~~Appendix D~~

NRC INSPECTION MANUAL

INSPECTION MANUAL CHAPTER 0609 APPENDIX D

PUBLIC RADIATION SAFETY
SIGNIFICANCE DETERMINATION PROCESS

Effective Date:

TABLE OF CONTENTS

FIGURES

ATTACHMENTS

0609D-01 INTRODUCTION

The significance determination process (SDP) in this Appendix ~~is designed to provide~~ provides a means ~~by which~~for NRC ~~inspectors and management can~~staff to assess the significance of inspection findings ~~related to public health and safety from exposure to radiation from licensed or unlicensed radioactive materials during routine operations of civilian nuclear power reactors. This process is used in conjunction with Inspection Procedure 71122, A~~within the Public Radiation Safety~~,@ to determine the~~ Cornerstone. The SDP is depicted as a set of interconnected diagrams that provide risk~~ significance of a finding.~~-informed decision-making criteria for dispositioning inspection findings. A single issue ~~may~~should be evaluated using all applicable branches of the SDP ~~and~~with the final significance determined by the ~~most restrictive~~ outcome~~. IP 71122 has three inspection areas:~~

~~Attachment~~ 71122.01 ~~Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems~~

that provides the highest significance. The diagrams shall be used in conjunction with the relevant text in the body of this document. The basis to this SDP can be found in, IMC 0308, Attachment 3, Appendix D, "Technical Basis for Public Radiation Safety Significance Determination Process."

~~Attachment 71122.02 Radioactive Material Processing and Transportation~~

~~Attachment 71122.03 Radiological Environmental Monitoring Program (REMP) and~~

0609D-02 GUIDANCE

02.01 Radioactive ~~Material Control Program~~Effluent Release Program

~~I. RADIOACTIVE EFFLUENT RELEASE PROGRAM~~

~~A. Objective~~

~~This~~The Radioactive Effluent Release branch of the ~~logic diagram~~SDP (see Figure 1) focuses on the ~~licensee=s~~licensee's routine (i.e., non-accident) radioactive effluent release program. ~~This~~ Issues involving radioactive effluent releases resulting from accidents are addressed per the NRC Enforcement Policy. This branch of the SDP addresses ~~performance deficiencies associated with~~findings involving radioactive effluents, leaks and spills and direct radiation from the facility. It assesses the licensee's ability to monitor and maintain radioactive effluents at levels that are as low as is reasonably achievable (ALARA ~~(i.e.,~~) as demonstrated by radioactive effluents being within the design dose objectives contained in Appendix I to 10 CFR Part 50 and the U.S. Environmental Protection Agency's (EPA) standards pursuant to 10 CFR 20.1301(e). ~~Being able to assess dose from radioactive effluents~~ Inspection findings involving deficiencies in monitoring and ~~maintain~~reporting radioactive effluent releases, performing direct radiation measurements and completing evaluations of doses to ~~a member~~members of the public ~~within Appendix I design objectives is the success criteria.~~ will be evaluated through this branch of the SDP.

~~B. Basis~~

~~The regulatory basis for requiring radiological effluent monitoring programs is given in General Design Criterion 60, AControl of releases of radioactive materials to the environment,@ of Appendix A, AGeneral Design Criteria for Nuclear Power Plants,@ to 10 CFR Part 50, ALicensing of Production and Utilization Facilities.@ Criterion 60 requires a licensee to provide for a means to control the release of radioactive materials in gaseous and liquid effluents during normal reactor~~

~~operation, including anticipated operational occurrences. An additional requirement is in Section IV.B.1 of Appendix I to 10 CFR Part 50. This section requires a licensee to provide data on the quantities of radioactive material released in liquid and gaseous effluents to assure that such releases are within the ALARA design objectives. This data, pursuant to 10 CFR 50.36a, is reported to the NRC annually. There is also a requirement in 10 CFR 20.1301(e) that requires power reactors to comply with the U.S. Environmental Protection Agency=s environmental radiation standards in 40 CFR Part 190. Performance deficiencies related to direct radiation measurements and evaluations of the dose to a member of the public will be evaluated in this branch of the SDP.~~

~~C. SDP Determination Process~~

~~Is there a finding in the licensee=s radiological effluent monitoring program that is contrary to NRC regulations or the licensee=s Technical Specifications (TS), Offsite Dose Calculation Manual (ODCM), or procedures? Is there an indication of a spill or release of radioactive material on the licensee's site or to the offsite environs? If yes, was the licensee able to assess the dose to members of the public from the release of radioactive effluent and what is the dose impact (as calculated by the licensee) for the event?~~ If the dose impact to a member of the public from the radiological release, spill or leak ~~is less than~~did not exceed the dose values in Appendix I to 10 CFR Part 50 and/or 10 CFR 20.1301(e), then there is ~~minimal A risk@~~a very low radiological significance and the SDP classifies ~~it as GREEN. The licensee is responsible to resolve the finding. The NRC will periodically inspect the effectiveness of the licensee=s corrective action program~~this finding as Green.

If the licensee has a substantial failure to implement the radioactive effluent release program, then the finding would be ~~WHITE~~White. Failure to identify a significant radiological release event~~,~~ or assess the dose consequences and the impact to the environment in a timely manner, consistent with ODCM requirements, could be considered a substantial failure to implement the radioactive effluent release program.

Examples of a substantial failure to implement the radioactive effluent release program are:

a. ~~•~~ Significant deficiency in implementing the effluent release program as defined in the plant's ~~technical specifications~~Technical Specifications, resulting in the gross inability or gross inaccuracy in characterizing an effluent release~~.~~
b. ~~•~~ Significant deficiency in evaluating an effluent release (either planned or unplanned) where the resulting dose has been grossly underestimated~~.~~
c. ~~•~~ Significant deficiency in calibrating effluent monitors used to assess effluent releases, resulting in a gross inability or gross inaccuracy in characterizing an effluent release~~.~~
d. ~~•~~ Failure to have any data by which to assess the dose to a member of the public from an effluent release (i.e., no monitor data, no independent sample data, no actual release sample data, etc.)

Note: See section 02.01 of IMC 0308 Attachment 3 Appendix D for additional information regarding the basis for issuing a White finding for substantial failures to implement the radioactive effluent release program.

Usually the licensee has enough plant data (e.g., from tank volumes and periodic sample analysis of the radioactive material in the tank) to reconstruct a source term and calculate a bounding dose from the unmonitored release. A failure to properly calibrate an instrument or

adequately train an individual on effluent monitor calibration or usage would usually not result in the White finding.

If the event resulted in an effluent release of radioactive material that, based on the methodology in the ~~licensee=s~~licensee's ODCM, exceeded the dose values in Appendix I to 10 CFR Part 50 and/or 10 CFR 20.1301(e) but ~~is less than~~did not exceed 0.1 rem, the SDP classifies the event as ~~WHITE~~White.

If the event resulted in effluent release of radioactive material that, based on the methodology in the ~~licensee=s~~licensee's ODCM, exceeded the annual public dose limit in 10 CFR Part 20 of 0.1 rem but ~~is less than~~did not exceed 0.5 rem, the SDP classifies the event as ~~YELLOW~~Yellow.

If the event resulted in effluent release of radioactive material that, based on the methodology in the ~~licensee=s~~licensee's ODCM, exceeded 0.5 rem, the SDP classifies the event as ~~RED.~~ Red.

~~II. RADIOACTIVE ENVIRONMENTAL MONITORING PROGRAM~~

~~A. Objective~~

02.02 Radioactive Environmental Monitoring Program

This branch of the ~~logic diagram~~SDP (see Figure 1) focuses on the ~~licensee=s~~licensee's ability to operate ~~an effective~~a compliant radioactive environmental monitoring program.

~~B. Basis~~

The ~~regulatory basis for requiring radiological~~ environmental monitoring ~~programs is given in General Design Criterion 64, "Monitoring Radioactivity Releases," of Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50, "Licensing of Production and Utilization Facilities." Criterion 64 requires a licensee to provide for a means for monitoring the plant environs for radioactivity that may be released during normal operations, including anticipated operational occurrences, and from postulated accidents. In addition, Section IV.B.3 of Appendix I to 10 CFR Part 50 requires that the monitoring~~ program ~~identify changes in the use of unrestricted areas (e.g., for agricultural purposes) to permit modifications in the monitoring program for evaluating doses to individuals from principal pathways of exposure.~~

~~Radiological environmental monitoring is important both for normal operations, as well as in the event of an accident. During normal operations, environmental monitoring~~ verifies the effectiveness of the plant systems used for controlling the release of radioactive effluents and direct radiation~~. It also is used to confirm~~ and confirms that the levels of radioactive material in the environment and direct radiation exposures to members of the public ~~do not exceed the projected values used to license the plant. For an accident, the program provides an additional means to estimate the dose to members of the public. For accident assessment issues concerning as area of the radioactive environmental monitoring program, the Emergency Preparedness SDP is to be used~~. Because these are not controlling functions, a Green significance is given to all findings involving environmental monitoring programs. However, when the environmental monitoring program identifies unexpected radiological conditions in the environment, the performance deficiencies should be assessed under the Radioactive Effluent Program branch of this SDP.

~~C. SDP Determination Process~~

~~Is there a finding in the licensee=s radiological environmental monitoring program that is contrary to NRC regulations or the licensee=s Technical Specifications (TS), Offsite Dose Calculation Manual (ODCM), or procedures? If yes, a Green risk significance finding is appropriate.~~

~~If the REMP identifies unexpected radiological conditions in the environment, then performance deficiencies should be assessed under the Radioactive Effluent Program branch of the SDP.~~

~~III. RADIOACTIVE MATERIAL CONTROL PROGRAM~~

~~A. Objective~~

02.03 Radioactive Material Control Program

This branch of the ~~logic diagram~~SDP (see Figure 1) focuses on the ~~licensee=s~~licensee's radioactive material control program. It assesses the ~~licensee=s ability to prevent~~significance of findings involving the inadvertent release and/or loss of control of licensed radioactive material to an unrestricted area that can cause an actual or credible radiation dose to members of the public.

~~B. Basis~~

~~10 CFR Part 20 contains the requirements for the control and disposal of licensed radioactive material. At a licensee=s facility, any equipment or material that came into contact with licensed radioactive material or that had the potential to be contaminated with radioactive material of plant origin and are to be removed from the facility must be surveyed for the presence of licensed radioactive material. This is because NRC regulations, with one exception in 10 CFR 20.2005, provide no minimum level of licensed radioactive material that can be disposed of in a manner other than as radioactive waste or transferred to a licensed recipient.~~

~~C. SDP Determination Process~~

~~Is there a finding in the licensee=s radiological material control program that is contrary to NRC regulations and licensee's procedures? If yes, what is~~ When dispositioning these findings, the dose impact to a member of the public in the restricted area, controlled area or the unrestricted area (as calculated by the licensee~~)? If the dose impact was less than or equal to 0.005 rem total effective dose equivalent (TEDE), then the SDP classification is Green. If the dose impact was greater than 0.005 rem TEDE, then the SDP classification is WHITE. If the dose impact is greater than 0.1 rem TEDE (exceeds 10 CFR Part 20 public dose limit), the SDP classification is YELLOW. If the dose impact was greater than 0.5 rem TEDE, the SDP classification is RED~~) must be known. It should be noted that doses from discrete radioactive particles (also known as hot particles, or fuel fleas) are not within the scope of the radioactive material control SDP if the doses do not result in a total effective dose equivalent (TEDE) dose as defined in 10 CFR Part 20.

The finding is Green if the public dose did not exceed 0.005 rem TEDE.

The finding is White if the public dose exceeded 0.005 rem TEDE but did not exceed 0.1 rem.

The finding is Yellow if the public dose exceeded 0.1 rem TEDE but did not exceed 0.5 rem.

The finding is Red if the public dose exceeded 0.5 rem TEDE.

02.04 Transportation

This section ~~Individuals who have not been classified as occupation workers are sometimes permitted access to a licensee's Restricted Area for job-related or public information purposes. Such individuals are either physically escorted or are granted limited unescorted access following the successful completion of appropriate orientation training and security screening. Exposure received by such individuals associated with a radioactive material control finding involving licensed radioactive material will be evaluated using the dose based criteria in this SDP (e.g., less than 0.005 rem TEDE – Green; greater than 0.005 TEDE – White; greater than 0.1 rem TEDE – Yellow; or greater than 0.5 rem TEDE, Red).~~

~~It should be noted that discrete radioactive particles (also known as hot particles or fuel fleas) are not applicable to this program if the dose from the discrete radioactive particle does not result in a TEDE dose as defined in 10 CFR Part 20. Generally, the dose from the particle is to a very small localized area of the skin and is not equivalent to the risk of a TEDE dose. However, if the discrete radioactive particle is of such a magnitude that a TEDE dose (i.e., equal to or greater than 1 mrem) is received, then the finding should be evaluated in the SDP.~~

~~VII. TRANSPORTATION~~

~~A. Objective~~
of the SDP focuses on the licensee's
~~This branch of the logic diagram focuses on the licensee=s radioactive material packaging and transportation program. It assesses the licensee=s~~ ability to safely transport radioactive material on public roadways in accordance with regulations.

~~The SDP described below~~ This section is intended to be used ~~only~~ for findings involving those radioactive material shipments classified as ~~Schedule 5~~ Low Specific Activity I (LSA-~~1~~I) through ~~11 (~~Fissile Radioactive Material~~), as described~~. These shipments are described as Schedule 5 through 11, respectively, in NUREG-1660, "U.S. Specific Schedules of Requirements for Transport of Specified Types of Radioactive Material Consignments~~."~~ If the performance deficiency involves a correctly classified shipment ~~is~~ in one of the radioactive material, excepted package classifications (i.e., UN2908, UN2909, UN2910, and UN 2911), then it should be dispositioned as a minor violation. However, if the shipment was incorrectly classified ~~as Schedule 1 (Limited Quantities) to Schedule 4 (Empty Packages)~~in the radioactive material, excepted package classifications, but was actually ~~a Schedule 5~~an LSA-I through ~~Schedule 11~~Fissile Radioactive Material shipment, then this branch of the SDP is used.

Incorrect Packaging Used

This branch of ~~B. Basis~~

~~The regulatory basis for~~ the ~~transportation program is contained in 10 CFR Parts 20, 61, and 71, and Department of Transportation regulations contained in 49 CFR Parts 170-189.~~

~~C.~~ SDP ~~Determination Process~~

~~a. Radiation Limits Exceeded~~
(see Figure 2) categorizes

~~The radiation limits of a package offered for transport are found in 49 CFR 173. These include both limits for external radiation and removable surface contamination. The external radiation limits vary as a function of shipment type (non-exclusive and exclusive use). Specific limits also exist as a function of distance from~~ the ~~package, such as the transport index (TI), and for the area occupied by the driver. These external radiation limits are found in 49 CFR 173.441 and are duplicated in 10 CFR Part 71.47 (as related~~significance of a licensee's failure to ~~Type B~~ properly package and ship radioactive material ~~shipments).~~; regardless of whether the shipment occurred without incident.

~~The limits for removable (non-fixed) surface contamination on a package are found in 49 CFR 173.443 (Table 11) and vary as a function of shipment type (non-exclusive and exclusive use), and vary relative to the type of nuclides (alpha, and beta/gamma emitters).~~

The finding is Green when radioactive material is shipped in the incorrect packaging and the prescribed package is less than Type B (i.e., the shipped material does not exceed Type A quantity, or is composed of LSA or SCO that meets the applicable conditions of transport of 49 CFR 173.427).

The finding is White when radioactive material is shipped in the incorrect packaging and the prescribed package is a Type B (i.e., the shipped material exceeds a Type A quantity, or is composed of LSA or SCO that exceeds the applicable conditions of transport of 49 CFR 173.427).

If the shipped radioactive material activity exceeds multiples (i.e. 5x and 10x) of the Type A limit or, in the case of LSA or SCO the approximate external exposure rate at 3 meters corresponding to those multiples, as applicable, then the significance of the finding increases to Yellow or Red, respectively.

Radiation Limits Exceeded

The external radiation level branch of the SDP (see Figure 2) provides for a graded approach for ~~assessing~~determining the ~~level of~~ significance of findings. ~~Exceeding the limit and then with increasing multiplies of the limits provides for GREEN, WHITE, YELLOW and RED findings.~~

~~To assess~~ When assessing the significance of a finding, consideration ~~is~~can be given to risk-informing outcomes based on the accessibility of the package~~.~~ to members of the public. An accessible area is defined in ~~the~~this SDP as an area that can reasonably be occupied by a major portion of an ~~individual's~~individual's whole body. ~~The definition of whole body is in 10 CFR 20.1003. For example, consider a shipment that consists~~ In addition to accessibility, consideration may be given to risk-informing findings associated with situations where only a small area of a package ~~loaded directly on a flat bed trailer, and is secured in place. An example of an inaccessible surface is the underside of the package, which is sitting directly on the trailer. It is highly improbable that any member of the public could gain access to that location, assuming normal conditions of transport. Examples of accessible areas include the topside, underside, and outside of the trailer, the unlocked cab, accessible surfaces of the package, and at two meters from the loaded package. Accessibility is not a factor that is considered~~ exceeds the radiation limits if the ~~dose rate on the external surface of the package is greater than two times the regulatory limit.~~ licensee averaged radiation levels over a cross-sectional area of a probe of reasonable size, as described in IMC 0308, Att 3, App D.

A Green significance is given to those findings in which an external radiation limit was exceeded, but the dose rate was not accessible by the public and the dose rate did not exceed twice the applicable limit.

A White significance is given to those findings in which an external radiation limit was exceeded, and (1) either the dose rate was accessible by the public, or (2) the dose rate was not accessible by the public but it exceeded twice the applicable limit, but did not exceed five times the limit. The ~~removable~~ NRC can consider mitigating factors for determining if a finding reaches the White significance (e.g., location/size of the radiation field, whether the shipment was exclusive use, etc). In some cases, exceeding limits may still result in conditions of very low radiation risk to the public.

A Yellow significance is given to those findings in which an external radiation limit was exceeded by five times but did not exceed ten times the limit.

A Red significance is given to those findings in which an external radiation limit was exceeded by 10 times the limit.

The "surface contamination ~~level~~" branch (see Figure 2) addresses findings associated with removable (or non-fixed) surface contamination requirements; this branch provides for a graded approach for assessing the level of significance of findings. Exceeding the limit yields a Green finding and then ~~with~~ increasing ~~multiplies~~multiples of the ~~limits provide~~limit provides for ~~GREEN, WHITE, YELLOW~~White (>5x) and ~~RED~~Yellow (>50x). For Red findings~~. Note that to have a RED finding,~~ the surface contamination levels must not only exceed 100 times the limit, but the unrestricted area must have been contaminated as well.

~~b.~~ Breach of Package ~~During~~during Transit

~~DOT and NRC shipping regulations relative to packaging requirements are diverse. Generally, these requirements become more stringent as a function of several factors. As the quantity, type, and form (i.e., readily dispersible) of radioactive material varies (increases), then the potential impact on the public (dose) increases as a result of a package breach during transit. For purposes of risk significance determinations, a package breach means a loss of containment. The actual or potential impact on the public from a package breach then is a function of the package contents. For Type A packages normal conditions of transport are assumed; this includes rough handling tests as specified in the DOT regulations (i.e., drop, water, puncture and crush tests). Thus, during normal conditions of transport Type A packages are designed to prevent the loss or dispersal of radioactive material contents, and maintain radiation levels below limits. If a breach occurs under conditions more adverse than the rough handling tests, then a breach finding would not be appropriate unless it can be shown that licensee negligence contributed to the loss of containment. If a package breach occurs during transit with equal to or less than the normal conditions of transport and the licensee failed to meet transportation requirements (resulting in the breach), then a breach finding is appropriate.~~

~~Type B packages must meet the performance and packaging requirements of Type A, as well as beyond normal conditions of transport. They are designed to withstand hypothetical serious accident conditions with no loss of containment (no breach), as measured by leak-rate testing. These design considerations and criteria are contained in 10 CFR Part 71.73, and include free fall, crush, puncture, fire, and water immersion. Given these rigorous design requirements, any breach of a Type B package in transit (in less than hypothetical accident conditions) is a candidate for a YELLOW or RED finding. If the licensee failed to meet the transportation requirements, and this failure contributed to the breach, then a breach finding is appropriate. The risk significance determination after a design basis accident will be determined on a case-by-case basis.~~

~~The less-than-or-equal-to Type A shipment branch provides for a graded approach for assessing the level of significance of findings. If a breach in a Type A container occurs as a result of the~~

failure to meet transportation requirements, but no loss of control of the contents is evident, then the finding is GREEN. An example could be a solidified radwaste liner, inside a Type A package where the closure lid was loose (not tightened down). In this case, given the form of the radioactive contents, loss of control of the material is very unlikely. However, on a similar shipment, failure to properly torque the closure lid bolts (35 ft-lbs. versus required 45 ft-lbs.) is not a breach, assuming the licensee analysis demonstrates that package integrity would be maintained during the normal conditions of transport.

While power reactor shipping history has demonstrated that serious mishaps are highly unlikely, if a transportation incident occurs with a package breach, then public dose consequences could result. The next two blocks in the Type A branch (assuming a breach) focus on public and occupational doses that occur as a result of the loss of control of package contents. These are actual doses to real individuals, and depending on the level, would lead to either YELLOW or RED findings. Note that for a member of the public, the dose would in almost all cases be an estimate. Designated on-scene trained responders (e.g., local county Hazmat emergency team) would be designated occupational workers, subject the occupation dose limits.

The greater than Type A branch provides for a YELLOW finding, assuming no loss of control of package contents. A RED finding would result if package contents control was lost. An example of a YELLOW finding is where a receiving facility finds the incoming shipment (irradiated components) package=s drain valve on the package open -- a direct pathway to environment, but no potential for loss of control of materials (assuming normal conditions of transport). A RED finding is appropriate for the same Aopen valve@ scenario if the package contents were spent fuel -- fission product gases released continuously to the environs during the shipment, assuming normal conditions of transport. However, in the event of a transportation accident that led to loss of fuel integrity, public dose consequences could exceed acceptable levels before adequate protective measures could be implemented.

c. Part 61 Finding

If a licensee ships Class C or greater waste and it is determined that the waste was under-classified, contrary to the requirements of 10 CFR 61.55 (e.g., waste classified as Class A or Class B, but later found to be Class C or greater), then the finding is WHITE. In addition, if a licensee ships Class A or Class B waste and it is determined that the waste was under-classified, contrary to the requirements of 10 CFR Part 61.55 (e.g., waste classified as Class A, but later found to be Class B), and resulted in the improper disposal of the waste, contrary to the requirements of 10 CFR 61.56, then the finding is WHITE. If the under-classification of Class A or Class B waste did not result in the improper disposal of the waste (i.e., not resulting in an actual increase in risk), then the finding is GREEN.

Determination of the acceptability of the waste for disposal is made by the applicable regulatory agency for the waste disposal facility; either NRC or the Agreement State. Agreement States have the authority under the Atomic Energy Act to promulgate regulations that are compatible with NRC=s disposal regulations in 10 CFR Part 61. They also have the authority and responsibility to issue disposal facility licenses under their Part 61 compatible regulations, and to disposition a non-compliance by a licensee.

d. Failure to Make Notifications or Provide Emergency Information

This branch of the logic diagram focuses on vital communication and information, and notification requirements that must be provided by the licensee. Shippers of hazardous materials are required to provide emergency response information. Failure to provide these required notifications could seriously hamper or prevent the ability of the federal, state and local agencies to adequately

respond as needed to transportation events and accidents. By hampering or preventing this regulatory response, the public health and safety could be negatively impacted

These requirements (in 49 CFR Part 172, Subpart G, Section 172.600) apply to any shipment which is required to have shipping papers. Shipments of excepted radioactive material packages (limited quantities, Aempty@ packages, etc) are not subject to the emergency response information.

NRC regulations (10 CFR 71.97) require advance notification to state governors for shipments of irradiated reactor fuel and nuclear waste under certain conditions. These notifications include quantity and form, and type of shipping container required. Notifications must be made in a timely manner to all the states hosting the radioactive material shipment. Additionally, 10 CFR 20.1906 requires receivers of certain packages of radioactive materials to perform timely external and surface contamination radiation monitoring upon receipt of the packages. If applicable radiation limits are exceeded, the receiving licensee must then report the event to the appropriate NRC Regional OfficeThe "Package Breach" branch of the SDP (see Figure 3) provides for a graded approach for assessing the level of significance of findings.

A Green significance is given to those findings in which there was no loss of contents from the package and the radioactive material was shipped in less than a Type B package.

A Green significance is given to those findings involving a loss of contents from a general design package, provided there was no actual dose to a member of the public or a responder.

A White significance is given to those findings in which there was a loss of contents from the package and the radioactive material was shipped in less than a Type B package (not including a general design package). Additionally a White significance is given to those findings in which there was a loss of contents from any package less than a Type B package where actual doses were given to the public or responders and the dose to a member of the public did not exceed 25 mrem and/or the dose to an radiation worker did not exceed 5 rem.

A Yellow significance is given to those findings in which there was a loss of contents from the package and the radioactive material was shipped in less than a Type B package, where the dose to a member of the public exceeded 25 mrem, but did not exceed 100 mrem, and/or the dose to a radiation worker exceeded 5 rem, but did not exceed 25 rem.

A Red significance is given to those findings in which there was a loss of contents from the package and the radioactive material was shipped in less than a Type B package, where the dose to a member of the public exceeded 100 mrem and/or the dose to an radiation worker exceeded 25 rem.

A Yellow significance is given to those findings in which there was no loss of contents from the package, but the radioactive material was shipped in a Type B package.

A Red significance is given to those findings in which there was a loss of contents from a Type B package in less than or equal to hypothetical accident conditions.

For Block N1 (10 CFR 71.97 non-compliance), if the licensee fails to make the required notifications before the shipment entered the State=s boundary (crossed the State line) for interstate shipments, the finding would be WHITE. For intrastate shipments, if the shipment was put on public roads/rails before the Governor received the required notification, then a finding

would be WHITE. Note that any other timeliness non-compliance (e.g., notification not postmarked at least 7 days before the 7 day shipment period), these findings would be GREEN.

For Block N2 (49 CFR 172.602 non-compliance), if the licensee fails to provide the required emergency response information to the shipment carrier (the shipment leaves the licensee=s facility and control without the required information), the finding is WHITE. If the carrier misplaces or loses the information (beyond the licensee=s control), the finding is GREEN.

For Block N3 (49 CFR 172.604 non-compliance), if during an actual emergency the licensee does not respond in a timely manner in accordance with the requirements (or had not provided the 24-hour telephone number), the finding is WHITE. For an incorrect or missing emergency response telephone number as required by 49 CFR 172.604, if there were no actual accidents or situations where the emergency contact information was needed, then the risk significance would be minimal and the finding is determined to be Green.

For Block N4 (10 CFR 20. 1906), if the licensee=s receipt surveys show 1) the package=s external radiation levels in excess of five times the Part 71 limits, or 2) the surface radioactive contamination level in excess of five times the Part 71 (49 CFR 173) limits, and the licensee facility fails to make an immediate report, then the finding is WHITE. Other non-compliances are GREEN.

e. Certificates of Compliance

Pursuant to 10 CFR 71.3, a licensee may not deliver or transport licensed material without a general or specific license. The general license for the use of an NRC-approved package is discussed in 10 CFR 71.12. Section 71.12 grants a general license to a licensee to transport or deliver to a carrier for transport, licensed material in a package for which a license, certificate of compliance (CoC), or other approval has been issued by the NRC. Additionally, Section 71.5 requires the licensee to comply with the applicable DOT regulations in 49 CFR. Physical damage or structural failure of a transport package is processed through the package breach flow chart.

Usually, the form of approval issued by the NRC is a CoC. For purposes of readability, consider the CoC as discussed here to mean any NRC issued approval for a package. The CoC approves a specific package design, including a detailed allowable contents description consistent with the use of the general license of Section 71.12. The CoC also lists the requirements or Aconditions@ for the use and maintenance of the package in block 4 of the CoC. Frequently, these conditions include references to the package=s Safety Analysis Report (SAR) or procedures supplied by the CoC holder to the package owner or user. The user of the package must comply with the requirements of 10 CFR Part 71, the applicable regulations of 49 CFR, the CoC and their own transportation program instructions, including quality assurance requirements, to ship material.

The following discussion provides a step-by-step description of the decision steps which make up the Certificate of Compliance (COCCoC) portion of the Significance Determination Process (SDP) flowchart for Transportation & Part 61. It is anticipated that the inspector will have properly followed the Transportation and Part 61 SDP flowchart through the Radiation Limit Exceeded and Breach of Package decision points to the decision point where this COC branch begins. It is also expected that the inspector follows previous guidance concerning multiple findings on a single incident. That is, a finding with a package breach which resulted in a YELLOW determination and a CoC deficiency which resulted in a GREEN determination would be considered to be a YELLOW finding. This is because the YELLOW signifies a more serious problem with the package breach aspect of the finding, than the CoC deficiency aspect of the finding.(see Figure 4).

~~This branch of the logic diagram resolves an NRC, or licensee, identified finding that deals with package preparation, use and maintenance. It includes a noncompliance with a CoC specification(s) or condition(s) for a transportation package/cask. The following is a list of all the decision blocks contained in the COC SDP flowchart for Transportation & Part 61.~~

~~1.~~ For the 1st decision block, Design Documentation Deficiency ~~(1st decision block)~~

~~Any~~, the finding is Green if the finding involves a documentation deficiency related to maintenance or use of an NRC-approved package~~. This does not include deliberate misconduct related to documentation. The deficiencies covered here are expected to be purely documentation non-compliances and not~~ and does not involve the failure to perform a required action. ~~These non-compliances would not be considered safety significant (i.e., GREEN) because the required action was performed and, often, the required documentation can be re-created with appropriate measures to show its creation after the actual performance of the activity.~~

Examples of documentation deficiencies include, but are not limited to, the failure to properly document compliance with:

a. ~~•~~ 49 CFR requirements such as shipping papers
b. ~~•~~ Section 71.87, Routine determinations (failure to document performance of the loading checklist)
c. ~~•~~ Section 71.89, Opening instructions (failing to document providing them when necessary)
d. ~~•~~ Section 71.91, Records (shipment records and evidence of package quality)
e. ~~•~~ Section 71.95, Reports
f. ~~•~~ CoC conditions such as the loading/unloading requirements of Section 7 of the Package SAR or CoC holder supplied procedures (including failure to use latest revision)
g. ~~•~~ CoC conditions such as the maintenance requirements of Section 8 of the Package SAR or CoC holder supplied procedures (including failure to use latest revision)

~~It is assumed that a documentation problem will be documented in~~For the ~~licensee=s corrective action program and appropriate actions will be taken to correct the problem and preclude repetition in the future. Thus, the finding would be GREEN.~~

~~2.~~ 2nd decision block, Maintenance/Use Performance Deficiency ~~(2nd decision block)~~ , the finding is Green if the finding involves

~~This section is intended to cover~~ physical problems with the package or the failure to verify the physical condition of the package. ~~It includes the failure to perform required actions, or the improper performance of required actions. It does not include the physical failure of a package or the results from a physical failure, such as excessive exposures, personnel injury or property damage. These non-compliances would not be considered safety significant because a single occurrence of failure to perform one of these individual actions will not usually result in a significant event. Any consequences of the noncompliance would be considered elsewhere in the SDP (radiation exposure, breach of package, etc.)~~

Examples of performance deficiencies include, but are not limited to, the failure to properly perform:

a. ~~•~~ Section 71.87, Routine determinations (failure to perform the loading

checklist, verify package is in unimpaired physical condition)

b. • Section 71.89, Opening instructions (failure to provide ~~then~~them when necessary)

c. • Package is found to not meet the basic design criteria of the CoC (wall thickness is too thin, empty weight is incorrect, package is rusted/corroded beyond tolerances)

d. • CoC conditions such as the loading/unloading requirements of Section 7 of the Package SAR or CoC holder supplied procedures

e. • CoC conditions such as the maintenance requirements of Section 8 of the Package SAR or CoC holder supplied procedures as evidenced by the wrong closure bolts, wrong gaskets (no gasket), or weld problems

f. • Section 71.85, Preliminary determinations or Section 8 of the SAR (failure to verify that the container is in accordance with the CoC)

~~It is assumed that~~ For the ~~discovered problem would also be documented in the corrective action program. The deficiency would be corrected and a root cause evaluation would be conducted to preclude repetition. This finding would be GREEN.~~

~~3.~~ 3rd decision block, Minor Contents Deficiency ~~(3rd decision block)~~

~~Where the NRC or licensee found that~~, the finding is Green if it involved a failure to meet a ~~specification regarding~~CoC criteria for cask contents ~~with minor safety significance included in the CoC was~~that did not ~~met (e.g. not a~~adversely impact the following: temperature, pressure, geometry, weight, burn-up, enrichment, or moderator specification nonconformance~~), this finding would be considered GREEN. This type of deficiency would have low risk significance relative to causing a radioactive release to the public or public or occupational exposure. If a radiation limit was exceeded or an overexposure resulted due to this deficiency, that finding would be handled through a different SDP branch. This type of deficiency would also be addressed by the licensee~~s corrective action program.. Examples of these types of findings are:

~~Examples are:~~

a. • Minor structural component left out or improperly configured (those not required to maintain content arrangement)

b. • Non-load bearing and not shielding related~~)~~

c. • Non-fissile material curie content exceeds the specification in the CoC

d. • A non-fissile isotope other than what is allowed by the CoC is loaded

e. • Residual water in a non-fissile package

f. • Inclusion of non-radioactive material not intended to be in the package

~~4. >1~~For the 4th decision block, Major Contents Deficiencies ~~(4th decision block)~~

~~If~~, if it is determined that the package contained material such that a critical parameter was outside of the limits of the CoC, or that the closure/containment system was deficient, then the significance would be determined here. ~~Deficiencies such as these would be risk significant in that they are more likely to lead to a criticality event, a breach of package, a radioactive release, the failure to exercise adequate controls, or a public or occupational dose exceeding NRC limits. If~~The finding would be White if one critical parameter deficiency was identified ~~by the NRC or licensee, then the~~. The finding would be ~~WHITE. If~~Yellow if more than one critical parameter deficiency was identified~~, then the finding would be YELLOW.~~. Examples of critical parameters which could result in major contents deficiencies are:

~~Examples are:~~

a. ~~•~~ Temperature
b. ~~•~~ Pressure
c. ~~•~~ Geometry/configuration
d. ~~•~~ Weight
e. ~~•~~ Burn-up
f. ~~•~~ Enrichment
g. ~~•~~ Moderator presence when not allowed/moderator exclusion when required
h. ~~•~~ Neutron absorber not present when required
i. ~~•~~ Fissile material curie content or quantity exceeds the specification in the CoC
j. ~~•~~ Major structural item left out (internal brace, basket, shoring, foam, shielding etc.) or structural deficiency/failure.

Failure to Make Notifications or Provide Emergency Information

This branch of SDP (see Figure 5) focuses on vital communication, information, and notification requirements that must be met by the licensee. Shippers of hazardous materials are required to provide emergency response information in certain situations. Failure to provide these required notifications could seriously hamper or prevent the ability of the federal, state and local agencies to adequately respond as needed to transportation events and accidents. By hampering or preventing this regulatory response, the public health and safety could be negatively impacted.

For Block N1 (10 CFR 71.97), the finding is White if the licensee fails to make the required notifications to the governor of a State, the governor's designee, or the Tribal official before the shipment entered the state's or reservation's boundary for interstate shipments. For intrastate shipments, if the shipment was put on public roads/rails before the Governor, his designee, or the Tribal official received the required notification, then a finding is White. If the licensee fails to meet a timeliness of notification requirement (i.e., notification not postmarked at least 7 days before the 7-day shipment period), then the finding is Green. The NRC can consider information provided by the licensee that would assist in dispositioning the significance of the finding (e.g., letter from state agency characterizing the impact of the non-compliance). Such information would be considered through the normal SERP process.

For Block N2 (49 CFR 172.602 non-compliance), the finding is White if the licensee fails to provide the required emergency response information to the shipment carrier and the error or omission would seriously hamper emergency response efforts. Examples of violations that would seriously hamper emergency response efforts include, substantial errors or omissions (e.g., missing pages or uncommunicated hazards) in communicating the immediate hazards to health; risks of fire or explosion; and immediate precautions—or, if the aforementioned information is in an unusable/unreadable format. Additionally, discrepancies between the basic description information (e.g., proper shipping name and United Nations identification number) and the package markings would significantly hamper emergency response actions. If the finding involves a deficiency in emergency response information that would not seriously hamper emergency response efforts, then the finding is Green. Examples of these cases include situations where errors are made in emergency information, but the hazards contained in the shipment are still sufficiently communicated.

For Block N3 (49 CFR 172.604 non-compliance), the finding is White if during an actual emergency the licensee does not respond in a timely manner in accordance with the requirements (or had not provided the 24-hour telephone number). For an incorrect or missing emergency response telephone number, as required by 49 CFR 172.604, if there were no

actual accidents or situations where the emergency contact information was needed, then the risk significance would be very low, and the finding is Green.

For Block N4 (10 CFR 20.1906), the finding is White if the licensee's receipt surveys show 1) the package's external radiation levels in excess of five times the Part 71 limits, or 2) the surface radioactive contamination level in excess of five times the Part 71 (49 CFR 173) limits, and the licensee fails to make notifications to the final delivery carrier. Other non-compliances are Green. A finding that involves a licensee's failure to notify the NRC when required is to be dispositioned as a Traditional Enforcement violation as stated in section 2.2.4 of NRC's Enforcement Policy (i.e., as a violation that may impact the ability of the NRC to perform its regulatory oversight function).

02.05 Licensing Requirements for Land Disposal of Radioactive Waste

Near Surface Disposal Nonconformance

This section of the SDP (see Figure 4) evaluates findings related to the classification (i.e., Class A, B, C, etc.) and characterization of radioactive material intended for near-surface disposal at facilities licensed for such activities.

The finding is White if a licensee ships Class C or greater waste and it is determined that the waste was under-classified when considering the requirements of 10 CFR 61.55 (e.g., waste classified as Class A or Class B, but later found to be Class C or greater). Other violations of 10 CFR 61.55 that do not involve under-classification are Green.

The finding is White if a licensee ships Class A or Class B waste and it is determined that the waste was under-classified when considering the requirements of 10 CFR Part 61.55 and the finding involved the improper disposal of the waste, contrary to the requirements of 10 CFR 61.56. The finding is Green if the under-classification of Class A or Class B waste did not result in the improper disposal of the waste.

02.06 Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material per 10 CFR Part 37

This section of the SDP (see Figures 6 & 7) focuses on findings associated with the licensee's physical protection of Category 1 and Category 2 radioactive material, as defined in 10 CFR Part 37. These findings can occur while the material is on site or while the material is in transit to another facility. Oftentimes, Part 37 violations result from failures on the part of licensees in identifying that radioactive material exceeded the category 2 threshold. In these instances, multiple Part 37 findings may be identified, and it may become necessary to evaluate the significance of the combined impact of multiple findings as described in Section 02.06 of IMC 0308, Att 3, Appendix D.

The applicability of this SDP depends on where the radioactive material is located and what protective measures the licensee has put into place to protect the material. First, the licensee is exempt from Subpart B and C of Part 37 in cases where radioactive material exceeding the category 2 threshold is protected under the Part 73 program as documented in either the Part 73 security plan or a Part 37 security plan. RIS 2015-15 provides the staff's position on the applicability of this exemption and the criteria that must be documented by the licensee (i.e., physical protection measures, material accountability and training). The portions of this SDP that address non-compliances with 10 CFR Part 37, subparts B and C do not apply in cases where a licensee is exempt from Subparts B and C. Second, in cases where material is in the protected area (PA), but the licensee has not documented that the material is protected under

the Part 73 program, then the finding should be dispositioned using this SDP; with consideration given to the security that is provided to the PA by Part 73 requirements. Lastly, in cases where the radioactive material exceeding the category 2 threshold is not located within the PA then findings regarding this material should be dispositioned using this SDP.

Failures to respond, investigate, or report per 10 CFR 37.49(d), 10 CFR 37.79(e) or 10 CFR 37.81, respectively, shall be dispositioned using Traditional Enforcement as violations that may impact the ability of the NRC to perform its regulatory oversight function to determine the severity level of the associated violation and this SDP, to determine the significance of the finding for ROP assessment purposes.

Part 37 Finding - Actual loss of material (i.e., any Part 37 finding that is a causal factor in the actual theft or diversion of material)

Instances of actual theft or diversion of radioactive material would likely be the subject of NRC investigations. To ensure that the staff's inspection efforts do not impede or otherwise affect any investigations, NRC staff should contact NRC's Office of Investigations to determine the appropriate course of action in those cases. Additionally, findings that are causal factors in actual theft and diversion would be dispositioned using Traditional Enforcement as violations that resulted in actual safety or security consequences, to determine the severity level of the associated violation, and this SDP, to determine the significance of the finding for ROP assessment purposes.

The finding is Red if the finding was a causal factor in the actual theft or diversion of category 1 radioactive material.

The finding is Yellow if the finding was a causal factor in the actual theft or diversion of category 2 radioactive material.

Part 37 Subpart A, B or C Finding - Access granted to individual who is not trustworthy and reliable

In cases where the licensee is satisfying the requirements of Subpart B to 10 CFR 37 through programs established to meet personnel access authorization requirements for nuclear power plants in accordance with 10 CFR 73.56, NRC physical security inspection personnel should be consulted to determine if the finding should be dispositioned using an SDP in the Physical Security cornerstone. Because access to PAs is controlled by Part 73.56 programs, this SDP should only be used to evaluate findings involving access authorization to category 1 or category 2 radioactive material that is stored outside of the PA.

If the finding resulted in the licensee granting unescorted access authorization to radioactive material of category 2 quantity or greater to an individual who was not trustworthy or reliable (including actual access to the material, as well as the ability to access the material), then the finding is White.

In situations where the licensee completes a timely and adequate background investigation, or supplements the existing background investigation to address the underlying performance deficiency, to obtain information which the licensee can use to conclude that the individual was in fact trustworthy and reliable at the time unescorted access was granted, then the finding is Green—even if such actions are taken after the non-compliance is identified. However, if the licensee does not conduct a background investigation or supplement the existing background investigation, or if the licensee cannot conclude using the newly acquired information that the

individual who was granted access was trustworthy and reliable, then the finding would remain White.

"Timely" as used in this section of the SDP is defined as the licensee being able to make an adequate trustworthy and reliability determination within the time period it would take the NRC to disposition the finding using the Significance and Enforcement Review Panel Process described in IMC 0609, Att 1.

Part 37 Subpart A, B or C Finding - Ineffective security zone

An ineffective security zone is one where a reasonable analysis would indicate the radioactive material is not physically protected from unauthorized access as intended by 10 CFR Part 37. For the purposes of this SDP, an ineffective security zone is one in which deficiencies exist that result in concurrent failure of physical barriers/direct observation of the security zone and inability of the licensee to monitor and detect unauthorized access to security zones. Refer to Figure 6 as an aid in identifying if a security zone was ineffective.

Examples of failures of physical barriers and/or direct observation processes include uncontrolled keys (or combinations) to doors which serve as part of the physical barrier such that personnel who are not trustworthy and reliable have access to the keys (or combinations); physical barriers that are not continuous, or have openings greater than 96 square inches where the smallest dimension is equal to or greater than 6 inches that are not hardened as described in A3 of 10 CFR 37.47, "Security Zones," in NUREG-2155; and lapses in direct observation for extended periods of time.

Examples of inability to monitor and detect unauthorized access include failures of the primary and alternate intrusion detection systems; lapses in monitoring of video surveillance for extended periods of time; not enabling the intrusion detection system as required (e.g., not setting an alarm); or lapses in direct observation for extended periods of time.

For the purposes of this section, "extended periods of time," is defined as the amount of time it would take an unauthorized person to access and remove the radioactive material from its intended location; if the licensee does not provide a reasonable analysis and basis for this period of time, the NRC will use inspector judgement as a basis.

If the finding(s) being evaluated resulted in (1) a failure of the physical barrier or direct observation process that is used to control access to the security zone, and (2) an inability to monitor and detect unauthorized access to the security zone without delay, then the security zone is considered ineffective and the finding is White.

In cases where the radioactive material is located within the PA of a nuclear power plant, but the licensee has not adequately described the material in a security plan, then the finding is Green.

Part 37 Subpart A, B or C Finding - Deficient Security Zone and Deficient Material Detection Capability

A deficient security zone is one in which there are one, or more, findings associated with the security zone or monitoring of access to the security zone; however, the non-compliances underlying the finding(s) do not result in an ineffective security zone. If the finding being considered results from a violation of 10 CFR 37.47 or 10 CFR 37.49(a)(1) – (2), then the security zone is considered deficient and the status of the material detection capability should be evaluated to determine the significance.

Non-compliances in meeting the following requirements are examples of deficient material detection capabilities. For category 1 radioactive materials, immediate detection of any attempted unauthorized removal must be provided by (1) electronic sensors linked to an alarm; (2) continuous monitored video surveillance; or (3) direct visual surveillance. For category 2 radioactive materials material detection is provided by weekly verification through physical checks, tamper indicating devices, or other means to ensure the radioactive material is present.

If the finding(s) being considered results in a concurrent deficient security zone and a deficient material detection capability, then the significance of the finding(s) is White.

If the finding(s) being considered does not result in a concurrent deficient security zone and a deficient material detection capability, then the significance of the finding(s) is Green.

Part 37 Subpart D Finding - License Verification

If a license transfers material exceeding the category 2 limit to a recipient not licensed for the receipt of the type, form, and quantity of radioactive material (and for category 1 material, at the location where the material will be delivered), and the licensee is unable to regain custody of the material, then the finding is Yellow if the material is category 2 and Red if the material is category 1.

If the licensee delivers material to an entity or location not licensed for the material, but regains custody of the material, then the finding is White.

If a finding occurs in license verification and before the material is delivered to the recipient the licensee can either (1) recall/redirect the shipment, or (2) complete the verification, then the finding is Green. Additionally, if the licensee determines that the recipient was licensed to receive the material (even if the verification occurred after the material was delivered), then the finding is Green.

Part 37 Subpart D Finding - Preplanning and Coordination

If the finding resulted in a failure to adequately provide advanced notification of a category 1 shipment, then the finding is White.

If the finding resulted in a failure to adequately coordinate the delivery of a category 2 shipment, then the finding is White. However, if a recipient fails to confirm with the originator receipt of category 2 quantity of material, then the finding is Green.

The assigned significance of these types of findings can be lessened if the licensee can demonstrate a minimal adverse impact on material security resulted from the finding. For example, if the state was still able to meet its functions; if a licensee procedurally verifies the arrival of all radioactive material shipments at the receiving facility at the expected shipment arrival time; or, if, for category 2 shipments only, the carrier applies a tracking system that provides continuous active monitoring, which is in excess of the tracking required for a category 2 shipment.

Part 37 Subpart D Finding - Physical Protection in Transit

NRC reactor licensees commonly use third party carriers to transport radioactive materials. In these cases, if a violation of NRC requirements occurs the violation must be evaluated from the perspective of whether a performance deficiency occurred on the part of the NRC licensee that contracted with the third party. If a performance deficiency occurred and it screens to more than minor, then a finding is assigned to the licensee at a significance level as determined by this

SDP. If a non-minor violation occurs absent a performance deficiency on the part of the NRC licensee, then follow the screening guidance in IMC 0612, App B for these types of situations.

Findings that indicate significant deficiencies in physical protection of material while in transit are White. Otherwise, the finding is Green.

Significant deficiencies in physical protection of Category 1 material are:

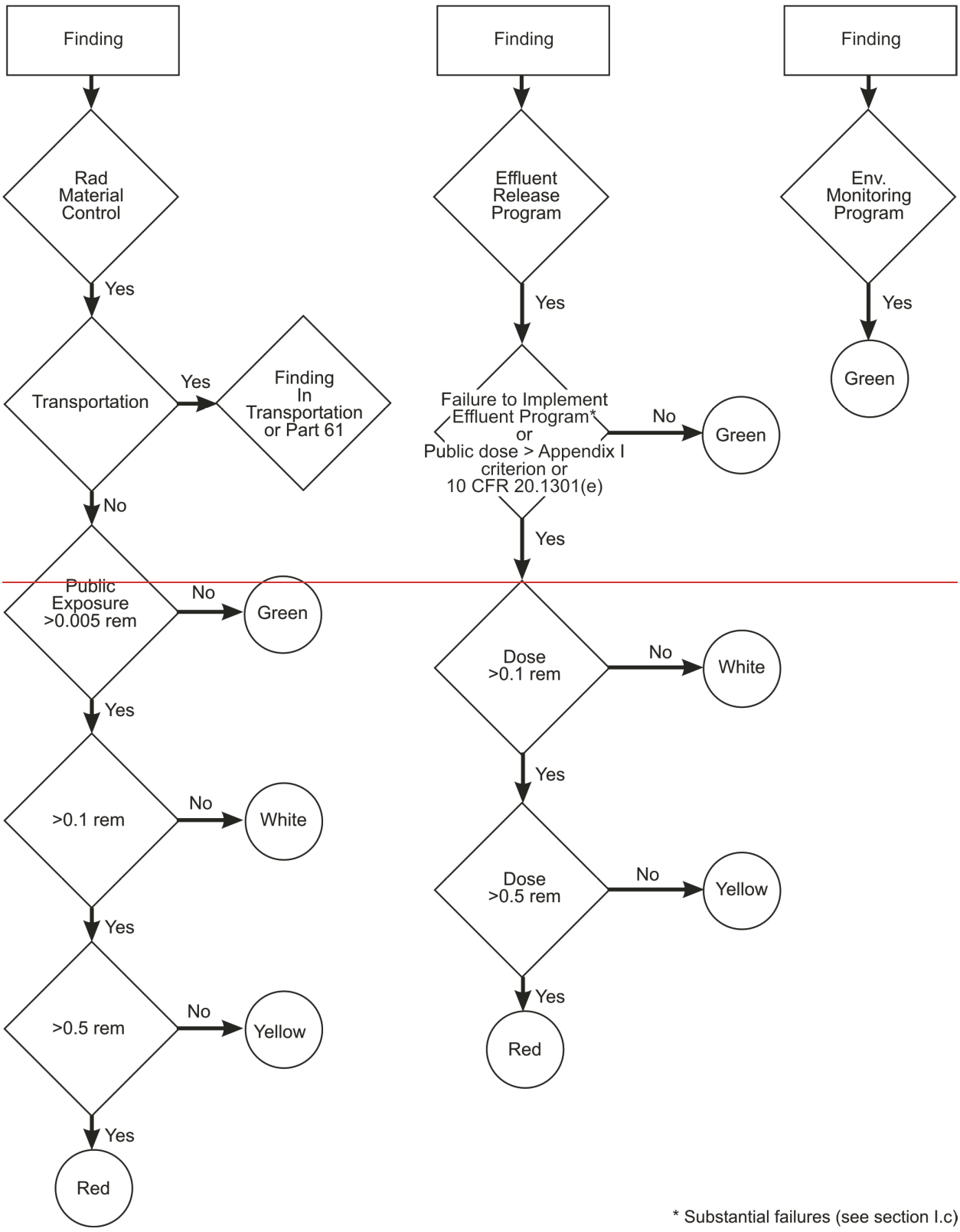
- Failure to establish and maintain a movement control center (MCC) for the duration of the transit
- Failure to establish and maintain primary and secondary means of communication between the transport and the MCC prior to commencing transit (however, deficiencies that result in isolated failures of either the primary or secondary means of communication are Green provided the licensee commenced the transit with both means in place, and, at all times during the transit, there existed at least one form of continuous communication between the transport and the (MCC))
- Failure to establish active monitoring by a tracking system (e.g., telemetric position monitoring system or alternate) prior to commencing transit (however, deficiencies that result in isolated failures of the tracking system during transit are Green if an acceptable secondary means of maintaining positive confirmation of the location, status and control over the shipment is provided for the duration of the transit)
- Procedural deficiencies that result in failures to adequately respond to actual or attempted theft or diversion of category 1 material while in transit
- Failure to provide an accompanying driver, if required

Significant deficiencies in physical protection of Category 2 material are:

- Failure to establish and maintain the ability (or use carriers that maintain the ability) to identify when and where the package was last and when it should arrive at the next point of control for the duration of the transit (i.e., constant control and surveillance)
- Failure to establish and maintain the ability (or use carriers that maintain the ability) to immediately communicate to summon appropriate response or assistance
- Failure to use carriers that require authorized signature prior to releasing the package

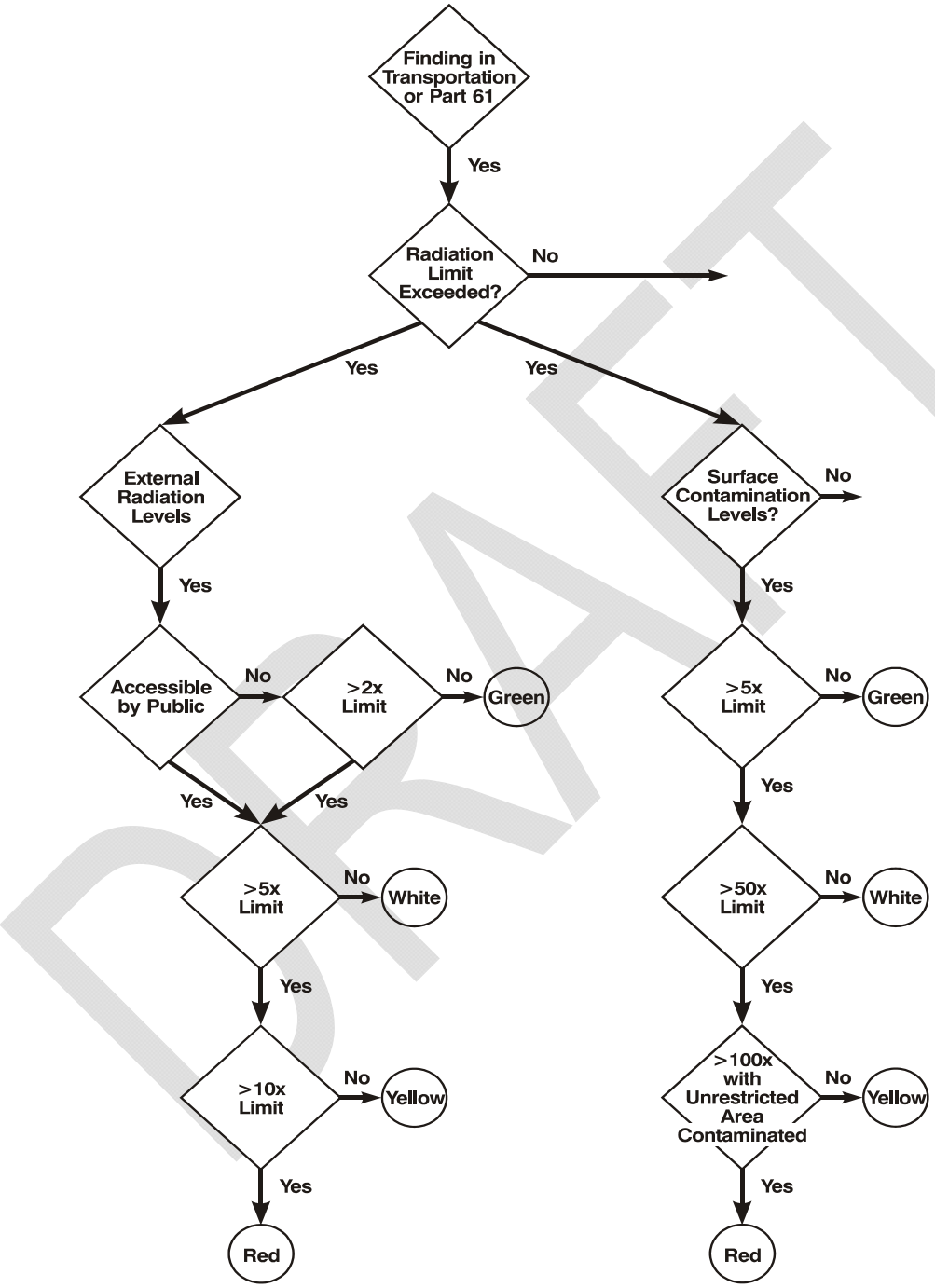
END

PUBLIC RADIATION SAFETY

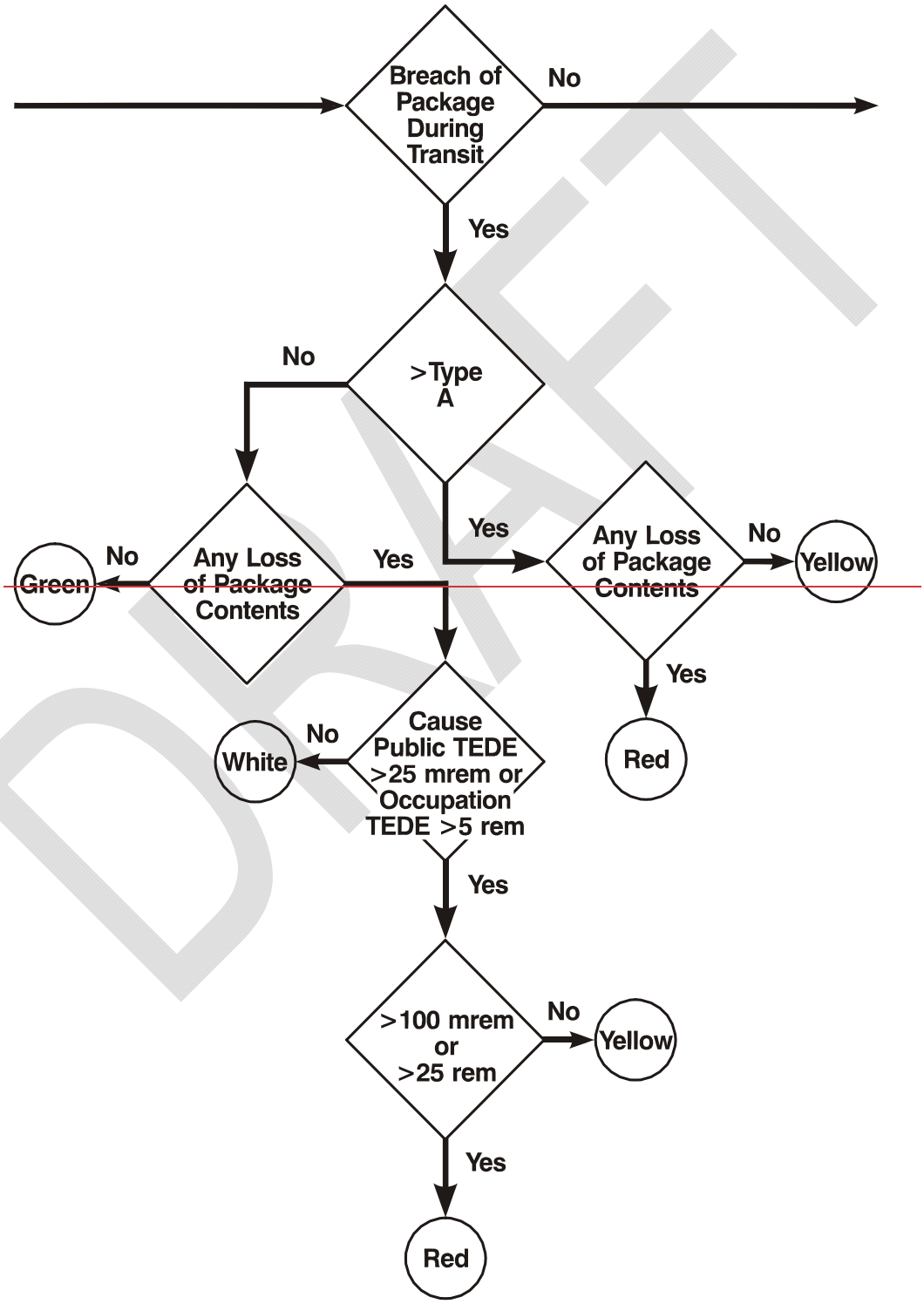


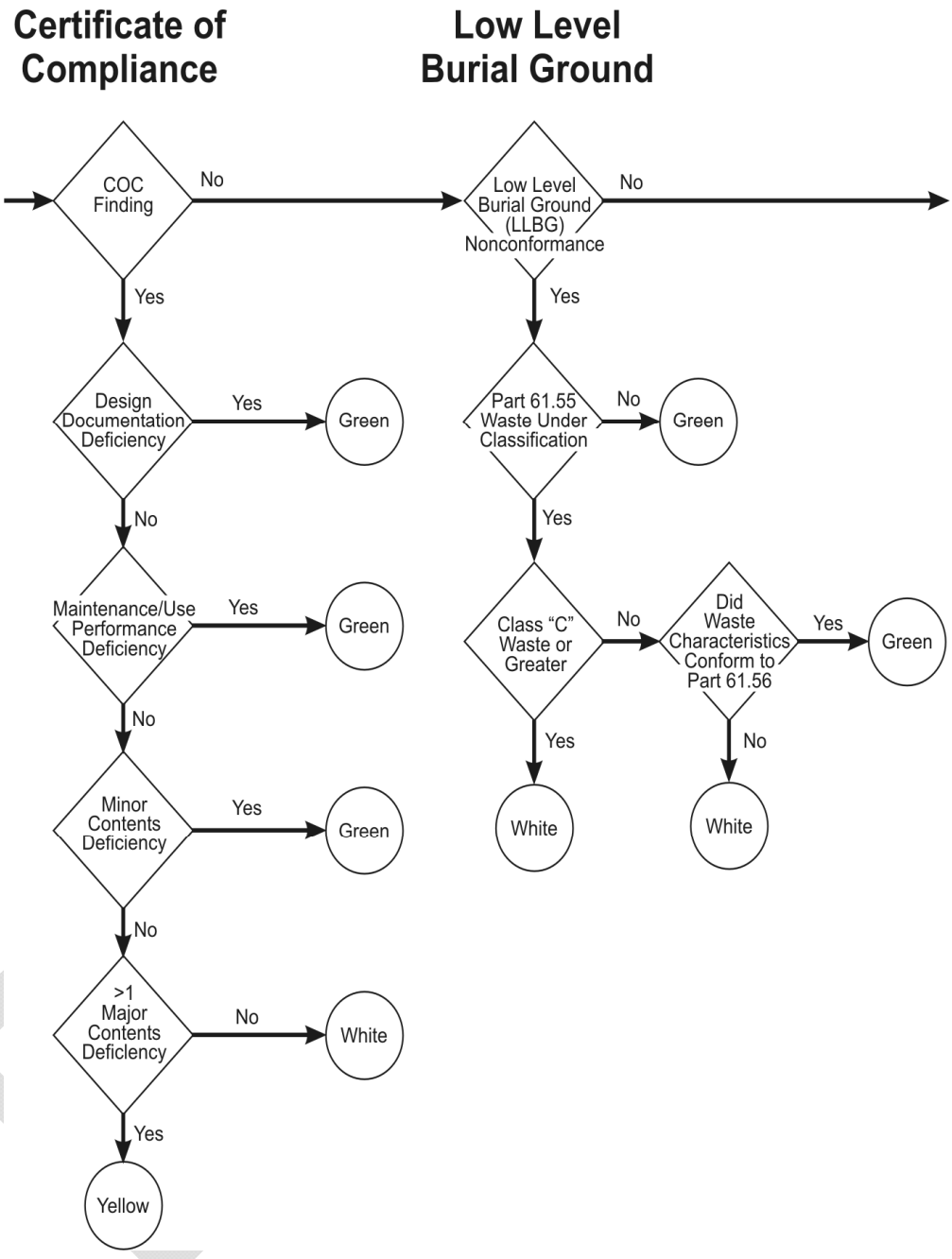
* Substantial failures (see section I.c)

Radiation Limits

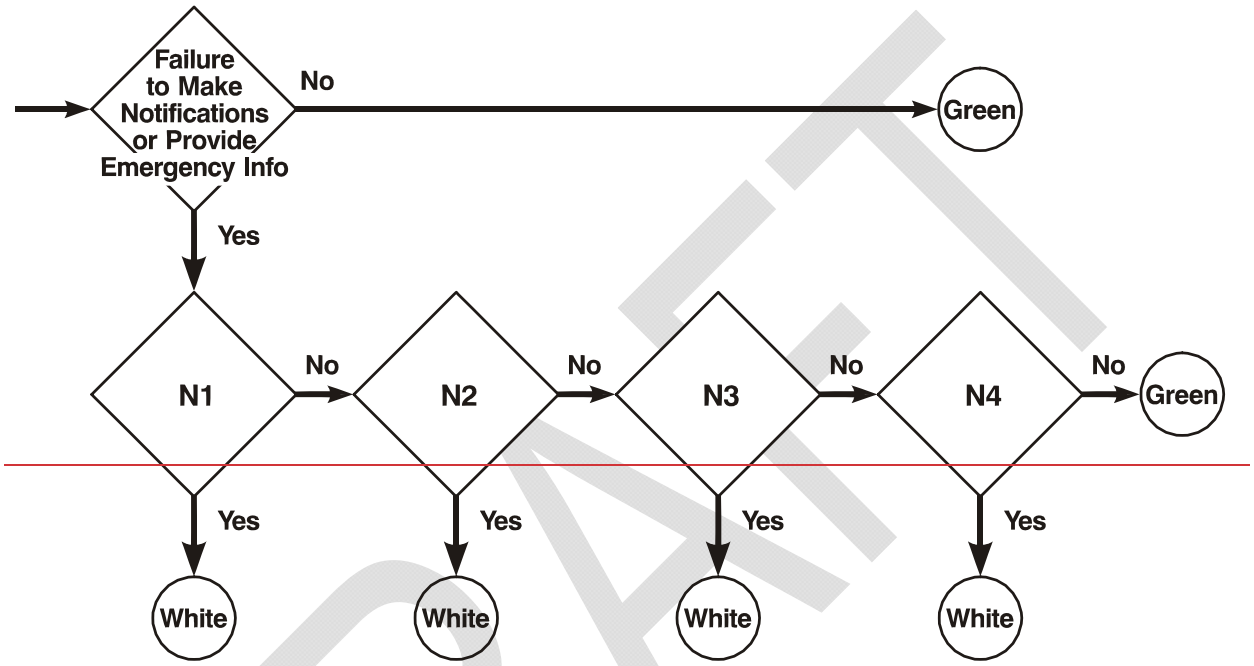


Package Breach




Certificate of Compliance
Low Level Burial Ground
COC Finding
No
Yes
Low Level Burial Ground (LLBG) Nonconformance
No
Yes
Design Documentation Deficiency
Yes
Green
No
Part 61.55 Waste Under Classification
No
Green
Yes
Maintenance/Use Performance Deficiency
Yes
Green
No
Class "C" Waste or Greater
No
Did Waste Characteristics Conform to Part 61.56
Yes
Green
Yes
No
Minor Contents Deficiency
Yes
Green
No
White
White
>1 Major Contents Deficiency
No
White
Yes
Yellow

Notification & Emergency Information



N1 - Failure to comply with 10 CFR 71.97 - Made a shipment w/o notifying state governor prior to shipment entering state

N2 - Failure to provide emergency response info required by 49 CFR 172.602

N3 - Failure to respond during actual request IAW 49 CFR 172.604

N4 - Failure to make notification of 5x limits exceeded as required by 10 CFR 20.1906

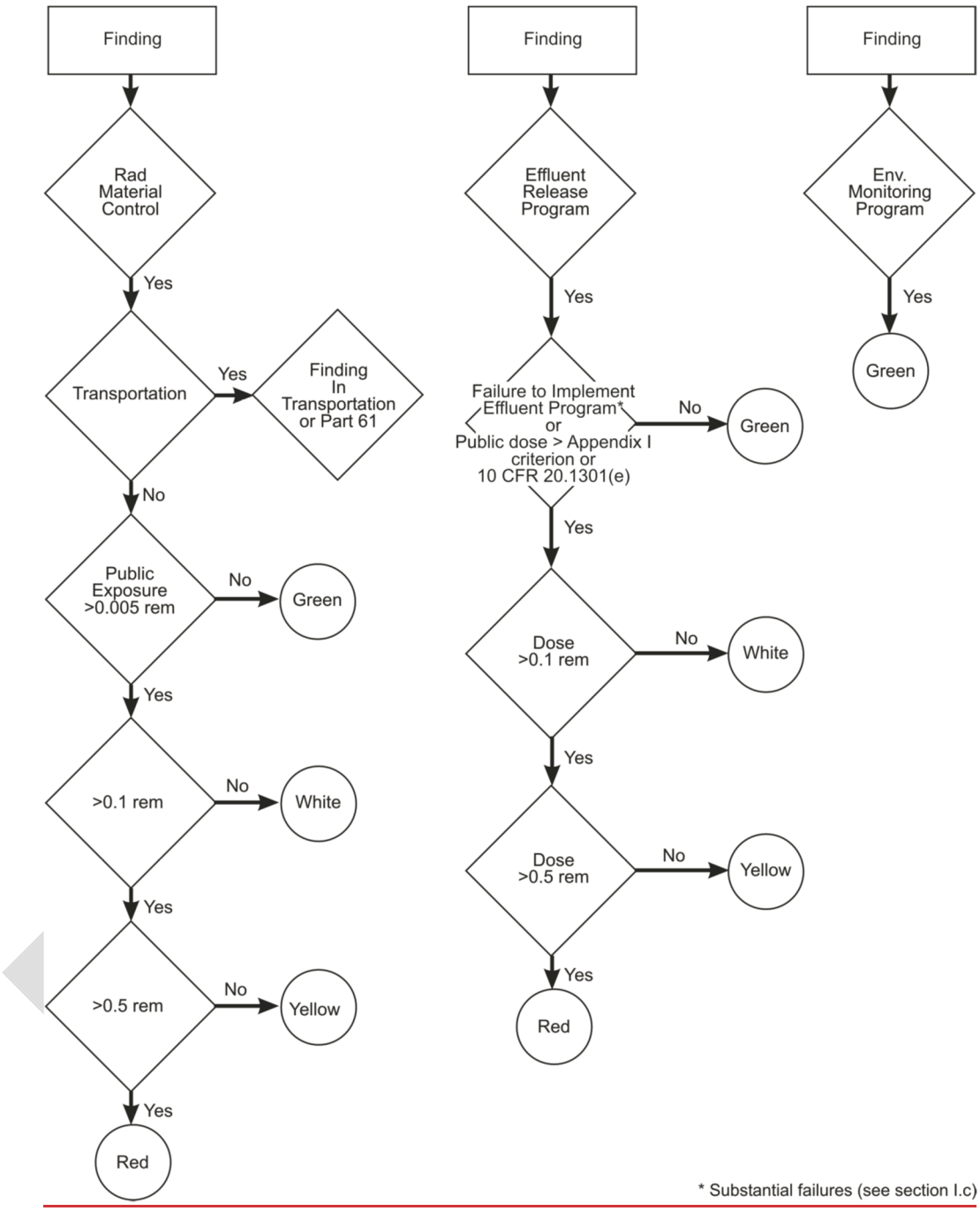


Figure 1 Rad Material Control, Effluent Release Program and Environmental Monitoring Program SDP Flowchart

Packaging and Radiation Limits

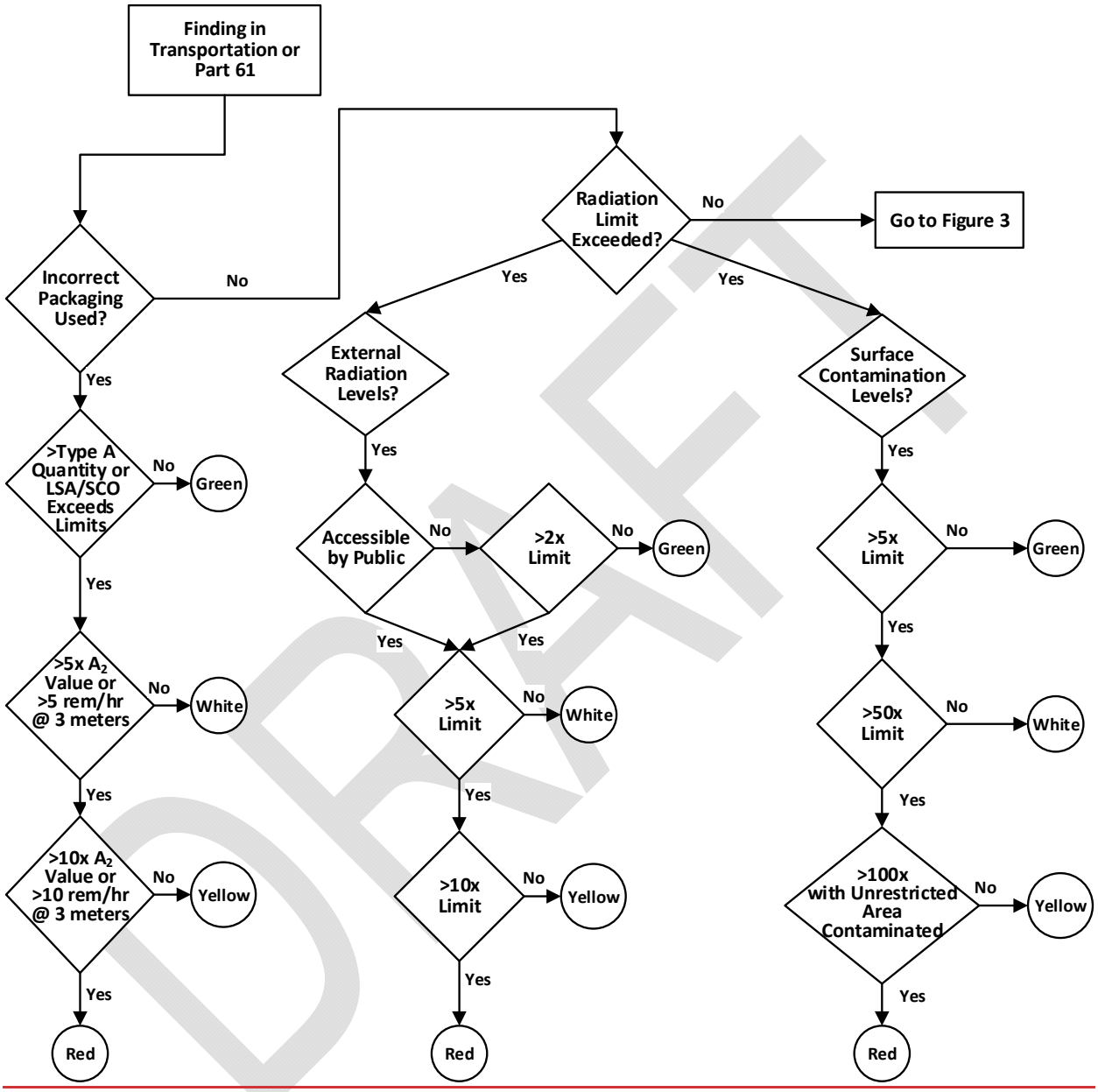


Figure 2 Transportation – Incorrect Packaging and Rad Limits Exceeded SDP Flowchart

Package Breach

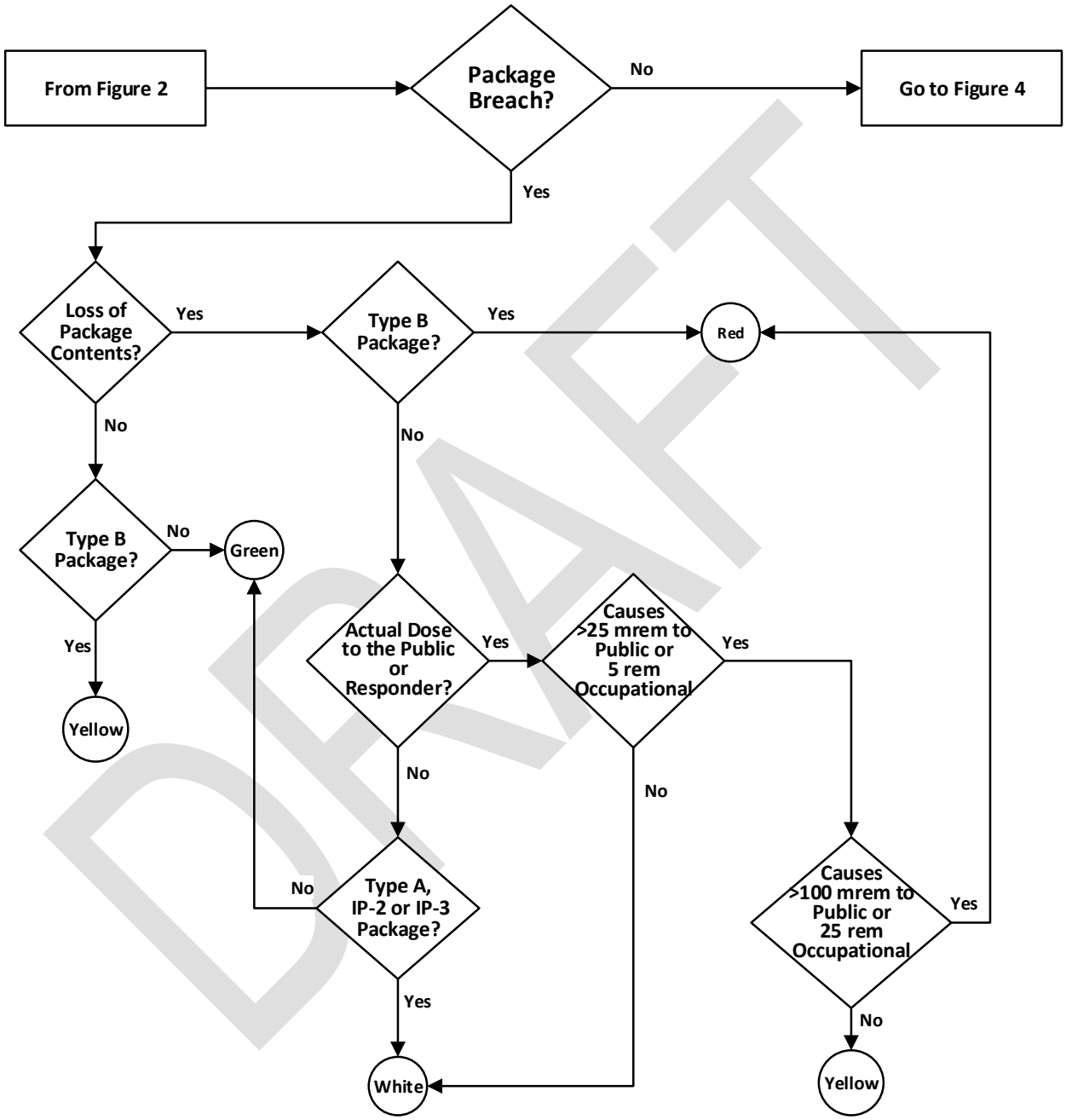


Figure 3 Transportation – Package Breach SDP Flowchart

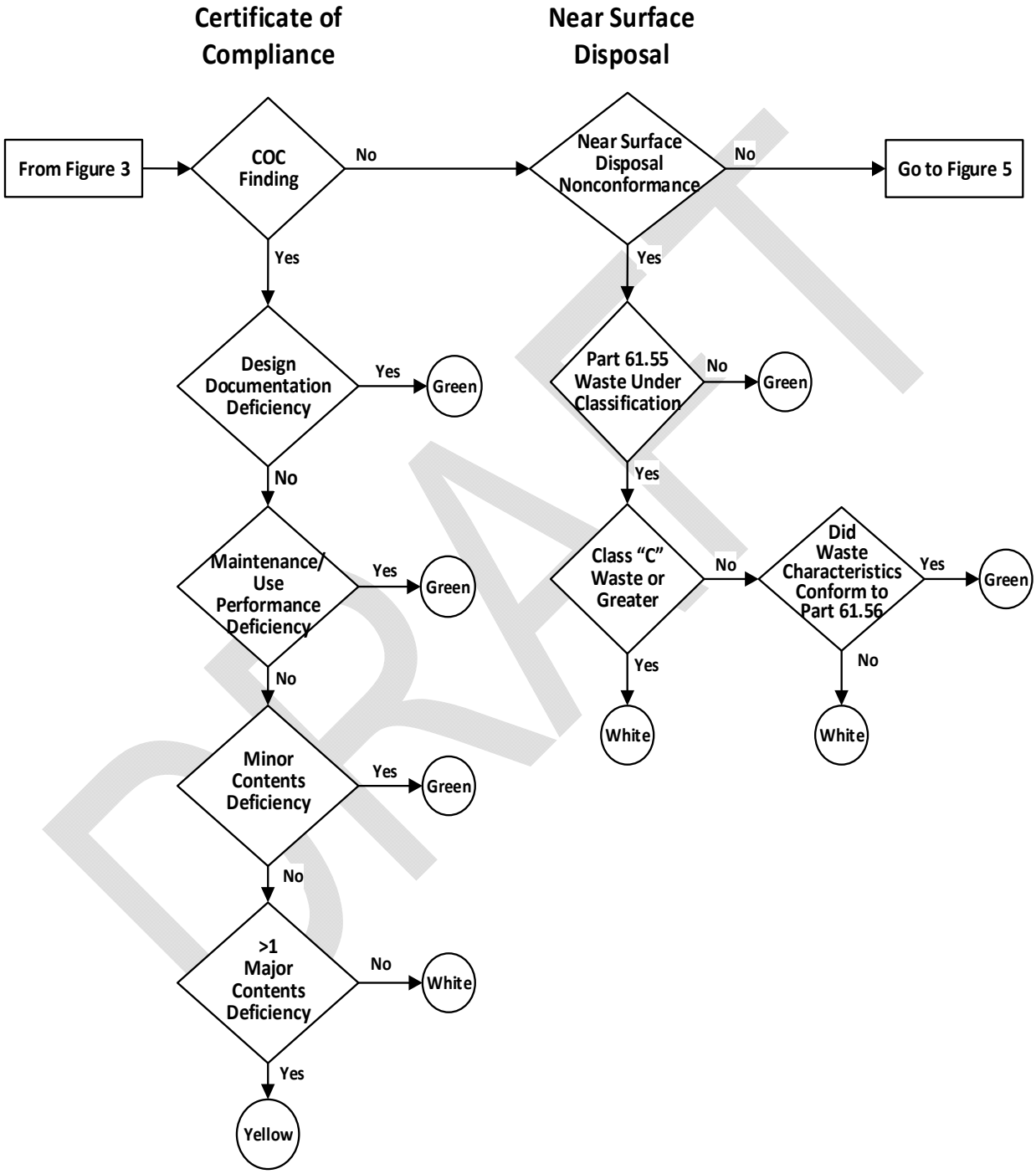
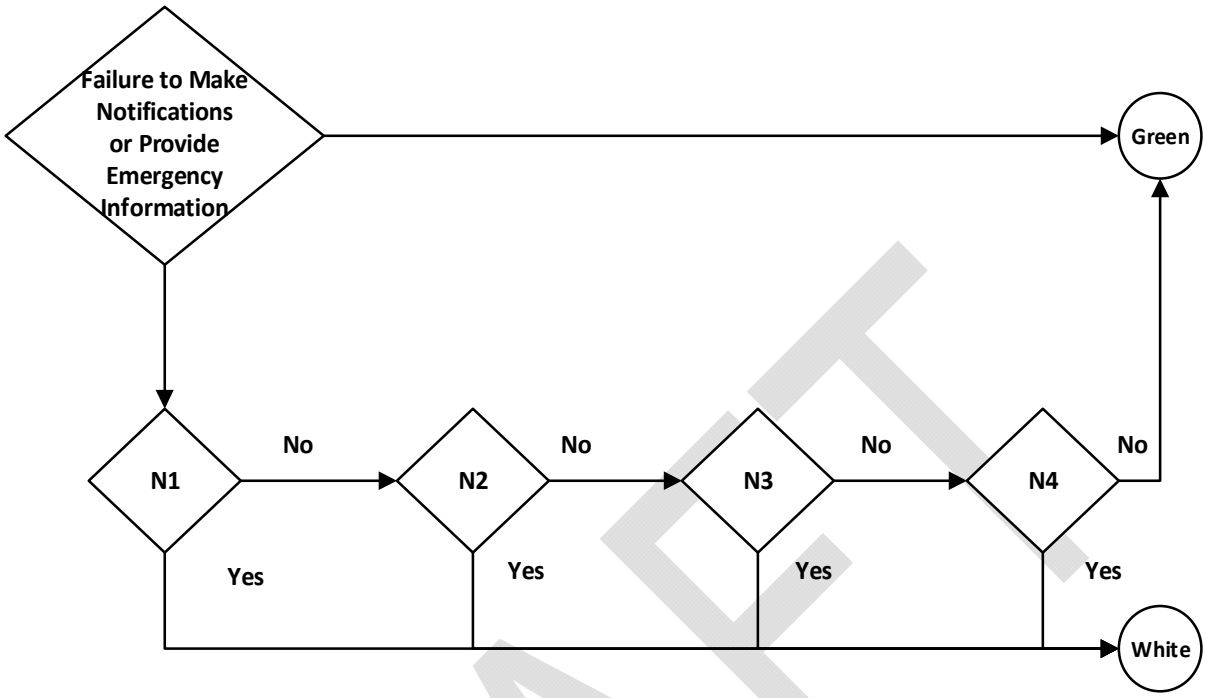


Figure 4 Transportation – Certificate of Compliance and Near Surface Disposal SDP Flowchart



N1 – Failure to comply with 10 CFR 71.97 – Made shipment without notifying the state governor, or Tribal official, prior to shipment entering state

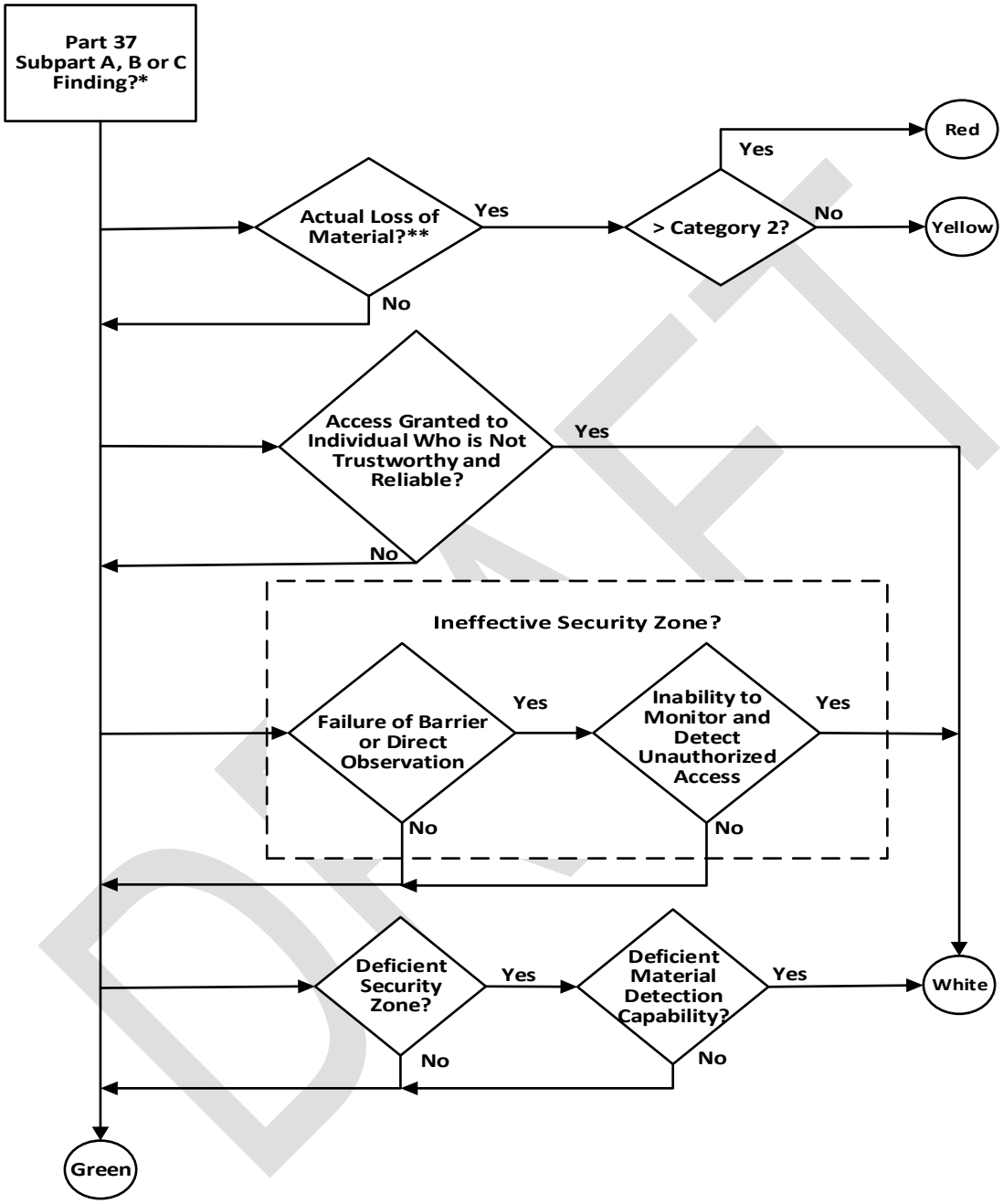
N2 – Failure to provide emergency response info resulting in serious hampering of emergency response efforts

N3 – Failure to respond during actual request IAW 49 CFR 172.604

N4 – Failure to make notification of 5x limits exceeded as required by 10 CFR 20.1906

Figure 5 Transportation – Notification and Emergency Information SDP Flowchart

Physical Protection of
Category 1 and Category 2 Quantities of Radioactive Material

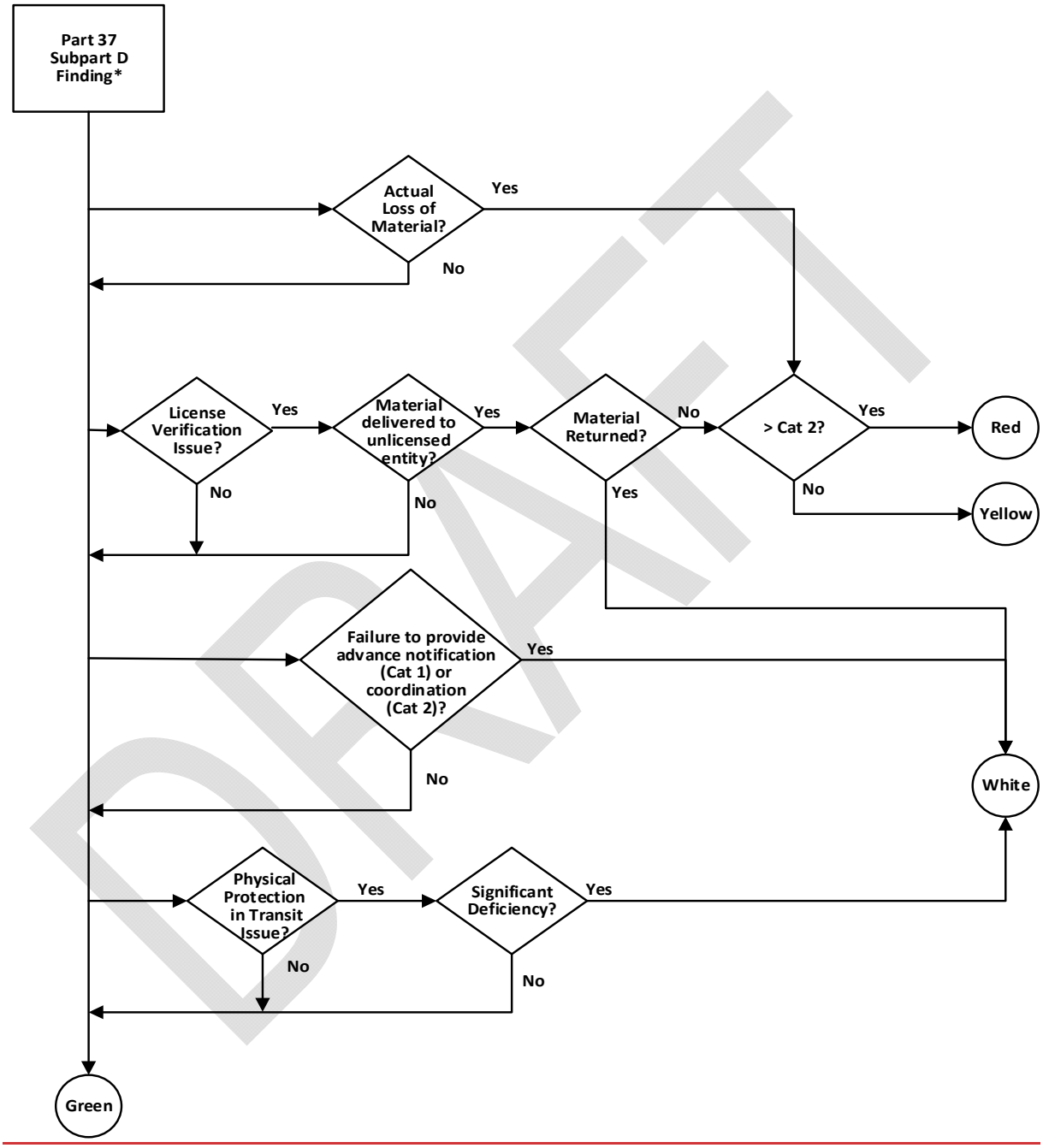


*Failures to respond or report per 10 CFR 37.49(d) or 10 CFR 37.81 shall be dispositioned using Traditional Enforcement as violations that may impact the ability of the NRC to perform its regulatory oversight function

**Consult with NRC Office of Investigations prior to dispositioning findings associated with actual cases of theft, diversion or sabotage of radioactive materials

Figure 6 Part 37 Subpart A, B or C Finding SDP Flowchart

Physical Protection of
Category 1 and Category 2 Quantities of Radioactive Material



*Failures to investigate or report per 10 CFR 37.79(3) or 10 CFR 37.81 shall be dispositioned using Traditional Enforcement as violations that may impact the ability of the NRC to perform its regulatory oversight function

Figure 7 Part 37 Subpart D Finding SDP Flowchart

ATTACHMENT 1

Revision History for IMC 0609, Appendix D

Commitment Tracking Number	Accession Number Issue Date Change Notice	Description of Change	Description of Training Required and Completion Date	Comment Resolution and Closed Feedback Form Accession Number (Pre-Decisional, Non-Public Information)
	04/21/00 CN 00-007	This manual chapter supports the New Reactor Oversight Program for the significance determination of findings. The significance determination process detailed in the manual chapter is designed to characterize the significance of inspection findings for the NRC licensee performance assessment process using risk insights as appropriate.		
	12/29/00 CN 00-030	IMC 0609, App D (Public Radiation Safety - Significance Determination Process) has been revised to incorporate stakeholder comments. It also expands the Part 61 finding section to add a Green finding event where previously there was only a White finding		
~~N/A~~	~~10/16~~03/06/02 CN ~~06-027~~02-008	~~This~~ IMC 0609, Appendix D (Public Radiation Safety) has been revised to incorporate ~~comments~~feedback from the ~~Commission in~~ regional inspectors based on its implementation. These include:	~~None~~	~~N/A~~

		1. Additional guidance to clarify that the inspection period for the assessment of findings is for two years, based on eight rolling calendar quarters. 2.Additional guidance which ~~the term public confidence has been change to openness~~added a quantitative dose value to determine when it is appropriate to use the SDP for risk assessment of a finding which involved a discrete radioactive particle. 3.Additional guidance to clarify the types of radioactive material covered by the SDP. 4.The narrative discussion was revised to agree with the headings in the SDP flowcharts. 5.Clarifying the handling/processing of DRP exposure occurrences		
	11/15/02 CN 02-042	IMC 0609, Appendix D (Public Radiation Safety SDP) has been revised to modify the use of the "greater than 5 occurrence" counter. Findings in the program will no longer be counted as an occurrence when the finding involves licensed radioactive material within the licensee's Protected or Restricted Areas.		
	07/24/03 CN 03-025	IMC 0609, Appendix D (Public Radiation Safety - Significance Determination Process) has been revised to clarify the intent of the SDP as a result of questions posed by an ROP Feedback Form. The changes now allow for consideration of 'accessible' locations of the radioactive package and a more graded approach that allows for a GREEN finding if exceeded dose rates are inaccessible to the public and not greater than two times the Department of Transportation limit.		

N/A	ML062890413 10/16/06 CN 06-027	This IMC has been revised to incorporate comments from the Commission in which the term public confidence has been change to openness	N/A	N/A
N/A	ML072970802 02/12/08 CN 08-007	This IMC has been revised to incorporate changes approved by the Commission in SECY-07-0112, including eliminating the White finding in the Environmental Monitoring branch. Other changes include removing the Yellow finding from the Low-Level Burial Ground branch and eliminating the aggregation of findings in the Radioactive Materials Control Branch.	N/A	ML080220247
N/A	ML20346A515 CN 21-	This issue is a major revision that was coupled with a revision of corresponding bases in IMC 0308, Att 3, App D. Changes include addition of guidance to address inspection findings involving 10 CFR Part 37 at Part 50 licensees; updated guidance within the transportation SDP to address incorrect packaging of radioactive material; to provide more detail when dispositioning package breach issues and clarification that white significance for notification issues should be assigned to those issues that seriously hamper emergency response efforts. Additionally, information that explains bases was moved to IMC 0308, Att 3, App D to better align both documents with their intended purposes. Approval for this change was obtained from the Commission in accordance with Management Directive 8.13, "Reactor Oversight Process" January 31, 2020 through	Inspector Seminar, TBD (per IMC 0040, training needs to be completed before the document is issued)	ML20349A077

		COMSECY-21-#### (ML#########) and SRM-COMSECY-21-#### (ML#########) Conducted public meetings as summarized in the following: ML21039A660 – October 21, 2020 ML21078A504 - February 25, 2021			