From:	Williams, Jonathan
To:	Greutert, Ed [USA]
Cc:	Benchouk, Michele [USA]; McDonnell, Kimberlee
Subject:	FW: Comments 10.14.15 Response to Comments
Date:	Thursday, October 15, 2015 4:22:09 PM

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FYI

From: Wayne.Crowther@deq.idaho.gov [mailto:Wayne.Crowther@deq.idaho.gov]
Sent: Thursday, October 15, 2015 3:52 PM
To: Williams, Jonathan
Cc: Scott.Miller@deq.idaho.gov; Douglas.Tanner@deq.idaho.gov
Subject: Comments 10.14.15 Response to Comments

Jonathan,

In reviewing the response to comments for table 7.4 concerning the response to nuclear density measurements test methods, FMC will need to investigate alternate methods of verifying density compaction of the topsoil's for the gamma and ET caps.

ASTM D6938 is specified for the testing method to be performed for in-place density by nuclear methods. According to this standard in sections 5.1.7, 5.2.3, 10.4.7, 10.5.2 all specify to" Keep all other radioactive sources at least 9m (30 ft) away from the gauge to avoid affecting the measurement." We believe that testing the topsoil with a nuclear densitometer in close proximity to the radioactive slag will cause erroneous errors in density measurements.

It is highly recommended that an alternate in-field density measurement be performed instead or a modified and intensified quality assurance program done to correlate the nuclear density reading to another method. There are several methods available that can replace the nuclear densitometer test method. There is the Sand Cone test ASTM D1556 and the Drive Cylinder test method ASTM D2937. Currently Simplot is employing the Drive Cylinder method for doing compaction testing of the fine grained gypsum fill on their property.

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There are problems with everything and nothing is yet perfect, but that should not be cause to bemoan, that should be cause to achieve.

-Chris Hadfield

The only way forward, if we are going to improve the quality of the environment, is to get everybody involved." - Richard Rogers