

K. L. Robertson

DCD **UTRW**

3 October 1994

Dan Dreyfus
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*Copy to
Patent
Dept
Horton
Horton*

The attached "Engineering Lessons Learned" will be subject of formal classroom training for 125 M&O design engineers in Las Vegas. Others will follow.

This is a part of our design improvement initiative.

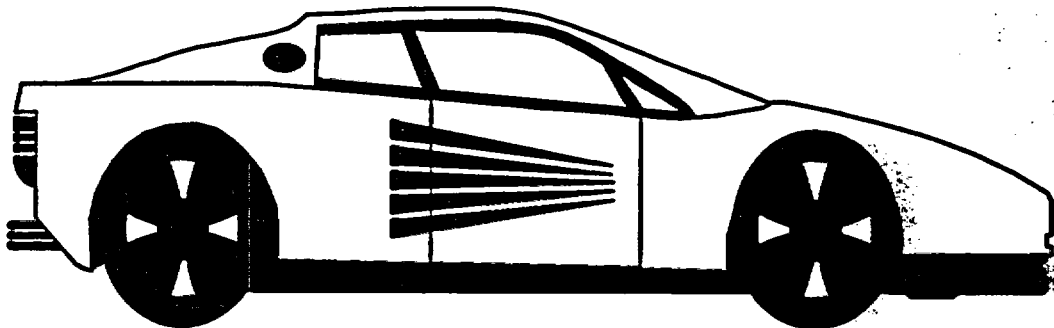
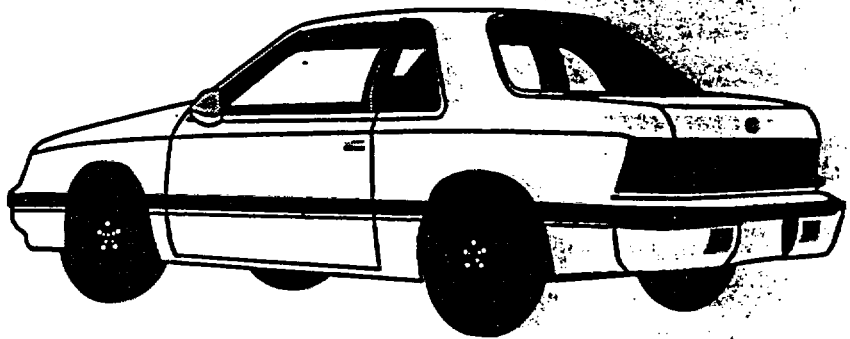
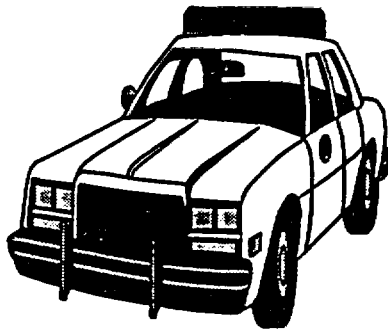
Robby
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PDR WASTE
WM-11 PDR

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WM-11
NA03*

ENGINEERING LESSONS LEARNED



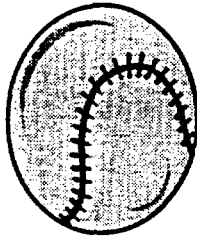
CAR YM-94-067
CAR YM-94-069
CAR YM-94-072
CAR 94-QN-C-046

Civilian Radioactive Waste
Management System
Management & Operating
Contractor

LV.VLW
LESSON LEARNED

INTRODUCTION/OBJECTIVE

■ WHO AM I?

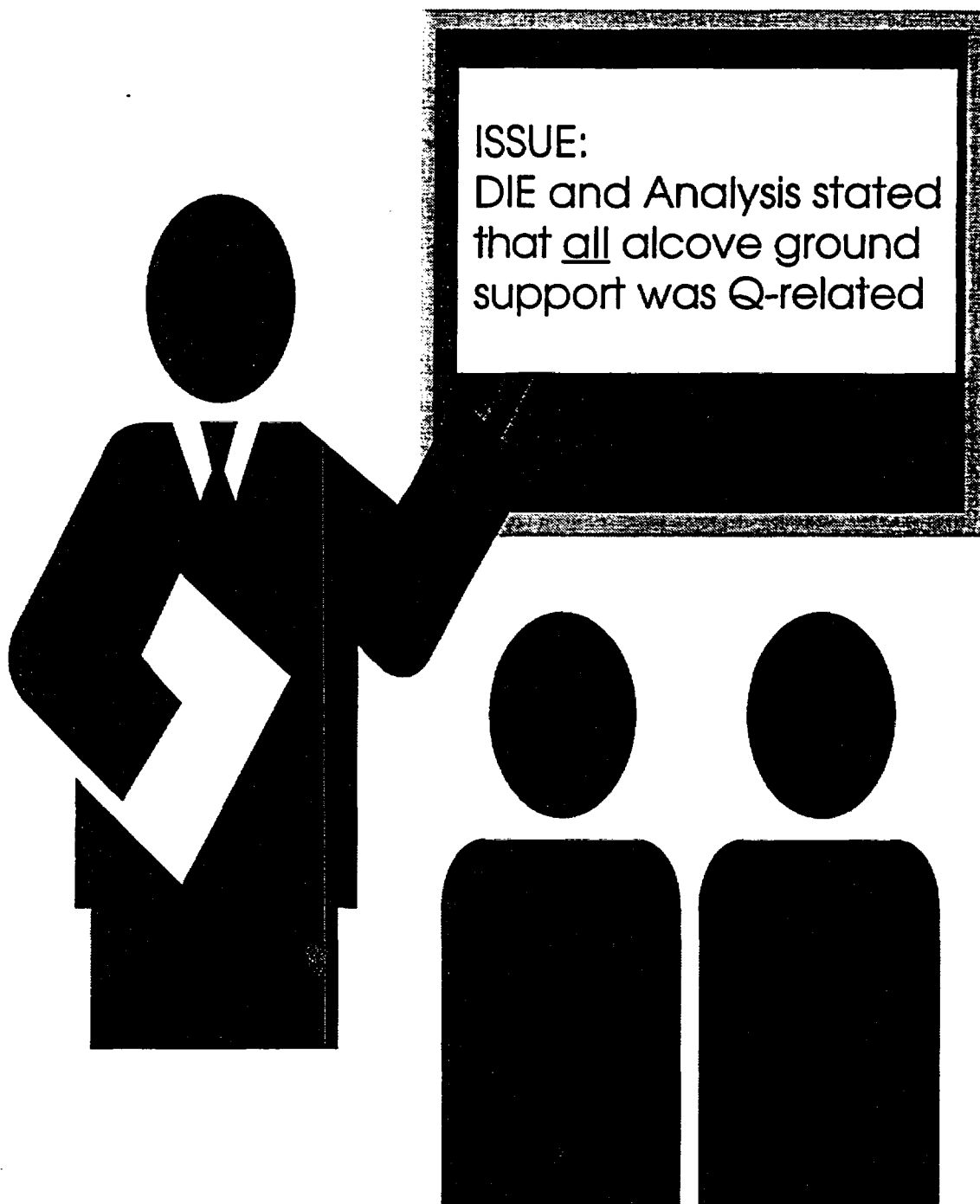


Jerry Heaney



- QA Compliance Engineer
 - Responsibilities include writing remedial and corrective actions for CAR's
-
- You are here to become familiar with the deficiencies and "Lessons Learned" for the following CAR's:
 - CAR YM-94-067
 - CAR YM-94-069
 - CAR YM-94-072
 - CAR YM-QN-C-046

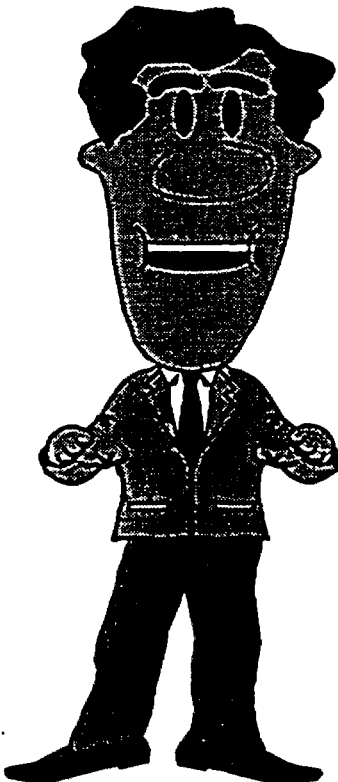
CAR YM-94-067



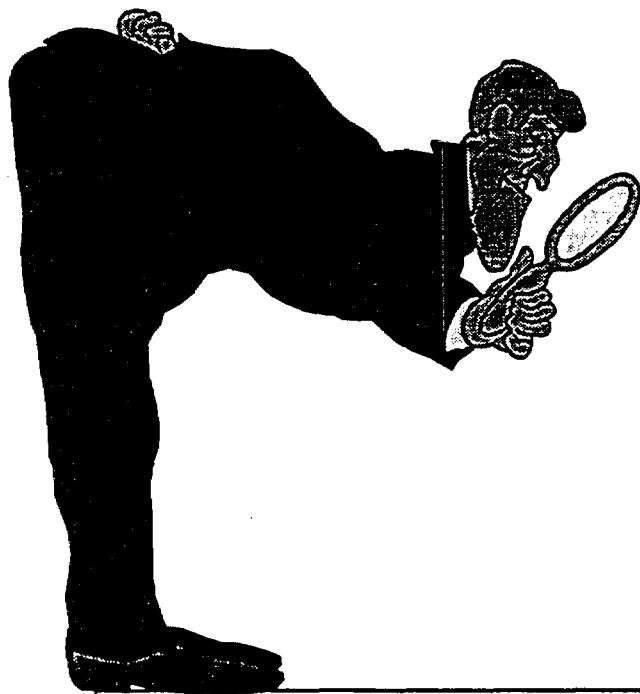
CAR YM-94-067

DEFICIENCY:

Refuge Chamber Specification was identified as non-Q but it addressed ground support. This was an isolated case where the Refuge Chamber was not revised to delete discussion of ground support.



CAR YM-94-067



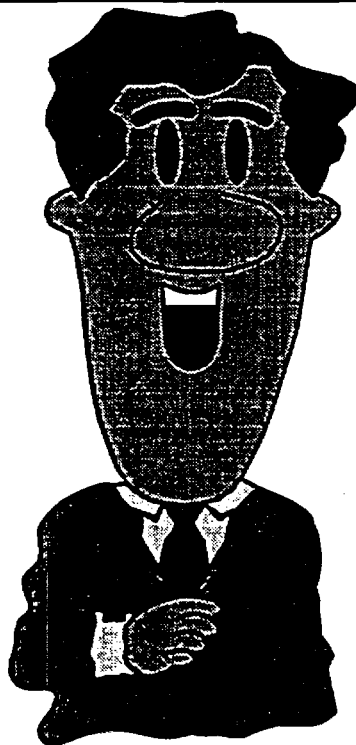
FURTHER INVESTIGATION:

Review of other design products to ensure that proper classification was applied indicated that line and grade of the TBM tunnel was not annotated as Q-related on design drawings in accordance with the requirements of NLP-3-18 "Documentation of QA Classification/Controls on Drawings, Specifications, and Design Analyses".

CAR YM-94-067

REASON:

M&O Specification 01501 "Subsurface General Construction" indicated that TBM line and grade was Q-related. The A/E management assumed that since all work in the field is subject to 01501 requirements, indicating line and grade on drawings as Q-related was not necessary. However, NLP-3-18 requirements were violated.



CAR YM-94-067

LESSON LEARNED:

Although specification requirements delineate Q requirements, other procedural requirements must be adhered to.

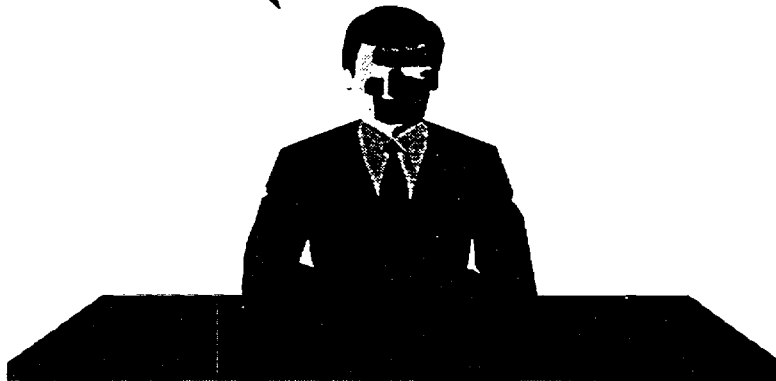


NLP-3-18 para. 5.2.1.B states "If the drawing contains temporary items or controls determined to be Important to Waste Isolation or Important to Radiological Safety (i.e., subject to QA requirements) in the applicable DIE, add "See note z" in the classification title block, where z is an available note number. Note z shall indicate that temporary items and/or controls subject to QA requirements are annotated as "Q" and that temporary items are not assigned specific classification numbers."

CAR YM-94-069

ISSUE:

The CTS TBM Manual was not required to be a submittal to the A/E in the specifications.



CAR YM-94-069

DEFICIENCY:
Manufacturers' operating
and maintenance manuals
should be required as a
submittal in specifications.



CAR YM-94-069

REASON:

Manufacturers' operating and maintenance manuals should be reviewed by the A/E for consideration of special controls for spill mitigation, review of equipment sizes for impacts on other design drawings, and also for the impact on installation tolerances such as turning radius etc.



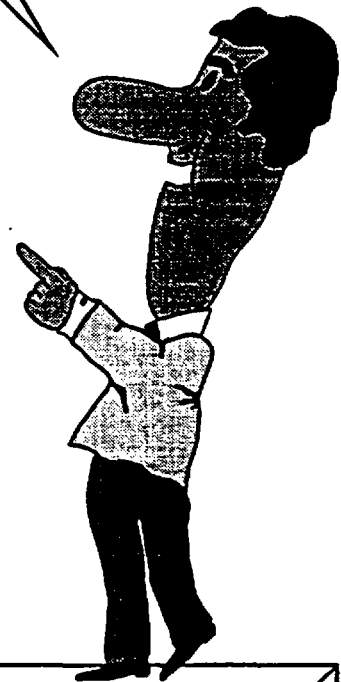
CAR YM-94-072

DEFICIENCY:

QAP-3-9 "Design Analysis" revision 4, Attachment I Item 7 requires in part "In order to complete the design analysis, the originator may have to make assumptions that are not clearly identified or controlled by the design inputs or other sources of information. These assumptions, along with the basis for the assumptions, shall be clearly stated within the analysis."

ISSUE:

Design analyses did not provide the basis for selecting several values.



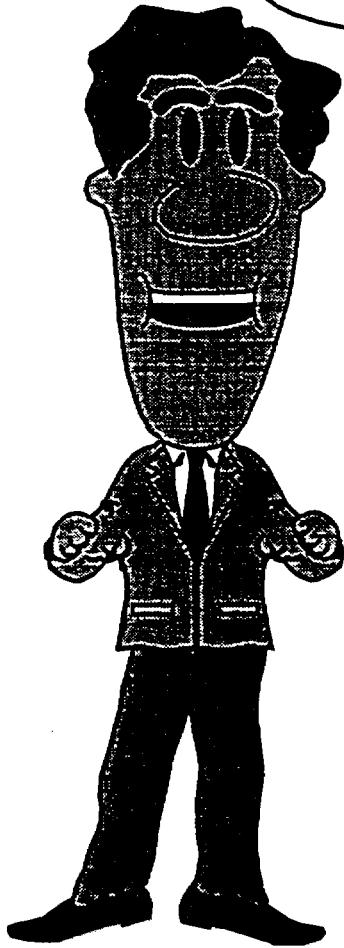
REASON/LESSON LEARNED:

Provide the basis for assumptions and the basis for the selection of data within the design analyses per procedural requirements.

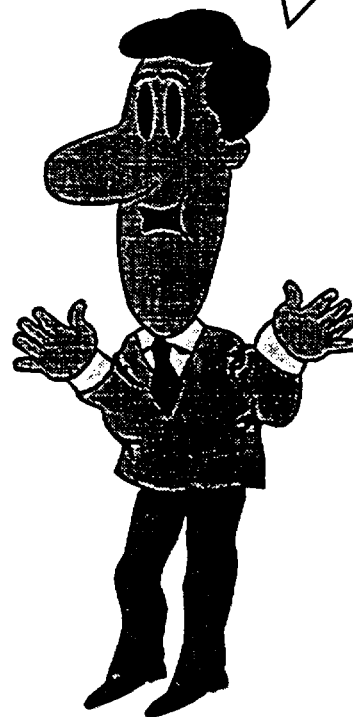
CAR YM-94-046

ISSUE:

The comment resolution process was not complied with for development of the BFD.



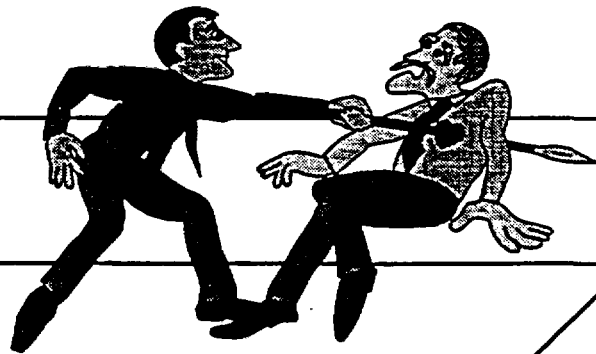
The following procedural requirements were not followed during the development of the BFD for Design Package 2C:



CAR YM-94-046

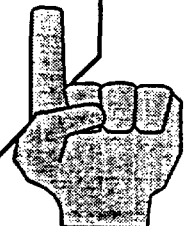
REQUIREMENT NO 1:

Para. 5.4.9 The BFD Preparer and appropriate Discipline Preparer (DP) shall meet with the reviewer and attempt to resolve the comments. If the reviewer and the DP cannot resolve the comment it shall be elevated to the next higher management level. If a comment still cannot be resolved the Department Manager shall arbitrate the resolution. Modifications to the marked copies should be made in black ink, initialed and dated.



DEFICIENCY NO 1:

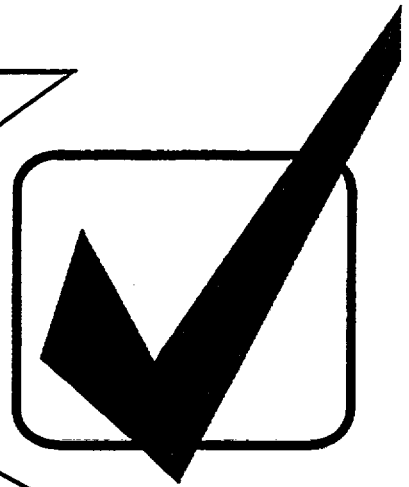
Rather than the BFD Preparer and the Discipline Preparer jointly resolving comments, only the BFD Preparer resolved comments and initialed marked up copies.



CAR YM-94-046

REQUIREMENT NO 2:

Para. 5.4.10 The reviewer and DP shall sign the checklist indicating that comments are resolved.



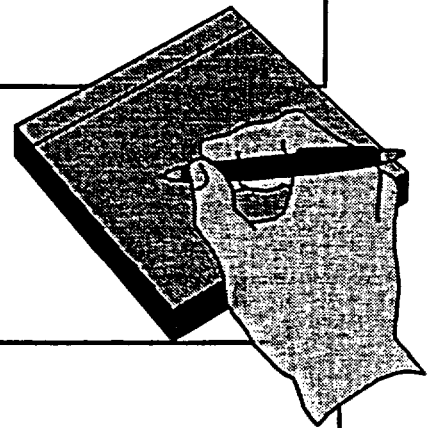
DEFICIENCY NO 2:

The BFD Preparer signed the checklist rather than the Discipline Preparer under "Preparer".

CAR YM-94-046

REQUIREMENT NO 3:

Para. 5.4.12.A The Department Manager shall sign the checklists and submit them to Engineering Document Control.



DEFICIENCY NO 3:

Not all checklists were signed by the Department Manager as required before approval of the BFD.



Basis For Design Discipline Checklist

Discipline	BFD Section	BFD Revision/Design Package
CII	CI Title	

Item Checked	Item
	Section I Subsystem Description is correct and complete
	Section II Boundaries and Interfaces is correct and references all other subsystems to which an interface will exist.
	Section III Applicable Regulations, Codes, Acceptance Standards, and DOE Orders, is correct and exhaustive.
	All appropriate BSFDR requirements are referenced to all appropriate design criteria in Section IV.
	Each BSFDR requirements are referenced to all appropriate design criteria
	All additional design requirements imposed by DIE's, RAM analysis, or Safety analysis have been correctly and completely incorporated.
	The references are complete and correct.

Checkers Comments

Discipline Checker	Date
Discipline Preparer	Date
Lead Discipline Engineer	Date

Q&A/REVIEW

Are there any questions concerning the
"Lessons Learned" for CAR's 067, 069,
072 or 046?

