REVISED RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

APR1400 Design Certification

Korea Electric Power Corporation / Korea Hydro & Nuclear Power Co., LTD

Docket No. 52-046

RAI No.:	**116-8054**
SRP Section:	**14.03.08 – Inspections, Tests, Analyses, and Acceptance Criteria**
Application Section:	**14.03.08**
Date of RAI Issue:	**07/27/2015**

Question No. 14.03.08-1

10 CFR 50, GDC 61, requires that the fuel storage and handling, radioactive waste, and other systems which may contain radioactivity shall be designed to assure adequate safety under normal and postulated accident conditions. These systems shall be designed (1) with a capability to permit appropriate periodic inspection and testing of components important to safety, (2) with suitable shielding for radiation protection, (3) with appropriate containment, confinement, and filtering systems, (4) with a residual heat removal capability having reliability and testability that reflects the importance to safety of decay heat and other residual heat removal, and (5) to prevent significant reduction in fuel storage coolant inventory under accident conditions.

SRP Section 14.3 indicates that the purpose of inspections, tests, analysis, and acceptance criteria (ITAAC), is to verify that a facility referencing the design certification is built and operates in accordance with the design certification and applicable regulations.

In addition, SRP Section 14.3.8 indicates that the reviewer should ensure that Tier 1 identifies and describes, commensurate with their safety significance, those SSCs that provide radiation shielding, confinement or containment of radioactivity, ventilation of airborne contamination, or radiation (or radioactivity concentration) monitoring for normal operations and during accidents.

SRP Section 14.3.8 also indicates that the criteria in Tier 1 should ensure that the radiation shielding design (as provided by the plant structures or by permanent or temporary shielding included in the design) is adequate so that the maximum radiation levels in plant areas are commensurate with the areas' access requirements; that adequate shielding is provided for those plant areas that may require occupancy to permit an operator to aid in the mitigation of or the recovery from an accident; and that the contribution of gamma shine to the radiation dose to a member of the public (off site) will be a small fraction of the U.S. Environmental Protection Agency's dose limits in found at 40 CFR Part 190.

Tier 1, Table 2.8-2, “Radiation Protection ITAAC,” item 1, is associated with radiation shielding. The acceptance criteria indicates that a report exists which verifies that radiation levels are within those levels specified in Tier 1, Table 2.8-1. Table 2.8-1 only provides the dose rate range for each zone designation and does not provide the specific zoning for any of the rooms in the plant. Therefore, there is no way for anyone to verify that this ITAAC has been completed during facility construction. In addition, Tier 1, Table 2.8-2, item 1, indicates that the plant will be built and then a report will be completed to determine that radiation zoning requirements are met. Therefore, Tier 1, Table 2.8-2, Item 1, is written as a design acceptance criteria (DAC), instead of an ITAAC. It is unclear why a DAC would be needed for radiation shielding when Tier 2 already provides minimum radiation shielding thicknesses for radiation sources large enough to require shielding.

Therefore, Tier 1, Table 2.8-2, item 1 is unacceptable. To provide appropriate ITAAC for radiation shielding, staff suggests the following:

1. The applicant should modify or replace Tier 1, Table 2.8-2, item 1 with an ITAAC to verify that minimum shielding requirements are met for significant radiation sources which require radiation shielding. Using this approach, Tier 1, Section 2.8 and item 1 in Table 2.8-2 should provide the shielding material for each room (for example, concrete) as well as the thickness of each shield, for significant sources which require shielding.

2. If shielding material other than concrete or steel is being relied upon for limiting radiation exposure to workers or members of the public, or for limiting exposure to equipment in the equipment qualification program, the applicant should discuss the material used in Tier 1 and Tier 2 of the application and include an ITAAC to verify that the shield material maintains its integrity during normal operation and accident conditions, as appropriate.

3. Provide figures of the general arrangement of the plant in Tier 1, which should also be referenced in the shielding ITAAC, making it clear what areas of the plant are being shielded and where the major radiation sources are located.

4. Finally, if any doors are required to provide radiation shielding from significant plant sources Tier 1 should discuss the radiation attenuation capabilities of those doors and ITAAC should be provided to verify the attenuation capabilities. The ITAAC should verify that the doors provide equal or greater attenuation than that of the wall to which they are installed.

Response – (Rev. 2)

1. ITAAC in Table 2.8-2, item 1 has been revised in DCD Rev.1 to reflect an inspection and analysis based on the type of construction material used for the shielding and the thicknesses of the floors and walls for rooms that contain significant radiation sources which require shielding.

   Tier 1 Table 2.2.1-1 will also be revised to indicate the specific thicknesses of floors and walls. The information on the design basis radiation shield thicknesses around the major cubicles and the other structure thicknesses will be added in Tier 1. In addition, a new table will be added, Table 2.2.1-1a, which provides the shield thicknesses for the

compound building and tanks located in the yard area. Due to the changes made in the responses to Chapter 12 RAIs, Table 2.2.1-1a provided in the previous revision of this RAI has been revised as indicated in Attachment 1. Also, a paragraph will be added in DCD Tier 1 Section 2.8.2 to describe the tables and an ITAAC associated with it, as indicated in Attachment 1.

2. Steel reinforced concrete is used for all shield walls and floors. The radwaste truck bay door is designed for shielding during waste handling. Please refer to item 4 below.

3. In addition to general arrangement drawings, other drawings such as radiation zone drawings, radiation shield barrier drawings, and concrete outline drawings are to be used for inspecting the thicknesses of the shield walls and floors. The radiation shield barrier drawings provides clear areas of the facility being shielded, and the minimum shield wall thicknesses are also indicated on the drawings. A paragraph has been added to the end of DCD Tier 1 (Rev.1) Subsection 2.8.2 to reference the type of drawings and construction reports (for verification of concrete densities and reinforced steel bars) for inspection and analysis.

   Due to the large number of drawings that will be used for the shielding inspections, only the types of drawings are noted in the DCD Tier 1 subsection.

4. The compound building truck bay door is designed to provide shielding during waste loading and unloading operations. The truck bay door will be inspected against the equipment specifications for its attenuation capability through the comparison to its manufacturer's test report. The COL applicant is to provide an ITAAC for this and other radiation shield doors/hatches (COL Item 12.3(3)).

Impact on DCD

DCD Tier 1, Subsections 2.8.1, 2.8.2, Table 2.2.1-1, and Table 2.8-2 will be revised and Table 2.2.1-1a will be added as indicated in the Attachment 1.

DCD Tier 2, Subsection 12.3.6 will be revised as indicated in the Attachment 2.

Impact on PRA

There is no impact on the PRA.

Impact on Technical Specifications

There is no impact on the Technical Specifications.

Impact on Technical/Topical/Environmental Reports

There is no impact on any Technical, Topical, or Environment Report.

2.8 Radiation Protection

2.8.1 Design Description

Radiation protection design features in the APR1400 provide the limitation of radiation exposures to plant personnel and to the public complying with the NRC RG and as low as reasonably achievable (ALARA) principles.

The design commitments for radiation protection are as follows:

1. Shielding design of rooms, corridors, cubicles, labyrinth access, and operating areas is commensurate with the minimum shielding requirements for significant radiation sources ~~which require shielding~~.

2. Ventilation systems for the radiological controlled areas are designed to keep the radiation exposure below the limits specified in 10 CFR Part 20, Appendix B.

3. Radiation shielding design is provided to protect the operators so that they could take actions to mitigate or recover from the design basis accidents.

4. ~~Compound building truck bay door is provided for radiation shielding during waste loading and unloading operations.~~

2.8.2 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.8-2 provides the inspections, tests, analyses and associated acceptance criteria, which will be undertaken for radiation protection.

~~The following drawing types are to be used for inspection and analysis of as-built shield walls and floors as applicable:~~ Replaced with a paragraph in next page

- General arrangement drawings
- Radiation zone drawings
- Radiation shield barrier drawings
- Concrete outline drawings
- Construction reports

RAI 116-8054 - Question 14.03.08-1, Rev.2

Radiation protection is to be based on the shielding design for walls and floors for individual cubicles inside AB and CB are summarized in DCD Tier 1, Tables 2.2.1-1 and 2.2.1-1a, respectively. The shield wall and floor thicknesses are designed to be the minimum for the protection of plant personnel for radiation ALARA in the corresponding radiation zone areas. Radiation protection ITAAC is to be performed in accordance with Table 2.8-2, item #1, and the wall and floor thicknesses as specified in Tables 2.2.1-1 and 2.2.1-1a for AB and CB respectively. In addition, the following document types are to be used for inspection and analysis of as-built shield walls and floors as applicable:

Table 2.8-2

Radiation Protection ITAAC

thicknesses

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. Shielding design of rooms, corridors, cubicles, labyrinth access, and operating areas is commensurate with the minimum shielding requirements for significant radiation sources which require shielding	1. Inspections and analysis of the as-built shielding structure will be conducted in accordance with the shield barrier drawings to verify the materials of construction and the ~~thickness~~ of all shield walls and floors are as-built for confirmation of the adequacy of the shielding design in plant areas.	1. A report exists and concludes that the shielding materials and the thicknesses of walls and floors are as-built for the shielding of all radiation areas.
2. Ventilation systems for the radiological controlled areas are designed to keep the radioactivity concentration below the limits specified in 10 CFR Part 20, Appendix B.	2. Analysis will be performed to predict the airborne radioactivity concentrations and to confirm the ventilation design adequacy by considering ventilation flow rates and equipment leakages in the plant areas during normal operations.	2. Analysis exists and concludes that ventilation airflow in radiological controlled areas flows from areas of lower potential airborne contamination to areas of higher potential airborne contamination. The concentrations of airborne radionuclides shall not exceed the concentrations provided in 10 CFR Part 20, Appendix B.
3. Radiation shielding design is provided to protect the operators so that they could take actions to mitigate or recover from the design basis accidents.	3. Analysis will be performed to predict maximum radiation exposure to the operators during the design basis accidents.	3. A report exists and concludes that maximum radiation exposure dose to operators is less than the limits specified in GDC 19.
~~4. Compound building truck bay door is provided for radiation shielding during waste loading and unloading operation.~~	~~4. An inspection of the CB truck bay door and its test report will be conducted to verify that the door is built with equal or greater attenuation than that provided in the technical specifications.~~	~~4. A report exists and concludes that the attenuation capability of the as-built door has equal or greater attenuation than that provided in the technical specifications.~~

~~equipment~~

Deleted

Table 2.2.1-1 (7 of 10)

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness (1)	Applicable Radiation Shielding Wall (Yes/No)
Column Line AA Wall	From 12 to 17 From 20 to 26	From 55'-0" to 156'-0"	4'-0"	Yes
Column Line AA Wall	From 17 to 20	From 55'-0" to 175'-0"	5'-0"	Yes
Column Line AB Wall	From 12 to 15	From 55'-0" to 100'-0"	3'-0"	Yes
Column Line AB Wall	From 15 to 22	From 55'-0" to 137'-6"	4'-0"	Yes
Column Line AB Wall	From 23 to 26	From 55'-0" to 137'-6"	3'-0"	Yes
Column Line AB Wall	From 22 to 23	From 78'-0" to 156'-0"	3'-6"/3'-0"	Yes
Column Line AB Wall	From 12 to 18	From 137'-6" to 156'-0"	4'-0"	No
Column Line AB Wall	From 12 to 17	From 156'-0" to 195'-0"	3'-0"	Yes
Column Line AB Wall	From 20 to 22	From 137'-6" to 156'-0"	3'-6"	Yes
Column Line AB Wall	From 20 to 22	From 156'-0" to 180'-0"	3'-0"	Yes
Column Line AC Wall	From 12 to 14	From 55'-0" to 100'-0"	2'-6"	Yes
Column Line AC Wall	From 15 to 26	From 55'-0" to 68'-0"	4'-0"	Yes
Column Line AC Wall	From 15 to 23	From 68'-0" to 137'-6"	4'-0"	Yes
Column Line AC Wall	From 23 to 26	From 100'-0" to 156'-0"	3'-0"	Yes
Column Line AC Wall	From 12 to 14	From 137'-6" to 156'-0"	2'-6"	No
Column Line AC Wall	From 15 to 18	From 137'-6" to 156'-0"	4'-0"	No
Column Line AC Wall	From 20 to 22	From 137'-6" to 169'-6"	3'-0"	Yes
Column Line AC Wall	From 24 to 26	From 137'-6" to 156'-0"	3'-0"	No
Column Line AC Wall	From 15 to 17	From 156'-0" to 195'-0"	3'-0"	No
Column Line AB Wall	From 22 to 26	From 156'-0" to 174'-0"	2'-0"	Yes

Table 2.2.1-1 (10 of 10)

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness (1)	Applicable Radiation Shielding Wall (Yes/No)
Column Line AK Wall	From 12 to 17 From 20 to 26	From 55'-0" to 156'-0" From 55'-0" to 174'-0"	4'-0"	Yes
Column Line AK Wall	From 17 to 20	From 55'-0" to 175'-0"	5'-0"	Yes
Column Line AK Wall	From 20 to 23	From 174'-0" to 216'-9"	3'-0"	Yes
Column Line AK Wall	From 23 to 26	From 174'-0" to 213'-6"	4'-0"	Yes
~~Floors~~	~~Not Applicable~~	~~68'-0"~~	~~Variable From 2'-0" to 2'-6"~~	~~Yes~~
~~Floors~~	~~Not Applicable~~	~~78'-0"~~	~~Variable From 1'-6" to 3'-3"~~	~~Yes~~
~~Floors~~	~~Not Applicable~~	~~100'-0"~~	~~Variable From 1'-6" to 4'-0"~~	~~Yes~~
~~Floors~~	~~Not Applicable~~	~~120'-0"~~	~~Variable From 1'-6" to 6'-1"~~	~~Yes~~
~~Floors~~	~~Not Applicable~~	~~137'-6"~~	~~Variable From 1'-6" to 4'-6"~~	~~Yes~~
~~Floors~~	~~Not Applicable~~	~~156'-0"~~	~~Variable From 1'-0" to 3'-0"~~	~~Yes~~
~~Floors~~	~~Not Applicable~~	~~174'-0"~~	~~Variable From 1'-0" to 1'-6"~~	~~Yes~~
~~Floors~~	~~Not Applicable~~	~~From 195'-0" to 216'-9"~~	~~Variable From 1'-6" to 2'-9"~~	~~Yes~~

(1) Tolerance for the thickness of the walls and slabs is -1/4 inch and + 1 inch.

(2) Reduction of the basemat thickness is less than - 5 % of specified thickness.

Added the table contents for the AB Floors as indicated in "A"

Added the new table "Table 2.2.1-1a" as shown in "B" after following Table 2.2.1-1.

A

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness	Applicable Radiation Shielding Wall (Yes/No)
Wall located between Column Lines	From AB to AE From 23 to 24	From 68'-0" to 78'-0"	3'-0"	Yes
Wall located between Column Lines	From AB to AD From 24 to 25	From 68'-0" to 78'-0"	3'-0"	Yes
Wall located between Column Lines	From AA to AB From 24 to 25	From 77'-0" to 100'-0"	3'-6"	Yes
Wall located between Column Lines	From AD to AE From 25 to 26	From 78'-0" to 100'-0"	3'-0"	Yes
Wall located between Column Lines	From AD to AE From 24 to 25	From 78'-0" to 100'-0"	2'-0"	Yes
Wall located between Column Lines	From AC to AD From 23 to 24	From 86'-0" to 100'-0"	3'-0"	Yes
Wall located between Column Lines	From AG to AI From 21 to 22	From 100'-0" to 120'-0"	3'-0"	Yes
Wall located between Column Lines	From AA to AB From 20 to 22	From 156'-0" to 174'-0"	2'-0"	Yes

A

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness	Applicable Radiation Shielding Wall (Yes/No)
Floors	From AJ to AK From 25 to 26	68'-0"	1'-6"	Yes
Floors	From AI to AJ From 23 to 26	68'-0"	2'-0", 2'-6"	Yes
Floors	From AF to AI From 23 to 26	68'-0"	2'-0", 2'-6"	Yes
Floors	From AE to AF From 23 to 25	68'-0"	2'-0"	Yes
Floors	From AD to AE From 23 to 25	68'-0"	2'-0", 2'-6"	Yes
Floors	From AE to AF From 25 to 26	68'-0"	2'-0", 2'-6"	Yes
Floors	From AB to AD From 23 to 24	68'-0"	2'-6"	Yes
Floors	From AD to AE From 25 to 26	68'-0"	2'-0", 2'-6"	Yes
Floors	From AA to AD From 24 to 26	68'-0"	2'-4", 2'-6"	Yes
Floors	From AB to AD From 24 to 25	77'-0"	2'-0", 2'-6", 3'-3"	Yes

A

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness	Applicable Radiation Shielding Wall (Yes/No)
Floors	From AK to Above AK From 15 TO 19	78'-0"	1'-6"	Yes
Floors	From AJ to AK From 13 to 15	78'-0"	2'-6"	Yes
Floors	From AH to AJ From 15 to 19	78'-0"	2'-6"	Yes
Floors	From AB to AJ From 23 to 26	78'-0"	2'-0"	Yes
Floors	From AA to AB From 25 to 26	78'-0"	2'-0"	Yes
Floors	From AA to AB From 24 to 25	78'-0"	2'-6", 3'-0"	Yes
Floors	From AA to AB From 23 to 24	78'-0"	2'-6"	Yes
Floors	From AE to AG From 22 to 23	78'-0"	2'-0"	Yes
Floors	From AG to AI From 20 to 23	78'-0"	3'-0"	Yes
Floors	From AC to AE From 20 to 23	78'-0"	3'-0"	Yes

A

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness	Applicable Radiation Shielding Wall (Yes/No)
Floors	From AI to AJ From 19 to 22	78'-0"	2'-6"	Yes
Floors	From AB to AC From 19 to 22	78'-0"	2'-6"	Yes
Floors	From AB to AD From 15 to 19	78'-0"	2'-6"	Yes
Floors	From Below AA to AA From 15 to 19	78'-0"	1'-6"	Yes
Floors	From AA to AB From 13 to 15	78'-0"	2'-6"	Yes
Floors	From AJ to AK From 23 to 26	78'-0"	2'-6"	Yes
Floors	From AJ to AK From 14 to 15	78'-0"	2'-6"	No
Floors	From AJ to AK From 22 to 23	78'-0"	2'-6"	No
Floors	From AJ to AK From 12 to 13	78'-0"	1'-6"	No
Floors	From AJ to Ak From 15 to 22	78'-0"	1'-6"	No

A

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness	Applicable Radiation Shielding Wall (Yes/No)
Floors	From AB to AJ From 12 to 15	78'-0"	1'-6"	No
Floors	From AE to AG From 15 to 17	78'-0"	1'-6"	No
Floors	From AA to AB From 12 to 13	78'-0"	1'-6"	No
Floors	From AA to AB From 14 to 15	78'-0"	2'-6"	No
Floors	From AA to AB From 15 to 16	78'-0"	1'-6", 2'-6"	No
Floors	From AA to AB From 16 to 22	78'-0"	1'-6"	No
Floors	From AA to AB From 22 to 23	78'-0"	2'-6"	No
Floors	From AB to AC From 22 to 23	78'-0"	1'-6"	No
Floors	From AB to AD From 24 to 26	86'-0"	2'-0", 3'-3"	Yes
Floors	From AH to AI From 17 to 19	100'-0"	2'-0"	Yes

A

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness	Applicable Radiation Shielding Wall (Yes/No)
Floors	From AC to AD From 17 to 19	100'-0"	2'-0"	Yes
Floors	From AE to AF From 22 to 23	100'-0"	2'-0"	Yes
Floors	From AJ to AK From 24 to 26	100'-0"	2'-0"	Yes
Floors	From AC to AD From 24 to 26	100'-0"	2'-0"	Yes
Floors	From AD to AE From 24 to 25	100'-0"	4'-0"	Yes
Floors	From AG to AI From 21 to 23	100'-0"	3'-0"	Yes
Floors	From AD to AJ From 25 to 26	100'-0"	2'-0"	Yes
Floors	From AC to AE From 21 to 23	100'-0"	3'-0"	Yes
Floors	From AE to AF From 24 to 25	100'-0"	3'-0"	Yes
Floors	From AH to AI From 23 to 25	100'-0"	2'-0"	Yes

A

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness	Applicable Radiation Shielding Wall (Yes/No)
Floors	From AI to AJ From 23 to 25	100'-0"	3'-6"	Yes
Floors	From AG to AH From 21 to 23	100'-0"	3'-0"	Yes
Floors	From AE to AF From 24 to 25	100'-0"	3'-0"	Yes
Floors	From AH to AK From 12 to 13	100'-0"	2'-0"	No
Floors	From AH to AK From 14 to 15	100'-0"	2'-0"	No
Floors	From AJ to AK From 15 to 24	100'-0"	2'-0"	No
Floors	From AI to AJ From 21 to 23	100'-0"	2'-0"	No
Floors	From AG to AI From 15 to 17	100'-0"	2'-0"	No
Floors	From AH to AI From 19 to 20	100'-0"	2'-0"	No
Floors	From AD to AH From 12 to 15	100'-0"	2'-0"	No

A

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness	Applicable Radiation Shielding Wall (Yes/No)
Floors	From AA to AD From 12 to 13	100'-0"	2'-0"	No
Floors	From AA to AD From 14 to 15	100'-0"	2'-0"	No
Floors	From AC to AE From 15 to 17	100'-0"	2'-0"	No
Floors	From AA to AB From 15 to 23	100'-0"	2'-0"	No
Floors	From AC to AD From 19 to 20	100'-0"	2'-0"	No
Floors	From AB to AC From 21 to 22	100'-0"	2'-0"	No
Floors	From AA to AF From 23 to 24	100'-0"	2'-0"	No
Floors	From AA to AC From 24 to 26	100'-0"	2'-0"	No
Floors	From AI to AJ From 23 to 24	100'-0"	3'-6"	No
Floors	From AH to AK From 13 to 14	100'-0"	4'-0"	No

A

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness	Applicable Radiation Shielding Wall (Yes/No)
Floors	From AA to AD From 13 to 14	100'-0"	4'-0"	No
Floors	From AI to AJ From 15 to 21	100'-0"	4'-0"	No
Floors	From AB to AC From 15 to 21	100'-0"	4'-0"	No
Floors	From AH to AI From 20 to 22	100'-0"	2'-6"	No
Floors	From AG to AI From 22 to 23	100'-0"	2'-6"	No
Floors	From AC to AD From 20 to 22	100'-0"	2'-6"	No
Floors	From AF to AG From 22.4 to 24	113'-0", 114'-6"	5'-4"	Yes
Floors	From AG to AH From 23 to 25	114'-0"	6'-1"	Yes
Floors	From AD to AE From 25 to 26	117'-0"	1'-6"	Yes
Floors	From AF to AG From 24 to 25	118'-5"	4'-6"	Yes

A

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness	Applicable Radiation Shielding Wall (Yes/No)
Floors	From AH to AI From 17 to 19	120'-0"	1'-6"	Yes
Floors	From AC to AD From 17 to 19	120'-0"	1'-6"	Yes
Floors	From AE to AF From 25 to 26	120'-0"	1'-6"	Yes
Floors	From AB to AC From 21 to 22	120'-0"	2'-0"	Yes
Floors	From AC to AD From 22 to 23	120'-0"	1'-6"	Yes
Floors	From AD to AF From 21 to 23	120'-0"	1'-6"	Yes
Floors	From AG to AK From 25 to 26	120'-0"	1'-6"	Yes
Floors	From AH to AJ From 12 to 13	120'-0"	1'-6"	No
Floors	From AH to AK From 14 to 15	120'-0"	1'-6"	No
Floors	From AJ to AK From 19 to 25	120'-0"	1'-6"	No

A

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness	Applicable Radiation Shielding Wall (Yes/No)
Floors	From AG to AI From 15 to 17	120'-0"	1'-6"	No
Floors	From AH to AI From 21 to 22	120'-0"	1'-6"	No
Floors	From AD to AH From 12 to 15	120'-0"	1'-6"	No
Floors	From AC to AE From 15 to 17	120'-0"	1'-6"	No
Floors	From AB to AD From 12 to 13	120'-0"	1'-6"	No
Floors	From AA to AD From 14 to 15	120'-0"	1'-6"	No
Floors	From AA to AB From 18 to 23	120'-0"	1'-6"	No
Floors	From AA to AD From 23 to 26	120'-0"	1'-6"	No
Floors	From AD to AF From 23 to 24	120'-0"	1'-6"	No
Floors	From AE to AF From 24 to 25	120'-0"	1'-6"	No

A

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness	Applicable Radiation Shielding Wall (Yes/No)
Floors	From AJ to AK From 15 to 19	120'-0"	2'-6"	No
Floors	From AA to AB From 15 to 19	120'-0"	2'-6"	No
Floors	From AB to AC From 20 to 21	137'-6"	4'-0"	Yes
Floors	From AH to AI From 22 to 23	137'-6"	2'-3"	Yes
Floors	From AA to AE From 23 to 26	137'-6"	1'-6", 4'-6"	Yes
Floors	From AD to AF From 22 to 23	137'-6"	2'-0"	Yes
Floors	From AA to AE From 23 to 26	137'-6"	1'-6", 4'-6"	Yes
Floors	From AD to AF From 22 to 23	137'-6"	2'-0"	Yes
Floors	From AG to AH From 22 to 23	137'-6"	2'-6"	Yes
Floors	From AC to AD From 18 to 20	137'-6"	1'-6"	Yes

A

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness	Applicable Radiation Shielding Wall (Yes/No)
Floors	From AH to AI From 18 to 20	137'-6"	1'-6"	Yes
Floors	From AG to AK From 24 to 26	137'-6"	1'-6"	Yes
Floors	From AC to AD From 22 to 23	137'-6"	2'-0"	Yes
Floors	From AB to AJ From 12 to 15	137'-6"	1'-6"	No
Floors	From AG to AI From 15 to 17	137'-6"	1'-6"	No
Floors	From AC to AE From 15 to 17	137'-6"	1'-6"	No
Floors	From AA to AB From 20 to 23	137'-6"	1'-6"	No
Floors	From AE to AF From 25 to 26	137'-6"	1'-6"	No
Floors	From AH to AJ From 21 to 22	137'-6"	1'-6"	No
Floors	From AJ to AK From 20 to 23	137'-6"	1'-6"	No

A

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness	Applicable Radiation Shielding Wall (Yes/No)
Floors	From AJ to AK From 12 to 20	137'-6"	4'-0"	No
Floors	From AI to AJ From 17 to 21	137'-6"	4'-0"	No
Floors	From AA to AB From 12 to 20	137'-6"	4'-0"	No
Floors	From AB to AC From 17 to 20	137'-6"	4'-0"	No
Floors	From AI to AJ From 15 to 17	137'-6"	2'-0"	No
Floors	From AB to AC From 15 to 17	137'-6"	2'-0"	No
Floors	From AE to AF From 23 to 26	154'-6"	3'-0"	Yes
Floors	From AA to AB From 20 to 21	156'-0"	1'-6", 2'-0"	Yes
Floors	From AA to AB From 21 to 25	156'-0"	2'-0"	Yes
Floors	From AB to AI From 12 to 15	156'-0"	1'-6"	Yes

A

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness	Applicable Radiation Shielding Wall (Yes/No)
Floors	From AI to AK From 20 to 21	156'-0"	1'-6"	Yes
Floors	From AJ to AK From 21 to 22	156'-0"	1'-6"	Yes
Floors	From AI to AJ From 12 to 15	156'-0"	1'-6"	No
Floors	From AG to AJ From 15 to 17	156'-0"	1'-6"	No
Floors	From AJ to AK From 22 to 26	156'-0"	1'-6"	No
Floors	From AG to AJ From 21 to 23	156'-0"	1'-6"	No
Floors	From AG to AI From 24 to 26	156'-0"	1'-6"	No
Floors	From AI to AJ From 25 to 26	156'-0"	1'-6"	No
Floors	From AI to AJ From 23 to 25	156'-0"	1'-6", 2'-0", 4'-0"	No
Floors	From AB to AD From 14 to 15	156'-0"	1'-6"	No

A

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness	Applicable Radiation Shielding Wall (Yes/No)
Floors	From AB to AE From 15 to 17	156'-0"	1'-6"	No
Floors	From AA to AB From 21 to 26	156'-0"	1'-6"	No
Floors	From AB to AD From 22 to 26	156'-0"	1'-6"	No
Floors	From AD to AE From 24 to 26	156'-0"	3'-0"	No
Floors	From AB to AC From 20 to 22	169'-6"	1'-6"	Yes
Floors	From AC to AI From 12 to 15	174'-0"	1'-6"	Yes
Floors	From AI to AK From 20 to 23	174'-0"	1'-6"	Yes
Floors	From AA to AB From 21 to 26	174'-0"	1'-6"	Yes
Floors	From AI to AJ From 12 to 15	174'-0"	1'-6"	No
Floors	From AG to AJ From 15 to 18	174'-0"	1'-6"	No

A

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness	Applicable Radiation Shielding Wall (Yes/No)
Floors	From AJ to AK From 17 to 18	174'-0"	1'-6"	No
Floors	From AH to AK From 18 to 20	174'-0"	1'-6"	No
Floors	From AG to AI From 21 to 23	174'-0"	1'-6"	No
Floors	From AB to AC From 12 to 15	174'-0"	1'-6"	No
Floors	From AB to AE From 15 to 17	174'-0"	1'-6"	No
Floors	From AA to AD From 17 to 20	174'-0"	1'-6"	No
Floors	From AA to AB From 20 to 25	174'-0"	2'-0"	No
Floors	From AB to AC From 22 to 23	180'-0"	1'-6"	Yes
Floors	From AI to AK From 20 to 22	195'-0"	1'-6"	Yes
Floors	From AJ to AK From 22 to 23	195'-0"	1'-6"	Yes

A

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness	Applicable Radiation Shielding Wall (Yes/No)
Floors	From AI to AJ From 13 to 15	195'-0"	1'-6"	No
Floors	From AH to AJ From 16 to 18	195'-0"	1'-6"	No
Floors	From AJ to AK From 17 to 18	195'-0"	1'-6"	No
Floors	From AH to AI From 13 to 14	195'-0"	1'-6"	No
Floors	From AG to AI From 20 to 23	195'-0"	1'-6"	No
Floors	From AD to AH From 12 to 14	195'-0"	1'-6"	No
Floors	From AB to AD From 13 to 14	195'-0"	1'-6"	No
Floors	From AB to AC From 14 to 15	195'-0"	1'-6"	No
Floors	From AA to AB From 17 to 18	195'-0"	1'-6"	No
Floors	From AB to AD From 16 to 18	195'-0"	1'-6"	No

A

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness	Applicable Radiation Shielding Wall (Yes/No)
Floors	From AI to AJ From 12 to 13	195'-0"	2'-9"	No
Floors	From AB to AC From 12 to 13	195'-0"	2'-9"	No
Floors	From AC to AD From 12 to 13	195'-0"	1'-6",2'-9"	No
Floors	From AH to AI From 12 to 13	195'-0"	1'-6",2'-9"	No
Floors	From AH to AJ From 15 to 16	213'-0"	1'-6"	No
Floors	From AC to AI From 14 to 15	213'-0"	1'-6"	No
Floors	From AB to AD From 15 to 16	213'-0"	1'-6"	No
Floors	From AI to AK From 20 to 22	215'-0"	2'-0"	Yes
Floors	From AF to AK From 23 to 26	215'-0"	1'-6"	Yes
Floors	From AI to AJ From 22 to 23	226'-6"	1'-6"	Yes

B

RAI 116-8054 - Question 14.03.08-1, Rev.1

RAI 116-8054 - Question 14.03.08-1, Rev.2

Table 2.2.1-1a (1 of 2)

Design Basis Radiation Shield Thicknesses of Compound Building and Yard Area

Room Number	Room Name	Minimum Required Shield Thickness (inches)					
		North	South	East	West	Floor	Ceiling
Compound Building							
063-P01	Hot Pipe Chase	10	28	28	10	Ground	17
063-P02	GRS Header Drain Tank Room	35	40	48	36	Ground	18
063-P03	Valve Room	27	30	37	10	Ground	10
063-P04	GRS Inlet Skid Room	21	32	10	21	Ground	13
063-P05	Spent Resin Long-term Storage Tank Room	27	35	48	36	Ground	46
063-P06	Future Use	36	27	48	36	Ground	39
063-P07	Valve Room	16	29	36	30	Ground	14
063-P08	Low-activity Spent Resin Tank Room	27	32	35	10	Ground	10
063-P09	Valve Room	16	36	10	16	Ground	18
063-P13	Hot Pipe Chase	40	33	40	33	Ground	19
063-P23	Equip. Waste Tank Room	13	33	20	22	Ground	27
063-P24	Equip. Waste Tank Room	16	13	21	22	Ground	27
063-P28	Floor Drain Tank Room	16	16	19	20	Ground	29
063-P29	Floor Drain Tank Room	16	16	19	20	Ground	29
063-P30	Chemical Waste Tank Room	10	16	15	10	Ground	15
063-P31	Chemical Waste Tank Room	10	10	15	10	Ground	15
063-P37	Monitor Tank Room	10	18	11	18	Ground	10
063-P38	PSS-Solidification & Drum Conveyer Room	17	24	24	21	Ground	14
063-P39	Spent Resin Long-term Storage Tank Sump Pump Room	18	20	18	21	Ground	18
063-P41	Concentrate Holding Tank Room	21	27	33	28	Ground	10
063-P44	IX Feed Tank Room	14	16	11	10	Ground	23
063-P47	CTS HEPA Vacuum Skid Room	24	10	21	10	Ground	10
063-P48	CTS Dryer Skid Room	31	24	17	21	Ground	15
063-P49	CTS Vacuum Skid Room	10	10	21	10	Ground	18
063-P54	Monitor Tank Pump Room	10	10	10	10	Ground	14

Replaced by the table in next pages

B

RAI 116-8054 - Question 14.03.08-1, Rev.1

RAI 116-8054 - Question 14.03.08-1, Rev.2

Table 2.2.1-1a (2 of 2)

Room Number	Room Name	Minimum Required Shield Thickness (inches)					
		North	South	East	West	Floor	Ceiling
Compound Building (Cont.)							
063-P73	Future Use	36	43	18	48	Ground	36
085-P01	Waste Gas Dryer Skid Room	17	25	25	19	17	22
085-P02	Waste Gas Dryer Skid Room	11	17	10	19	17	22
085-P03	Valve Room	48	11	30	26	18	36
085-P04	Charcoal Guard Bed Room	26	26	34	18	10	23
085-P06	Valve Room	19	26	36	30	19	27
085-P08	Valve Room	24	19	22	24	19	24
085-P17	Valve Room	10	10	10	14	10	17
085-P20	Valve Room	16	16	16	16	10	16
085-P21	Charcoal Guard Bed Room	26	26	18	34	10	23
085-P42	IX Module Room	10	30	30	27	14	28
085-P43	IX Module Room	30	10	30	30	14	28
085-P44	RO Feed Tank Room	10	27	32	22	19	25
085-P46	MF Membrane Module Room	23	10	20	15	18	16
085-P47	MF Membrane Module Room	23	16	10	12	15	16
085-P48	RO Membrane Module and Valve Skid Room	43	24	43	34	32	36
096-P01	Charcoal Delay Bed Room	22	19	21	14	28	17
096-P02	Charcoal Delay Bed Room	47	44	14	38	36	42
100-P08	Truck Bay	24	24	36	37	36	31
100-P09	Waste Drum Storage Area	28	24	36	26	34	31
100-P10	Spent Filter Drum Storage Area	36	28	48	37	36	43
Yard Area							
-	Boric Acid Storage Tank	16				Ground	-
-	Holdup Tank	14.75				Ground	-

Replaced by the table in next pages

B

RAI 116-8054 - Question 14.03.08-1, Rev.2

Table 2.2.1-1a (1 of 9)

Room Number	Room Name	Minimum Required Shield Thickness (inches)					
		North	South	East	West	Floor	Ceiling
Compound Building							
063-P01	Hot Pipe Chase	10	28	28	10	Ground	17
063-P02	GRS Header Drain Tank Room	35	42	48	41	Ground	18
063-P03	Valve Room	27	30	37	10	Ground	10
063-P04	GRS Inlet Skid Room	22	34	10	22	Ground	13
063-P05	Spent Resin Long-term Storage Tank Room	27	35	48	36	Ground	46
063-P06	Future Use	36	27	48	36	Ground	39
063-P07	Valve Room	16	29	36	30	Ground	14
063-P08	Low-activity Spent Resin Tank Room	27	32	35	10	Ground	10
063-P09	Valve Room	16	36	10	16	Ground	18
063-P13	Hot Pipe Chase	40	33	40	33	Ground	19
063-P14	Hot Tool Room	15	10	10	10	Ground	32
063-P21	Equip. Waste Pump Room	17	19	10	20	Ground	17
063-P22	Equip. Waste Pump Room	10	17	10	21	Ground	17
063-P23	Equip. Waste Tank Room	13	33	20	22	Ground	27
063-P24	Equip. Waste Tank Room	16	13	21	22	Ground	27
063-P25	Floor Drain Pump Room	14	10	11	19	Ground	10
063-P26	Normal Sump Pump Room	14	14	10	19	Ground	16
063-P27	Chemical Waste Pump Room	10	14	10	15	Ground	16
063-P28	Floor Drain Tank Room	16	16	19	20	Ground	29
063-P29	Floor Drain Tank Room	16	16	19	20	Ground	29
063-P30	Chemical Waste Tank Room	10	16	15	10	Ground	15
063-P31	Chemical Waste Tank Room	10	10	15	10	Ground	15
063-P36	DWS Drain Sump Pump Room	10	10	10	10	Ground	10

B

RAI 116-8054 - Question 14.03.08-1, Rev.2

Table 2.2.1-1a (2 of 9)

Room Number	Room Name	Minimum Required Shield Thickness (inches)					
		North	South	East	West	Floor	Ceiling
Compound Building (cont.)							
063-P37	Monitor Tank Room	10	18	11	18	Ground	10
063-P38	PSS-Solidification & Drum Conveyer Room	17	24	24	21	Ground	14
063-P39	Spent Resin Long-term Storage Tank Sump Pump Room	18	20	18	21	Ground	18
063-P40	Concentrate Pump Room	27	24	20	16	Ground	19
063-P41	Concentrate Holding Tank Room	21	27	33	28	Ground	10
063-P42	RO Feed Pump Room	10	10	28	16	Ground	24
063-P43	IX Feed Pump Room	16	10	16	10	Ground	24
063-P44	IX Feed Tank Room	14	16	11	10	Ground	23
063-P47	CTS HEPA Vacuum Skid Room	24	10	21	10	Ground	10
063-P48	CTS Dryer Skid Room	31	24	17	21	Ground	15
063-P49	CTS Vacuum Skid Room	10	10	21	10	Ground	18
063-P54	Monitor Tank Pump Room	10	10	10	10	Ground	14
063-P73	Future Use	36	43	18	48	Ground	36
085-P01	Waste Gas Dryer Skid Room	18	31	31	25	17	24
085-P02	Waste Gas Dryer Skid Room	11	18	22	25	17	24
085-P03	Valve Room	48	11	30	26	18	36
085-P04	Charcoal Guard Bed Room	27	27	35	18	10	24
085-P06	Valve Room	19	26	36	30	19	27
085-P07	Valve Room	27	24	30	30	14	24
085-P08	Valve Room	24	19	22	24	19	24
085-P15	Valve Room	10	21	21	18	10	23
085-P16	Valve Room	10	22	18	19	10	22
085-P17	Valve Room	10	10	10	14	10	17
085-P20	Valve Room	16	16	16	16	10	16
085-P21	Charcoal Guard Bed Room	27	27	18	35	10	24
085-P31	Primary Sampling Room	10	10	10	10	10	10

B

RAI 116-8054 - Question 14.03.08-1, Rev.2

Table 2.2.1-1a (3 of 9)

Room Number	Room Name	Minimum Required Shield Thickness (inches)					
		North	South	East	West	Floor	Ceiling
Compound Building (cont.)							
085-P32	Primary Sampling Sink Room	10	13	12	12	14	18
085-P42	IX Module Room	10	30	30	27	14	28
085-P43	IX Module Room	30	10	30	30	14	28
085-P44	RO Feed Tank Room	10	27	32	22	19	25
085-P45	Drum Removal Chase	15	15	15	15	-	25
085-P46	MF Membrane Module Room	23	10	20	15	18	16
085-P47	MF Membrane Module Room	23	16	10	12	15	16
085-P48	RO Membrane Module and Valve Skid Room	43	24	43	34	32	36
096-P01	Charcoal Delay Bed Room	49	47	49	15	36	43
096-P02	Charcoal Delay Bed Room	49	47	15	40	36	43
100-P02	GRS Equipment Removal Area	13	11	40	10	23	10
100-P07	Future Extension Area	24	30	36	37	24	31
100-P08	Truck Bay	24	24	36	37	36	31
100-P09	Waste Drum Storage Area	28	24	36	26	34	31
100-P10	Spent Filter Drum Storage Area	36	28	48	37	36	43
120-P01	Gaseous Radwaste Sample Control Panel Room	16	21	21	12	18	26
120-P02	Gaseous Radwaste Sample Valve Rack Room	22	16	26	18	18	26
139-P06	Normal Exhaust ACU Room	20	20	20	20	20	20
Yard							
-	Boric Acid Storage Tank	16	16	16	16	-	-
-	Holdup Tank	15(1)	15(1)	15(1)	15(1)	-	-

(1) Including the Tank wall of 0.25 inches

B

RAI 116-8054 - Question 14.03.08-1, Rev.2

Table 2.2.1-1a (4 of 9)

Room Number	Room Name	Face to			Minimum Required Shield Thickness (inches)
		Structure	Room Number	Room Name	
Additional Information on the Rooms which Contain Complex Geometries					
068-A07A	Hot Pipe Way	Slab	055-A45A	Pipe Chase	10
		Slab	055-A42A	Charging Pump Room	22
		Slab	055-A35A	General Access Area	24
		Slab	055-A39A	Process Radiation Monitor Room	21
		Slab	055-A58A	Pipe Chase	17
		Slab	055-A30A	SC Hx Room	19
		Slab	078-A38A	Spent Fuel Pool Clean up Pump Room	23
		Slab	078-A39A	Gas Stripper Effluents Radiation Monitor Room	16
		Slab	078-A31A	General Access Area	24
068-A10A	Filter and Demin Valve Room	Slab	055-A35A	General Access Area	30
		Slab	055-A36A	CVCS Chemical Package Room	30
		Slab	078-A34A	Pre-Holdup Ion Exchange	15
		Slab	078-A35A	Purification Ion Exchange Room	13
		Slab	078-A37A	Deborating Ion Exchange Room	24
		Slab	077-A01A	Reactor Drain Filter Pit	15
		Slab	077-A06A	Purification Filter Pit	10
		Slab	077-A08A	Purification Filter Pit	10
		Slab	077-A10A	Seal Injection Filter Pit	10

B

RAI 116-8054 - Question 14.03.08-1, Rev.2

Table 2.2.1-1a (5 of 9)

Room Number	Room Name	Face to (floor)			Minimum Required Shield Thickness (inches)
		Structure	Room Number	Room Name	
Additional Information on the Rooms which Contain Complex Geometries (cont.)					
077-P01	Hot Pipe Way	Slab	063-P27	Chemical Waste Pump Room	14
		Slab	063-P33	Sampling Room	14
		Slab	063-P34	LRS Control Panel Room	14
		Slab	063-P54	Monitor Tank Pump Room	14
		Slab	063-P56	Drop Area & Opening	14
		Slab	063-P57	Sorting Room	14
		Slab	063-P21	Equip. Waste Pump Room	15
		Slab	063-P22	Equip. Waste Pump Room	17
		Slab	063-P25	Floor Drain Pump Room	10
		Slab	063-P26	Normal Sump Pump Room	16
		Slab	063-P38	PSS-solidification & Drum Conveyor Room	16
		Slab	063-P46	Corridor	25
		Slab	063-P11	Corridor	28
		Slab	063-P09	Valve Room	20
		Slab	063-P40	Concentrate pump Room	20
		Slab	063-P41	Concentrate holding tank Room	10
		Slab	063-P42	RO feed pump Room	24
		Slab	063-P43	IX feed pump Room	24
		Slab	063-P44	IX Feed tank Room	23
		Slab	063-P45	Hot tool Room	23
		Slab	063-P04	GRS inlet skid Room	13
		Slab	063-P07	Valve Room	14
		Slab	063-P10	Hot tool Room	24
		Slab	063-P16	Corridor (1)	18
		Slab	063-P16	Corridor (2)	24

(1) Section within the column line from 33 to 36 and from PF to PG

(2) Section within the column line from 36 to 37 and from PB to PG

B

RAI 116-8054 - Question 14.03.08-1, Rev.2

Table 2.2.1-1a (6 of 9)

Room Number	Room Name	Openings for			Minimum Required Shield Thickness (inches)			
		Structure	Room Number	Room Name	North	South	East	West
Additional Information on the Rooms which Contain Complex Geometries (cont.)								
077-P01	Hot Pipe Way	Wall	063-P26	Normal Sump Room	16	16	16	19
		Wall	063-P56	Drop Area	14	14	18	14
		Wall	085-P45	Drum Removal Chase	16	16	16	16
		Wall	063-P16	Corridor (1)	24	-	24	20
		Opening within the column line from 36 to 37 and PE to PG						
		Wall	063-P16	Corridor	18	24	-	24
		Wall	057-P01	Elev. Hoist Way	18	-	34	-
		Wall	063-P18	Stair	-	32	32	-
		Opening within the column line from 36 to 37 and PB to PE						
		Wall	063-P16	Corridor	20	20	-	20
		Wall	063-P19	Elect. Riser	29	-	29	-
		Wall	063-P39	Spent Resin Long Term Storage Pump Room	18	21	15	21
		Wall	063-P20	HVAC Chase	-	18	30	-

(1) Opening within the column line from 36 to 37 and from PA to PB

B

RAI 116-8054 - Question 14.03.08-1, Rev.2

Table 2.2.1-1a (7 of 9)

Room Number	Room Name	Face to (side wall)			Minimum Required Shield Thickness (inches)
		Structure	Room Number	Room Name	
Additional Information on the Rooms which Contain Complex Geometries (cont.)					
077-P01	Hot Pipe Way	Wall	-	Yard (1)	28
		Wall	063-P23	Equipment Waste Tank Room	15
		Wall	063-P24	Equipment Waste Tank Room	15
		Wall	063-P28	Floor Drain Tank Room	16
		Wall	063-P29	Floor Drain Tank Room	19
		Wall	063-P30	Chemical Waste Tank Room	10
		Wall	063-P31	Chemical Waste Tank Room	10
		Wall	063-P16	Corridor (2)	18
		Wall	063-P52	Chemical Drain Sump Pump Room	14
		Wall	062-P02	Mask Decontamination Room	14
		Wall	063-P64	Corridor	14
		Wall	063-P61	Laundry Storage	14
		Wall	063-P51	Stair	17
		Wall	063-P78	Pipe Chase	14
		Wall	063-P32	Detergent Waste Tank & Pump Room	14
		Wall	063-P37	Monitor Tank Room	18
		Wall	063-P16	Corridor (3)	18
		Wall	063-P46	Corridor - Wall within the column line from 37 to 38 along the row line PG - Wall within the row line from PG to PH along the column line 38	 18 25
		Wall	063-P38	PSS-Solidification	16
		Wall	085-P45	Opening for Drum Removal Chase (West wall)	16
		Wall	063-P48	CTS-Dryer Skid Room	17
		Wall	063-P13	Hot Pipe Chase	10

(1) Exterior wall within the column line from 35 to 36 along the row line PA

(2) Section within the column line from 33 to 35 and from PF to PG

(3) Side wall within the column line from 36 to 37 along the row line PG

B

RAI 116-8054 - Question 14.03.08-1, Rev.2

Table 2.2.1-1a (8 of 9)

Room Number	Room Name	Face to (side wall)			Minimum Required Shield Thickness (inches)
		Structure	Room Number	Room Name	
Additional Information on the Rooms which Contain Complex Geometries (cont.)					
077-P01	Hot Pipe Way	Wall	-	Yard (4)	38
		Wall	063-P11	Corridor (5)	
				- South wall	28
				- East wall	28
		Wall	063-P08	Low Activity Spent Resin Tank Room	10
		Wall	063-P06	Future Use Area	32
		Wall	063-P05	Spent Resin Long term Storage Tank Room	32
		Wall	063-P02	GRS Header Drain Tank	24
		Wall	063-P16	Corridor (6)	24
		Wall	063-P01	Hot Pipe Chase	17
		Wall	-	Yard (7)	32

(4) Exterior wall within the row line from PF to PI along the column line 39

(5) Section within the column line from 38 to 39 and from PE to PF

(6) Section within the column line from 38 to 39 and from PB to PC

(7) Exterior wall within the column line from 37 to 38 along the row line PA

B

RAI 116-8054 - Question 14.03.08-1, Rev.2

Table 2.2.1-1a (9 of 9)

Room Number	Room Name	Face to (ceiling)			Minimum Required Shield Thickness (inches)
		Structure	Room Number	Room Name	
Additional Information on the Rooms which Contain Complex Geometries (cont.)					
077-P01	Hot Pipe Way	Slab	085-P14	Corridor (1)	18
		Slab	085-P17	Valve Room	10
		Slab	085-P20	Valve Room	10
		Slab	085-P31	Primary Sampling Room	10
		Slab	085-P32	Primary Sampling Sink Room	10
		Slab	085-P33	Hot Tool Room	16
		Slab	085-P35	Storage	14
		Slab	085-P15	Valve Room	10
		Slab	085-P16	Valve Room	10
		Slab	085-P44	RO Feed Tank Room	21
		Slab	085-P45	Drum Removal Chase	16
		Slab	085-P46	MF Membrane Module Room	20
		Slab	085-P07	Valve Room	16
		Slab	085-P08	Valve Room	22
		Slab	085-P14	Corridor (2)	30
		Slab	085-P14	Corridor (3)	24
		Slab	085-P42	IX Module Room	16
		Slab	085-P43	IX Module Room	16
		Slab	085-P01	Waste Gas Dryer Skid Room	15
		Slab	085-P02	Waste Gas Dryer Skid Room	16
		Slab	085-P03	Valve Room	19
		Slab	085-P04	Charcoal Guard Bed Room	10
		Slab	085-P06	Valve Room	22
		Slab	085-P21	Charcoal Guard Bed Room	10

(1) Section within the column line from 35 to 37 and from PF to PG

(2) Section within the column line from 37 to 38 and from PE to PF

(3) Section within the column line from 36 to 37 and from PB to PE

RAI 116-8054 - Question 14.03.08-1, Rev.2

COL 12.3(3) The COL applicant is to provide the material composition and shielding properties of the following doors/hatches, and these thicknesses equivalent to the minimum required concrete shield thicknesses.

- Personnel Air Lock between Containment Annulus Area (100-C01) and Personnel Air Lock Entrance (100-A14A)
- Personnel Air Lock between Operating Area (156-C01) and Containment Entrance Area (156-A04B)
- Equipment Hatch between Operating Area (156-C01) and Equipment Hatch Access Room (156-A10A)
- Door between Equipment Hatch Access Room (156-A10A) and the building exterior
- Transfer tube access area manway hatch in Room (137-A40B) at elevation 137'-6"
- Doors between Truck Bay (100-P08) and the building exterior

an ITAAC for the radiation shielding and

Also, the COL applicant is to provide the service life of these doors/hatches and perform periodic in-service inspection and maintenance for these doors/hatches to provide reasonable assurance of functionality throughout the life of the plant.

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COL 12.3(4) The COL applicant is to provide portable instruments and the associated training and procedures in accordance with 10 CFR 50.34(f)(2)(xxvii) and the criteria in Item III.D.3.3 of NUREG-0737 as well as the guidelines of RG 8.8.

COL 12.3(5) The COL applicant is to determine the ARM setpoints for WARN, ALARM, and the containment purge isolation and fuel handling area emergency ventilation actuation signals, based on the site-specific conditions and operational requirements.

12.3.7 References

1. Regulatory Guide 8.8, “Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Stations will be ALARA,” Rev. 3, U.S. Nuclear Regulatory Commission, June 1978.