ENCLOSURE G
Subject: Supplemental Comments on MSHA’s Refuge Alternative RFI--RIN 1219-AB79

From: Green, Edward [mailto:EGreen@crowell.com]
Sent: Thursday, April 02, 2015 5:29 PM
To: McConnell, Sheila A - MSHA
Cc: zzMSHA-Standards - Comments to Fed Reg Group
Subject: Supplemental Comments on MSHA’s Refuge Alternative RFI--RIN 1219-AB79
Importance: High

RE: RIN 1219-AB79

Hello Ms. McConnell. Further to the comments I filed earlier today with regard to MSHA’s Request for Information on Refuge Alternatives, please consider this email and its attachments as supplemental comments for Murray Energy Corporation (and its trade association, the Bituminous Coal Operators’ Association), BHP Billiton San Juan Coal Company, and Interwest Mining Company (the “Companies”). Please note especially the September 30, 2018 end dates in the schedules set forth in the attachment for NIOSH’s research priorities for heat and humidity and safe air systems. The Companies believe these deadlines strongly support the request of the Companies that MSHA now extend the December 31, 2018 deadline in 30 C.F.R. §75.1506(a)(3).

Sincerely,

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From: Fike, Amber (CDC/NIOSH/OMSHR) [mailto:aff3@cdc.gov]
Sent: Thursday, April 02, 2015 4:55 PM
To: Fike, Amber (CDC/NIOSH/OMSHR)
Subject: Additional Updates on NIOSH/OMSHR Refuge Alternatives Research Priorities, Task Lists, and BIP Chamber

Additional Updates from NIOSH/OMSHR:
✓ Refuge Alternatives research priorities and task lists have been compiled, as per the Refuge Alternatives Partnership – MS Word document attached.

✓ NIOSH/OMSHR researchers and technicians have completed the construction of the Built-in-Place (BIP) Chamber within the Bruceton Experimental Mine (BEM) – photo attached.
Refuge Alternative Research Priorities

Priorities for Heat and Humidity

- Should include in modeling and testing:
  - Active cooling
  - Effects of SCSRs
  - Effect of higher ambient temperature
  - Impact of apparent temperature standard
- Develop standard testing protocol for RA evaluations to allow evaluations to be compared
- Develop standardized method for measuring/determining mine ambient temperature (where in mine is it measured? With ventilation/power?)
- Consider the reasonableness of:
  - Heat load per barrel person
  - Threshold and method of calculating 95 AT

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<thead>
<tr>
<th>Research Area</th>
<th>Task Description</th>
<th>End Date</th>
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<tbody>
<tr>
<td>Mobile RA Heat &amp; Humidity</td>
<td>In-mine heat &amp; humidity testing for metal RA</td>
<td>9/1/2015</td>
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<tr>
<td>BIP RA Heat &amp; Humidity</td>
<td>In-mine heat &amp; humidity testing for BIP RA</td>
<td>9/30/2015</td>
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<tr>
<td>Mobile RA Heat &amp; Humidity</td>
<td>Demonstration of occupancy derating for tent-type RA</td>
<td>12/31/2015</td>
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<tr>
<td>RA Heat &amp; Humidity</td>
<td>Determine temperature and %RH that cause core temperature to rise using simulation</td>
<td>3/31/2016</td>
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<tr>
<td>Mobile RA Heat &amp; Humidity</td>
<td>Demonstration of occupancy derating for metal RA</td>
<td>6/1/2016</td>
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<tr>
<td>RA Heat &amp; Humidity</td>
<td>Determine appropriate metabolic heat input for RAs considering miner size and activity level</td>
<td>9/30/2016</td>
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<tr>
<td>RA Heat &amp; Humidity</td>
<td>Reexamine occupancy derating with updated heat input and temperature/%RH limits</td>
<td>9/30/2017</td>
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<tr>
<td>RA Heat &amp; Humidity</td>
<td>Evaluate heat mitigation strategies for RAs</td>
<td>9/30/2018</td>
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Priorities for Compressed Air Line

- Post-disaster survivability/utility of compressed air lines
- Need to think holistically – use boreholes, compressed air lines, BIP, mobile, etc.

Priorities for Safe Air System

- Concerns of physical/legal access on the surface (case by case, airlift unit to borehole? How do you ensure air access? Legal access from property owner? Drill after the event – with compressed air cylinders?)

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<td>BIP RA Air Supply</td>
<td>Determine proper relief valve setup for proper air supply operation</td>
<td>9/1/2015</td>
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<tr>
<td>BIP RA Air Supply</td>
<td>Determine if CO2 scrubbing systems are necessary for BIP RAs</td>
<td>5/31/2016</td>
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<tr>
<td>BIP RA Air Supply</td>
<td>Determine ability of air supply to meet 12.5 CFM/person</td>
<td>9/1/2015</td>
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<tr>
<td>BIP RA Air Supply</td>
<td>Determine appropriate relief valve characteristics for BIP RAs</td>
<td>5/31/2016</td>
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<tr>
<td>BIP RA Air Supply</td>
<td>Develop guidelines for BIP RA air supplies</td>
<td>6/1/2017</td>
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<tr>
<td>BIP RA Air Supply</td>
<td>Demonstrate use of borehole air supplies for BIP RAs</td>
<td>9/30/2018</td>
</tr>
<tr>
<td>BIP RA Air Supply</td>
<td>Demonstrate use of protected compressed air lines for BIP RAs</td>
<td>9/30/2018</td>
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Cryogenic Air Supply

- All items brought up during cryogenic air supply discussions are being addressed through BCS Life Support LLC research and NIOSH contracts

MSHA Refuge Alternative Request For Information

- Both Reg Richards and Steve Gigliotti stated at the partnership meeting that MSHA encourages interested parties to submit comments in response to the Refugee Alternative Request For Information (RFI) that is set to close on April 2, 2014.
- Responses to the RFI do not need to be limited to the questions asked if a commenter would like to address other issues related to refuge alternatives.

http://www.msha.gov/REGSRFI.asp