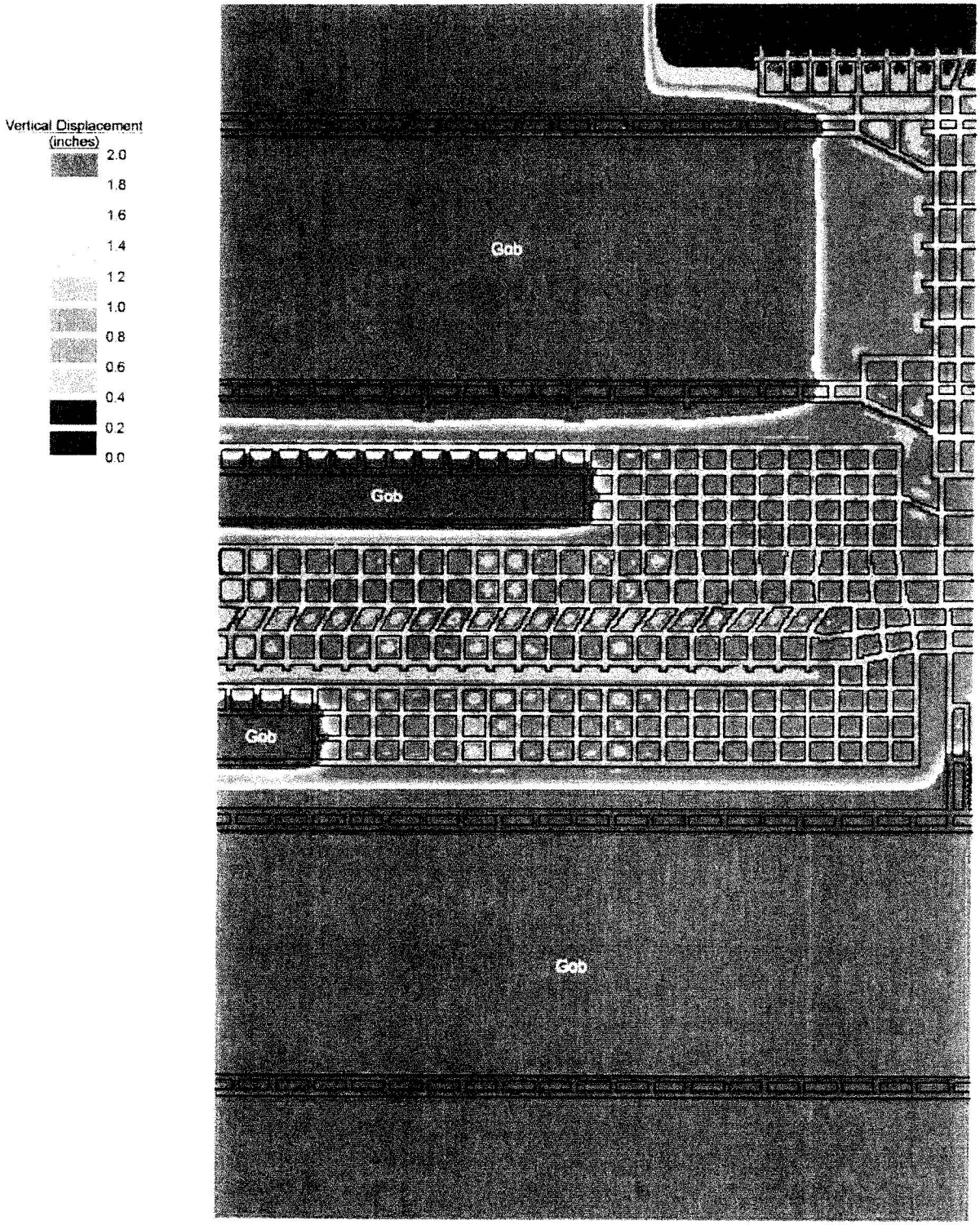

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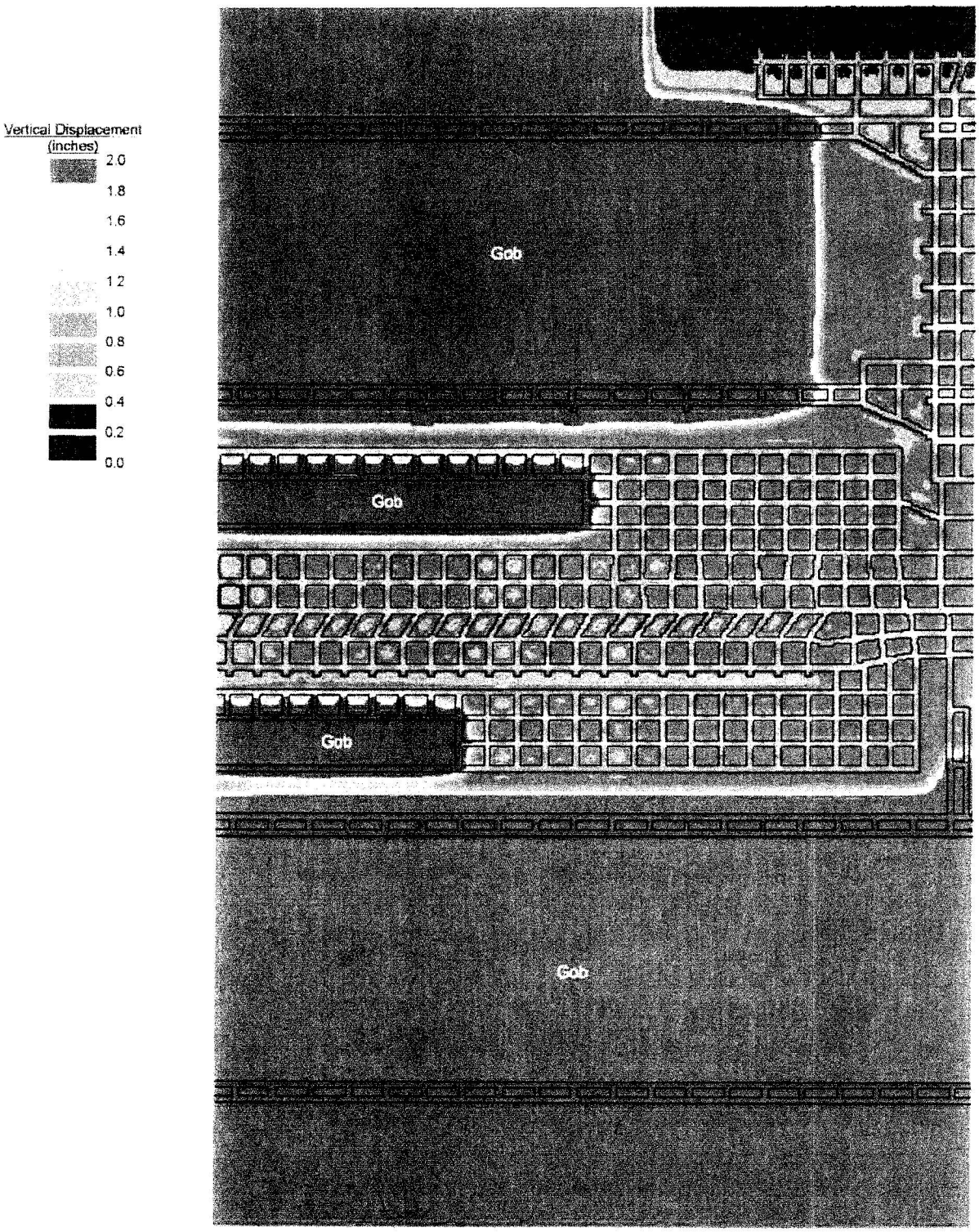

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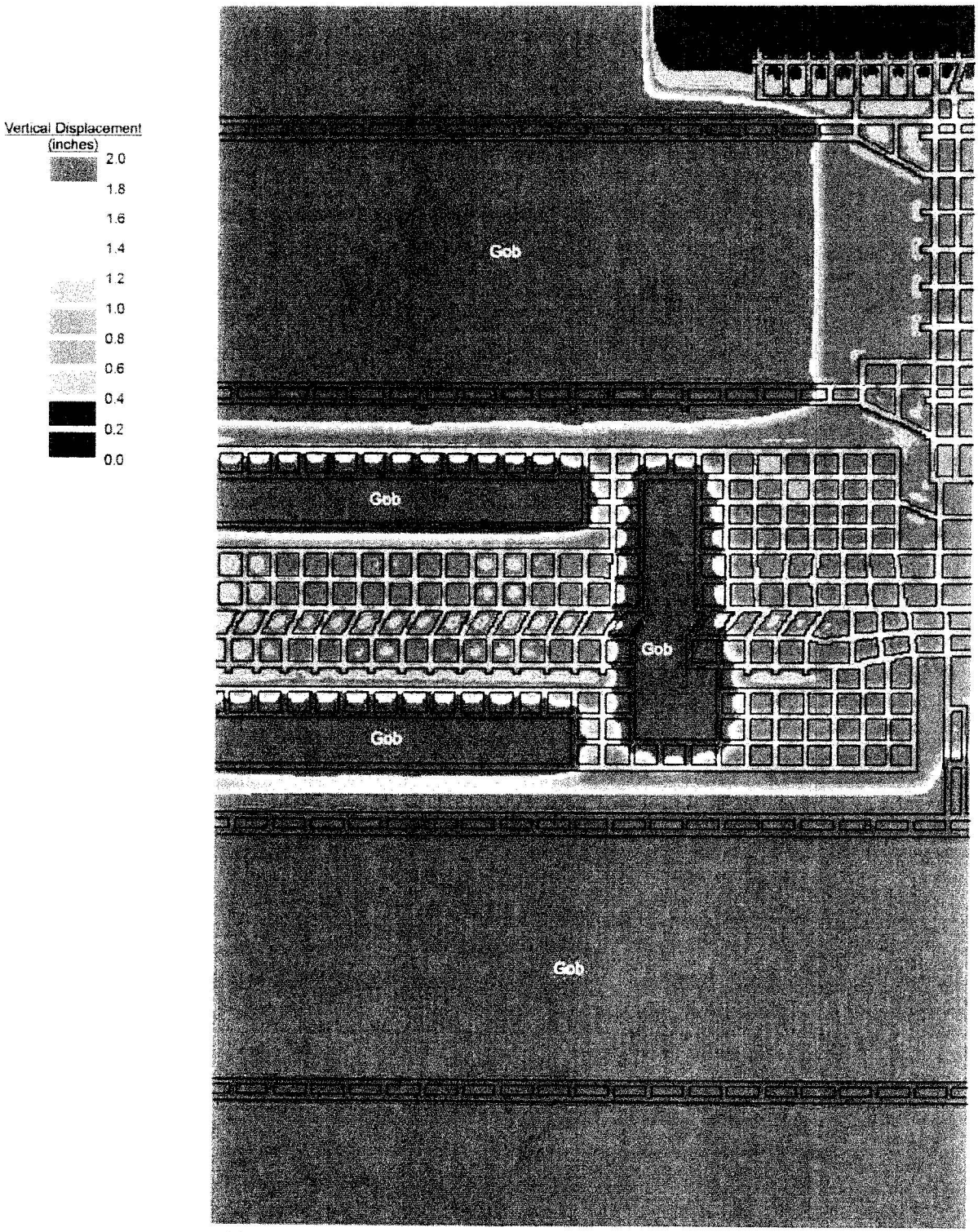

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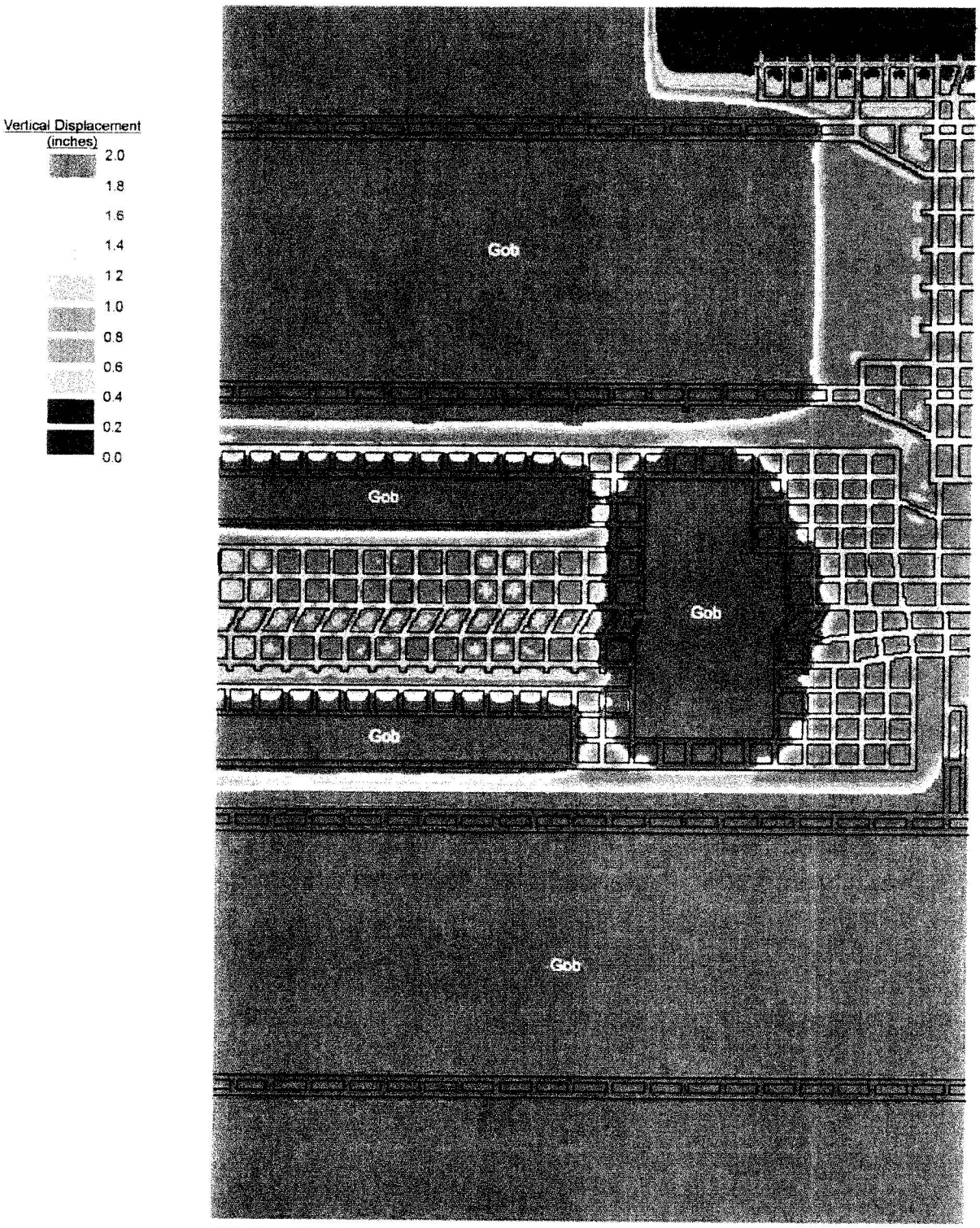

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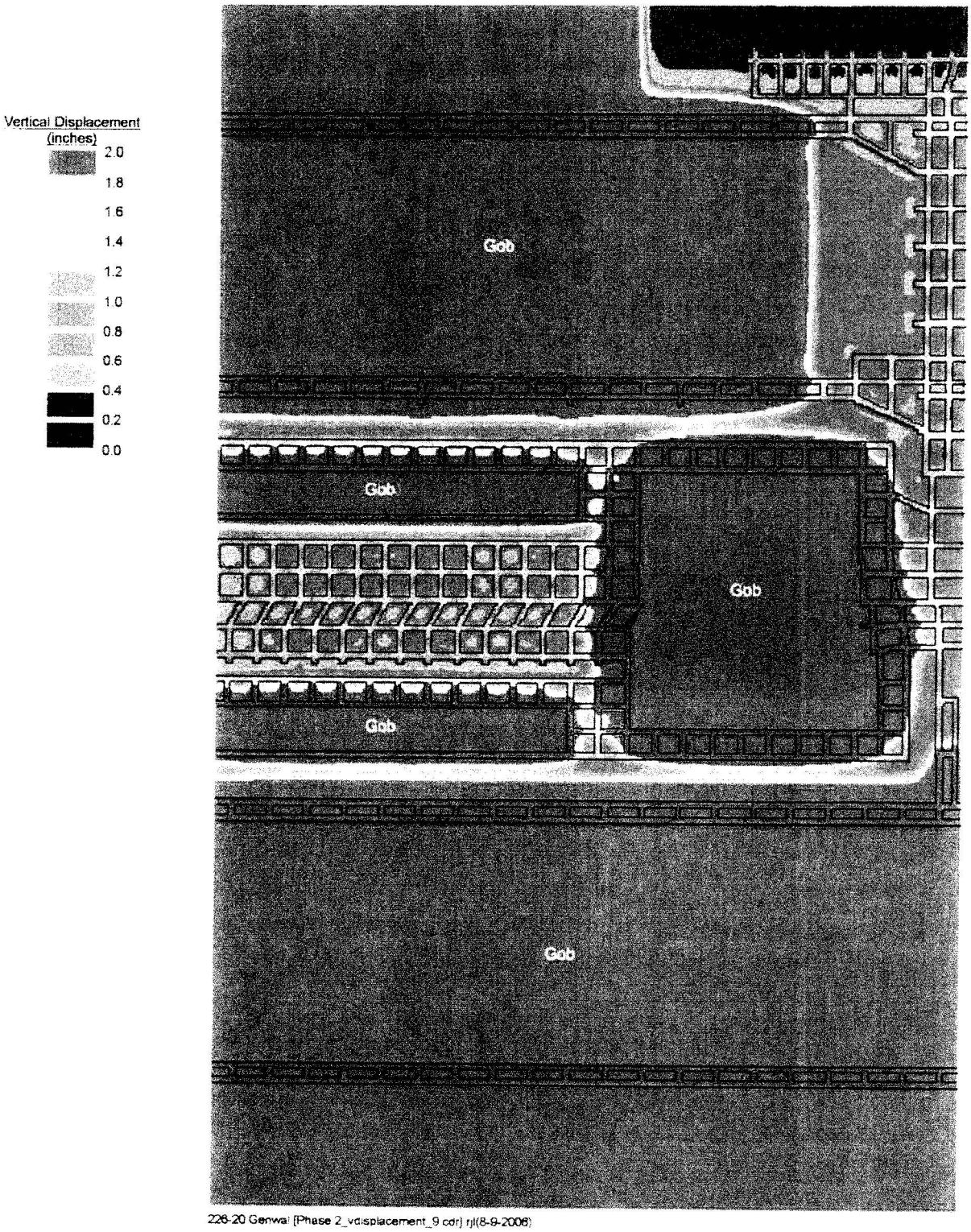

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From: Farmer, Ted E - MSHA

Sent: Monday, August 28, 2006 5:00 PM

To: Davis, Allyn C - MSHA; Cornett, Bob E - MSHA

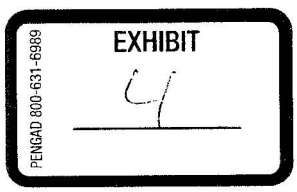
Subject: Murray Corp.

Mr. Bob Murray has asked that Bill and I met with him at the office at West Ridge tomorrow morning at 1100 hours. We don't know what the meeting is all about but I just received a call from a person who's voice I did not recognize that said, "about the meeting with Murray tomorrow be careful, he is out for blood, and out to make an example of you two supervisors."

I'm going to cancel the meeting tomorrow. If he wants to meet then he can meet us at the District Office or come here to the field office.

Please advise

Ted



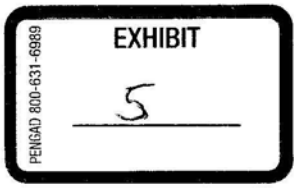
From: Davis, Allyn C - MSHA
Sent: Friday, September 01, 2006 11:39 AM
To: Langton, John F - MSHA
Cc: Pon, Melinda - MSHA
Subject: [redacted]

John,

Bob Murray and his 2nd in command, Bruce Hill, continue to push the sexual harassment issue involving [redacted] They claim they have more information, but thus far have only given us the investigation report done by Lane Adair and Garth Nielson under the previous ownership. I think we need to interview the woman involved in the complaint, [redacted] this has not been done yet by us. I am proposing that we ask Ann Nobel, head of our Regional SOL office to have Kristy Floyd, of her staff, interview this woman and also re-interview [redacted] so we can get the facts straight. Murray and his people are making wild statements and things are getting out of control right now.

Let me know if you have any problems with this approach.

Al



NOV 21 2006

Coal Mine Safety and Health
District 9

Gary Peacock
General Manager
Genwal Resources, Inc.
P.O. Box 1077

Price, UT 84501

RE: Crandall Canyon Mine
ID No. 42-01715
Roof Control Plan Amendment
Site-specific Development of North
Barrier Block of Main West

Dear Mr. Peacock:

The referenced roof control plan amendment is approved in accordance with 30 CFR 75.220(a)(1).

The submittal consisted of a cover letter, dated November 11, 2006, and two pages, addressing the development of the north barrier block of Main West. This amendment will be incorporated into the current plan originally approved on July 3, 2002.

This approval is site-specific for the development of the north barrier of Main West and will terminate upon completion of the project. Since this approval is site-specific, no pages in the roof control plan will be superseded. That is, this amendment will be added to the roof control plan as a separate attachment.

A copy of this approval must be made available to the miners and must be reviewed with all miners affected by this amendment.

If you have any questions regarding this approval, please contact

Sincerely,

/s/ William P. Knepp

Allyn C. Davis
District Manager

Enclosure

BH-A15

UtahAmerican Energy, Inc.

Crandall Canyon Mine
a subsidiary

Hwy31 MP 33, Huntington, UT 84528
PO Box 1077, Price, UT 84501
Phone: (435) 888-4000
Fax: (435) 888-4002

8646 B4-A15

November 11, 2006

Mr. Allyn C. Davis
District Manager
Coal Mine Safety and Health
P.O. Box 25367
Denver, Colorado 80225

Re: Crandall Canyon Mine ID# 42-01715 Site Specific Roof Control Plan

Dear Mr. Davis:

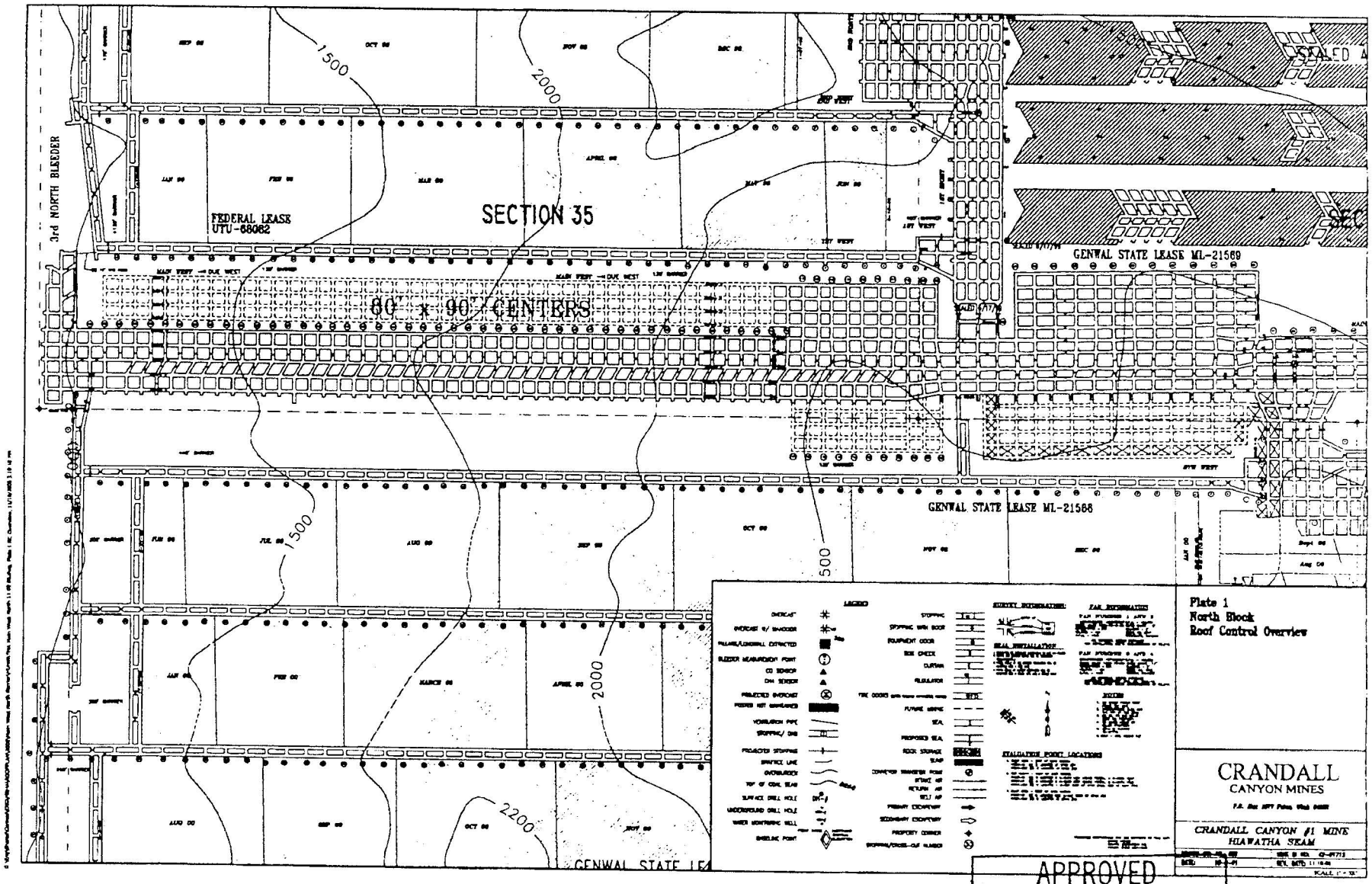
Please find attached a site specific roof control plan amendment for development of the north barrier block of Main West in the Crandall Canyon Mine.

Please contact me with any questions at [redacted]

Sincerely,

Tom Hurst

Tom Hurst
Mining Engineer
[redacted]


3rd NORTH BLEEDER
FEDERAL LEASE
UTU-68082
SECTION 35
80' x 90' CENTERS
GENWAL STATE LEASE ML-21569
GENWAL STATE LEASE ML-21568
1500
2000
500
2200
LEGEND
Plate 1
North Block
Roof Control Overview
CRANDALL
CANYON MINES
CRANDALL CANYON #1 MINE
HIAWATHA SEAM
APPROVED
NOV 21 2006
CMSH

Crandall Canyon Mine MSHA ID# 42-01715
Main West North Barrier
Site Specific Roof Control Amendment

The mine is planning to develop entries into the north barrier of the Main West area. This area contains a valuable coal resource for the Crandall Canyon Mine. Consultant reports indicate the planned development will avoid the majority of the side-abutment stress transferred from the adjacent longwall gobs.

The development in the barrier pillar block will be from east to west. Four entries will be driven on a nominal 80 foot center to center spacing. Crosscut spacing will be on a nominal 90 foot center to center spacing, but can vary depending upon conditions encountered. The mining horizon will be the upper portion of the Hiawatha Seam. Roof coal will not be left in place. See Plate 1, North Block Overview. Overburden depth in the area is between 1,000 and 2,200 feet.

Systematic bolting will occur after excavation. The number of roof bolts per row will increase to a 6 bolt per row minimum. Patterned roof support will be 6 bolts per row and 5 feet or less between rows. Additional roof support will be installed whenever entry or crosscut widths exceed 20 feet or other conditions warrant additional support.

Development mining of the barriers is anticipated to last less than one year. This roof control plan is for development only. During development of the north barrier, conditions will be monitored to determine the possibility of pillar extraction. If conditions appear favorable, further discussions and plans will be submitted for approval.

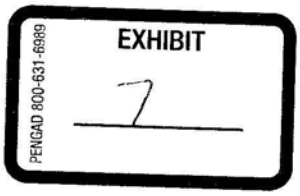
From: Hurst, Tom
Sent: Wednesday, January 10, 2007 10:16 PM
To: 'Billy Owens'
Cc: Hibbs, David; Laine, Adair; Poulson, Jim; Allred, Bodee; Peacock, Gary
Subject: Revision to Crandal Canyon Site Specific Roof Control Plan Main West North Bleeder MSHA ID# 42-01715
Attachments: Cr Barrier Roof Control All 01 10 07.pdf

Billy,

Attached is a revised site speeific roof control plan for the Main West Barrier of the Crandall Canyon Mine. This revision follows your visit to the mine earlier this week.

Call me if you have any questions or concerns.

Tom Hurst
Mining Engineer
UtahAmerican Energy
[redacted]



UtahAmerican Energy, Inc.

Crandall Canyon Mine
a subsidiary

Hwy31 MP 33, Huntington, UT 84528
PO Box 1077, Price, UT 84501
Phone: (435) 888-4000
Fax: (435) 888-4002

January 10, 2007

Mr. Allyn C. Davis
District Manager
Coal Mine Safety and Health
P.O. Box 25367
Denver, Colorado 80225

Re: Crandall Canyon Mine ID# 42-01715 Site Specific Roof Control Plan

Dear Mr. Davis:

Please find attached a revised site specific roof control plan amendment for development of the north barrier block of Main West in the Crandall Canyon Mine. The text of the plan has been revised to allow leaving of roof coal where immediate roof conditions will be improved by leaving roof coal.

Please contact me with any questions at [redacted]

Sincerely,

Tom Hurst

Tom Hurst
Mining Engineer
[redacted]

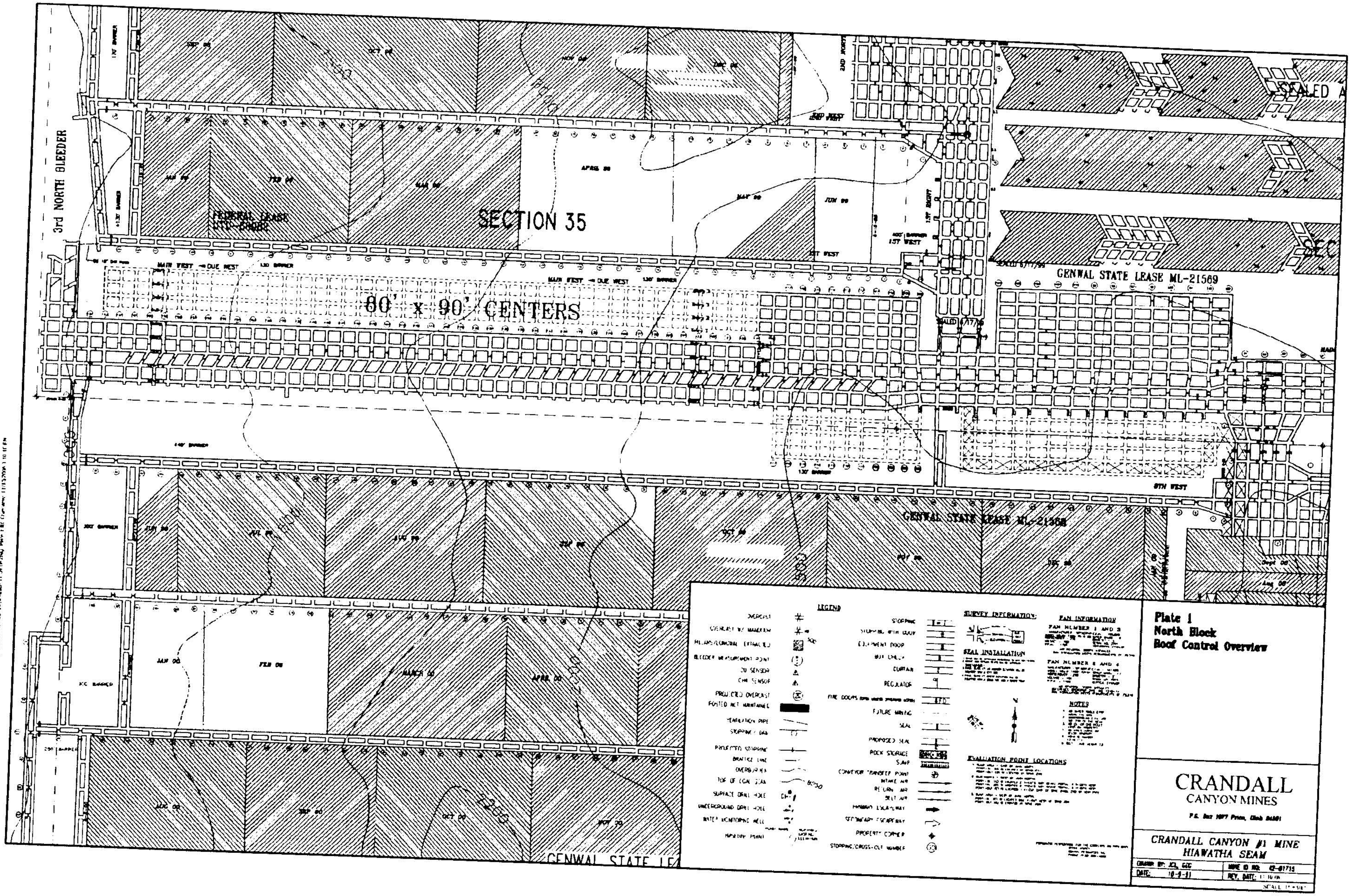
Crandall Canyon Mine MSHA ID# 42-01715
Main West North Barrier
Site Specific Roof Control Amendment

The mine is planning to develop entries into the north barrier of the Main West area. This area contains a valuable coal resource for the Crandall Canyon Mine. Consultant reports indicate the planned development will avoid the majority of the side-abutment stress transferred from the adjacent longwall gobs.

The development in the barrier pillar block will be from east to west. Four entries will be driven on a nominal 80 foot center to center spacing. Crosscut spacing will be on a nominal 90 foot center to center spacing, but can vary depending upon conditions encountered. The mining horizon will be the upper portion of the Hiawatha Seam. Roof coal may be left where areas of weak immediate roof exists. See Plate 1, North Block Overview. Overburden depth in the area is between 1,000 and 2,200 feet.

Systematic bolting will occur after excavation. The number of roof bolts per row will increase to a 6 bolt per row minimum. Patterned roof support will be 6 bolts per row and 5 feet or less between rows. Additional roof support will be installed whenever entry or crosscut widths exceed 20 feet or other conditions warrant additional support.

Development mining of the barriers is anticipated to last less than one year. This roof control plan is for development only. During development of the north barrier, conditions will be monitored to determine the possibility of pillar extraction. If conditions appear favorable, further discussions and plans will be submitted for approval.


3rd NORTH BLEEDER
FEDERAL LEASE
SECTION 35
MAIN WEST → DUE WEST
80' x 90' CENTERS
1ST WEST
1ST RIGHT
2ND WEST
GENWAL STATE LEASE ML-21569
GENWAL STATE LEASE ML-21568
8TH WEST
SEALED A
SEC
GENWAL STATE LE
APRIL 99
MAY 99
JUN 99
JAN 00
FEB 00
MARCH 00
APRIL 00
JUL 99
AUG 99
SEP 99
OCT 99
NOV 99
DEC 99
LEGEND
SURVEY INFORMATION
FAN INFORMATION
SEAL INSTALLATION
NOTES
EVALUATION POINT LOCATIONS
Plate 1
North Block
Roof Control Overview
CRANDALL
CANYON MINES
CRANDALL CANYON #1 MINE
HIAWATHA SEAM

From: Poulson, Jim

Sent: Tuesday, February 13, 2007 1:57 PM

To: [redacted]

Cc: [redacted]; Hill, Bruce; Laine Adair ([redacted]); Hibbs, David; Hurst, Tom

Subject: Drill Plan for Crandall Canyon

Bill;

I am sending this email to remind and impress upon you that we need the drill plan for Crandall reviewed and approved. As per our discussion they want to start drilling today 2/13/07. Please call Tom Hurst @ [redacted], Dave Hibbs @ [redacted] or myself if you have questions.

Thank you,

James Poulson
Safety Manager UEI
[redacted] work
cell

EXHIBIT
8

PENGAD 800-631-6989

MAR - 8 2007

Coal Mine Safety and Health
District 9

Gary Peacock
General Manager
Genwal Resources, Inc.
P.O. Box 1077
Price, UT 84501

RE: Crandall Canyon Mine
ID No. 42-01715
Roof Control Plan Amendment
Site-Specific Plan
Main West South Block Development

Dear Mr. Peacock:

The referenced roof control plan amendment is approved in accordance with 30 CFR 75.220(a)(1).

The submittal consisted of a cover letter, dated February 20, 2007, one page, and one drawing. This amendment addresses development in the Main West South Block barrier pillar.

This approval is site-specific for development of the Main West South Block and will terminate upon completion of the project. Since this approval is site-specific, no pages in the roof control plan will be superseded. That is, this amendment will be added to the roof control plan as a separate attachment.

A copy of this approval must be made available to the miners and must be reviewed with all miners affected by this amendment.

If you have any questions regarding this approval, please contact

Sincerely,

/s/ Allyn C. Davis

Allyn C. Davis
District Manager

Enclosure

B4-A18

UtahAmerican Energy, Inc.

Crandall Canyon Mine

Hwy31 MP 33, Huntington, UT 84528
PO Box 1077, Price, UT 84501
Phone: (435) 888-4000
Fax: (435) 888-4002

#8646
B4-A18

February 20, 2007

FEB 23 2007

Mr. Allyn C. Davis
District Manager
Coal Mine Safety and Health
District 9
P.O. Box
Denver, Colorado 80225

RE: Crandall Canyon Mine
MSHA ID Number 42-01715
Site Specific Roof Control Plan
Main West South Block

Dear Mr. Davis:

Please find enclosed a site specific roof control plan amendment for development of the south barrier of the Main West in the aforereferenced mine. This submittal will include one (1) page of text and one (1) plate.

If you require additional information, feel free to contact me at [redacted] or contact us at the address listed above.

Sincerely,

David W. Hibbs

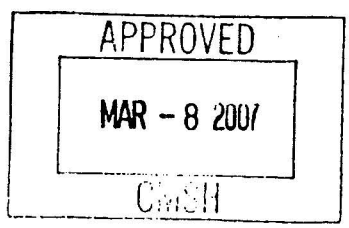
Crandall Canyon Mine
MSHA ID Number 42-01715
Main West South Barrier
Site Specific Roof Control Plan

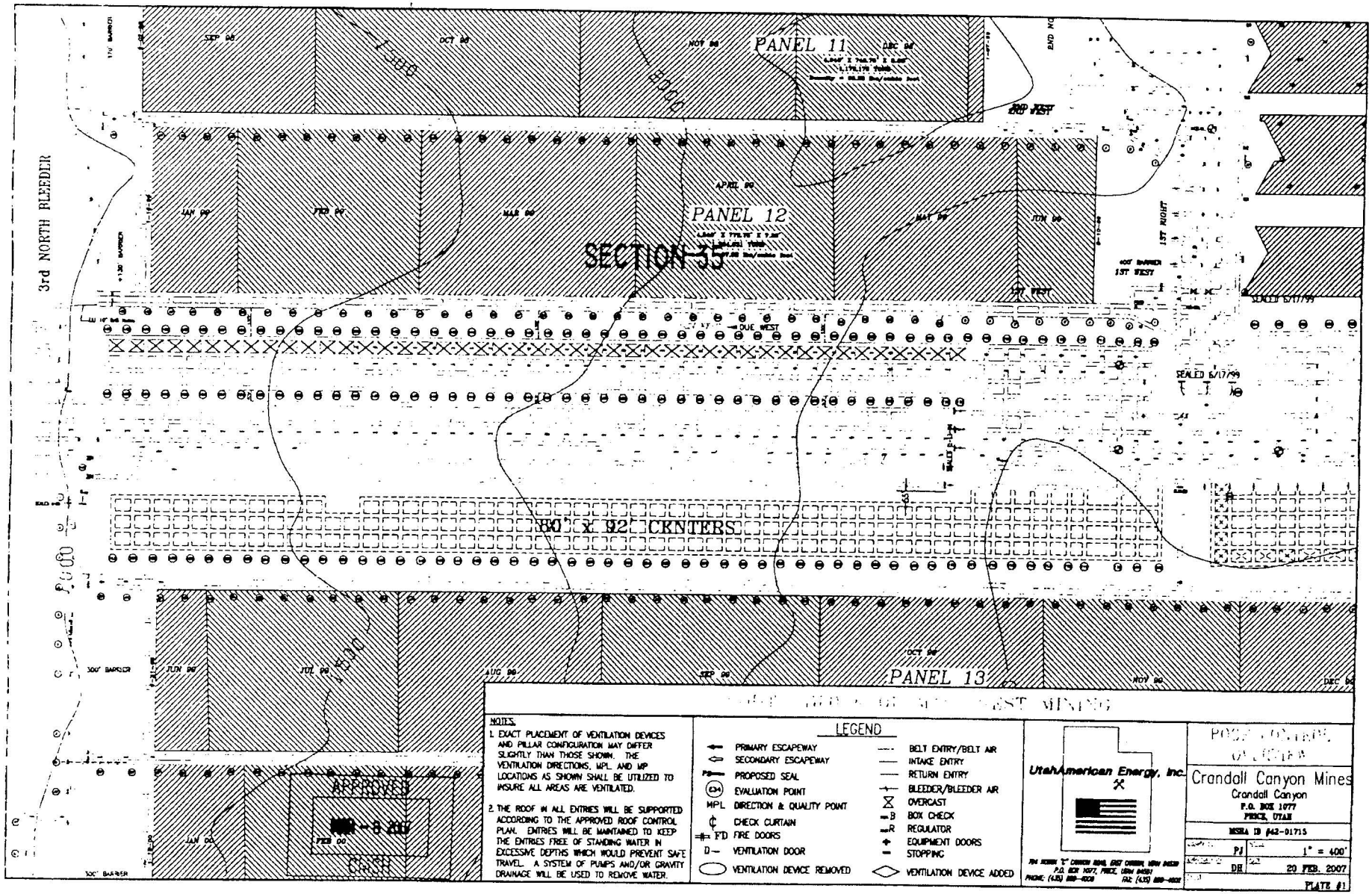
The mine is planning to develop entries into the south barrier of the Main West area. This area contains a valuable coal resource. Consultant reports indicate the planned development will avoid the majority of the side abutement stress transferred from the adjacent longwall gobs.

The development in the barrier pillar block will be done from east to west. Four (4) entries will be driven on a nominal 80 foot center to center spacing. Crosscut spacing will be on a nominal 90 foot center to center spacing, but can vary depending upon conditions encountered. The mining horizon will be the upper portion of the Hiawatha seam. Roof coal may be left in areas where weak immediate roof is encountered. See Plate 1, South Block Overview. Overburden depth in the area is between 1,000 feet and 2,200 feet.

Systematic bolting will occur after excavation. The number of roof bolts per row will increase to six (6) bolts per row minimum. Patterned roof support will be six (6) bolts per row and five (5) feet or less between rows. Additional roof support will be installed whenever entry or cross cut width exceeds 20 feet or other conditions warrant additional support.

Development mining of the barrier is anticipated to last for less than one (1) year. During development of the south barrier, conditions will be monitored to determine the possibility of pillar extraction. If conditions appear favorable further discussions and plans will be submitted for approval.




3rd NORTH BLEEDER
PANEL 11
PANEL 12
PANEL 13
SECTION 35
80' x 92' CENTERS
APPROVED
FEB 00
MINE
SEALED 6/17/99
NOTES:
1. EXACT PLACEMENT OF VENTILATION DEVICES AND PILLAR CONFIGURATION MAY DIFFER SLIGHTLY THAN THOSE SHOWN. THE VENTILATION DIRECTIONS, MPL AND MP LOCATIONS AS SHOWN SHALL BE UTILIZED TO INSURE ALL AREAS ARE VENTILATED.
2. THE ROOF IN ALL ENTRIES WILL BE SUPPORTED ACCORDING TO THE APPROVED ROOF CONTROL PLAN. ENTRIES WILL BE MAINTAINED TO KEEP THE ENTRIES FREE OF STANDING WATER IN EXCESSIVE DEPTHS WHICH WOULD PREVENT SAFE TRAVEL. A SYSTEM OF PUMPS AND/OR GRAVITY DRAINAGE WILL BE USED TO REMOVE WATER.
LEGEND
PRIMARY ESCAPEWAY
SECONDARY ESCAPEWAY
PROPOSED SEAL
EVALUATION POINT
MPL DIRECTION & QUALITY POINT
CHECK CURTAIN
FD FIRE DOORS
VENTILATION DOOR
VENTILATION DEVICE REMOVED
BELT ENTRY/BELT AIR
INTAKE ENTRY
RETURN ENTRY
BLEEDER/BLEEDER AIR
OVERCAST
BOX CHECK
REGULATOR
EQUIPMENT DOORS
STOPPING
VENTILATION DEVICE ADDED
UtahAmerican Energy, Inc.
Crandall Canyon Mines
Crandall Canyon
P.O. BOX 1077
PRICE, UTAH
MSHA ID #42-01715
PJ
1" = 400'
DH
20 FEB. 2007
PLATE #1

From: Fredland, John W. - MSHA

Sent: Tuesday, March 13, 2007 2:38 PM

To: Davis, Allyn C - MSHA

Cc: Reitze, William P - MSHA; Hoch, Terry - MSHA

Subject: Construction of Seals at Crandall Mine

Allyn,

As you informed me by phone this afternoon, Crandall Canyon Mine has experienced a bounce and has an urgent need to construct seals. You asked whether we could allow the mine operator to proceed with seal construction based on the same seal plan that has been provisionally approved for West Ridge Mine.

The provisionally approved seals at West Ridge are Minova pumpable seals. Provided the conditions at Crandall Canyon are similar with respect to the roughness/undulation of the ribs, roof and floor, then I have no problem with recommending that Crandall Canyon be permitted to construct these urgently needed seals using the same specifications as was approved for the Minova seals at West Ridge Mine. Minova seal plans include a table which provides the required thickness of the seal based on the height and width of the mine entry. This table should be followed for seal thickness. (Any approval to use Minova seals should be provisional based on Minova completing more detailed analyses and material testing to verify seal adequacy.)

(Note that the plan for West Ridge was complicated by the construction of partial walls for water impoundment just inby one of the seals. For this condition, the seal had to be designed for the potential for increased explosion pressure. The additional construction requirements approved for this seal would not be needed if this higher pressure condition does not exist at Crandall Canyon. More recently than the West Ridge approval, Technical Support has agreed with Minova (provisionally) on two seal-thickness tables, one for gob isolation type seals (seals which will experience significant convergence), and one for main or longer-term seals. If I remember correctly, the longer term seals are to be 20% thicker than the gob isolation-type seals. Crandall Canyon could use these updated tables and use the appropriate thicknesses depending on the conditions at the seal location – but seal site preparation and other construction requirements should be the same as was approved for West Ridge.)

If you have any questions about this recommendation, please let me know.

John

AGAPITO ASSOCIATES, INC.
Mining & Civil Engineers & Geologists

715 HORIZON DRIVE
SUITE 340
GRAND JUNCTION, CO 81506
USA
VOICE 970.242.4220
www.agapito.com

April 18, 2007

226-20

Mr. Laine Adair
General Manager
UtahAmerican Energy, Inc.
794 North C Canyon Road
Price, UT 84501

Re: **GENWAL Crandall Canyon Mine Main West South Barrier Mining Evaluation**

Dear Laine,

Agapito Associates, Inc. (AAI) has completed the geotechnical analysis of GENWAL Resources, Inc.'s (GENWAL) plan for room-and-pillar mining in the Crandall Canyon Mine Main West south barrier. AAI recommended the use of pillars on 80-ft by 92-ft[1] centers for retreat mining in both the north and south Main West barriers based on an earlier analysis documented in our July 20, 2007, report.[2] The design proved successful on development in the north barrier panel under maximum cover reaching 2,200 ft deep.

The panel was successfully retreated to crosscut (XC) 138 under approximately 2,100 ft of cover when poor roof conditions motivated moving the face outby and skipping pulling pillars between XCs 135 and 138. The retreat was re-initiated by pulling the two pillars between XCs 134 and 135 in early March 2007. A large bump occurred at this point resulting in heavy damage to the entries located between XCs 133 and 139. The remaining north panel was abandoned in favor of mining the south barrier.

AAI engineers Michael Hardy and Leo Gilbride visited the bump location on March 16, 2007, under the escort of Mr. Gary Peacock, GENWAL Mine Manager and Mr. Laine Adair, General Manager, UtahAmerican Energy, Inc. GENWAL commissioned AAI to refine the pillar design for the south barrier based on the response of the north panel pillars. AAI was able to analyze the stress and convergence conditions at the time of the bump and modify the pillar design accordingly to control the potential for similar events in the south barrier. The results of the analysis and recommendations for south barrier mining are summarized in the following letter.

[1] Pillar geometry stated in terms of center dimensions; entries typically mined 17 ft wide.
[2] Agapito Associates, Inc. (2006), "DRAFT—GENWAL Crandall Canyon Mine Main West Barrier Pillar Mining Evaluation," prepared for Andalex Resources, Inc

ANALYSIS

Ground conditions were simulated using the calibrated NIOSH LAMODEL[3] displacement discontinuity model used in the preceding study.[2] The complete model area is illustrated in Figure 1. Simulated conditions at the time of the bump are shown in Figures 2, 3, and 4. Figure 2 describes the vertical stress distribution in the pillars leading up to the bump. Figures 3 and 4 show the corresponding degrees of coal yielding and roof-to-floor convergence. The figures incidentally show retreat mining in the south barrier, although this did not exist at the time of the bump. The two retreats were simulated in the same model for convenience, which is possible because the two areas are geomechnically isolated from one another in the model.

At the time of the bump, the cave was reported to be lagging inby XC 138. Also, the new start-up cave was minimally developed above the two pillars pulled between XCs 134 and 135. These lagging caves were simulated in the model by limiting load transfer through the gob, which causes higher abutment loads to be transmitted to surrounding pillars. The lagging caves can be recognized in Figure 1 by the white colored gob areas.

Model results show that high stresses were placed on the pillars from three contributing sources: (1) abutment loads from the main cave (inby XC 138), (2) abutment loads from the start-up cave (between XCs 134 and 135), and, to a lesser extent, (3) abutment loads from longwall Panel 12. Peak stresses were concentrated on the pillars located between the two caves (between XCs 135 and 138). Figure 3 shows significant yielding in these pillars indicative of overloading. Modeling suggests that the start-up cave contributed on the order of 5,000 psi additional stress to some parts of the surrounding pillars. This, coupled with the other abutment loads, is believed to have created a high stress region that allowed a localized bump in the pillars somewhere between XCs 134 and 135 to propagate to pillars over a much wider area.

Figures 2, 3, and 4 show stress, yielding, and convergence levels in the same sized pillars (80-ft by 92-ft[1]) in the south barrier for ordinary retreat conditions, where no pillars are skipped. The figures show that high-stress conditions attenuate quickly away from the face and that protected conditions exist as close as one crosscut outby the face.

Figures 5, 6, and 7 illustrate the benefit of increasing pillar size from 80-ft by 92-ft[1] to 80-ft by 129-ft[1]. The added 37 ft length, approximately equivalent to an extra full cut, increases the size and strength of the pillars' confined cores, which helps to isolate bumps to the face and reduce the risk of larger bumps overrunning crews in outby locations. For conservatism, a lagging cave was also assumed in the south panel. Plans are to slab the south barrier to a depth of about 40 ft. The wider span is expected to improve caving conditions compared to the north panel and reduced concentrated loads at the face.

The south barrier will be mined to about 97 ft wide (rib-to-rib) after slabbing. The slabbed barrier will be subject to side abutment loads from gob on both sides, resulting in elevated stress levels through the core. Model results indicate that the barrier will yield to a

[3] Heasley, K.A. (1998), *Numerical Modeling of Coal Mines with a Laminated Displacement-Discontinuity Code*, Ph.D. Thesis, Colorado School of Mines, 187 p.

depth of about 20 ft along the ribs, but that the core will remain competent. This is likely to result in some bumping in the gob, but is not considered to pose unusual risk to crews working at the face.

RECOMMENDATIONS

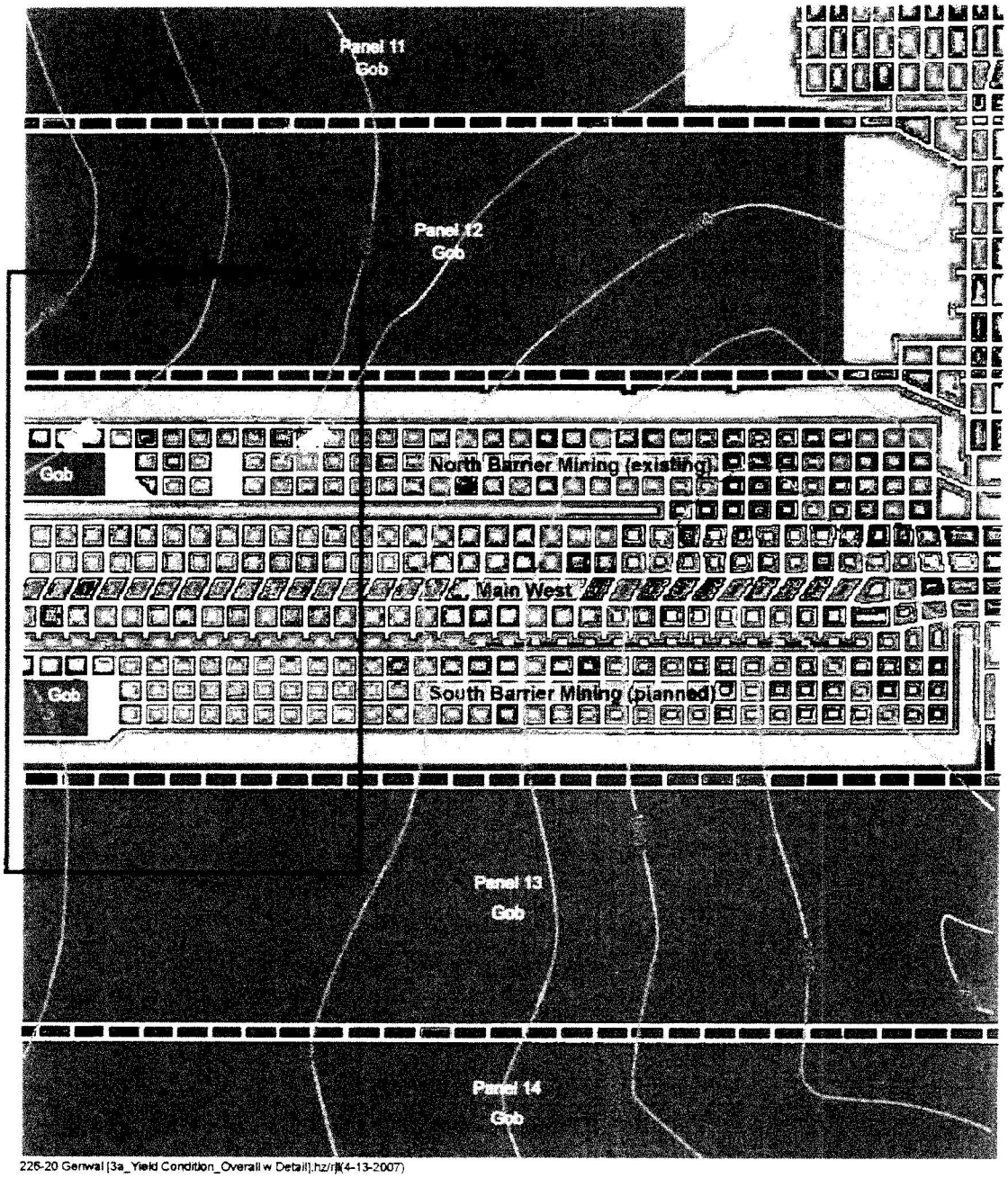
Based on the evidence from the Main West north barrier retreat and results of numerical modeling, we recommend mining with 80-ft by 129-ft[1] pillars, or similar, in the south barrier. This size of pillar is expected to provide a reliable level of protection against problematic bumping for retreat mining under cover reaching 2,200 ft. Pillars should be robbed as completely as is safe to promote good caving. Slabbing the south-side barrier is expected to benefit caving. Skipping pillars should be avoided in the south barrier, particularly under the deepest cover.

Please contact me to discuss these results, at your convenience, or if you have any questions.

Sincerely,

Leo Gilbride
Principal
[redacted]

LG/smvf:klg
Attachments(7): Figures 1–7



Depth of Cover Contour (ft)
Hiawatha Seam

Figure 1. Geometry of LAMODEL Model

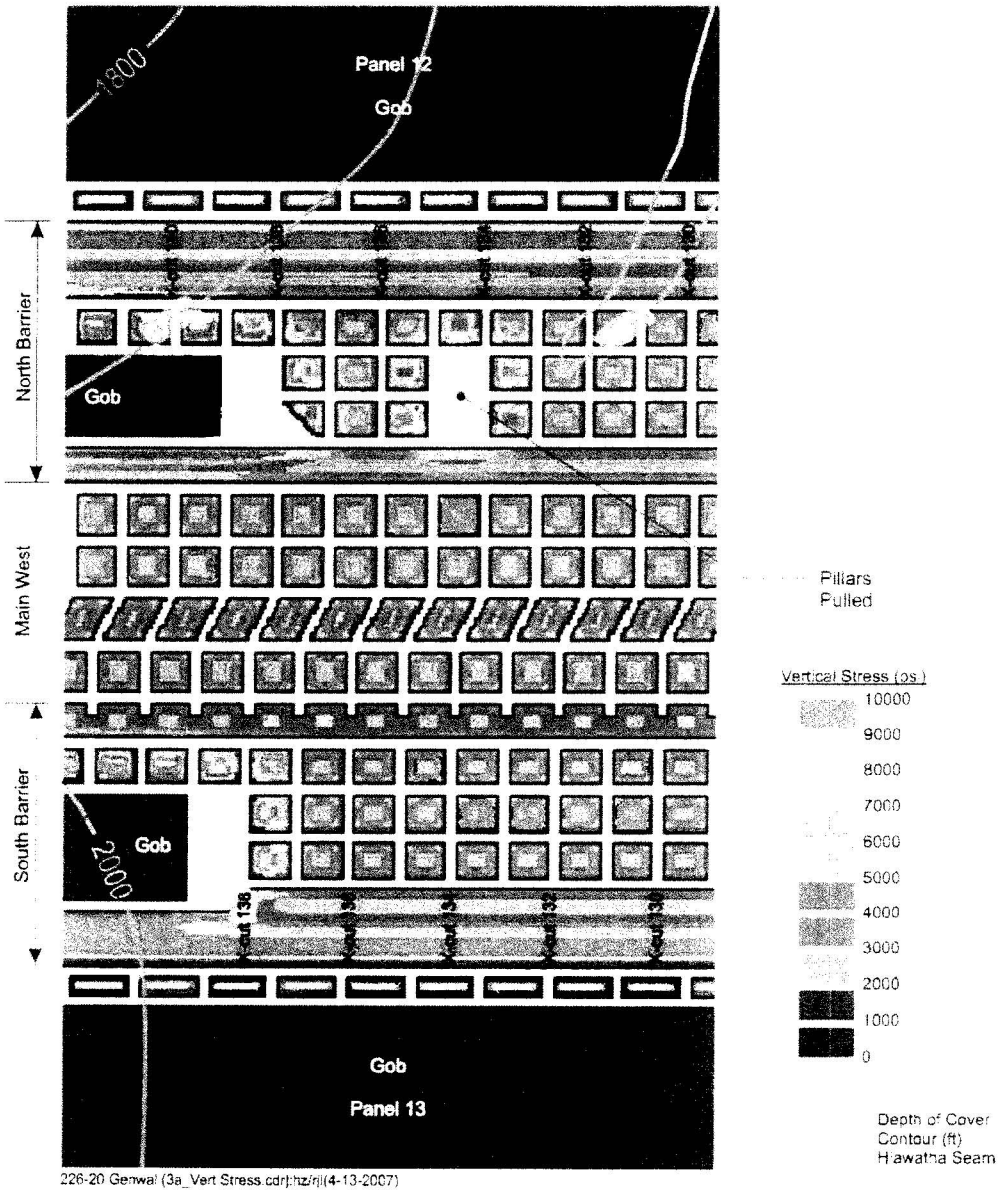


Figure 2. **Modeled Vertical Stress—Existing Mining in the North Barrier and Optional Mining with 80-ft by 92-ft Pillars in the South Barrier**

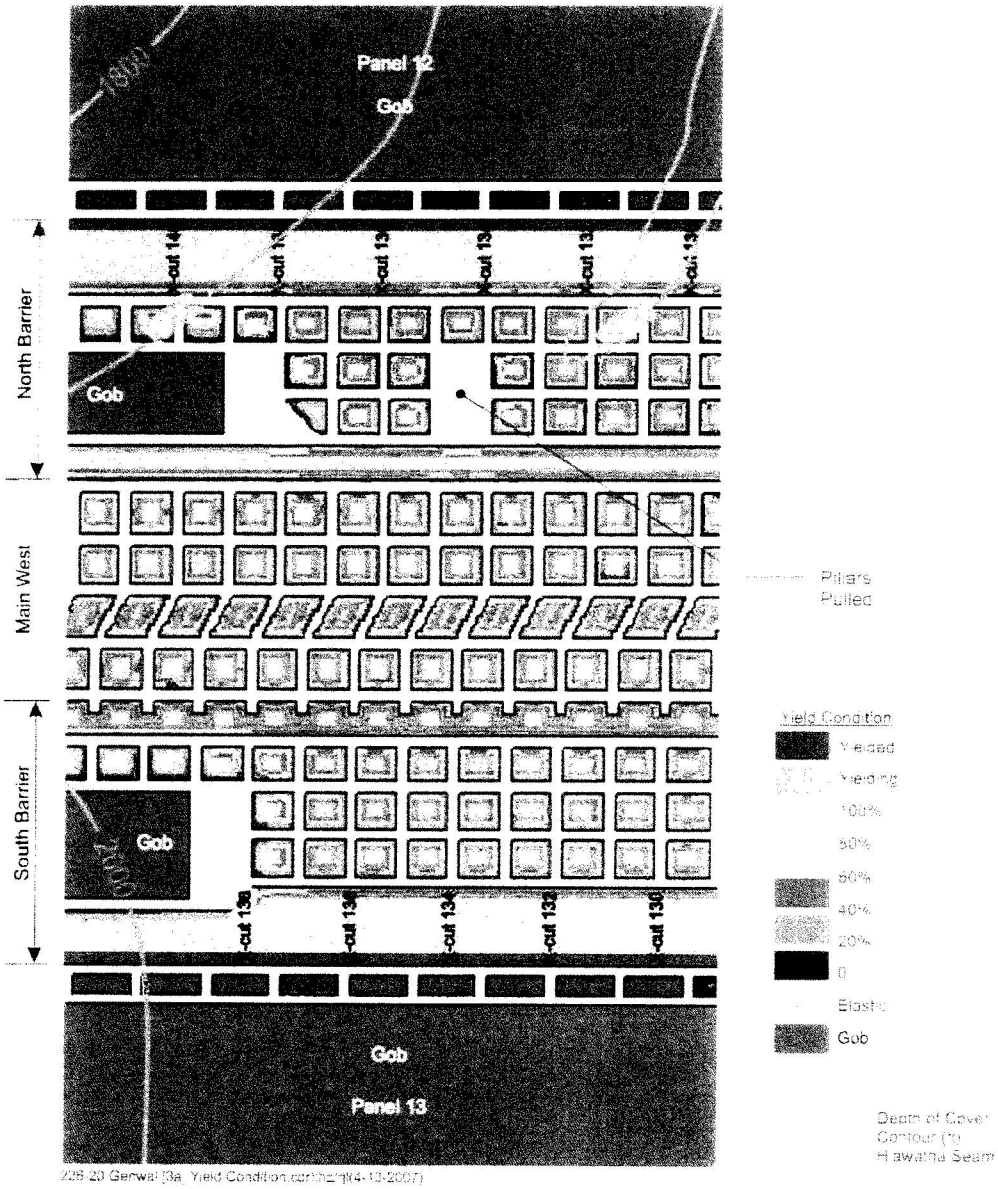


Figure 3. Modeled Coal Yielding—Existing Mining in the North Barrier and Optional Mining with 80-ft by 92-ft Pillars in the South Barrier

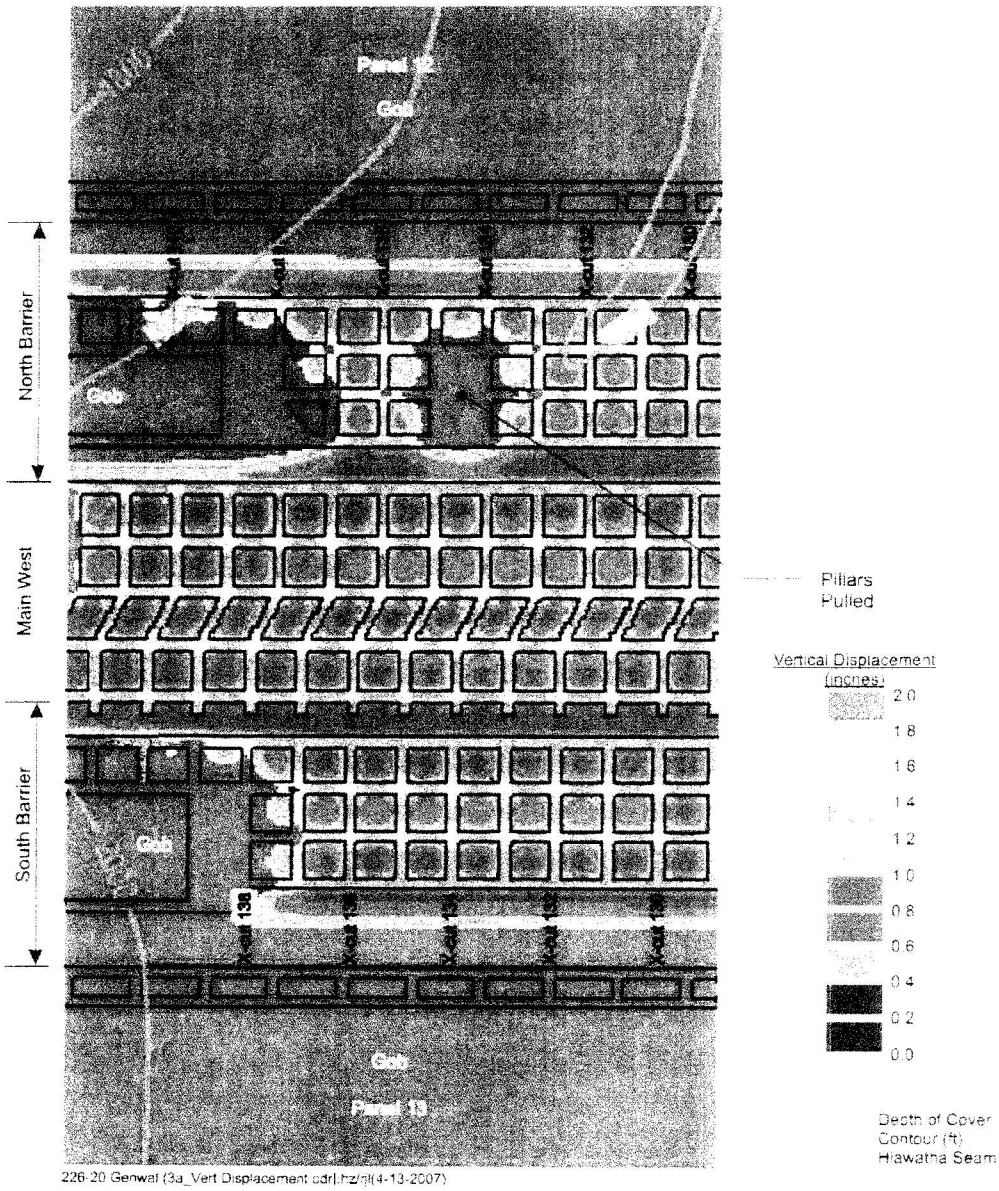


Figure 4. Modeled Roof-to-Floor Convergence—Existing Mining in the North Barrier and Optional Mining with 80-ft by 92-ft Pillars in the South Barrier

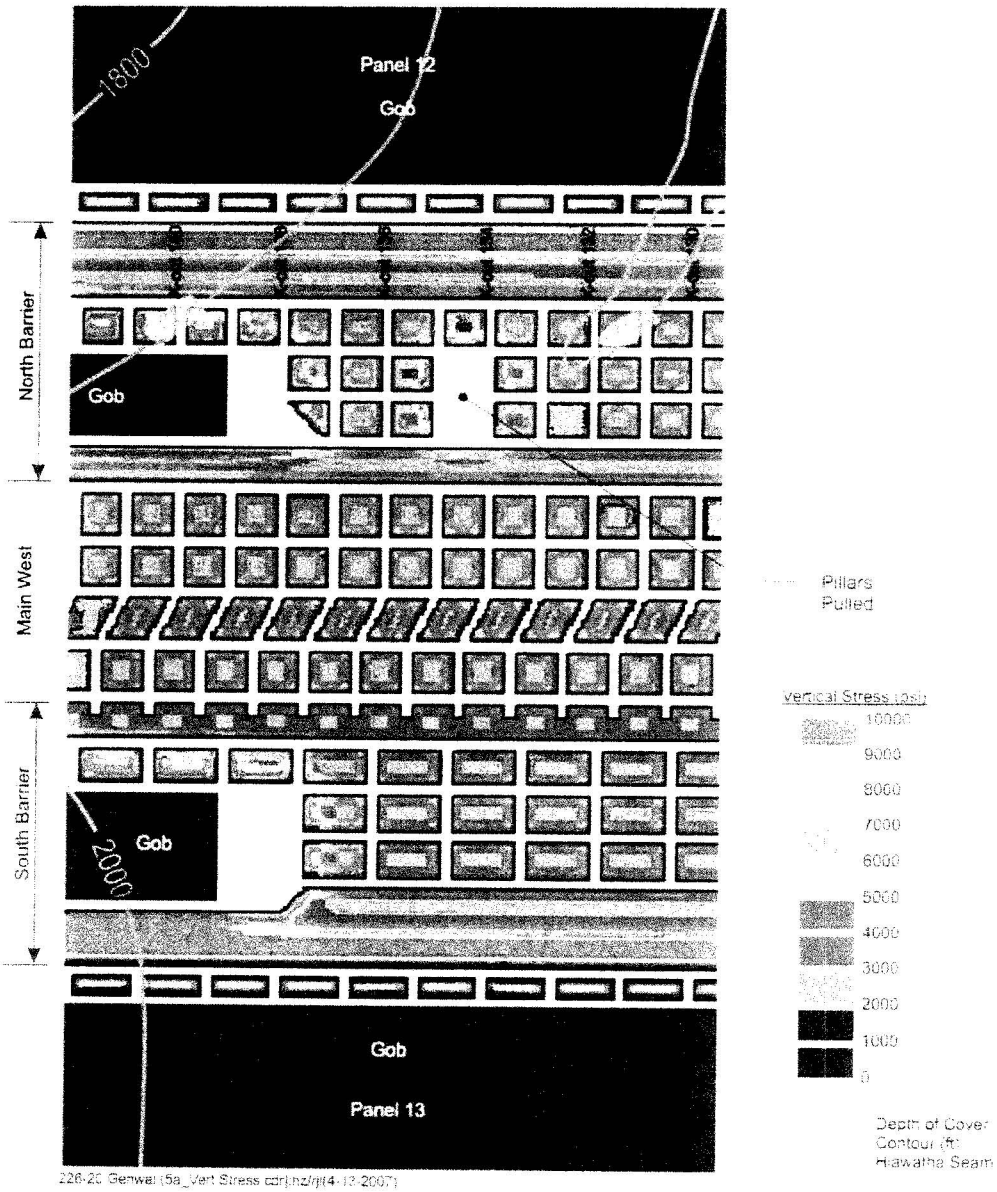


Figure 5. Modeled Vertical Stress—Existing Mining in the North Barrier and Optional Mining with 80-ft by 129-ft Pillars in the South Barrier

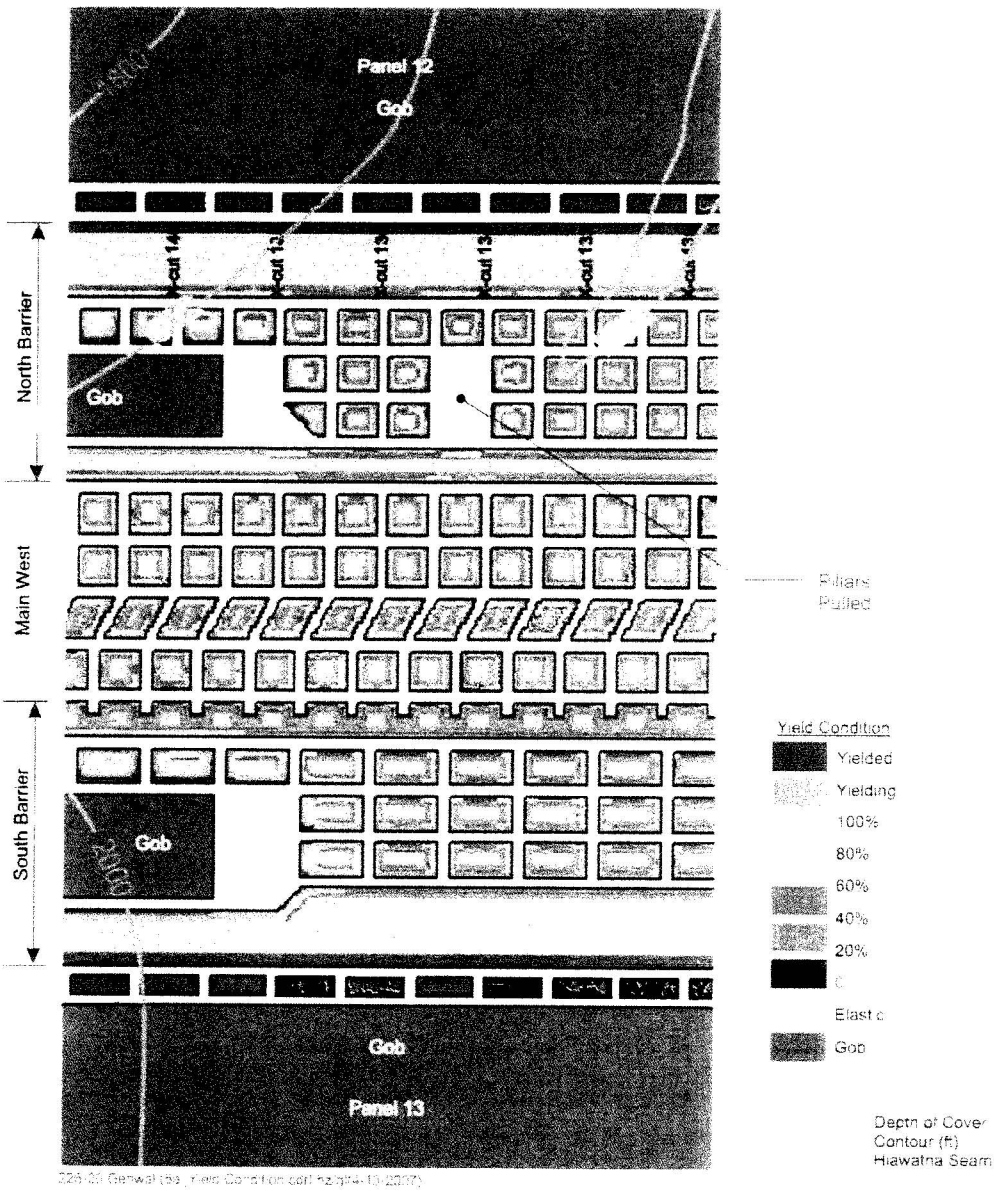


Figure 6. Modeled Coal Yielding—Existing Mining in the North Barrier and Optional Mining with 80-ft by 129-ft Pillars in the South Barrier

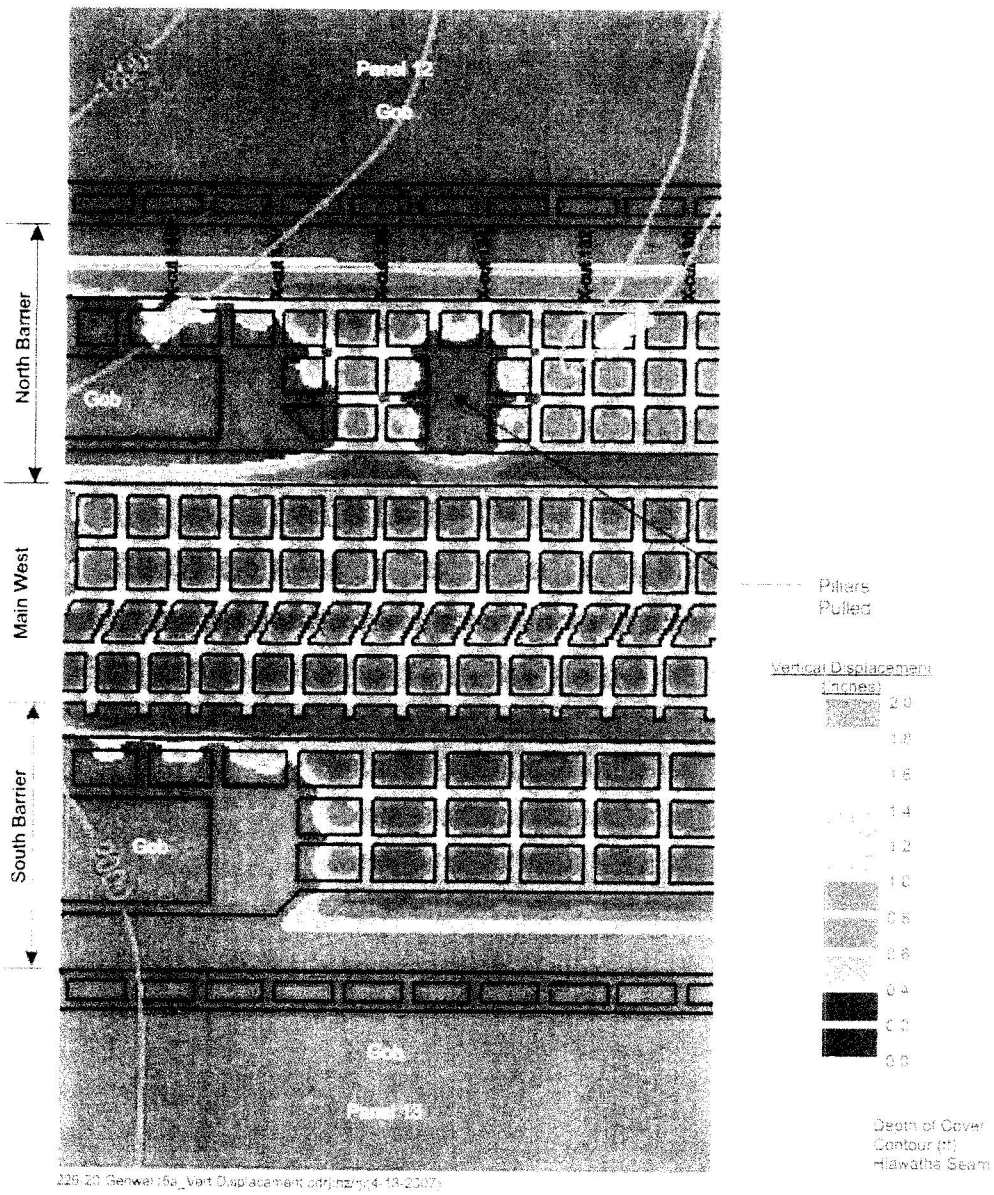


Figure 7. Modeled Roof-to-Floor Convergence—Existing Mining in the North Barrier and Optional Mining with 80-ft by 129-ft Pillars in the South Barrier

BDO 5/17/07

UtahAmerican Energy, Inc.

Crandall Canyon Mine
a subsidiary

Hwy31 MP 33, Huntington, UT 84528
PO Box 1077, Price, UT 84501
Phone: (435) 888-4000
Fax: (435) 888-4002

8646 B4-A19

May 16, 2007

Mr. Allyn C. Davis
District Manager
Coal Mine Safety and Health
P.O. Box 25367
Denver, Colorado 80225

Re: Crandall Canyon Mine ID# 42-01715 Roof Control Plan
Pillaring Main West South Barrier

Dear Mr. Davis:

Please find attached for your review and approval, a site specific roof control plan for pillaring the South Barrier of Main West at our Crandall Canyon Mine. The plan consists of one page of text and 1 Plate.

Please contact me with any questions at [redacted].

Sincerely,

Tom Hurst

Tom Hurst
Mining Engineer
[redacted]

Crandall Canyon Mine
MSHA ID # 42-01715
Main West Pillaring
South Barrier
Roof Control Plan

The mine is currently developing entries into the south barrier of the Main West area. This plan proposes to recover coal remaining in the pillars shown on attached Plate 1, Pillar Extraction.

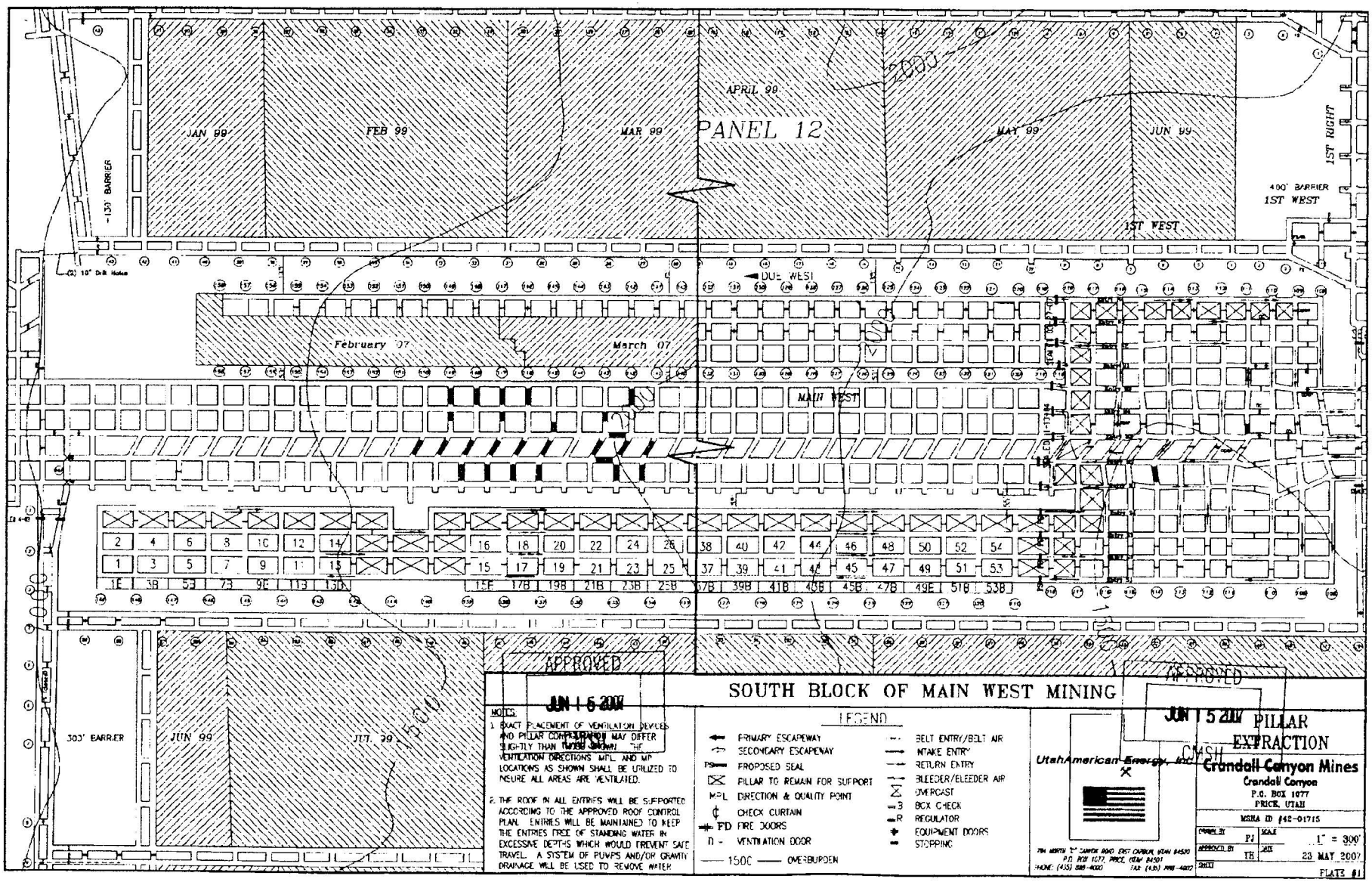
Consultant reports indicate the development will avoid the majority of the side-abutment stress transferred from the adjacent longwall panels. These assessments have been validated by conditions experienced in the mine.

Plate 1, Pillar Extraction, shows the mining sequence and the blocks left in the mining process. This pillar recovery will be done in accordance with the approved Roof Control Plan.

Floor to roof support will be provided in the Bleeder entry. These timbers will be installed at the entrance to the crosscuts in number 4 entry. This support will consist of a double row of timbers (breaker row) installed on four (4) foot centers or closer if deemed necessary by the operator. There will be a minimum of four timbers in each row across the entry.

Also, should conditions warrant pillaring can begin at anytime in the panel. The pillar sequence and bleeder configuration will be same except that pillars will be left inby the beginning of the pillar line.

APPROVED
JUN 15 2007
CMSH



G:\Sidwell\Current Drawings\MSHA\Crandall Canyon\MCP\PL MAPS\Main West South Barrier 05 23 07.dwg, 5/23/2007 5:36:37 PM, Adobe PDF

UEICONG-K0000011378

U.S. Department of Labor

Mine Safety and Health Administration
P.O. Box 25367
Denver, Colorado 80225-0367

JUN 15 2007

Coal Mine Safety and Health
District 9

Gary Peacock
General Manager
Genwal Resources, Inc.
P.O. Box 1077
Price, UT 84501

RE: Crandall Canyon Mine
ID No. 42-01715
Roof Control Plan Amendment
Site-specific Pillaring Plan
Main West South Barrier

Dear Mr. Peacock:

The referenced roof control plan amendment is approved in accordance with 30 CFR 75.220(a)(1).

The submittal consisted of a cover letter, dated May 16, 2007, one page, and one drawing, addressing pillar mining of the Main West South Barrier. This amendment will be incorporated into the current plan originally approved on July 3, 2002.

This approval is site-specific for pillar mining the Main West South Barrier and will terminate upon completion of the project. Since this approval is site-specific, no pages in the roof control plan will be superseded. That is, this amendment will be added to the roof control plan as a separate attachment.

A copy of this approval must be made available to the miners and must be reviewed with all miners affected by amendment.

If you have any questions regarding this approval, please contact Billy Owens at [redacted] or [redacted].

Sincerely,

William G. Denney

for Allyn C. Davis
District Manager

Enclosure

EXHIBIT 13

PENGAD 800-631-6989

BDO 5/17/07

UtahAmerican Energy, Inc.

Crandall Canyon Mine
a subsidiary

Hwy31 MP 33, Huntington, UT 84528
PO Box 1077, Price, UT 84501
Phone: (435) 888-4000
Fax: (435) 888-4002

8646 B4-A19

May 16, 2007

Mr. Allyn C. Davis
District Manager
Coal Mine Safety and Health
P.O. Box 25367
Denver, Colorado 80225

Re: Crandall Canyon Mine ID# 42-01715 Roof Control Plan
Pillaring Main West South Barrier

Dear Mr. Davis:

Please find attached for your review and approval, a site specific roof control plan for pillaring the South Barrier of Main West at our Crandall Canyon Mine. The plan consists of one page of text and 1 Plate.

Please contact me with any questions at [redacted].

Sincerely,

Tom Hurst

Tom Hurst
Mining Engineer
[redacted]

Crandall Canyon Mine
MSHA ID # 42-01715
Main West Pillaring
South Barrier
Roof Control Plan

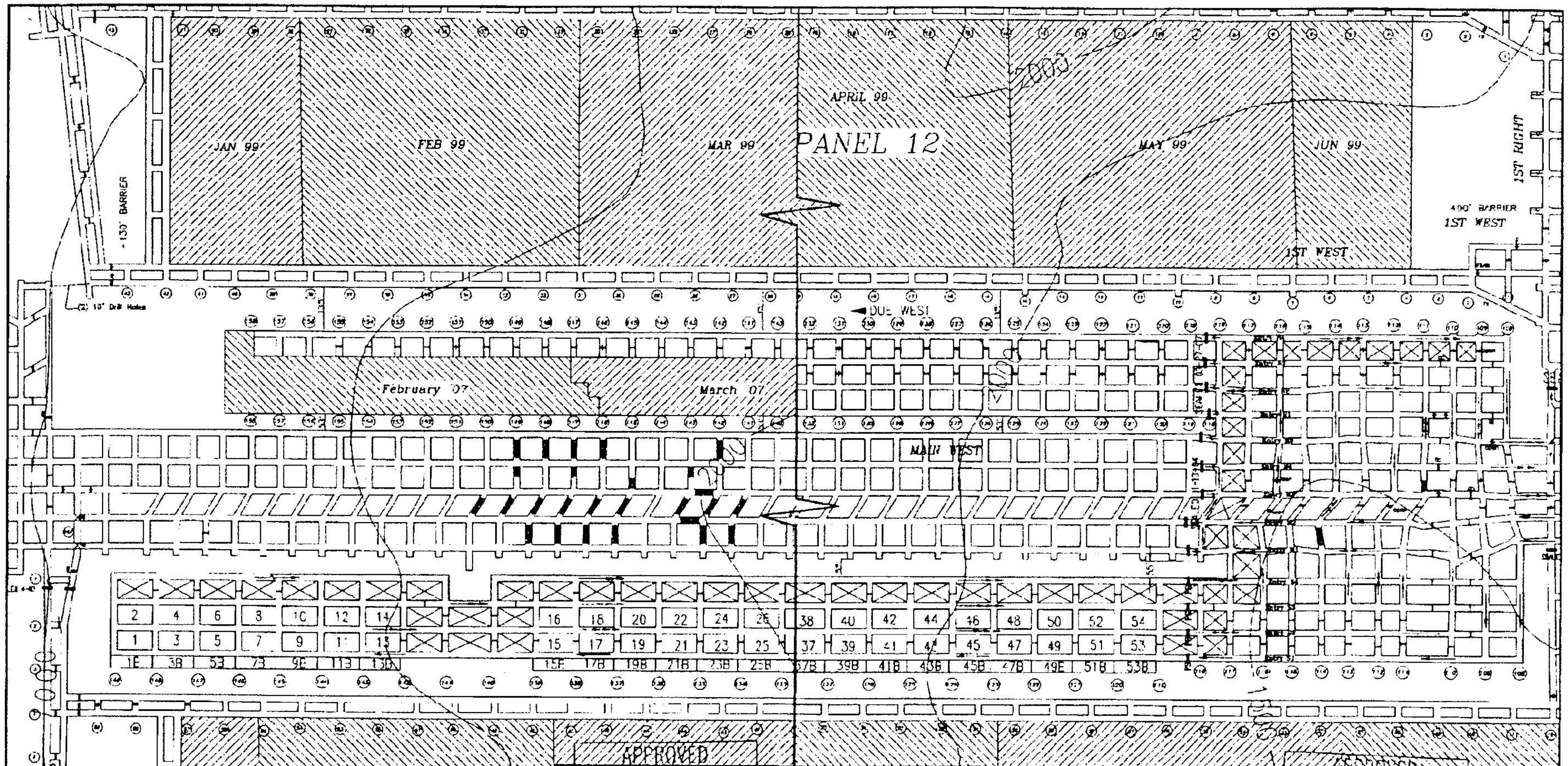
The mine is currently developing entries into the south barrier of the Main West area. This plan proposes to recover coal remaining in the pillars shown on attached Plate 1, Pillar Extraction.

Consultant reports indicate the development will avoid the majority of the side-abutment stress transferred from the adjacent longwall panels. These assessments have been validated by conditions experienced in the mine.

Plate 1, Pillar Extraction, shows the mining sequence and the blocks left in the mining process. This pillar recovery will be done in accordance with the approved Roof Control Plan.

Floor to roof support will be provided in the Bleeder entry. These timbers will be installed at the entrance to the crosscuts in number 4 entry. This support will consist of a double row of timbers (breaker row) installed on four (4) foot centers or closer if deemed necessary by the operator. There will be a minimum of four timbers in each row across the entry.

Also, should conditions warrant pillaring can begin at anytime in the panel. The pillar sequence and bleeder configuration will be same except that pillars will be left inby the beginning of the pillar line.



SOUTH BLOCK OF MAIN WEST MINING

NOTES:

1. EXACT PLACEMENT OF VENTILATION DEVICES AND PILLAR CONFIGURATION MAY DIFFER SLIGHTLY THAN THOSE SHOWN. THE VENTILATION DIRECTIONS, MPL AND MP LOCATIONS AS SHOWN SHALL BE UTILIZED TO INSURE ALL AREAS ARE VENTILATED.
2. THE ROOF IN ALL ENTRIES WILL BE SUPPORTED ACCORDING TO THE APPROVED ROOF CONTROL PLAN. ENTRIES WILL BE MAINTAINED TO KEEP THE ENTRIES FREE OF STANDING WATER IN EXCESSIVE DEPTHS WHICH WOULD PREVENT SAFE TRAVEL. A SYSTEM OF PUMPS AND/OR GRAVITY DRAINAGE WILL BE USED TO REMOVE WATER.

LEGEND

- PRIMARY ESCAPEWAY
- SECONDARY ESCAPEWAY
- PS PROPOSED SEAL
- PILLAR TO REMAIN FOR SUPPORT
- MPL DIRECTION & QUALITY POINT
- CHECK CURTAIN
- FD FIRE DOORS
- D - VENTILATION DOOR
- 1500 —— OVERBURDEN
- BELT ENTRY/BELT AIR
- INTAKE ENTRY
- RETURN ENTRY
- BLEEDER/BLEEDER AIR
- OVERCAST
- B BOX CHECK
- R REGULATOR
- EQUIPMENT DOORS
- STOPPING

APPROVED
JUN 15 2007
CMSH

UtahAmerican Energy, Inc.

794 NORTH "C" CANYON ROAD, EAST CARBON, UTAH 84520
P.O. BOX 1077, PRICE, UTAH 84501
PHONE: (435) 888-4000 FAX (435) 888-4002

PILLAR EXTRACTION

Crandall Canyon Mines

Crandall Canyon
P.O. BOX 1077
PRICE, UTAH

MSHA ID #42-01715

DRAWN BY	PJ	SCALE	1" = 300'
APPROVED BY	TH	DATE	23 MAY 2007
SHEET			PLATE #1

UEICONG-K000011378

UtahAmerican Energy, Inc.

Crandall Canyon Mine
a subsidiary

Hwy31 MP 33, Huntington, UT 84528
PO Box 1077, Price, UT 84501
Phone: (435) 888-4000
Fax: (435) 888-4002

May 23, 2007

Mr. Allyn C. Davis
District Manager
Coal Mine Safety and Health
P.O. Box 25367
Denver, Colorado 80225

Re: Crandall Canyon Mine ID# 42-01715 Roof Control Plan
Pillaring Main West South Barrier

Dear Mr. Davis:

Please find attached for your review and approval, a site specific roof control plan for pillaring the South Barrier of Main West at our Crandall Canyon Mine. The plan consists of one page of text and 1 Plate.

Please contact me with any questions at [redacted].

Sincerely,

Tom Hurst

Tom Hurst
Mining Engineer
[redacted]

EXHIBIT
14

Crandall Canyon Mine
MSHA ID # 42-01715
Main West Pillaring
South Barrier
Roof Control Plan

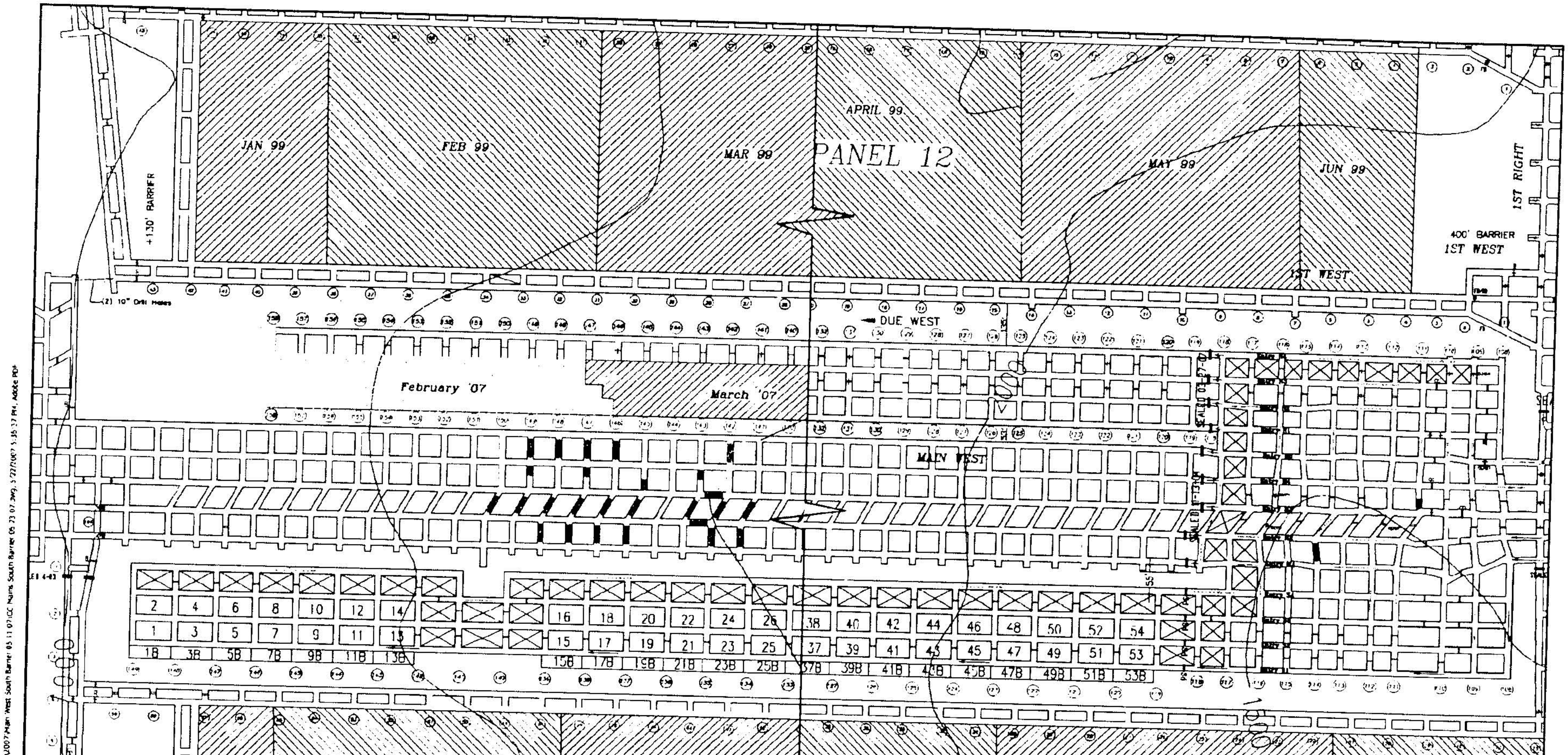
The mine is currently developing entries into the south barrier of the Main West area. This plan proposes to recover coal remaining in the pillars shown on attached Plate 1, Pillar Extraction.

Consultant reports indicate the development will avoid the majority of the side-abutment stress transferred from the adjacent longwall panels. These assessments have been validated by conditions experienced in the mine.

Plate 1, Pillar Extraction, shows the mining sequence and the blocks left in the mining process. This pillar recovery will be done in accordance with the approved Roof Control Plan.

Floor to roof support will be provided in the Bleeder entry. These timbers will be installed at the entrance to the crosscuts in number 4 entry. This support will consist of a double row of timbers (breaker row) installed on four (4) foot centers or closer if deemed necessary by the operator. There will be a minimum of four timbers in each row across the entry.

Also, should conditions warrant pillaring can begin at anytime in the panel. The pillar sequence and bleeder configuration will be same except that pillars will be left inby the beginning of the pillar line.



SOUTH BLOCK OF MAIN WEST MINING

NOTES:

1. EXACT PLACEMENT OF VENTILATION DEVICES AND PILLAR CONFIGURATION MAY DIFFER SLIGHTLY THAN THOSE SHOWN. THE VENTILATION DIRECTIONS, MPL AND MP LOCATIONS AS SHOWN SHALL BE UTILIZED TO INSURE ALL AREAS ARE VENTILATED.
2. THE ROOF IN ALL ENTRIES WILL BE SUPPORTED ACCORDING TO THE APPROVED ROOF CONTROL PLAN. ENTRIES WILL BE MAINTAINED TO KEEP THE ENTRIES FREE OF STANDING WATER IN EXCESSIVE DEPTHS WHICH WOULD PREVENT SAFE TRAVEL. A SYSTEM OF PUMPS AND/OR GRAVITY DRAINAGE WILL BE USED TO REMOVE WATER.

LEGEND

←	PRIMARY ESCAPEWAY	→	BELT ENTRY/BELT AIR
···	SECONDARY ESCAPEWAY	→	INTAKE ENTRY
PS—	PROPOSED SEAL	·····	RETURN ENTRY
▨	PILLAR TO REMAIN FOR SUPPORT	·····	BLEEDER/BLEEDER AIR
MPL	DIRECTION & QUALITY POINT	X	OVERCAST
¢	CHECK CURTAIN	—E	BOX CHECK
-‖- FD	FIRE DOORS	—R	REGULATOR
‖ —	VENTILATION DOOR	*	EQUIPMENT DOORS
	OVERBURDEN	=	STOPPING

UtahAmerican Energy, Inc.

794 NORTH "C" CANYON ROAD, EAST CARBON, UTAH 84520
P.O. BOX 1077, PRICE, UTAH 84501
PHONE (435) 888-4000 FAX (435) 888-4002

PILLAR EXTRACTION

Crandall Canyon Mines
Crandall Canyon
P.O. BOX 1077
PRICE, UTAH

MSHA ID #42-01715

DRAWN BY	PJ	SCALE	1" = 300'
APPROVED BY	TH	DATE	23 MAY 2007
SHEET			PLATE #1

UEICONG-K000013098

From: Hibbs, David
Sent: Monday, July 23, 2007 10:53 PM
To: Davis, Allyn C - MSHA
Cc: Reitze, William P - MSHA; Fleshman, Jeffrey L - MSHA; Adair, Laine; Peacock, Gary; Allred, Bodee; Poulson, Jim; James Newman
Subject: FW: Scan from West Ridge Office Xerox

Attachments: Scan001.PDF

Scan001.PDF (837 KB)

Attached for your review is a Site Specific Ventilation Plan for Retreat of the Main West at the Crandall Mine.

David W. Hibbs
UtahAmerican Energy, Inc.
P.O. Box 1077
Price, Utah 84501

Phone [redacted]
Fax [redacted]
Cell [redacted]

-----Original Message-----
From: [redacted] [mailto:[redacted]]
Sent: Monday, July 23, 2007 5:44 PM
To: Hibbs, David
Subject: Scan from West Ridge Office Xerox

Please open the attached document. It was scanned and sent from UtahAmerican Energy, WestRidge Mine

Sent by: Guest
Number of Images: 8
Attachment File Type: PDF

WorkCentre Location: WestRidge Office

West Ridge Mine
Main Office,
Telephone:435-888-4000
Fax: 435-888-4002

EXHIBIT
15

UtahAmerican Energy, Inc.

Crandall Canyon Mine
a subsidiary

Hwy31 MP 33, Huntington, UT 84528
PO Box 1077, Price, UT 84501
Phone: (435) 888-4000
Fax: (435) 888-4002

July 21, 2007

Mr. Allyn C. Davis
District Manager
Coal Mine Safety & Health
P.O. Box 25367
Denver, Colorado 80225-0367

Re: Crandall Canyon Mine ID #: 42-01715
Ventilation Plan for Retreat Main West

Please find for your review and approval the enclosed the Ventilation Plan for the Main West Block A. This plan contains 5 plates detailing the ventilation modifications while retreating though Block A.

If you have any questions, please contact me at [redacted].

Sincerely,

David Hibbs
Mining Engineer

Crandall Canyon Mine MSHA ID# 42-01715
Retreat Main West Block A Ventilation Plan

Plate 1, Existing Ventilation, shows existing ventilation at the beginning after the seals have been built and the blocks left in the mining process of Block A. Crosscut 118 between entries S4 and M1 will be developed before pillar extraction begins.

The bleeder system proposes is a wrap around bleeder type. The bleeder measurement point location (MPL) will be located at the deepest point of penetration.

Plate 2, Continuing Pillar Ventilation, shows the ventilation after pillaring has begun. The items to ventilate this phase are:

a) Remove stoppings between entries M2-M3 and M3-M4 at crosscut 106 of the Main West.
b) Remove stoppings between entries M2-M3 and M3-M4 at crosscut 105 of the Main West.
c) Remove stoppings between entries M2-M3 and M3-M4 at crosscut 104 of the Main West.
d) Construct stoppings between entries M4-M5 at crosscuts 104, 105, 106 and 107 of the Main West.
e) Construct stopping with regulator in entry N1 between crosscuts 92 and 93 of the North block of Main West.
f) Construct belt box check in Entry M3 between crosscuts 103 and 104 of the Main West.
g) Remove regulator between crosscut 107 and 108 at entry M5 of the Main West.
h) Remove overcast at entry M2 and crosscut 90.
i) Remove overcast at entry M2 and crosscut 91.
j) Remove overcast at entry M3 and crosscut 91.

Plate 3 shows the ventilation for the continued pillar extraction. In plate 3 room and pillar mining will proceed on the south section of Block A. This development mining will precede at least two rooms ahead of the pillar extraction. The items to ventilate this phase are:

a) Remove stoppings between entries M2-M3 and M3-M4 at crosscut 104 of the Main West.
b) Remove stoppings between entries M2-M3 and M3-M4 at crosscut 103 of the Main West.
c) Remove stoppings between entries M2-M3 and M3-M4 at crosscut 102 of the Main West.
d) Remove stopping in entry M4 between crosscuts 103-104 of the Main West.
e) Construct stoppings in entries N1-N4 between crosscuts 103-104 of the North Block of Main West.
f) Remove Brattice Curtains between entries S5-M1 in crosscuts102, 103 and 104 of the Main West.

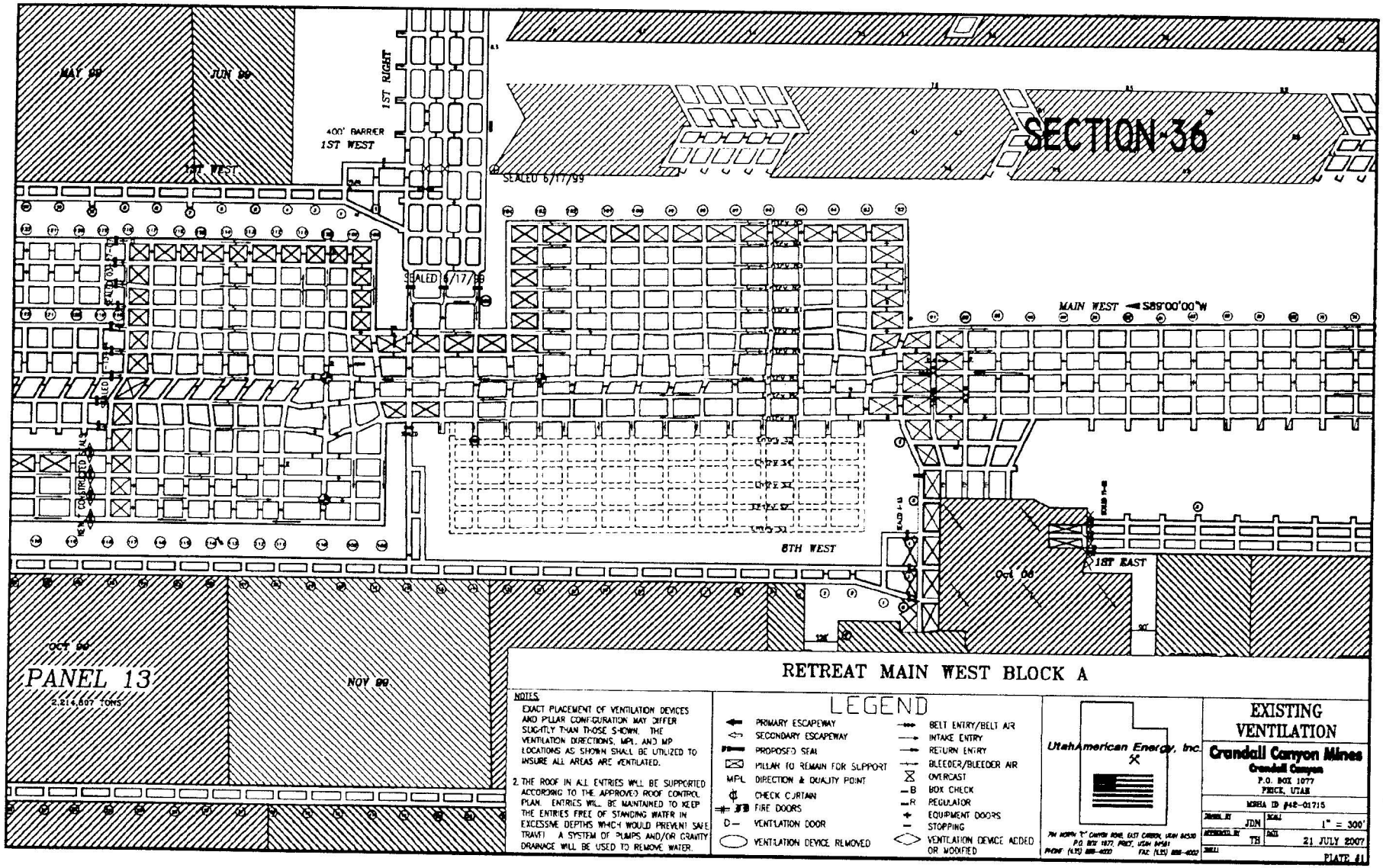
g) Construct belt box check in Entry M3 between crosscuts 102 and 103 of the Main West.
h) Construct stoppings between entries N4-N5 at crosscuts 97, 98, 99, 100, 101, 102 and103 of the North block of Main West.

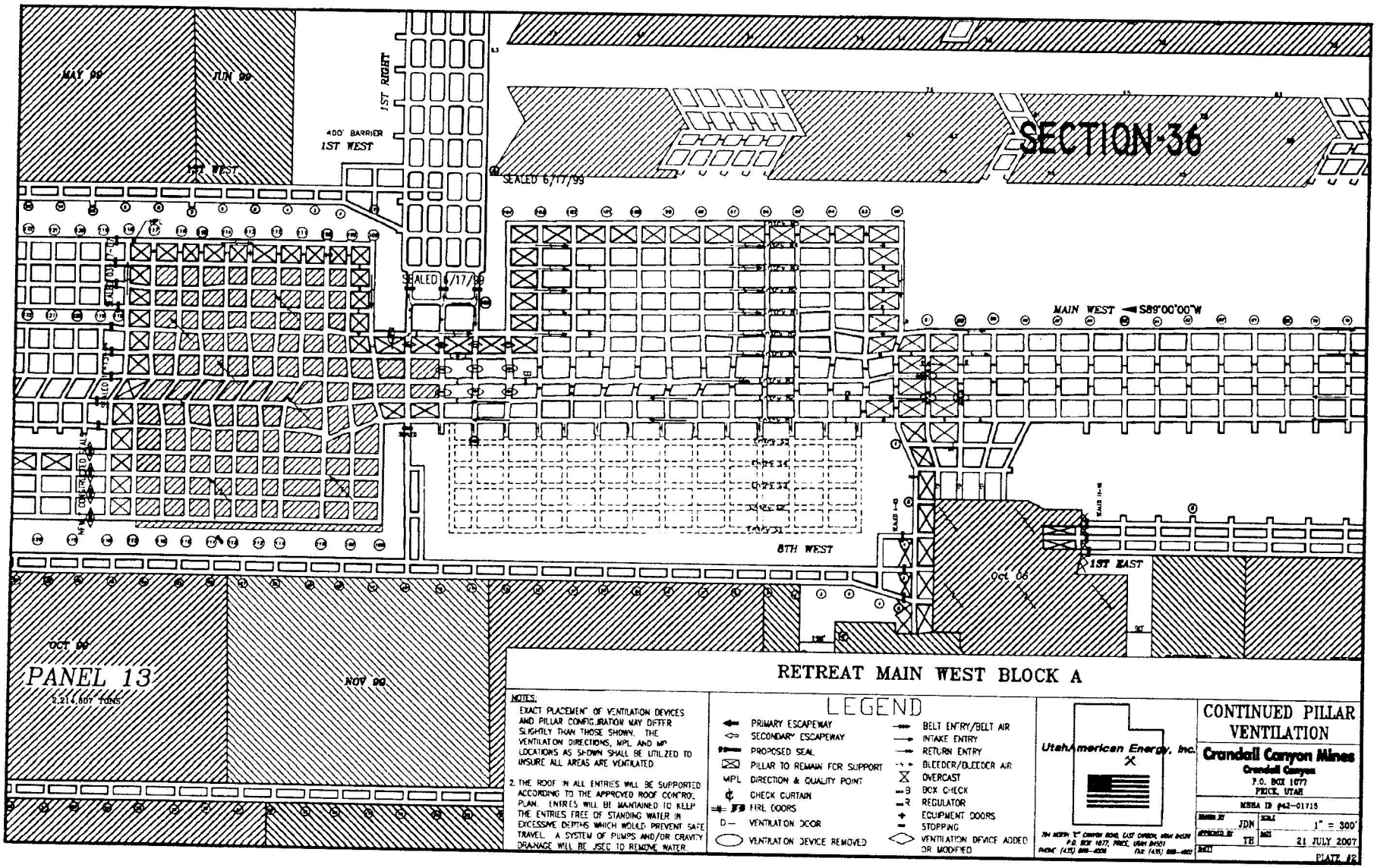
Plate 4 shows the ventilation for the continued pillar extraction. In plate 4 room and pillar mining will proceed on the south section of Block A. This development mining will precede at least two rooms ahead of the pillar extraction. The items to ventilate this phase are:

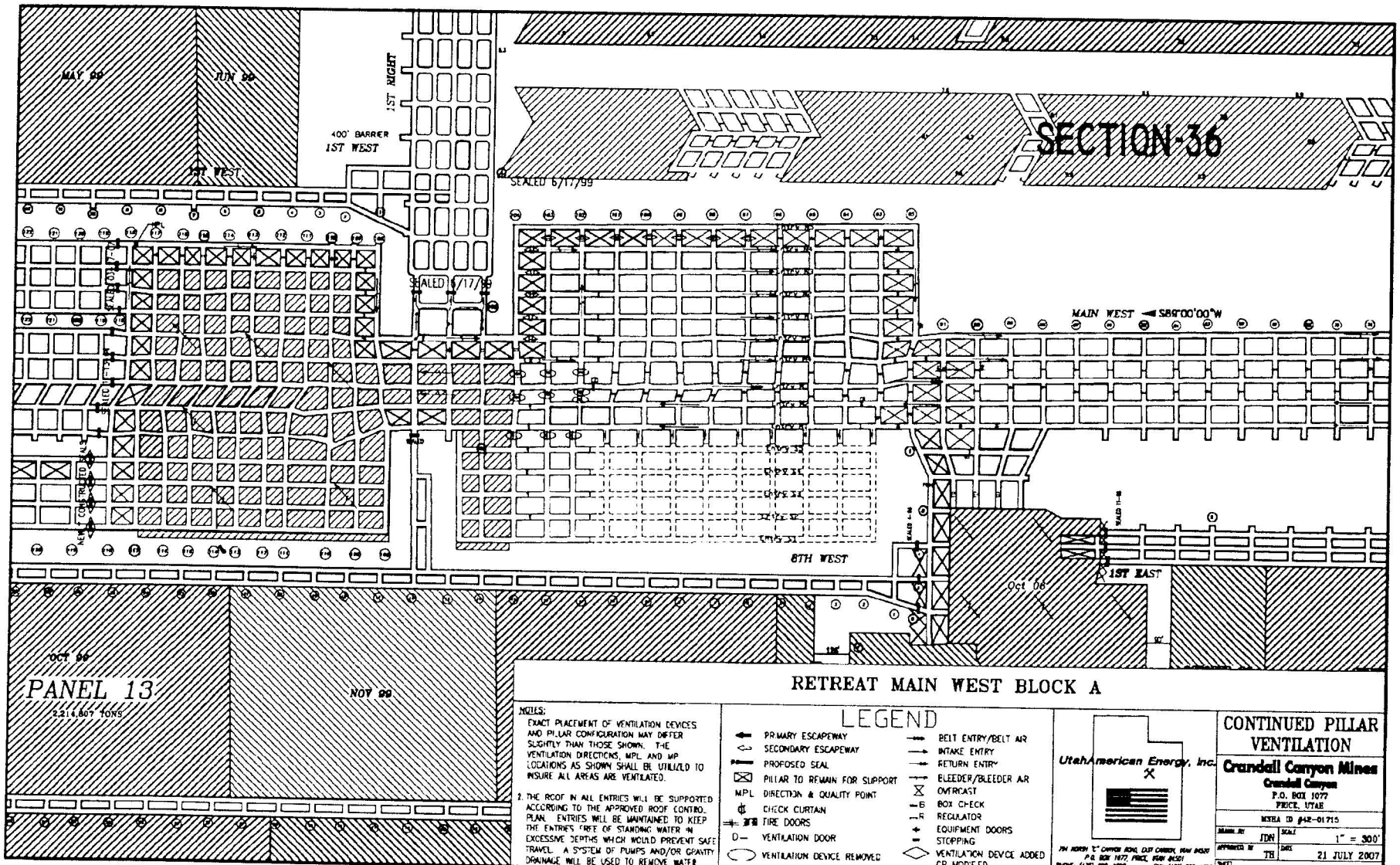
a) Remove stoppings between entries M2-M3 and M3-M4 in crosscut 96 of the Main West.
b) Remove stoppings between entries M2-M3 and M3-M4 in crosscut 95 of the Main West.
c) Remove Brattice Curtains between entries S5-M1 in crosscuts 96, 95, 94, and 93 of the Main West.
d) Construct belt box check in Entry M3 between crosscuts 94 and 95 of the Main West.

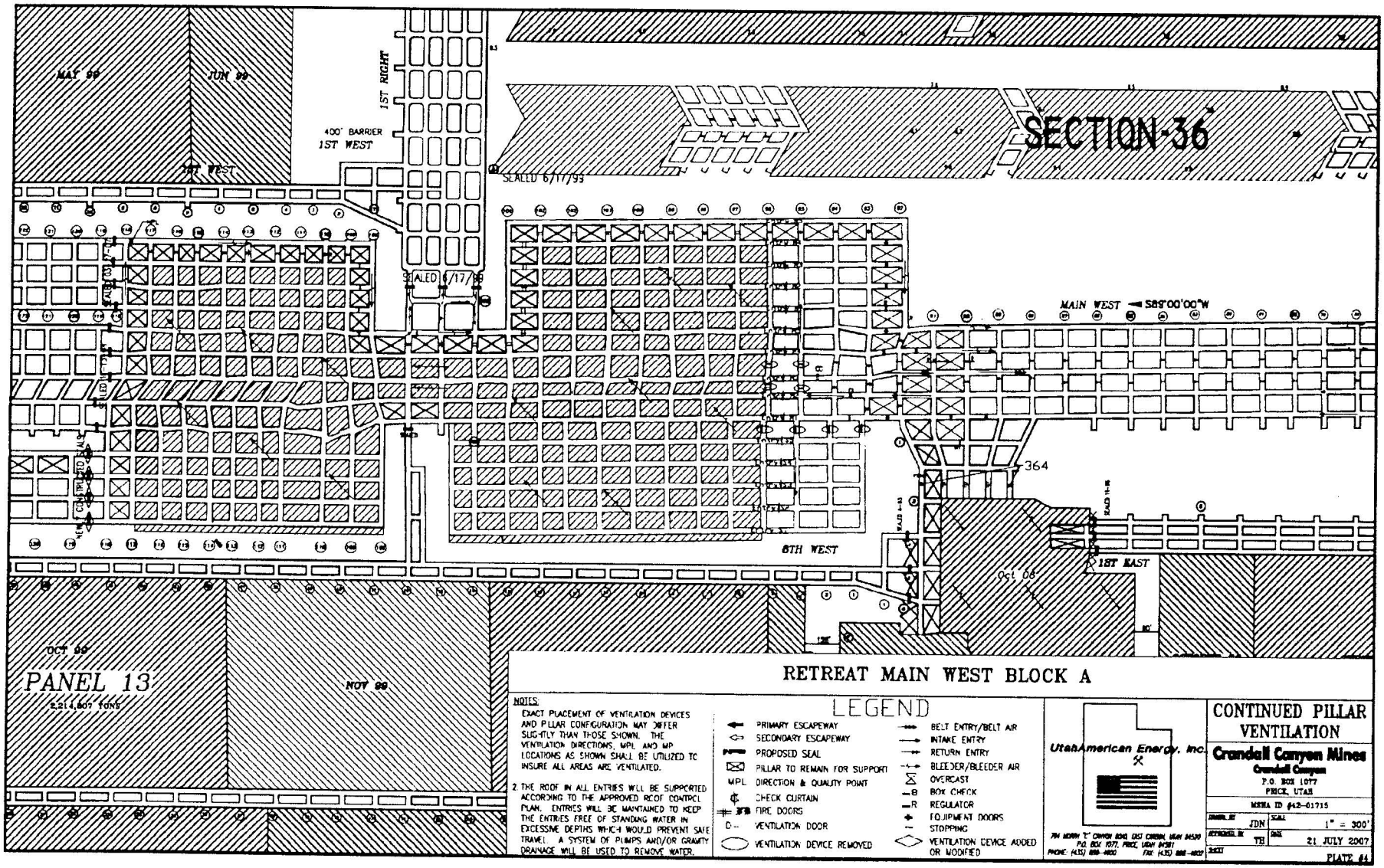
Plate 5 is the end of mining Block A and the Proposed Seal location. The items to ventilate this phase are:

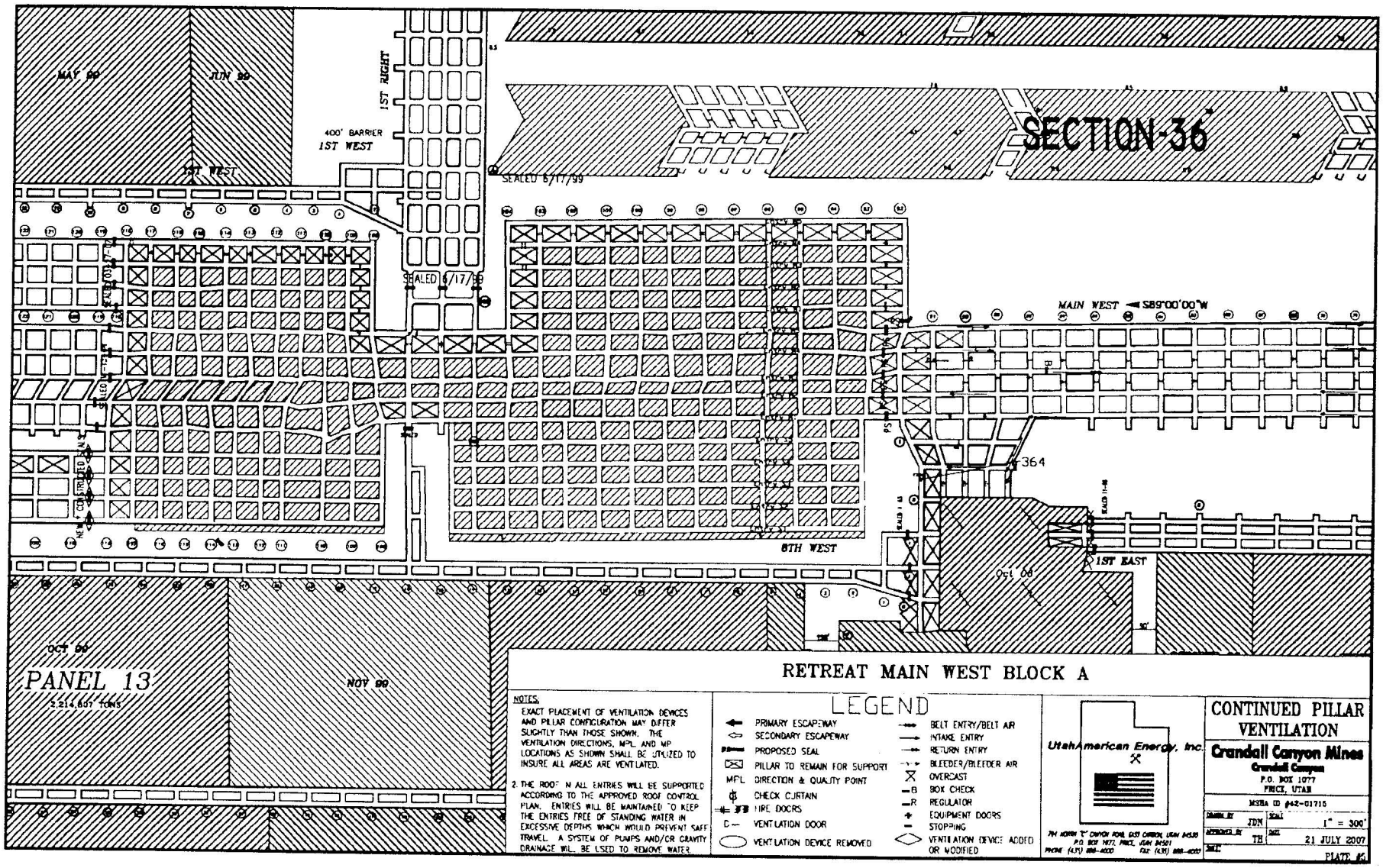
a) Construct the proposed seals in entries M2-M5 between crosscuts 91 and 92 of the Main West.
b) Construct the proposed seals in entry M1 between crosscuts 92 and 93 of the Main West.
c) Construct the proposed seals between entries M1-M2 in crosscuts 92 of the Main West.
d) Construct belt box check in Entry M3 between crosscuts 87 and 88 of the Main West.









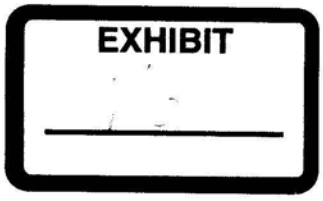


From: Hibbs, David
Sent: Monday, July 23, 2007 11:15 PM
To: Davis, Allyn C - MSHA; Owens, Billy D - MSHA
Cc: Peacock, Gary; Adair, Laine; Poulson, Jim; Allred, Bodee
Subject: Crandall Mine Roof Control Site SPecific Submital Retreat Main West Block A
Attachments: Crandall Main West Block A Submittal.PDF

Attached for your review is a Site Specific Roof Control Plan for the Retreat of the Main West Block A.

David W. Hibbs
UtahAmerican Energy, Inc.
P.O. Box 1077
Price, Utah 84501

Phone [redacted]
Fax [redacted]
Cell [redacted]



Crandall Canyon Mine
Hwy31 MP 33, Huntington, UT 84528
PO Box 1077, Price, UT 84501
Phone: (435) 888-4000
Fax: (435) 888-4002

UtahAmerican Energy, Inc.

July 23, 2007

Mr. Allyn C. Davis
District Manager
Coal Mine Safety and Health Administration
P.O. Box 25367
Denver, Colorado 80225-0367

RE: Crandall Canyon Mine
ID Number 42-01715
Roof Control Plan for Retreat Main West

Please find for your review and approval the enclosed Roof Control Plan for Retreat of the Main West Block A. This plan contains one (1) plate detailing the extraction sequence for the aforereferenced area.

If you require additional information, feel free to call me at [redacted] or contact us at the address listed above.

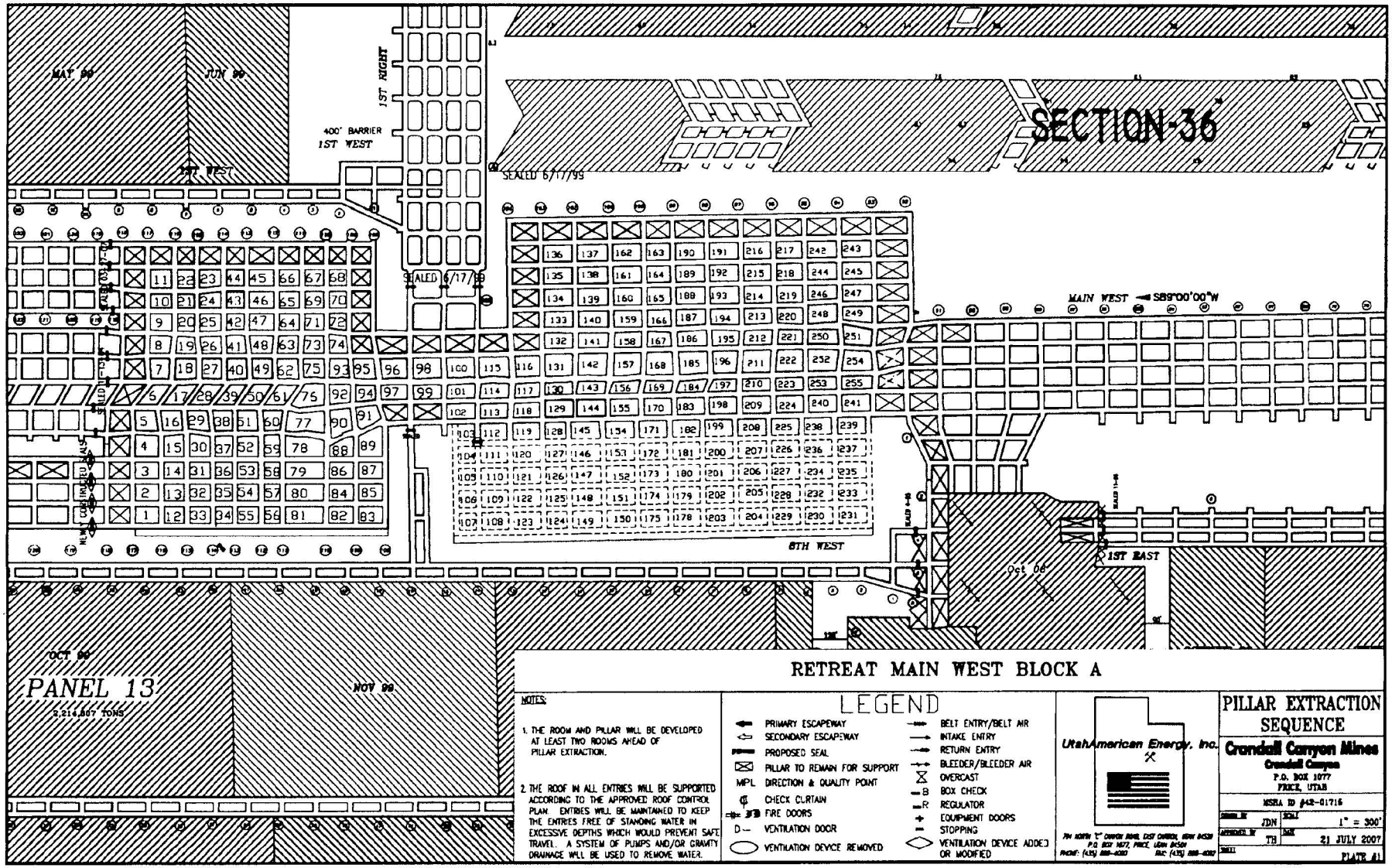
Sincerely,

David W. Hibbs
Director, Engineering

Crandall Canyon Mine MSHA ID# 42-01715
Retreat Main West Block A Site Specific Roof Control Plan

Plate 1 shows the pillar extraction sequence and the blocks left in the mining process. Before the extraction begins crosscut 118 between entries M1 and S4 shall be developed. This pillar recovery will be done in accordance with the approved Roof Control Plan. The development of room and pillar will also take place. At all times the room and pillar mining will be at least two rooms ahead of the pillar extraction until Block A is fully developed.

Floor to roof support will be provided in the Bleeder entry. These timbers will be installed at the entrance to the crosscuts in Entry N4. This support will consist of a double row of timbers (breaker row) installed on four (4) foot centers or closer if deemed necessary by the operator. There will be a minimum of four timbers in each row across the entry.



Message number 415
From: Allen, Brad - MSHA
To: Davis, Allyn C - MSHA <Ramey, Larry W - MSHA; Cornett, Bob E - MSHA; Davis, Allyn C - MSHA>
Cc: Neil, Larry W - MSHA; Coon, Richard W - MSHA
Bcc:
Subject: Resignation from the MSHA Mine Rescue Team
Date: 8/23/2007 4:22:56 PM
Importance: high

Attachment N1: image001.jpg

To Whom It May Concern:

In light of the fact that I was sent home from the Crandall Canyon mine emergency by District 9 management, and the manner in which the emergency itself was and is being handled by District 9 management, I feel that it is in the best interest of the MSHA Mine Rescue Team as well as in my best interest that I resign.

District 9 management was more than willing to send me in to an irrespirable atmosphere and hazardous area to explore possible alternate routes to reach the trapped miners on 8/6/07.

However, on 8/9/07 after being in the Crandall Canyon mine to oversee rescue efforts and trying to ensure the safety of the rescue workers, I was sent home with the only reason given that I was "condescending" to the miners (which I emphatically deny). Since District 9 management does not see the need to stand behind their people, I feel that I can no longer be part of the MSHA Mine Rescue Team until such time that there are some serious changes made. After that, I would possibly be interested in being a part of the MSHA Mine Rescue Team again.

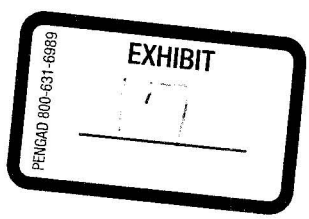
Although I thoroughly enjoy protecting our most valuable resource, the miner, I can not properly protect them if there is no backing from District 9 management.

Thank you for allowing me the opportunity to participate.

Brad Allen

---

image001.jpg



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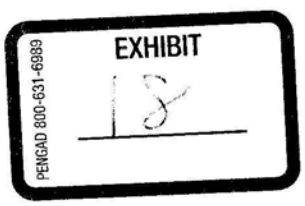

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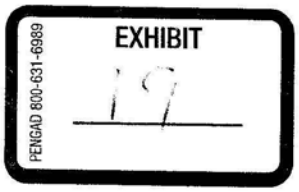

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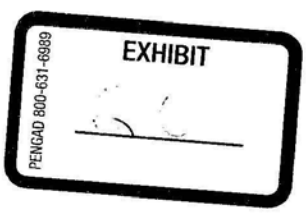


From: Davis, Allyn C - MSHA
Sent: Thursday, September 13, 2007 2:46 PM
To: Louviere, Amy - MSHA
Subject: RE: Phone Call

I'm doing OK, but I wonder what the future holds for me.
Allyn

From: Louviere, Amy - MSHA
Sent: Thursday, September 13, 2007 12:45 PM
To: Davis, Allyn C - MSHA
Subject: RE: Phone Call

He did. Thanks so much. This issue has become much ado about nothing from reporters, but it's good to know the full chronology. How are you holding up? I've thought about you often during this ordeal.

Amy

From: Davis, Allyn C - MSHA
Sent: Thursday, September 13, 2007 2:43 PM
To: Louviere, Amy - MSHA
Subject: FW: Phone Call

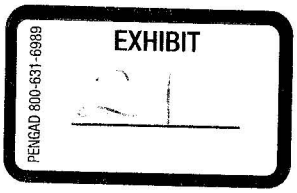
Amy,
I sent this to Matt. He may have already sent it to you.
Allyn

From: Davis, Allyn C - MSHA
Sent: Thursday, September 13, 2007 10:44 AM
To: Faraci, Matthew - OPA
Cc: Stickler, Richard - MSHA; Stricklin, Kevin G - MSHA; Owens, Billy D - MSHA; Reitze, William P - MSHA; Pon, Melinda - MSHA; Bentley, Terry L - MSHA
Subject: RE: Phone Call

Matt,

The whole issue of the modification of the K-order to allow video equipment in the mine came about in a hurried manner as I will describe below:

1. The company's professional photographer had his own equipment, but his light source was not strong enough.
2. In the news briefing that evening Mr. Murray said they wanted to take video pictures of the underground rescue activities and asked if one of the media would loan them a light so the Company could take video for the families to help explain the rescue work going on underground and try and clear up the confusion in many peoples minds that resulted from the media calling the accident a collapse, when in fact the mine roof was relatively unaffected.



3. No one volunteered to loan a light, but one reporter blurted out "I'll provide a light if you let me go along."
4. In front of the entire media gathering Mr. Murray turned to Richard Stickler and said something like "will MSHA allow this fellow to help us out?"
5. Richard indicated we would let this be done.
6. The media persons who eventually went along were given hazard training at the mine office.
7. We had to modify the k-order as this activity was not covered by any modifications in place at that time.
8. I asked the safety director over all the Utah Murray mines if they had a photography plan, he responded yes.
9. I directed that the k-order modification include language that the safety provisions of the photography plan be followed, even though the pictures were not going to be taken in an area where a photography plan is required. (Photography plans are required in areas where permissible equipment is required and the area where the photos were taken were not such and area.)
10. All photography plans issued in District 9 have identical safety precautions. They only differ in the description of the specific make and model of camera being used. The cameras are not approved as permissible, thus a specific plan is used.
11. Photography plans address the use of lighting that is powered by electrical cords connected to mine power, which was not what was used in this instance.
12. Photography plans address testing for methane during the photographic process. Our inspector and company officials did this during the videoing that took place underground.
13. Photography in the area where the camera people went is not an area that requires a plan. It was not an area inby the last open crosscut.
14. Incorporating the reference to the photographic plan in the k-order modification was a simple means to address the use of additional safety.
15. It was later determined that the company had only applied for and received a plan for their West Ridge Mine, not the Crandall Canyon Mine, but in the confusion of the moment that was not known. The company safety persons who accompanied the photographers were familiar with the West Ridge Plan and as stated before all plans have identical safety precautions.

Thanks,
Al

From: Faraci, Matthew - OPA
Sent: Thursday, September 13, 2007 9:49 AM
To: Davis, Allyn C - MSHA
Subject: Phone Call

Al,

I'd love to chat with you on the phone today if you have a minute.

Matthew Faraci
Public Affairs
U.S. Department of Labor

[redacted] Office
Direct
Mobile
Fax