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Consulting Hydrogeologist

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Re: McDonald Mine Blowout

Pursuant to your request, I have reviewed the maps and data that you provided regarding the site investigation and remediation plan for the mine blowout in McDonald, Pennsylvania. I have also visited the project area and observed the mine blowout point; Test Pits #1, #2, and #3; many of the monitoring well locations; and the construction site at Test Pit #1. Although some of the supporting data are not available at this writing, it is clear, from the data that are available, that the proposed control point at Test Pit #1 is connected to the mine blowout, and is able to control the water level in the Nickel Plate Mine.

Document #9, entitled "Mine Pool Response by Discharging at Test Pit 1" is particularly significant. This chart shows that on April 9, 2005 the difference in elevation of the mine pool at the Blowout and Test Pit #1 was 1.66 feet over a distance in excess of 2,300 feet. On April 27 the difference in elevation of the mine pool had been lowered to 1.18 feet over the same distance. This slope (1.18 / 2,300 = 0.000513 or 0.0513 %) is very flat and indicates that there is a very good interconnection between the discharge at Test Pit #1 and the Blowout location in McDonald.

Review of the mine map revealed that a slight change in geo-referencing with regard to the land surface may be appropriate. Document # 5, in the review packet, is the mine map of the Nickel Plate Mine. There is very little information on the map to indicate the location of the underground features relative to the surface features. However, in the vicinity of the southern pit mouth there is a notation showing Center Street to the west of the mine portal, and there is also a line running North Northwest east of the mine portal. Test two features are connected by a distance arrow indicating a 600 foot separation. If these two features are superimposed on the aerial photograph of McDonald, PA, The line east of the mine portal is found to coincide with Miller Street. The lines can then be used to rotate the mine map relative to the aerial photo until they are the two roads are coincident on both maps. This changes the pit mouth location only very slightly, but the rotation should change how Test Pit #1 plots relative to the mine map.

In Document # 5, Test Pit #1 is plotted near the end of a "room". The mine map indicates that the coal was hand loaded, and that the rooms are quite wide and

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consequently are subject to collapse, particularly under shallow cover. Such a condition would not be ideal for the location of the new mine discharge point because the mine rubble from roof collapse would impede the flow of water to the discharge. Yet we know from analysis of figure # 9 that the flow of water is not impeded. The re-referencing of the mine map relative to the aerial photo will change the location where Test Pit #1 appears in the mine. This slight change appears to move Test Pit #1 from the room to a drift entry about 50 feet away. The drift entry is more likely that the room to remain an open conduit for water.

Irrespective of the location of Test Pit #1 in the mine, the ability of this discharge point to control the mine pool is undisputed as shown by the field data. Future mine collapse, whether in a room or an entry could change the ability of the Test Pit #1 discharge to control the mine pool. This possibility has been included in the overall project design. A pipe, installed at Test Pit #3 will begin to discharge from the Nickel Plate Mine should the discharge from Test Pit #1 prove for any reason to be insufficient. Document # 9 shows that the water level in Test Pit #3 is only 0.17 feet higher than the water level in Test Pit #1 while Test Pit #1 was discharging. Hence there is good ground water communication between all three points.

Numerous wells and borings have been conducted at different times and by different entities such as OSM, EIS, and Operation Scarlift. These data have been combined with elevation data from the mine map to generate a bottom of coal (seat earth) contour map. As no narrative has yet been written it is not possible to know if all of these coal seam elevations are based on the same datum. While any discrepancy here would not affect the outcome of the project, the compatibility of the several data sources should be documented.

Document #1 contains a chronology of events at the McDonald Blowout including pumping rates. Mine discharge rates at the time of the blowout were reported at higher levels than are indicated in Document # 1. These data should be confirmed.

Based on my review of the project in progress, I find that the proposed solution is robust and has a high probability of success.

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