Allen, Pam, NMENV

From:	Maestas, Ricardo, NMENV
Sent:	Tuesday, May 08, 2012 4:03 PM
To:	Allen, Pam, NMENV
Subject:	FW: NMED Questions/Reponses
Attachments:	Response to NMED Questions_2005-2008_DW_RAS_klk.docx

Email and attachment for WIPP file

From: Ferguson, Daniel - DOE [mailto:daniel.ferguson@wipp.ws]
Sent: Thursday, April 05, 2012 8:01 AM
To: Maestas, Ricardo, NMENV
Cc: Salness, Rick - RES; Kuhlman, Kris - SNL; Basabilvazo, George - DOE
Subject: FW: NMED Questions/Reponses

Ricardo,

Thank you for providing comments on the Culebra Map Package. The responses to your comments are provided in the attached table. Please call me at (575) 234-8128 to arrange a conference call and we can answer any questions you may have.

Thanks,
Dan Ferguson

From: Salness, Rick - RES
Sent: Wednesday, April 04, 2012 3:50 PM
To: Ferguson, Daniel - DOE
Cc: Kuhlman, Kris - SNL; Watterson, Daniel - RES
Subject: NMED Questions/Reponses

Dan – Attached is a table of Ricardo Maesta's questions and our responses (RES and SNL). Please feel free to send them to Ricardo after your review. We can arrange for a conference call next week if you would like. We are off Friday and Wednesday's are typically good for me.

<<Response to NMED Questions_2005-2008_DW_RAS_klk.docx>>

Rick Salness, P.G.

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#	Location	NMED Comment	Response
1	pg. 1	How are boundary conditions adjusted?	Adjustment of boundary conditions is discussed on page 2. The only boundary conditions adjusted during the calibration were the non-hydrologic head boundaries identified on the north and south of the model domain. The heads at these boundaries were determined using the parameter estimation code PEST. Using PEST, the head at the north and south boundaries were adjusted until the best possible fit between model-predicted and measured heads was achieved.
2	pg. 1	How are freshwater head values estimated? Procedure? Raw Data?	Freshwater heads for the wells are measured heads. Head for the boundary conditions, as described above, are derived using PEST. SNL procedure SP 9-9 describes the modeling process.
3	pg. 2	Expand and explain "The data used to construct the 2005-2008 maps was brought together by SNL from the Annual Site Environmental Report (ASER) for each year. Data were then plotted …"	Freshwater head data were assembled by SNL from the ASERs. The head data were plotted as hydrographs to graphically identify the best months to model based on the least perturbed data set for that month. The selected month freshwater heads were then used in the model for calibration target heads.
4	pg. 2	The report states:"Data for years prior to 2007 were adjusted to use more accurate modern reference point elevations to compute the freshwater head". How does this adjustment affect data?	Prior to 2006, top of casing elevations were surveyed by different organizations and there was no traceable pedigree. In 2006 all monitoring wells were surveyed at the same time, using the same surveyor, to common benchmarks using modern GPS survey technologies. For the map package the top of casing elevations were changed to normalize top of casing elevations from year to year. The water level data did not change only the reference elevations. The differences were insignificant and do not change the model response.
5	Table 1, pg. 1	2005 ASER note: Groundwater density value was updated in June 2005 and will affect freshwater head equivalent elevation (Page F-29)	The density values (and freshwater heads computed from densities, depth to water, and Culebra midpoint elevations) used in these tables are from the SNL analysis (Kuhlman, 2012). The depth to water is used directly from the ASER, and freshwater head is computed from that. Historic data from 2000-2008 were being compared together, and older density data were sometimes inconsistent. Because of these factors, SNL considered the reported density values in individual wells to be constant through time, only changing the density when events occurred which would plausibly

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			influence density (e.g., bailing out fresh water, setting a PIP with fresh water, casing cleaning/scraping operations). This methodology resulted in time series plots of freshwater head that were "smooth" and likely the most realistic, with the least number of jumps due to changes in reported density or reference point elevation.
6	Table 1, pg. 1	June 2005 Monthly Submittal: Summary comment #6 "Groundwater density values have been adjusted in this month's report...the adjustment was done to match density values used by Sandia National Laboratories (SNL) in their modeling efforts"	see response to comment #5 above
7	Table 1, pg. 2	Wells not used, SNL-14, WIPP-26, and WIPP-27	SNL-14 was first installed in May of 2005 and was tested most of the year, with water level measurements only in June, November and December. WIPP-26 experience casing failure in 2005 and all the data after that were unreliable. WIPP-26 was plugged and abandoned in 2006. WIPP-27 experienced casing failure and failed packer in 2005, data after that were not reliable. WIPP-27 was plugged and abandoned in 2006. WIPP-27 was located beyond the western model boundary, defined as a no-flow boundary due to being a watershed divide; it wouldn't have been included in the map calibration, even if data were available.
8	pg. 5	Is well IMC-461 the same as I-461	Yes these identifiers are one and the same.
9	Table 3, pg. 8 and 9	2006 ASER adjusted freshwater head and densities have discrepancies.	see response to comment #5 above
10	Table 5, pg. 14 and 15	2007 ASER adjusted freshwater head and densities have discrepancies	see response to comment #5 above
11	Table 5, pg. 14 and 15	Adjusted freshwater head should be in feet	Agree will change.
12	Figure 14, pg. 19	What is the frequency value?	The number of wells that had highest frequency residual between zero and -1ft is 10 (which is flush with the top of the figure)

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13	Figure 10, pg. 19	WQSP-1 is in the wrong column for the error >3km outside of the	WQSP-1 is in the wrong column. It should be in the first column.
14	pg. 19	A copy of SP 9-9 would be helpful.	A copy of SP 9-9 was emailed on April 3, 2012.
15	Table 7, pg. 20	Why are H-6b and SNL-8 in Figure 20, pg. 25 and not in Table 7?	We will fix this discrepancy.
16	pg. 26	Pg. 4 2005 path length	The path length is the distance a water particle would take under the flow conditions established in the calibrated model, from the Waste Handling Shaft to the Land Withdrawal Boundary. This is a conservative transport scenario where dispersion and adsorption mechanisms are not applied. Flow occurs unimpeded along the least resistive flow path based on transmissivity of the Culebra Member. The flow path length is derived from the numerical model.
17	pg. 26	Pg. 10 2006 path length	see response to comment #16
18	pg. 26	Pg. 16 2007 path length	see response to comment #16
19	pg. 26	Pg. 22 2008 path length	The flow path length is in error on the first reference on line 3 of this paragraph. The flow path length for the 2008 map is 4, 079 meters. Also see response to comment #16