

October 10, 2003

MEMORANDUM TO: Scott F. Newberry, Director
Division of Risk Analysis Applications
Office of Nuclear Regulatory Research

FROM: Michael E. Mayfield, Director */RA by Nilesch Chokshi Acting For/*
Division of Engineering Technology
Office of Nuclear Regulatory Research

SUBJECT: REVIEW OF IAEA DRAFT SAFETY GUIDE, "RADIATION
PROTECTION ASPECTS OF DESIGN FOR NUCLEAR POWER
PLANTS, DS-313"

The Division of Engineering Technology (DET) has reviewed the subject IAEA Draft Safety Guide, as requested in your memorandum of September 17, 2003. DET comments are attached in the requested IAEA format. These comments have been provided electronically to Amarjit Singh of your staff.

Our lead reviewer was Steven Arndt, telephone: 415-6502, e-mail: saa@nrc.gov. If you, or your staff, would like to discuss these comments or request additional information, please contact him directly.

Attachment: As stated

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| NAME | S. Arndt/RA/ | A. Hsia/MGE For/ | M. Evans/RA/ | M. Mayfield/RA by Nilesch Chokshi Acting For/ |
| DATE | 10/8/03 | 10/10/03 | 10/10/03 | 10/10/03 |

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Comments by Reviewer

Reviewer: Steven Arndt

Country/Organization: USA/ U.S. Nuclear Regulatory Commission

| <u>Comment No.</u> | <u>Para/Line No.</u> | <u>Proposed new text</u> | <u>Reason</u> |
|--------------------|----------------------|---|---|
| 1. | Para 2.3 Line 8 | "...shorter terms have higher release rates over short periods allow for increase flexibility) should be derived from the..." | As written the reason for higher release rates is not clear. |
| 2. | Para 2.5 Line 6 | "...site personnel or the public, even when the..." | The phrase even though, is not correct. The meaning of the statement is that the optimizations should be done whether or not the techniques are well developed. |
| 3. | Para 2.8 Line 2 | "...methods [5-8] may be used..." | The paragraph should provide an alternate for using the database, not a requirement as the word should implies. |
| 4 | Para 3.4 Line 10 | "... aspects and operational procedures can be properly taken into account..." | Transferring the operating experience can help to ensure that the interrelation is properly taken into account but it does not ensure it. |
| 5. | Para 3.8 Line 7 | "...familiarity with analytical methods that are available to assist..." | The culture should not require the familiarity with software. It should require familiarity with the methods. |
| 6. | Para 3.9 Line 6 | "...available analytical methods and data form ..." | See above reason |

| <u>Comment No.</u> | <u>Para/Line No.</u> | <u>Proposed new text</u> | <u>Reason</u> |
|--------------------|--|--|---|
| 7. | Para 3.16 Line 2 | "...radiation protection, and should be acceptable to..." | Grammatical fix. The work normally is not needed. |
| 8. | Para 3.18 Sub Para 4 lines 2,3 and 4 | "...The number of staff for each task should be based on operational requirements..." | The sentence as written directed the designers to not comply with regulatory requirements or dose constrains. |
| 9. | Para 3.21 Line 1 | "...A preliminary decommissioning plan should be..." | An outline plan is not of sufficient detail to archive the intended design review function. |
| 10 | Para 3.22 Line 11 | "...introducing simplifications in operating procedures, assuming this will have a net reduction in dose (e.g. built -in..." | Some simplifications are non-optimal in there design. That is they reduce exposure in one area, but increase it in another. |
| 11. | Para 3.26 Line 2 | "...accidents are required to have the..." | Typographical error, tol instead of to |
| 12. | Para 4.14 Line 1 | "...should be made for securing the exit(s) from..." | securing provides more flexibility than guarding. A guard is not needed. |
| 13. | Para 4.16 Line 5 | "...among them zones, that may not be accessible during operation..." | The zones may or may not be accessible depending on Reactor Type and operational design within a Reactor Type. |
| 14. | Para 4.66 Line 4 | "...and the extracts should be from the latter. The airflow in the ventilation systems should be such as to minimize the resuspension of contamination." | This concept was not included in the ventilation discussion. |

| <u>Comment No.</u> | <u>Para/Line No.</u> | <u>Proposed new text</u> | <u>Reason</u> |
|--------------------|----------------------|---|--|
| 15. | Para 6.9 Line 3 | "...fuel, control rods, neutron sources, incore instruments, and in some reactor designs the internals of the reactor." | In many reactor designs the incore instruments, particularly fission chambers are significant sources when removed from the reactor. |
| 16. | Para 7.7 Line | "... ambient radiation fields to be specified, for operational states, decommissioning, accident and post accident conditions." | The environmental conditions need to be specified for all of these cases. The paragraphs on accident conditions does not address this. |