

**CHEM-NUCLEAR SYSTEMS, LLC**

140 Stoneridge Drive • Columbia, South Carolina 29210 • (803) 256-0450

16 March, 2000  
579-028-00

Mr. Timothy J. Kobetz, Project Manager  
Licensing Section  
Spent Fuel Project Office  
Office of Nuclear Material Safety and Safeguards, NMSS  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Dear Mr. Kobetz:

Subject: Response to Request for Additional Information for Model No. IF-300, CofC No. 9001  
Reference: 14 Jan 2000 RAI Response from Chem-Nuclear

As we discussed, four pages in Attachment 5 (Appendix D, Non-Proprietary) and in Attachment 7 (Appendix D, Proprietary pages) of the 14 Jan RAI response inappropriately identified certain data as proprietary. Those pages are: D-6-103, -112, -121, and -130. Please make the following changes to correct these errors:

Replace pages D-6-103, -112, -121, and -130 from the previous Attachment 5 (Non-Proprietary CSAR) with the pages in Attachment 1 of this letter.  
Likewise, please replace pages D-6-103, -112, -121, and -130 from the previous Attachment 7 (Proprietary CSAR) with the pages in Attachment 2 of this letter.

Should you or members of your staff have questions about these corrections, please contact Mark Whittaker at (803)758-1898.

Sincerely,

Patrick L. Paquin  
General Manager – Engineering and HLW

Attachments:

- Attachment 1 – Replacement pages for the Non-Proprietary CSAR
- Attachment 2 – Replacement pages for the Proprietary CSAR

NMSS01Publ12

Attachment 1  
Replacement pages for the Non-Proprietary CSAR

January 2000

```

6   py -0.71501 $ fuel rod cell boundary
7   py  0.71501 $ fuel rod cell boundary
c
c   Instrument Tube/Control Rod Guide Tube
c
10  cz  0.64897 $ ID
11  cz  0.69088 $ OD
c
c   Fuel Assembly
c
12  px -10.7137 $ 1/2 FA pitch
13  px  10.7137 $ 1/2 FA pitch
14  py -10.7137 $ 1/2 FA pitch
15  py  10.7137 $ 1/2 FA pitch
c
c   Zr grid inner pitch
c
16  px -0.712475 $ Zr grid cell boundary
17  px  0.712475 $ Zr grid cell boundary
18  py -0.712475 $ Zr grid cell boundary
19  py  0.712475 $ Zr grid cell boundary
c
c   Overall Fuel Height including blanket - 144 inches
c
20  pz -182.88
21  pz  182.88
c
c   Axial Blanket/enriched fuel zone - 6 inches below top & bottom
c
22  pz -167.64
23  pz  167.64
c
c   Top and bottom plenum regions
c
24  pz [REDACTED]
25  pz [REDACTED]
c
c   Channel bottom plate
c
26  pz -192.151
27  pz -194.691
c
c   Lower Tie Plate - use FA px/py (8.424 in pitch vs 8.436 in for FA)
c
c   Smear mass over rectangle for now
c   Bottom of LTP
30  pz -186.953 $ Water to bottom of lowest poison pin B4C
c   Surfaces for poison pin/steel segments
301 pz -178.65725 $ Poison in lowest poison pin to steel
302 pz -138.85545 $ Steel to bottom of next poison pin B4C
303 pz -125.8062 $ Poison in next poison pin to steel
304 pz -91.8718 $ Steel to bottom of next poison pin B4C
305 pz -78.82255 $ Poison in next poison pin to steel
306 pz -44.88815 $ Steel to bottom of next poison pin B4C
307 pz -31.8389 $ Poison in next poison pin to steel
308 pz  2.0955 $ Steel to bottom of next poison pin B4C
309 pz 15.14475 $ Poison in next poison pin to steel
310 pz 49.07915 $ Steel to bottom of next poison pin B4C
311 pz 62.1284 $ Poison in next poison pin to steel
312 pz 96.0628 $ Steel to bottom of next poison pin B4C
313 pz 109.11205 $ Poison in next poison pin to steel
314 pz 143.04645 $ Steel to bottom of next poison pin B4C
315 pz 156.0957 $ Poison in next poison pin to steel
316 pz 190.0301 $ Steel to bottom of top poison pin B4C
317 pz 203.07935 $ Poison in top poison pin to steel - through UTP
c
c   Upper Tie Plate - use FA px/py (8.424 in pitch vs 8.436 in for FA)
c
c   Smear mass over rectangle for now

```

January 2000

```

4    px -0.71501 $ fuel rod cell boundary
5    px  0.71501 $ fuel rod cell boundary
6    py -0.71501 $ fuel rod cell boundary
7    py  0.71501 $ fuel rod cell boundary
c
c    Instrument Tube/Control Rod Guide Tube
c
10   cz  0.64897 $ ID
11   cz  0.69088 $ OD
c
c    Fuel Assembly
c
12   px -10.7137 $ 1/2 FA pitch
13   px  10.7137 $ 1/2 FA pitch
14   py -10.7137 $ 1/2 FA pitch
15   py  10.7137 $ 1/2 FA pitch
c
c    Zr grid inner pitch
c
16   px -0.712475 $ Zr grid cell boundary
17   px  0.712475 $ Zr grid cell boundary
18   py -0.712475 $ Zr grid cell boundary
19   py  0.712475 $ Zr grid cell boundary
c
c    Overall Fuel Height including blanket - 144 inches
c
20   pz -182.88
21   pz  182.88
c
c    Axial Blanket/enriched fuel zone - 6 inches below top & bottom
c
22   pz -167.64
23   pz  167.64
c
c    Top and bottom plenum regions
c
24   pz ████████
25   pz ████████
c
c    Channel bottom plate
c
26   pz -192.151
27   pz -194.691
c
c    Lower Tie Plate - use FA px/py (8.424 in pitch vs 8.436 in for FA)
c
c    Smear mass over rectangle for now
c    Bottom of LTP
30   pz -186.953 $ Water to bottom of lowest poison pin B4C
c    Surfaces for poison pin/steel segments
301  pz -178.65725 $ Poison in lowest poison pin to steel
302  pz -138.85545 $ Steel to bottom of next poison pin B4C
303  pz -125.8062  $ Poison in next poison pin to steel
304  pz -91.8718   $ Steel to bottom of next poison pin B4C
305  pz -78.82255  $ Poison in next poison pin to steel
306  pz -44.88815  $ Steel to bottom of next poison pin B4C
307  pz -31.8389   $ Poison in next poison pin to steel
308  pz  2.0955    $ Steel to bottom of next poison pin B4C
309  pz  15.14475  $ Poison in next poison pin to steel
310  pz  49.07915  $ Steel to bottom of next poison pin B4C
311  pz  62.1284   $ Poison in next poison pin to steel
312  pz  96.0628   $ Steel to bottom of next poison pin B4C
313  pz 109.11205  $ Poison in next poison pin to steel
314  pz 143.04645  $ Steel to bottom of next poison pin B4C
315  pz 156.0957   $ Poison in next poison pin to steel
316  pz 190.0301   $ Steel to bottom of top poison pin B4C
317  pz 203.07935  $ Poison in top poison pin to steel - through UTP
c
c    Upper Tie Plate - use FA px/py (8.424 in pitch vs 8.436 in for FA)

```

January 2000

```

14  py -10.7137 $ 1/2 FA pitch
15  py 10.7137 $ 1/2 FA pitch
c
c    Zr grid inner pitch
c
16  px -0.712475 $ Zr grid cell boundary
17  px 0.712475 $ Zr grid cell boundary
18  py -0.712475 $ Zr grid cell boundary
19  py 0.712475 $ Zr grid cell boundary
c
c    Overall Fuel Height including blanket - 144 inches
c
20  pz -182.88
21  pz 182.88
c
c    Axial Blanket/enriched fuel zone - 6 inches below top & bottom
c
22  pz -167.64
23  pz 167.64
c
c    Top and bottom plenum regions
c
24  pz [REDACTED]
25  pz [REDACTED]
c
c    Channel bottom plate
c
26  pz -192.151
27  pz -194.691
c
c    Lower Tie Plate - use FA px/py (8.424 in pitch vs 8.436 in for FA)
c
c    Smear mass over rectangle for now
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302  pz -138.85545 $ Steel to bottom of next poison pin B4C
303  pz -125.8062 $ Poison in next poison pin to steel
304  pz -91.8718 $ Steel to bottom of next poison pin B4C
305  pz -78.82255 $ Poison in next poison pin to steel
306  pz -44.88815 $ Steel to bottom of next poison pin B4C
307  pz -31.8389 $ Poison in next poison pin to steel
308  pz 2.0955 $ Steel to bottom of next poison pin B4C
309  pz 15.14475 $ Poison in next poison pin to steel
310  pz 49.07915 $ Steel to bottom of next poison pin B4C
311  pz 62.1284 $ Poison in next poison pin to steel
312  pz 96.0628 $ Steel to bottom of next poison pin B4C
313  pz 109.11205 $ Poison in next poison pin to steel
314  pz 143.04645 $ Steel to bottom of next poison pin B4C
315  pz 156.0957 $ Poison in next poison pin to steel
316  pz 190.0301 $ Steel to bottom of top poison pin B4C
317  pz 203.07935 $ Poison in top poison pin to steel - through UTP
c
c    Upper Tie Plate - use FA px/py (8.424 in pitch vs 8.436 in for FA)
c
c    Smear mass over rectangle for now
c    Top of UTP
31  pz 206.538
c
33  pz 213.512 $ Top of FA
c
c    Square Cell for Channel
c
40  px -11.3022
41  px -11.1125
42  px 11.1125
43  px 11.3022
44  py -11.3022

```

January 2000

```

c      Instrument Tube/Control Rod Guide Tube
c
10     cz  0.64897  $ ID
11     cz  0.69088  $ OD
c
c      Fuel Assembly
c
12     px -10.7137  $ 1/2 FA pitch
13     px  10.7137  $ 1/2 FA pitch
14     py -10.7137  $ 1/2 FA pitch
15     py  10.7137  $ 1/2 FA pitch
c
c      Zr grid inner pitch
c
16     px -0.712475 $ Zr grid cell boundary
17     px  0.712475 $ Zr grid cell boundary
18     py -0.712475 $ Zr grid cell boundary
19     py  0.712475 $ Zr grid cell boundary
c
c      Overall Fuel Height including blanket - 144 inches
c
20     pz -182.88
21     pz  182.88
c
c      Axial Blanket/enriched fuel zone - 6 inches below top & bottom
c
22     pz -167.64
23     pz  167.64
c
c      Top and bottom plenum regions
c
24     pz ████████
25     pz ████████
c
c      Channel bottom plate
c
26     pz -192.151
27     pz -194.691
c
c      Lower Tie Plate - use FA px/py (8.424 in pitch vs 8.436 in for FA)
c
c      Smear mass over rectangle for now
c      Bottom of LTP
30     pz -186.953    $ Water to bottom of lowest poison pin B4C
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301    pz -178.65725  $ Poison in lowest poison pin to steel
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307    pz -31.8389    $ Poison in next poison pin to steel
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313    pz 109.11205   $ Poison in next poison pin to steel
314    pz 143.04645   $ Steel to bottom of next poison pin B4C
315    pz 156.0957    $ Poison in next poison pin to steel
316    pz 190.0301    $ Steel to bottom of top poison pin B4C
317    pz 203.07935   $ Poison in top poison pin to steel - through UTP
c
c      Upper Tie Plate - use FA px/py (8.424 in pitch vs 8.436 in for FA)
c
c      Smear mass over rectangle for now
c      Top of UTP
31     pz 206.538
c

```

Attachment 2  
Replacement pages for the Proprietary CSAR

January 2000

```

6   py -0.71501 $ fuel rod cell boundary
7   py  0.71501 $ fuel rod cell boundary
c
c   Instrument Tube/Control Rod Guide Tube
c
10  cz  0.64897 $ ID
11  cz  0.69088 $ OD
c
c   Fuel Assembly
c
12  px -10.7137 $ 1/2 FA pitch
13  px  10.7137 $ 1/2 FA pitch
14  py -10.7137 $ 1/2 FA pitch
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c   Top and bottom plenum regions
c
24  pz ████████
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c
c   Channel bottom plate
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314 pz 143.04645 $ Steel to bottom of next poison pin B4C
315 pz 156.0957 $ Poison in next poison pin to steel
316 pz 190.0301 $ Steel to bottom of top poison pin B4C
317 pz 203.07935 $ Poison in top poison pin to steel - through UTP
c
c   Upper Tie Plate - use FA px/py (8.424 in pitch vs 8.436 in for FA)
c
c   Smear mass over rectangle for now

```



January 2000

```

4    px -0.71501 $ fuel rod cell boundary
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311  pz 62.1284 $ Poison in next poison pin to steel
312  pz 96.0628 $ Steel to bottom of next poison pin B4C
313  pz 109.11205 $ Poison in next poison pin to steel
314  pz 143.04645 $ Steel to bottom of next poison pin B4C
315  pz 156.0957 $ Poison in next poison pin to steel
316  pz 190.0301 $ Steel to bottom of top poison pin B4C
317  pz 203.07935 $ Poison in top poison pin to steel - through UTP
c
c    Upper Tie Plate - use FA px/py (8.424 in pitch vs 8.436 in for FA)

```

January 2000

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24  pz ████████
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314  pz 143.04645   $ Steel to bottom of next poison pin B4C
315  pz 156.0957    $ Poison in next poison pin to steel
316  pz 190.0301    $ Steel to bottom of top poison pin B4C
317  pz 203.07935   $ Poison in top poison pin to steel - through UTP
c
c    Upper Tie Plate - use FA px/py (8.424 in pitch vs 8.436 in for FA)
c
c    Smear mass over rectangle for now
c    Top of UTP
31  pz 206.538
c
33  pz 213.512    $ Top of FA
c
c    Square Cell for Channel
c
40  px -11.3022
41  px -11.1125
42  px  11.1125
43  px  11.3022
44  py -11.3022

```

January 2000

```

c      Instrument Tube/Control Rod Guide Tube
c
10     cz  0.64897  $ ID
11     cz  0.69088  $ OD
c
c      Fuel Assembly
c
12     px -10.7137  $ 1/2 FA pitch
13     px  10.7137  $ 1/2 FA pitch
14     py -10.7137  $ 1/2 FA pitch
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c
c      Zr grid inner pitch
c
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c
22     pz -167.64
23     pz  167.64
c
c      Top and bottom plenum regions
c
24     pz ████████
25     pz ████████
c
c      Channel bottom plate
c
26     pz -192.151
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313    pz 109.11205  $ Poison in next poison pin to steel
314    pz 143.04645  $ Steel to bottom of next poison pin B4C
315    pz 156.0957   $ Poison in next poison pin to steel
316    pz 190.0301   $ Steel to bottom of top poison pin B4C
317    pz 203.07935  $ Poison in top poison pin to steel - through UTP
c
c      Upper Tie Plate - use FA px/py (8.424 in pitch vs 8.436 in for FA)
c
c      Smear mass over rectangle for now
c      Top of UTP
31     pz 206.538
c

```