BellBendCOLPEm Resource

From: Stieve, Alice
Sent: Wednesday, February 04, 2009 7:41 AM
To: Munson, Clifford
Cc: Bauer, Laurel
Subject: FW: Possible preliminary RAI
Attachments: RusEarlyRAIs 020309.doc

I talked with Rus Wheeler from USGS yesterday about the Bell Bend application and my early RAIs. He had looked at what I had requested and made his own evaluation. He agrees with me but went further to say that there may be evidence in that confusion of structural measurements that implys a hidden or blind fault (seen as additional or secondary folding with se dipping limbs superimposed on the nw limb of the large, regional Berwick anticline. Careful geologic mapping of just the site area would shed light on that. He sent this additional early RAI. Please take a look. I would like to add this to the early RAI group because it may be a significant issue.

If we send this out as an additional question do I put it under RAI 1849 or do I generate a new RAI?

From: Russell L Wheeler [mailto:wheeler@usgs.gov]
Sent: Tuesday, February 03, 2009 6:02 PM
To: Alice Stieve
Subject: Possible preliminary RAI

Alice-

Here's what we discussed on the possibility of unrecognized folds or faults. I followed the format that you sent yesterday. Please use, change, toss, or hold as you think best.

Rus

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Hearing Identifier: BellBend_COL_Public
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Mail Envelope Properties (Alice.Stieve@nrc.gov20090204074100)

Subject: FW: Possible preliminary RAI
Sent Date: 2/4/2009 7:41:01 AM
Received Date: 2/4/2009 7:41:00 AM
From: Stieve, Alice

Created By: Alice.Stieve@nrc.gov

Recipients:
"Bauer, Laurel" <Laurel.Bauer@nrc.gov>
Tracking Status: None
"Munson, Clifford" <Clifford.Munson@nrc.gov>
Tracking Status: None

Post Office:

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MESSAGE	1473	2/4/2009 7:41:00 AM
RusEarlyRAIs 020309.doc	26178	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
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02.05.01

FSAR Sections 2.5.1.2.4.2 and 2.5.1.2.4.4 state that bedrock at the site is “gently folded” but contains “beds that are steeply dipping” (p. 89). The shale dips 15 to 85 degrees (p. 91) and the average dip is 70 degrees to the southeast (figs. 2.5-28 — 2.5-33).

a) Such a wide range of dips, such steep dips in an area of gentle folding, and the presence of steep southeast dips in the northwest limb of a large anticline, together imply the presence of unrecognized folding and perhaps faulting. The spatial distribution and values of strikes and dips can outline unrecognized folds and perhaps faults. To allow NRC staff to evaluate this possibility, please present a geologic map showing the locations and values of all strike-and-dip measurements in the Mahantango Formation at or near the site.

b) Figures 105j (p. 462) and 105n (p. 466) appear to show steeply dipping beds in unidentified units. Figure 105n is reported to show bedding but, at the poor resolution of the photograph, the planar fabric that dips steeply toward the camera and to its left might also appear to be cleavage. Please provide evidence to demonstrate that the fabric is bedding and not cleavage. Additionally, to aid NRC staff in evaluating the possibility of unrecognized folding and faulting, please locate the outcrops that are shown in both figures on the map that is requested in part a, and show the bedding orientations at both outcrops, as well as cleavage orientations (if any).

c) The log of borehole 306 shows an unusually deep water table (figs. 2.5-97 and 2.5-100a, p. 443 and 447). Refraction profiles show that at seven places the bedrock surface deepens abruptly by several tens of feet (figs. 104 and 105a-f, p. 451 and 453-458). The map of the elevations of the top of bedrock shows at least two elevation anomalies that trend north to north-northeast (fig. 2.5-105, p. 452). The anomalies might represent increased permeability or increased weathering along unrecognized faults. Please show all of these anomalies on an uncolored version of figure 2.5-105, to aid NRC staff in assessing the possibility of unrecognized faults. Please design the figure so that it can be overlaid on the map requested in part a.