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CENG
a joint venture of
Constellation Energy · EDF

CALVERT CLIFFS
NUCLEAR POWER PLANT

February 10, 2011

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Independent Spent Fuel Storage Installation
Material License No. SNM-2505, Docket No. 72-8
Responses to Request for Supplemental Information, Re: Calvert Cliffs Independent Spent Fuel Storage Installation License Renewal Application

REFERENCES:

(a) Letter from Mr. G. H. Gellrich (CCNPP) to Document Control Desk (NRC), dated September 17, 2010, Site-Specific Independent Spent Fuel Storage Installation (ISFSI) License Renewal Application

(b) Letter from Mr. J. Goshen (NRC) to Mr. G. H. Gellrich (CCNPP), dated December 16, 2010, Acceptance Review of Renewal Application to Materials License SNM-2505 for the Calvert Cliffs Site Specific Independent Spent Fuel Storage Installation (TAC No. L24475)

In Reference (a), Calvert Cliffs Nuclear Power Plant, LLC (Calvert Cliffs) submitted an application for renewal of the Calvert Cliffs Nuclear Power Plant site-specific Independent Spent Fuel Storage Installation license. In Reference (b), the Nuclear Regulatory Commission requested supplemental information to support their review of our license renewal application. Calvert Cliffs' responses to the requested supplemental information are provided in Attachment (1).

NMSS01

Should you have questions regarding this matter, please contact Mr. Douglas E. Lauver at (410) 495-5219.

Very truly yours,

George Gellrich

STATE OF MARYLAND :
: **TO WIT:**
COUNTY OF CALVERT :

I, George H. Gellrich, being duly sworn, state that I am Vice President - Calvert Cliffs Nuclear Power Plant, LLC (CCNPP), and that I am duly authorized to execute and file this response on behalf of CCNPP. To the best of my knowledge and belief, the statements contained in this document are true and correct. To the extent that these statements are not based on my personal knowledge, they are based upon information provided by other CCNPP employees and/or consultants. Such information has been reviewed in accordance with company practice and I believe it to be reliable.

George Gellrich

Subscribed and sworn before me, a Notary Public in and for the State of Maryland and County of St. Mary's, this 10th day of February, 2011.

WITNESS my Hand and Notarial Seal:

Janet L. Scully
Notary Public

My Commission Expires: March 14, 2015
Date

GHG/KLG/bjd

Attachment: (1) Response to Request for Supplemental Information
Enclosures:
1 CNG-CA-1.01-1000, Rev. 00400, Corrective Action Program
2 Condition Reports CR-2010-010056 and IRE-028-233
3 List of ISFSI Condition Reports
4 10 CFR 72.48 Evaluations (CD)
5 ISFSI Area Radiation Surveys

cc: D. V. Pickett, NRC
W. M. Dean, NRC
Resident Inspector, NRC
S. Gray, DNR
J. Goshen, NMSS
E. Ghigiarelli, MDE
V. Ordaz, NMSS

ATTACHMENT (1)

RESPONSE TO REQUEST FOR SUPPLEMENTAL INFORMATION

Calvert Cliffs Nuclear Power Plant, LLC
February 10, 2011

REQUEST FOR SUPPLEMENTAL INFORMATION 1:

License renewal application Section 3.3.5 "Aging Effects Requiring Management for the DSCs [Dry Storage Canisters]" states "There are no aging effects requiring management for the carbon steel, stainless steel, aluminum, or the lead subcomponents of the DSCs." NUREG 1927 Appendix E, "Component-Specific Guidance" identifies a 20 year interval "lead" cask storage system inspection. There was no discussion of a lead canister inspection report and evaluation provided in the license renewal application.

a. Provide the results of the lead canister inspection to demonstrate no adverse DSC conditions.

b. State how the selected lead canister bounds the conditions of all the DSCs under renewal.

This information is required to evaluate compliance with 10 CFR 72.24(d).

Calvert Cliffs Response:

a. The lead canister inspection for the Calvert Cliffs Nuclear Power Plant (Calvert Cliffs) Independent Spent Fuel Storage Installation (ISFSI) is currently scheduled to occur in April 2012. This date was chosen because NUREG-1927, Appendix E indicates that the inspection is required to be performed before the end of the initial 20-year ISFSI operating license, and on a 20-year frequency thereafter.

b. The canister chosen for this inspection is DSC-006, which is a 24P canister with an initial heat load of 10.68 kW that was loaded into horizontal storage module (HSM) 15 on November 22, 1996. This canister was chosen because, of the 66 canisters currently loaded, it will have the highest integrated thermal and gamma source term, and the second highest integrated neutron source term (only 7.5% lower than the highest; 32P DSC-050 which was loaded in HSM 60 on November 25, 2005), at the time when the inspection is planned. In addition, HSM 15 is part of the population of modules subject to the bolting corrosion issue noted in condition report (CR) IR3-028-233 (see Question 3 response) and was not recoated due to the high radiation field. While both 24P and 32P canister designs are in service in the Calvert Cliffs ISFSI, both designs have identical external features and materials, and therefore, the identified lead canister is considered representative of both designs. Additional lead canisters may be added for subsequent inspections as it is expected that the integrated thermal and radiological source terms of the more recently loaded 32P canisters will surpass that of the 24P canisters before the next inspection.

   The lead canister inspection will consist of a visual examination of the in-scope components of the DSC exterior and HSM interior that are exposed to the ambient air environment. The inspection will be performed by remote methods to ensure doses are maintained as low as reasonably achievable, unless it is found that an adequate determination of the condition of a DSC or HSM component can only be achieved by raising the HSM door or removal of the DSC from the HSM. In addition, prior to the interior inspection, the results of NUTECH horizontal modular storage (NUHOMS) HSM interior aging management inspections performed by other utilities with designs similar to those in use at Calvert Cliffs will be reviewed. Any adverse conditions noted during the lead canister inspections performed at the Calvert Cliffs ISFSI will be documented in the site's Corrective Action Program, and appropriate corrective actions will be determined and implemented via the site's engineering change and maintenance processes. This will ensure the structures, systems, and components (SSCs) can continue to perform their design function and that the current licensing basis is maintained.

REQUEST FOR SUPPLEMENTAL INFORMATION 2:

2. Time Limited Aging Analysis

a. Provide a thermal fatigue analysis for the DSC which demonstrates whether or not thermal fatigue of the DSC needs to be accounted as an aging mechanism. Provide copies of applicable references and any measurement data required to support your response. The purpose is to evaluate the significance of thermal fatigue of the DSC and whether it needs to be included in the Aging Management Activity/Program (AMA/AMP).

b. Provide a thermal fatigue analysis for the DSC support structure contained within the HSM which demonstrates whether or not thermal fatigue of the DSC support structure needs to be accounted for as an aging mechanism. Provide copies of all references and any measurement data required for justification of your response. The purpose is to evaluate the significance of thermal fatigue of the DSC support structure and whether it needs to be included in the Aging Management Activity/Program (AMA/AMP).

This information is required to ensure compliance with 10 CFR 72.24(d) and 10 CFR 72.120.

Calvert Cliffs Response:

a. A thermal fatigue analysis for the DSC was submitted in Appendix B of our original submittal of September 17, 2010. The thermal analysis is identified as AREVA calculation 10955-0202, "DSC Fatigue Analysis for NUHOMS-24P and NUHOMS-32P."

b. The purpose of the HSM is to store irradiated spent fuel storage casks. The existing HSMs installed at Calvert Cliffs are designed to store a NUHOMS-24P DSC and a NUHOMS-32P DSC. The 32P cask has the same outer dimensions as the 24P cask, however, the 32P cask is somewhat heavier. The HSMs are constructed in units of 12 configured in a 2 x 6 array. Inside each HSM unit is a structural steel DSC support structure that is anchored to the HSM concrete. The support structure includes rail beams, transverse beams, and a seismic restrainer. The HSM support structure consists of two rail- beam assemblies, each at 30 degrees from the vertical center line of the DSC. Each rail beam has three supports. The first support is that the front end of the rail beam is supported by the concrete front wall of the HSM. The other two supports consist of two transverse beams which sit on supports that are anchored into the concrete side walls. While the concrete wall is an unyielding support, the two transverse beams are elastic supports.

   The connections between the concrete structure and the steel support structure (comprised of the rails and the transverse rails) are designed such that the rail beam and transverse beam are free to grow in the axial and lateral directions when subjected to thermal loads. The thermal load analysis of the support structure was performed for three load cases (Normal, Off-Normal, Accident Blocked Vent) in Reference 1. The maximum temperature for normal and off-normal conditions inside the HSM are 181°F and 224°F, respectively.

   From Reference 1, the maximum DSC surface temperature for the off-Normal condition calculated to be 355°F and the blocked vents accident level surface temperature for the DSC is 543°F. Conservatively for the DSC support steel the design temperature will be considered to be 400°F for off-normal condition. The DSC support steel used in the HSM is A36 steel that the yield stress for the steel at 400°F is 30.8 ksi.

   Reference 1 shows the moment due to thermal expansion is 143 kip-in and the maximum tensile stress is 9.52 ksi for the cross members which is much less than the yield stress (30.8 ksi) assumed in

the design basis off-normal condition (T = 400°F). In fact, it is also significantly below the value obtained when a 50% usage factor (representing the effect of aging) is applied to the yield stress value. Therefore, we conclude that the forces and moments induced in the rail beams due to thermal loads as a result of free thermal growth of the cross beams in the transverse direction, are insignificant.

Because of the contact between the DSC stored in the HSM and the support rails, the rail temperature will always closely equal the DSC shell temperature. Since the DSC shell temperature will decrease in time, because the decay heat within the DSC reduces monotonically as a function of time, the rail temperature will also decrease. This will result in a subsequent reduction for the maximum tensile strength and the shear strength for the cross members during the 60-year storage life. In fact, all of the rail member's shear, bending, and combined axial and bending stresses will decrease during the storage life.

Reference 2, Section 8.2.10.6 documents the analysis of thermal cycling experienced by an HSM during a 50-year storage life. Using it's assumption of one thermal cycle per day would therefore equate to 21,900 thermal cycles during a 60-year storage life. However this value is overly conservative. For Calvert Cliffs, the air temperature rise from the HSM inlet to the HSM outlet is limited by Technical Specifications to be less than or equal to 64°F. This relatively low temperature fluctuation, combined with the low maximum tensile stress discussed above, which is much less than one half of its yield stress, demonstrates that the assumption of one thermal cycle per day is extremely conservative. Given the climate conditions at Calvert Cliffs, it is more realistic to assume that the thermal effects resulting in stress reversal will only occur during the spring and fall seasons. During the winter the rail assemblies will only experience tension, while in the summer they will only experience compression. Therefore, the fatigue analysis can be revised to reflect that a thermal cycle is only experienced during half the days of the year. Using this assumption the expected thermal cycles to be experienced during the 60-year storage life can be calculated as follows:

183 days/year that experience a thermal cycle x 1 thermal cycle/day x 60 years = 10,980 cycles

This value is well below the American Society of Mechanical Engineers code requirements of thermal fatigue for components with greater than 20,000 cycles. Therefore, since there is no fatigue caused by the thermal cycling during a 60-year service life, thermal cycling is evaluated as having negligible impact on the rails for the requested 60-years of service.

REQUEST FOR SUPPLEMENTAL INFORMATION 3:

Provide corrective action procedures, applicable corrective actions, and applicable 10 CFR 72.48 changes related to the scoped systems, components, and structures of the ISFSI license renewal.

Corrective action sections were briefly mentioned on page A-3, A-4 etc. of the application. Per NUREG-1927 (section 1.4.4, 3.6.1.3), corrective action procedures, corrective actions that have been implemented, and 10 CFR 72.48 changes related to the scoped items of the ISFSI license renewal should be provided as part of a complete application.

This information is required to evaluate compliance with 10 CFR 72.120.

Calvert Cliffs Response:

Calvert Cliffs ISFSI corrective action program is defined in Constellation Energy Nuclear Group Fleet Administrative Procedure CNG-CA-1.01-1000, Corrective Action Program. This procedure defines the

process used to identify, document, evaluate, correct, and trend conditions at Calvert Cliffs ISFSI. A copy of CNG-CA-1.01-1000, Rev. 00400, is provided in Enclosure 1.

A review of all ISFSI related CRs was performed. The review showed that there were only two CRs that involved corrective actions taken in regards to age degradation/corrosion effects of scoped ISFSI SSC. However only one of the two, CR IR3-028-233, dealt with corrosion effects associated with aging management issues. Per Calvert Cliff memo dated January 31, 2000, this degradation was evaluated by metallurgical engineers and was found to be unrelated to that type of corrosion contributing to the overall aging of the ISFSI structure. The two CRs are:

Transfer Cask	
CR-2010-010056	While prepping transfer cask for ISFSI move #64 discovered several gouges in canister interior.
Horizontal Storage Module (HSM)	
IR3-028-233	Structural bolting material and clip angle inside ISFSI horizontal storage module #048 is exhibiting signs of corrosion (paint has fallen off and heavy rust is present in areas).

Enclosure 2 contains the CR and applicable corrective actions taken in regards to the above CRs.

The review also showed 10 CRs involving scoped ISFSI SSCs that involved issues that were not associated with the type of aging degradation that is monitored under the aging management program at Calvert Cliffs. Those CRs and a description of the issues are listed below.

Horizontal Storage Module (HSM)	
IR3-046-040	Generate a Rep Task to inspect the bolting and weldments inside a Phase 1 ISFSI HSM. This first inspection is to be in 2027. That inspection will determine the frequency.
IR1-054-104	Generate a Rep Task to have ME&IU inspect the ISFSI HSMs for exposed rebar in April of every year.
IR3-058-556	ISFSI HSM-3A & 3B have surface discontinuities in the concrete around the DSC cask restraints.
IR3-033-810	The concrete roof slab for ISFSI HSM-3A Modules 1, 2 & 12 have apparent hairline cracks that propagate from the exposed roof slab through to the ceiling inside the HSM cell. These cracks are normal due to concrete shrinkage.
CR-2009-003634	ISFSI HSM Module #42 expansion joint degraded.
IRE-022-449	While performing the ISFSI HSM structure walkdown, two items were discovered; a large area has spalled off the HSM above Door #45; a large section of the concrete slab in front of HSM #42 is cracked and rising up.
IRE-000-318	While performing the ISFSI HSM structure walkdown two items were discovered. A large area has spalled off the HSM above Door #46. A large section of the concrete slab between HSM's 30 & 31 is cracked and rising up.
CRASH PAD	
IR4-023-659	While removing hoses from crash pad for upcoming ISFSI work, the hose separated due to deterioration. Notified R.P. Supervisor of incident and resolution is being discussed currently.

HOIST	
IR0-040-867	Found cable damaged and also found travel stops damaged on ISFSI 10 ton hoist.
ISFSI SLAB	
IR5-008-284	Two cracks found in the ISFSI yard concrete slab. Both are located adjacent to construction joints and are in the pathway for the ISFSI transfer cask. The first crack, which is about 15' long, is south of the empty HSM #42 and runs to Catch Basin #8. Second crack which is about 14' long is west of empty HSM #25 near the fence.

For all other ISFSI related CRs that did not involve scoped SSCs of the ISFSI license renewal, in Enclosure 3 we have provided a representative listing of CRs and their description equal to 10% of the total CR population.

Enclosure 4 contains a CD that includes the safety evaluations for the 10 CFR 72.48 evaluations performed for the Calvert Cliffs ISFSI.

REQUEST FOR SUPPLEMENTAL INFORMATION 4:

Provide historic radiation survey data for the CCNPP ISFSI.

The Calvert Cliffs ISFSI Updated Safety Analysis Report (USAR) (rev. 12) discusses area radiation and airborne radioactivity monitoring instrumentation (page 7.3-2). Provide historic radiation survey data of the area surrounding the ISFSI as discussed in NUREG-1927 (page 24). Per NUREG-1927, assessing the trend of historical measures will aid in determining the condition of shielding and confinement/containment. As mentioned in the CCNPP ISFSI renewal application (page E-25), similar information will be recorded during the renewed license period.

This information is required to evaluate compliance with 10 CFR 72.126.

Calvert Cliffs Response:

The Annual Radiological Environmental Operation Report that is submitted to the Nuclear Regulatory Commission each year, describes the radiation monitoring program for the ISFSI, and provides a source of information that can be used for trending dose in the vicinity of the ISFSI. A summary of the average annual thermoluminescent dosimeter (TLD) doses for the Calvert Cliffs ISFSI for the period from 1991 to 2005 can be found in Table 4.5-4 of Reference 3 (the first two years are prior to the start of ISFSI operation and are included as a control). In general, this information shows that annual fence line gamma doses have steadily increased as the number of loaded modules has increased. As a result, the fence line TLDs are not expected to represent a very useful parameter for aging management until loading operations have ceased, after which it would be expected that TLD doses would begin to gradually decrease.

A more localized source of dose rate information that can be used to assess possible degradation of shielding in specific modules are the dose rate surveys performed in the vicinity of each module on a periodic basis. Copies of these representative surveys are included in Enclosure 5. Trending of the dose rates observed outside of each module from these surveys does not indicate any significant jumps in dose rates indicative of aging degradation. They generally show a gradually decreasing trend for modules that have been loaded for many years as expected due to radioactive decay of the source within. Collection and trending of this data will continue during the period of extended operation as an additional means of aging management for the ISFSI facility.

REQUEST FOR SUPPLEMENTAL INFORMATION 5:

Provide justification that originally backfilled helium remains within the spent fuel canisters during the extended license period,

The helium within a canister ensures cooling of the spent fuel and prevents oxidation of the spent fuel cladding. Considering the 40-year license renewal time period beyond the current 20-year license period, the staff is required to evaluate the justification that the canisters will maintain the required design basis helium throughout the license renewal period.

This information is required to evaluate compliance with 10 CFR 72.120(d), and 10 CFR 72.122(a.1).

Calvert Cliffs Response:

Calvert Cliffs' DSCs do not use any mechanical seals to form the pressure boundary between the DSC top and the DSC cylinder body. Instead Calvert Cliffs employs the use of multiple separate seal welds to ensure pressure boundary integrity is maintained. The process used at Calvert Cliffs is that after spent fuel is placed into the DSC, the shield plug is seal welded to the DSC. Then after helium is backfilled into the DSC, the DSC vent and siphon port opening and the top cover plate are seal welded to the DSC canister. These seal welds are installed using safety-related materials in accordance with safety-related procedures. The seal welds are then tested for leakage to ensure leakage is less than the Technical Specification limit of 10-4 atm-cc/sec. These steps give us high confidence that the integrity of the DSC is more than adequate to maintain the helium environment for the entire license renewal period. Calvert Cliffs is not aware of any credible normal, off normal or accident conditions of storage that would impact the helium environment. The use of the double seal welded closure was one reason listed in Reference 4, Attachment (1), Section 3.3.5 as to why we evaluated there were no aging effects for the DSC that required aging management.

REFERENCES

1. CA06364 (TN calculation #1095-36), "NUHOMS32P – CCNP ISFSI HSM Facility Evaluation," 2004
2. Topical Report for the NUTECH Horizontal Modular Storage System for Irradiated Nuclear Fuel NUHOMS-24P, Revision 1A, 1990
3. Unistar Nuclear - Calvert Cliffs Power Plant Unit 3 COLA (Environmental Report), Rev. 6 - Chapter 04 - Impacts of Construction - Sections 04.01 through 04.07 (ADAMS accession number ML092880913)
4. Letter from Mr. G. H. Gellrich (CCNPP) to Document Control Desk (NRC), dated September 17, 2010, Site-Specific Independent Spent Fuel Storage Installation (ISFSI) License Renewal Application

ENCLOSURE 1

CNG-CA-1.01-1000, Rev. 00400, Corrective Action Program

Calvert Cliffs Nuclear Power Plant, LLC
February 00, 2011

CENG

a joint venture of

Constellation Energy EDF

Constellation Energy Nuclear Group
Fleet Administrative Procedure

CNG-CA-1.01-1000

CORRECTIVE ACTION PROGRAM

Revision 00400

This Procedure is EXEMPT from 10 CFR 50.59 / 10 CFR 72.48 Reviews

Tech Spec Related

INFORMATION USE

Applicable To:

- ☒ **Calvert Cliffs Nuclear Power Plant, Units 1 and 2**
- ☒ **Nine Mile Point Nuclear Station, Units 1 and 2**
- ☒ **R.E. Ginna Nuclear Power Plant**
- ☒ **Corporate Offices of CENG**

Procedure Owners Group: Performance Improvement

SUMMARY OF ALTERATIONS

Revision	Change	Summary of Revision or Change
004	00	Minor Change to Incorporate PCR 2010-0364 Section 5.2.H & I – Added statements for supervisor reviews per CNG-HU-1.01-1000, Human Performance. Section 5.18 - Added new section for performing Procedure Compliance Review Reports Minor Change to Incorporate PCR 2010-0450 Section 3.13 – Deleted parenthetical phrase (root and contributing) from definition. Section 4.8.B – Changed "Identifies" to "Records" Section 4.12.A – Deleted the last sentence. Section 5.2.H – Reworded to add "the supervisor will ensure a prompt investigation is initiated if caused by an HU error". Section 5.4.A.2 - Changed "Identifies" to "Records" Section 5.9.F – Added to the end of the 1st sentence "for all actions linked to CAPRs, preventive actions and corrective actions for Category 1 and 2 condition reports. Section 5.13.A – Added a sentence to the end of the paragraph and reformatted paragraph.

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1.0 INTRODUCTION

1.1. Purpose

A. This procedure provides the requirements of the Constellation Energy Nuclear Group (CENG) Corrective Action Program (CAP). The purpose of the CENG CAP is to identify, document, evaluate, correct and trend conditions and events, including actions to prevent recurrence based on the significance of the condition.

B. The CENG CAP provides an important process to improve plant safety, improve plant reliability, improve equipment reliability, improve plant performance, help prevent events and promote continuous improvement through organizational learning.

1.2. Scope/Applicability

A. The CAP includes processes for the following:

1. Identifying and reporting conditions to be evaluated, corrected, and tracked to resolution.
2. Ensuring that conditions identified are reviewed for significance and categorized based on the risk to nuclear safety.
3. Investigating and establishing causes for conditions based on the risk to nuclear safety.
4. Establishing organizational responsibility for performing, tracking, and verifying completion of corrective actions as required by approved procedures to resolve conditions adverse to quality.
5. Establishing expectations and a consistent methodology for identifying precursors and trends, with the goal of improving station performance, by using trends for causes as well as events.
6. This procedure and its associated procedures apply to all activities and programs at the CENG stations that potentially affect plant safety and reliability.
7. This procedure applies to all activities or conditions that prevent or could prevent achievement of organizational goals at CENG.
8. This procedure controls the categorization and resolution of condition reports (CRs). Resolution of condition reports closed or categorized to work orders (WOs) are controlled by the Maintenance Procedure Hierarchy.

2.0 REFERENCES

2.1. Developmental References

A. 10 CFR 50 Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants, Criterion XVI

B. NRC Regulatory Guide 5.73, Fatigue Management Programs for Nuclear Power Plants Personnel, March 2009

C. NRC Inspection Procedure 95002, Inspection for One Degraded Cornerstone or any Three White Inputs in a Strategic Performance Area

D. NRC Regulatory Issue Summary (RIS) 2005-20, Revision to NRC Inspection Manual Part 9900 Technical Guidance (formerly contained in NRC Generic Letter 91-18); Operability Determinations & Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety

E. NRC Regulatory Issue Summary (RIS) 2006-13, Information on the Changes made to the Reactor Oversight Process to more fully address Safety Culture, August 2006

F. INPO Principles for Effective Self-Assessment and Corrective Actions Programs, December 1999

G. INPO 05-005, Guidelines for Performance Improvement at Nuclear Power Stations, August 2005

H. INPO 07-007, Performance Assessment Trending: General Practices for Analyzing and Understanding Performance, December 2007

I. INPO 98-001, Equipment Performance and Information Exchange System (EPIX) Reporting Requirements, Revision 9 February 2010

J. INPO AP-928, Work Management Process Description, November, 2003

K. NEI 06-11 Rev 1, Managing Personnel Fatigue at Nuclear Power Reactor Sites, October 2009

L. CGG-CA, Corrective Action Policy

M. CENG Quality Assurance Topical Report (QATR)

N. CNG-CA-1.01, Corrective Action and Performance Improvement Program

2.2. Performance References

A. CNG-AM-1.01-1000, Equipment Reliability Process

B. CNG-AM-1.01-1023, Maintenance Rule Program

C. CNG-CA-1.01-1001, Management Review Committee

D. CNG-CA-1.01-1003, Performance Improvement Coordinators

E. CNG-CA-1.01-1004, Root Cause Analysis

F. CNG-CA-1.01-1005, Apparent Cause Evaluation

G. CNG-CA-1.01-1007, Performance Improvement Program Trending and Analysis

H. CNG-CA-1.01-1010, Use of Operating Experience

I. CNG-CA-2.01-1000, Self Assessment and Benchmarking Process

J. CNG-HU-1.01-1000, Human Performance

K. CNG-OP-1.01-1002, Conduct of Operability Determinations/Functionality Assessments

L. CNG-OP-1.01-1004, Plant Operations Review Committee (PORC) / Qualified Reviewer (QR)

M. CNG-NL-1.01-1004, Regulatory Reporting

N. CNG-NL-1.01-1005, 10 CFR 21 Screening, Evaluation, and Reporting

3.0 DEFINITIONS

3.1. Apparent Cause Evaluation (ACE)

An analysis to determine the most probable cause of a problem based on readily available information. An ACE is required for each Category 2 condition report. There may be more than one apparent cause for an issue.

A. A Tier 1 ACE is a higher tier evaluation and requires the following sections:

- Description of Issue
- Analysis (which includes organization and programmatic weakness discussions)
- Extent of Condition
- Extent of Cause
- Safety Culture Attribute Evaluation
- Safety Significance
- Operating Experience (OE)
- Corrective, Preventive, and Compensatory Actions
- Trend Codes
- Equipment ACE Template is required for all equipment issues

B. A Tier 2 ACE is a lower tier evaluation and requires the following sections:

- Description of Issue
- Analysis (which usually identifies a process or program issue)
- Extent of Condition
- Corrective, Preventive, and Compensatory Actions
- Trend Codes
- Equipment ACE Template is required for all equipment issues

3.2. Condition Report (CR)

A report used to document conditions that require correction, improvement or management attention, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances. Condition reports are also used to document near misses, concerns, undesirable conditions, departures from specified requirements or expectations, non-consequential events or potential issues needing further investigation or analysis, and to capture gaps to industry standards.

3.3. Category

The significance level (1 through 4) assigned to condition reports based on the risk significance, uncertainty and consequence of the condition. Category 1 is the most risk significant/consequential and Category 4 is the least risk significant/consequential.

3.4. Condition Adverse to Quality (CAQ)

An issue or a condition which compromises or reduces confidence that a structure, system, or component will perform satisfactorily in service. An inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, and nonconformances.

3.5. Compensatory Action

Action taken to reduce the risk of an adverse condition prior to implementing permanent corrective actions or corrective actions to prevent recurrence (CAPRs). Compensatory actions may be put in place immediately or they may be put in place after the causal analysis is done while waiting on implementation of corrective actions and CAPRs.

3.6. Corrective Action (CA)

Actions intended to correct immediate issues and those intended to correct adverse conditions.

3.7. Corrective Action to Prevent Recurrence (CAPRs)

An action intended to correct the cause(s) of a condition and thereby preclude repetition, or to place barriers in place which can mitigate the consequences of the condition should it recur. CAPRs apply only to Category 1 condition reports.

3.8. Date of Discovery

This is the date that an event occurred or the date that a problem was first identified.

3.9. Effectiveness Review

A review performed to ensure that corrective action(s) were implemented as specified, are still in effect, and the condition was effectively corrected. Effectiveness reviews are required for all corrective action(s) to prevent recurrence (CAPRs).

3.10. Enhancement

An action taken to improve a situation or condition. This action would not have prevented the event or incident.

3.11. ePIC (Electronic Performance Improvement Center)

Constellation's fleet standard database for performance improvement activities including; the Corrective Action Program, Self Assessment Program, Benchmarking Program, Operating Experience (OE), Trending, Observation Program, and Non-CAP Action Item Tracking Program.

3.12. Equipment Performance and Information Exchange (EPIX)

The INPO EPIX is a database designed to improve nuclear station performance by sharing failure, reliability and OE information on components that are important to nuclear station safety and reliability.

3.13. Extent of Cause

The extent to which the causes of an identified problem have impacted or may have impacted other processes, equipment, or human performance (HU).

3.14. Extent of Condition

The extent to which the actual condition exists or could exist with other plant processes, equipment, or HU.

3.15. Functional or Functionality

Functionality is an attribute of Structure, System or Component (SSC) that is not controlled by Technical Specifications. An SSC shall be functional or have functionality when it is capable of performing its specified function as set forth in the Current Licensing Basis (CLB). Functionality does not apply to specified safety functions, but does apply to the ability of non-Technical Specification SSCs to perform required support functions.

3.16. Long-Term Corrective Action (LTCA)

To be classified as a LTCA, the required completion time is projected to exceed 180 days from the date of discovery and one or more of the following criteria must be met (for which the Plant General Manager (PGM) is responsible for monitoring):

A. A plant outage is required to implement corrective actions.

B. Long lead-time to manufacture/procure parts.

C. A design change per applicable station design change process is required.

D. The Technical Review Board (TRB), Plant Health Committee (PHC), Plant Review Committee (PRC) process rejects authorization of funds in the current fiscal year.

E. Training that will take multiple cycles to complete.

F. Action that is dependent upon a licensing submittal which requires response/approval from the regulator.

G. Significant programmatic change is required.

H. If completion in less than 180 days contradicts work management prioritization according to the station's procedural implementation of AP-928, Work Management Process Description.

3.17. Maintenance Rule Functional Failure (FF)

An unintended event or condition such that an SSC within the scope of the rule is not capable of performing its intended function.

3.18. Maintenance Preventable Functional Failure (MPFF)

A Maintenance Rule Functional Failure (FF) where cause is attributable to maintenance related activities.

3.19. Mode Restraining Condition Report

An issue or material condition that restrains the plant from entering a specific operating mode. Mode restraints are usually associated with inability to comply with Technical Specification Limited Condition of Operation (LCO's) and surveillances. Mode restraints may include regulatory issues such as NRC acceptance of core reload analysis, compliance with ANS/ASME codes, or other issues that could affect plant startup.

3.20. Nonconformance

Any nonconforming item or nonconforming condition.

3.21. Nonconforming Item

A safety-related/safety significant material, part, or component whose quality is unacceptable and/or indeterminate due to a deficiency in characteristic, documentation, or procedure.

3.22. Nonconforming Condition

A condition of a structure, system, or component in which there is a failure to meet requirements or licensee commitments.

3.23. Operability

NOTE

- For NMP Unit 1, the definition of operability contained in the NMP Unit 1 Technical Specification supersedes this definition.
- Operability does not apply to corporate instance of ePIC.

A system, subsystem, train, component, or device shall be operable or have operability when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

3.24. Operability Determination (OD)

NOTE

Operability Determination does not apply to corporate instance of ePIC.

The process of completing an examination of an apparent degraded, nonconforming, or unanalyzed condition that raises a question of an SSC's availability to perform its specified safety function, including its long-term capability. For further definitions and processes refer to CNG-OP-1.01-1002, Conduct of Operability Determinations/Functionality Assessments.

3.25. Preventive Actions

Actions taken to preclude repetition of conditions. These actions are created to resolve the contributory causes in root cause evaluations and apparent cause in ACEs.

3.26. Root Cause

The most fundamental reason(s) for an event or condition which if corrected will prevent recurrence of the event or condition.

3.27. Significant Condition Adverse To Quality (SCAQ)

A condition adverse to quality (CAQ) shall be considered significant (a significant condition adverse to quality or SCAQ) when the condition, if uncorrected, could affect the health and safety of the public, seriously affect ability to operate the plant in a safe manner, represents a serious breakdown in programmatic controls, or will require a major effort to restore capability to perform specified functions.

3.28. Sponsor

An individual who provides management oversight. Sponsorship is as follows:

- Managers sponsor Category 1 issues
- Managers, General Supervisor, Directors, Supervisors, or Direct Reports to Managers sponsor Category 2 issues
- Supervisors and above sponsor Category 3 issues

4.0 RESPONSIBILITIES

4.1. Performance Improvement Working Group

A. A team of Station and Fleet Performance Improvement Directors that oversee the identification, development and implementation of the CAP.

4.2. Senior Management (CNO/Site Vice Presidents/Plant General Managers)

A. Fosters a work environment that encourages timely reporting of potential actual problems and improvement items.

B. Manages the CAP, including the establishment of requirements for monitoring, trending, reporting and periodic self assessment of the overall status of the program.

C. Ensures that adequate resources are devoted to the implementation of CAP processes including timely and accurate identification of issues and issue resolution.

D. Ensures the implementation of procedures and processes for identifying, documenting, evaluating and correcting SCAQ and CAQ.

E. Communicates clear expectations and standards for use of CAP.

F. Provides a process for determining operability status of equipment when operability concerns are raised.

G. Ensures causal analyses are performed to identify underlying causal factors related to Category 1 and 2 condition reports.

4.3. CR Screening Committee

NOTE

For the corporate application, the Director - Fleet Performance Improvement or Designee, conducts screening.

A. Reviews condition reports to ensure that the assigned department, category level, trend codes, key words and other supplied information on the condition report are appropriate.

4.4. Management Review Committee (MRC)

NOTE

Details of the MRC function and responsibilities are provided in CNG-CA-1.01-1001, Management Review Committee.

A. The purpose of the MRC is to provide a significant venue for senior managers to demonstrate commitment to CAP excellence. The MRC promotes behaviors throughout the organization that support effective problem identification, quality cause evaluations, corrective action tracking, timely issue correction, and trending.

4.5. Department Managers/Directors/General Supervisor/Principal Engineers/Manager Direct Reports

A. Maintains effective use the CAP process in their area of responsibility.

B. Ensures the timely and effective acceptance and completion of CAP assignments and documentation, including causal analysis, corrective actions and effectiveness reviews.

C. Clearly communicates to personnel in their departments the expectations for use of the CAP, including:

1. Requirements to identify and report events/conditions.
2. Ensures condition investigations and causal analysis meet procedural requirements per CNG-CA-1.01-1004, Root Cause Analysis and CNG-CA-1.01-1005, Apparent Cause Evaluation.
3. Ensures corrective action identification includes CAPRs for Category 1 conditions.
4. Ensures timely completion of causal analysis and corrective actions balanced with the level of emphasis and effort commensurate with the safety, risk, or reliability significance of the corrective action activity such that higher levels of severity receive higher attention and resolution.
5. Ensures trend codes are applied to causes and events.
6. Ensures that the corrective actions identified have been agreed upon and are being tracked.
7. Ensures personnel are adequately trained to perform the assigned function.

4.6. CR Reviewing Supervisor

A. Supervisor review ensures the adequacy of immediate corrective actions and ensures that Operations is informed of conditions that potentially affect the operability of safety-related SSCs and components that might require reporting to external organizations.

B. Specifically, the duty of the supervisor review is to check the condition report for appropriateness, completeness, technical accuracy and:

1. Evaluates the effect of continuing the activity. If continuing an activity would obscure or preclude identification and correction of a deficiency, or would increase the extent of the deficiency, or lead to an unsafe condition, the activity shall be stopped.
2. Ensures immediate actions taken are appropriate and if necessary, controls are applied to prevent inadvertent use or installation.
3. If the reviewing supervisor determines that the condition adverse to quality requires immediate action (for example, an immediate personnel/equipment safety concern, operability concern, reportability concern, or trip concern exists) he/she or the initiator shall immediately notify the Shift Manager/Control Room Supervisor or Work Execution Control/Work Control Center (WEC/WCC).
4. Clarifies any ambiguous or inaccurate information and provides any missing information by reworking the condition report back to the initiator with appropriate comments.
5. Fitness for duty issues should be considered by the supervisor for all HU, near miss and industrial injuries.
6. Initiates corrective actions as necessary to track recommended actions, including necessary compensatory or interim actions and other actions that need to be completed quickly and appropriate quarantine measures taken. **[FB0310]**

4.7. CR Sponsor

NOTE

Sponsors shall establish accountability and apply effective oversight to each step of the CAP process.

A. Accepts overall responsibility and is directly involved in the resolution of conditions within or affected by their business function.

B. Reviews and approves corrective action closure documents and extension requests.

C. Ensures closure documentation is attached in ePIC.

D. Ensures evaluations, extensions, corrective action resolutions, and closures are completed per Attachment 4, Corrective Action Processing Summary.

4.8. Operations Maintenance Coordination (OMC)

A. Reviews all condition reports to determine if they are hardware issues, programmatic issues or both.

B. Records if a mode restraint is warranted.

4.9. Operations

A. The SRO evaluates condition reports for reportability, functionality and operability within 24 hours of receipt. The Shift Manager will ensure required notifications are made to regulatory agencies.

B. Evaluates effect on plant operation and initiates compensatory action as required.

C. Identifies if a mode restraint is warranted.

4.10. Director - Performance Improvement [FB0302]

A. Provides management oversight and direction to the station Performance Improvement Coordinator (PIC) and CAP Staff.

B. Ensures the effective and efficient implementation of the CAP process is carried out in accordance with the requirements of this procedure.

C. Ensures that the screening of condition reports are performed.

D. Facilitates management discussion of CAP activities and results to discern station level issues and strengths.

E. Provides timely and accurate reports to management on the status of the CAP process.

F. Coordinates and develops CAP training, as requested, and identifies CAP training needs.

G. Ensures effective and efficient processing of condition reports.

H. Develops, maintains and monitors CAP performance indicators.

4.11. Station PICs

A. Leads the team meetings of PICs for periodic reviews of CAP trends and self-assessment results.

B. Facilitates management discussion of CAP activities and results to discern station level issues and strengths.

C. Provides oversight of the station trending database and identifies station cross-cutting trends.

D. Leads the team meetings for screening of condition reports.

4.12. Department PICs

NOTE

Details of the PIC function and responsibilities are provided per CNG-CA-1.01-1003, Performance Improvement Coordinators.

A. Reviews condition reports to ensure that the assigned department, category level, trend codes, key words and other supplied information on the condition report are appropriate.

B. Participates in screening meetings of condition reports, as required.

C. Assigns condition types, evaluation type and trend codes to all condition reports at pre-screening in support of CNG-CA-1.01-1007, Performance Improvement Program Trending and Analysis.

D. Performs technical/administrative review of Category 1 and 2 condition report causal analyses and associated resolution documents, and Category 3 documentation as requested. Reviews are performed in accordance with the criteria provided in the applicable procedures.

E. Provides guidance to their department on the use of the ePIC application.

4.13. CENG Employees and Supplemental Workers

A. All individuals have a responsibility to identify and document conditions that require correction, improvement or managerial attention and to initiate condition reports in accordance with Attachment 2, Condition Report Threshold Guidance.

5.0 PROCESS

5.1. Initiation of Condition Reports

A. A condition report shall be initiated following the initiation threshold criteria described in Attachment 2, Condition Report Threshold Guidance whenever an individual identifies an event, condition or problem.

1. If the initiator determines that the condition requires immediate action (for example, an immediate personnel or equipment safety concern, operability concern, reportability concern, reactivity management, or trip concern exists), the initiator shall immediately notify his or her immediate supervisor or an appropriate level of supervision (or management) in the affected organization and Operations. **[FB0291] [FB0301] [FB0303]**

2. The individual or the reviewing supervisor shall immediately notify Operations of any condition that requires immediate action.

B. If the initiator desires confidentiality, contact the Employee Concerns Coordinator (ECP) or the Nuclear Hotline. **[FB0301]**

C. When corporate personnel identify issues which may potentially impact any of the CENG nuclear stations, these issues will be entered into the applicable plant/station condition report database(s).

D. When corporate or station personnel identify issues that are common to the fleet and are not SSC related, these issues will be entered in the corporate ePIC database.

E. For Security related condition reports:

1. Do not include details that may reveal safeguards information.

2. Inform Security Shift Supervisor to support implementation of expedient compensatory measures and review for reportability, as necessary.

F. If the issue is discovered by someone outside the organization (Quality Assurance, INPO, NRC, Code Inspector) this group should be identified in the condition report.

5.2. Supervisor Reviews

A. The supervisor will complete the supervisor task by the next business day following the receipt of the electronic condition report.

B. The supervisor shall document the logic used to recommend why the item is still operable, or not operable, or confirm that the initiator's documentation is sufficient. Further guidance is provided per CNG-OP-1.01-1002, Conduct of Operability Determinations/Functionality Assessments.

C. If the initiator designated an operability concern, but the reviewing supervisor recommends it is not an operability concern, the reviewing supervisor shall detail the basis for recommending that it is not an operability concern in ePIC.

D. The supervisor shall determine if the condition warrants further review per CNG-HU-1.01-1000, Human Performance, to determine if clock reset criteria applies.

E. Ensures the condition report is immediately discussed with the Shift Manager if they suspect an operability, reportability, immediate safety concern, or potential trip concern.

F. For corporate application, if any condition identified in Step 5.2.E is discovered; the condition report shall be cancelled in the corporate instance and entered into the appropriate licensee instance of ePIC.

G. For corporate application, the supervisor conducts both the Operations review of operability/reportability and the OMC review. This is done since issues affecting operability or reportability affecting an SSC are not controlled in the corporate instance of ePIC and no data is transferred.

H. The supervisor will ensure a Prompt Investigation per CNG-HU-1.01-1000 is initiated, if the condition was caused by a HU error.

I. The supervisor may initiate a Procedure Compliance Review Report per CNG-HU-1.01-1000, if the supervisor determines that the procedure noncompliance event requires additional evaluation.

5.3. Operations Review of Operability/Reportability

A. A SRO qualified on the affected unit will review the condition report within 24 hours of receipt and ensure that appropriate actions are taken (including immediate compensatory actions and determination of operability, functionality, and reportability) as required by the situation and by applicable fleet and station procedures. **[FB0304]**

B. Actions taken must be documented on the condition report.

C. Operations shall review all condition reports. The review shall be conducted by a SRO on the operating shift crew.

D. For corporate application, the supervisor conducts this review since issues affecting operability or reportability affecting an SSC are not controlled in the corporate instance of ePIC.

5.4. Operations Maintenance Coordination (OMC)

A. The OMC or alternate (including an individual who must hold or have previously held a SRO license), shall perform the following:

1. The OMC initiates a WO for all equipment related deficiencies or if troubleshooting is required.
2. Records if a mode restraint is warranted.

B. For corporate application, the supervisor completes this function since no data is applicable.

5.5. Screening and Coding

A. A member of the quorum will be selected to chair the committee.

B. Quorum is defined as Performance Improvement, Maintenance, Operations, Radiation Protection or Chemistry, and Engineering.

C. The Screening Committee's review of condition reports are normally held each business day. The Screening Committee evaluates the consequences, actions taken and risks associated with condition reports and recommends a category level on a scale of 1 to 4 (highest significance to lowest significance). Attachment 3, Condition Report Categorization Criteria provides additional guidance. Attachment 7, Condition Report Programmatic Criteria provides guidance when a hardware condition type should be categorized as programmatic.

D. A graded approach to Category 2 condition reports will be used by assigning the ACE to be either a Tier 1 or Tier 2.

1. These evaluations will utilize the templates provided per CNG-CA-1.01-1005, Apparent Cause Evaluation.
2. The Screening Committee shall recommend the appropriate Tier for an ACE subject to the approval by the MRC. Selection of the Tier is based on Attachment 3, Condition Report Categorization Criteria.

E. Condition reports are screened and coded for level of identification (self-identified or self-revealing).

F. Condition reports are flagged for additional review as defined below:

1. PORC for those conditions specified in 10 CFR 50.73, or as assigned by the Screening Committee.
2. Licensing concurrence of evaluation for conditions specified in 10 CFR 50.73 or other required regulatory report and closure approval required for conditions identified as a result of inspection activities (non-cited violations, findings violations).
3. PHC for Maintenance Rule (a)(1) Evaluations.
4. RCA evaluations and corrective action closures are flagged for MRC review.
5. RCAs and ACEs for condition reports initiated as a result of a QPA Finding are flagged for QPA review on the evaluation and closure.

G. Additional reviews are designated at or after condition report screening. Additional reviews may include any of the following: Plant Operational Review Committee, Quality Performance Assessment (QPA), Human Performance Review Board, Safety Review Board, and/or Licensing.

H. If additional reviews are required per Step 5.5.I they must be completed at the designated process steps (that is evaluation and closure) before the condition report can progress to the next process step.

I. The Performance Improvement Unit (PIU) will flag condition report evaluations and closeout requirements performed by the MRC.

J. Independent of the Screening Committee, the Maintenance Rule Coordinator shall make determinations concerning the necessity for Maintenance Rule Evaluation and EPIX Reportability per INPO 98-001. If during the course of screening a Category 3 or 4 condition report for Maintenance Rule applicability, the Maintenance Rule Coordinator becomes aware that the condition report involves a Maintenance Rule Functional Failure (FF) or meets the requirements for EPIX reportability then the Maintenance Rule Coordinator shall ensure the condition report is reworked to the Screening Committee for reclassification to a Category 2 ACE. For EPIX reportability, the EPIX Reportability check box is appropriately marked in the ePIC Maintenance Rule Screen per CNG-AM-1.01-1023, Maintenance Rule Program.

   1. Attachment 8, CDE/EPIX Reporting Critical Component failure outlines the AP-913, Equipment Reliability causes that are applied to EPIX failure reporting.

K. MRC or Screening Committee may cancel a condition report if:

   1. A condition report does not meet the Attachment 2 threshold criteria or does not identify a deficiency.

L. If a condition report is considered a duplicate, the active condition report number shall be tied to the duplicate condition report to allow the initiator of the duplicate to progress the completion of the condition report.

M. For corporate application, the supervisor conducts the pre-screening function using the preceding as guidance. The screening function is conducted by the Fleet PIU.

5.6. MRC Review and Assignment of CRs

NOTE

Details of the MRC function and responsibilities are provided per CNG-CA-1.01-1001, Management Review Committee.

A. MRC review of condition reports are normally held each business day per CNG-CA-1.01-1001, Management Review Committee.

B. Category 1 condition report evaluations are due:

   1. Sponsor approval within 30 days.

   2. MRC approval within 45 days.

C. Category 2 and 3 condition reports will be permitted 30 days or less for an evaluation due date.

D. MRC to review evaluations and closures for significant issues.

5.7. Department CR Evaluation

A. Further details are provided in Attachment 1, Station Process Flow Diagrams and Descriptions.

B. The appropriate condition report template shall be used to document causal analysis.

C. Category 1 evaluations are performed per CNG-CA-1.01-1004, Root Cause Analysis and CNG-CA-1.01-1001, Management Review Committee.

D. Category 2 evaluations are performed per CNG-CA-1.01-1005, Apparent Cause Evaluation and CNG-CA-1.01-1001, Management Review Committee.

E. Category 3 condition reports will be evaluated to the extent required at the discretion of the supervisor.

1. The purpose of the Category 3 evaluation is to provide a mechanism for a quick documentation of a "broke/fix" condition supported by a corrective action or to determine the probable cause of an adverse condition based on the available facts for the event. The evaluation may also be used to document gap analysis of industry documents, and other conditions that require a documented evaluation. The intent of the evaluation is to identify probable cause(s), when appropriate, with minimal use of resources and to identify corrective actions to remediate the adverse conditions or close performance gaps.

2. It is important to note that the Category 3 condition may repeat. The results of these conditions are such that there is little or no risk of the consequences escalating to a significant event. The same failure may occur again. If it does, and the consequences of the failure remain unchanged, then another Category 3 evaluation is acceptable to attempt to identify the cause.

F. If the assigned department disagrees with the condition report categorization, or at any time during evaluation determines that the condition report categorization should be downgraded, concurrence from MRC shall be obtained.

5.8. OE Reporting

A. Issuance of industry and internal OE is performed per CNG-CA-1.01-1010, Use of Operating Experience.

5.9. Sponsor/MRC/QPA Evaluation and Corrective Action Reviews

NOTE

Attachment 4, Corrective Action Processing Summary addresses process summary for each category.

A. Category 1 problem statements, RCAs, corrective actions (including actions to prevent recurrence), closure approval and effectiveness review is performed by MRC. **[FB0309]**

B. Category 2 ACEs, corrective action and closure approval may be performed by MRC or condition report sponsor, as noted during screening or upon MRC request.

C. RCAs and ACEs for condition reports initiated as a result of a QPA Finding requires QPA concurrence.

D. Category 3 condition reports will normally be closed by the responsible line supervisor or a higher level of line management.

E. Category 4 condition reports are closed to trending or documented actions that were taken to promptly correct the issue.

F. Corrective actions shall be closed with attached documentation providing objective evidence the action was performed for all actions linked to CAPRs, preventive actions, and corrective actions for Category 1 and 2 condition reports. Documentation retrievable through controlled processes need not be attached provided specific references are provided in the closure statement. The sponsor shall ensure the attached evidence demonstrates the intended actions were completed.

5.10. Extension Requests

A. The appropriate template available within ePIC shall be used to document extension requests.

1. Attachment 4, Corrective Action Processing Summary designates approval authority level for extension requests.

B. Extension of the completion date to a LTCA requires approval of the applicable PGM.

C. Extension requests must state the risk to safety and probability of recurrence under safety significance field. **[FB0307]**

5.11. Corrective Actions

A. Changes to corrective actions that have already been approved shall be approved by the same authority that approved the original action.

B. Closure of Category 1 and 2 condition reports to other established processes is not permitted. Full closure means that all corrective and preventive actions (including all physical work) needed to address all aspects of the issue are complete.

C. CAPRs for Category 1 condition reports will be basis-captured, whenever applicable.

D. Closure of Category 3 condition reports to the WO and engineering services products/ packages is permitted.

E. Closure of Category 3 condition reports to the Procedure Change Request (PCR) process is permitted if the condition adverse to quality was resolved through the immediate procedure change process.

F. Security Maintenance Requests may be used for safeguards-related problems. The Security Projects Database may be used for safeguards-related PCRs. The original condition report shall be classified as a Category 4 to enable trending.

G. If a new concern is discovered during issue resolution for personnel or equipment safety, equipment operability, reportability, potential Technical Specification violation, or a potential trip concern as a result of new information, the person identifying the issue shall initiate a new condition report and shall ensure that the Shift Manager is immediately informed. **[FB0145] [FB0305]**

H. If the action taken involves Security Safeguards Information, the closure document writer shall only enter a statement that the closure document pertains to Safeguards Information. The responsible person for the closure document shall contact the Security Safeguards Information Coordinator to provide the details of the actions taken.

I. Unacceptable corrective action(s) or causal analyses shall be reported to supervisory or management personnel directly responsible for resolving the issue. Unresolved issues shall be escalated to higher levels of management until the issue is resolved. The CNO/Site Vice President shall be the final decision authority for unresolved issues. **[FB0308]**

5.12. Completion Reviews

A. Condition report sponsors shall assess the quality of completed reports, actions taken, and document quality standards per CNG-PR-1.01-1000, Fleet Procedure Process (such as legible data, no highlights or visible means to identify colors).

B. QPA concurrence is required for completion of all condition reports initiated as a result of a QPA Finding.

5.13. Effectiveness Reviews

A. For Category 1 condition reports the effectiveness review should be implemented in accordance with CNG-CA-1.01-1004, Root Cause Analysis. Effectiveness reviews for selected Category 2 evaluations are performed per CNG-CA-1.01-1005, Apparent Cause Evaluation.

- In both cases, this will be done by initiating a corrective action item (type - effectiveness) to evaluate the effectiveness of the completed corrective action some time after completion of the item as part of the corrective action plan for the condition report.
- Effectiveness reviews are typically narrow in scope and establish specific measurable criteria/behaviors that will demonstrate results indicating that the corrective action has been successful and sustained.
- The person who performs the effectiveness review shall provide an independent review (different person, not necessarily independent from influence) from the person who completed the corrective action.

B. The timeframe will be an appropriate length of time after completion of the corrective action(s) allowing the corrective action(s) to be challenged. These effectiveness reviews will ensure that corrective action(s) were taken as specified, are still in effect, and the condition was effectively corrected.

5.14. Transfer of Completed Condition Report Records to Plant History

A. Upon closure, all condition reports and associated documentation are maintained per CNG-PR-3.01-1000, Records Management.

1. Associated documentation includes all supporting files in ePIC.
2. Line organizations are responsible for maintaining and transmitting all condition report documents (analyses, extensions, and closure documentation) to Records Management.
3. PIU is responsible for maintaining and transmitting all Category 4 condition report documents (analyses, extensions, and closure documentation) to Records Management.

5.15. CAP Process Flow Diagram

A. A detailed flow diagram depicting the typical condition report process flow is provided in Attachment 1, Station Process Flow Diagrams and Descriptions.

B. Corporate process flow is similar but in general completed by the supervisor.

5.16. ePIC Software

A. If the ePIC software is not available, use the applicable form in accordance with Attachment 5, ePIC Condition Report or Attachment 6, Request Extension.

5.17. CRs Documenting Common Fleet Issues

A. Condition Reports documenting common fleet issues shall be classified according to the categorization criteria per Attachment 3, Condition Report Categorization Criteria.

B. Corrective actions shall be assigned to the fleet condition report that identifies the corresponding condition report initiated within the station-specific CAP for problem resolution. Each station shall review their condition report independently. Common procedure change requirements shall be documented in the fleet condition report with a corrective action assigned to the station that owns the procedure.

C. Upon completion of the proper resolution at the station, a copy of the closure documentation shall be embedded in the fleet corrective action assigned to that station.

5.18. Procedure Compliance Review Reports

A. The Site Human Performance Lead (or designate station individual) will perform a weekly review of condition reports looking for procedure compliance issues; select a sample of procedure noncompliance condition reports for further evaluation by the responsible department. The responsible department will perform a Procedure Compliance Review Report per CNG-HU-1.01-1000.

6.0 BASES

[FB0035] (B2043) CCNPP Reply to NRC Inspection Report 88-28 (1/29/89) Item #3 - QA Audit Findings 88-01-01, 88-16-01 - NRC recommendation #3, Regulatory Reporting Requirements for Non-Conforming Items. Procedures will be developed and revised to assure that events and review items are properly screened for reportability requirements. These procedures shall implement the flow charts and other controls to assure that the regulatory reporting requirements for non-conforming conditions are addressed.

[FB0145] NMP NRC IR 89-200 (NCTS 502457-32) - AP-10.2.2, Reportable Occurrences, Revision 6, has been revised to formalize the requirement for an Occurrence Report to be written for any Technical Specification violation.

[FB0147] NMP DER 1-97-0260, Apparent Violation (MR) 10CFR50.65 Due to Ineffective Monitoring and Untimely Evaluation (a)(2) Systems - (1) Revise procedure S-MRM-REL-0101 to require that DERs generated due to performance goals being exceeded are dispositioned within 30 days and, if required, Expert Panel Review within 60 days, (2) Revise procedures S-MRM-REL-0101 and NIP-ECA-01 to include provisions to ensure consistent FF and MPFF determinations are made.

[FB0291] CCNPP Response to SOER 07-1, Recommendation 5 - CNG-CA-1.01-1000 - Ensure that the Condition Report screening process clearly identifies system or component deficiencies that can impact the monitoring and/or the control of reactivity. The corrective action program (CAP) should provide the ability for identification of system and component deficiencies or issues that can adversely impact the monitoring and/or the control of reactivity and can be annotated as such within the CAP process.

[FB0301] (B2047) CCNPP Nuclear Hotline 5-90 (AI NUMBER CT199015748) - Revise CCI-116 to address organization, responsibilities and activities of PR Review Group (CCI-169 was created to address this issue).

[FB0302] (B2048) CCNPP INSR 91-80/80-00/00 - The inspector did note that the duties and responsibilities of the PR Review Group were not clearly defined in CCI-116. Situation was discussed with management. It was reported that the PR Review Group is an interim measure. The function of this group will be taken over by an Issues Management Unit, whose activities will be more fully documented as stated in the Performance Improvement Plan (PIP).

[FB0303] (B2049) CCNPP INSR 90-23/23-00/00 - Page 6 (AI CT199015748) - Improve the ability to fully assess and communicate safety consequences of deficient equipment when generating an MR.

[FB0304] (B2053) CCNPP INSR 91-82/82-03/03 (AI CT1992200012) - Requirement for currently licensed SRO to be present at IRRG meetings. Revision 20 to QL-2-100 changed this basis. Since there is no longer an IRRG, CCNPP has modified this to have a licensed SRO review 100% of all CRs written within 24 hours.

[FB0305] (B2054) CCNPP BGE Response to NRC NOV 93-31-01 - CCNPP agreed to proceduralizing the sole ownership of issue resolution. Issue Reports and Programs Deficient Reports are not assigned to an issue resolution sponsor who is responsible for acting as the focal point for assignment and resolution of all issue subtasks. The sponsor is responsible for ensuring all pertinent aspects of the issue are addressed and closing out the issue in a timely fashion. Implementation of the development of specific expectations for correction action adequacy to increase the assurance that generic implications of specific issues are addressed. These expectations have been added to appropriate procedures and will be reinforced by enhanced supervisory and management review of corrective actions.

[FB0306] (B2419) CCNPP Restart Commitments Letter dated May 23, 1989 and Confirmatory Letter No. 12 dated September 5, 1989 require that all significant procedure violations will have a Human Performance Enhancement System evaluation.

[FB0307] (B2082) CCNPP INSR 50-31796-06 and 30-31896-06 and Notice of Violation - BGE Management expectation for due date extensions to be reviewed to assess the adequacy of the justification of extension, in terms of risk to safety and/or probability of recurrence.

[FB0308] (B2083) CCNPP NRC Inspection 89-1617 Letter to R. P. Heibel dated July 13, 1989 the licensee shall provide for a review of its emergency preparedness program at least every 12 month by persons who have no direct responsibility for implementation of emergency preparedness program.

[FB0309] (B2088) CCNPP RCAR PD200000003, IR3-029-799, Collective Significance Analysis of Reactor Trips with Loss of Normal Heat Removal - Require the Issue Manager to present, in person to the approving Department Manager the completion of corrective actions for all Priority 1 and 2 root cause investigations. The scope of the presentation will be to review the purpose and intent of the corrective actions, how the corrective actions were accomplished, and a summary of any deviations or changes to the overall intent of the corrective actions.

[FB0310] (B2090) CCNPP CT200100024, MS8 Response to INSR 2001-009 - Response to improve the quarantine of equipment and appropriate quarantine measures taken to allow for more thorough investigation.

[FB0312] (B2092) CCNPP RCAR IR200300129, IR4-013-662, Unit 2 CEA Extension Shafts Bent - Proceduralize the initiation of an issue report to capture informal operating experience.

[FB0313] (B2093) CCNPP SOER 03-2 Recommendation 1b, IH200300002 MS 55 - Proceduralize an issue report threshold guidance to include adverse core or fuel performance events described in SOER 03-2.

[FB0314] (B2094) CCNPP NRC Order EA-03-086, April 29, 2003 - Proceduralize guidance for Condition Report threshold when it comes to evidence of potential tampering or sabotage.

[FB0315] (B2095) CCNPP SOER 02-4 Recommendation 3, IH200200007 MS 11 - Ensure that abnormal plant conditions or indications at CCNPP that cannot be readily explained are identified and documented.

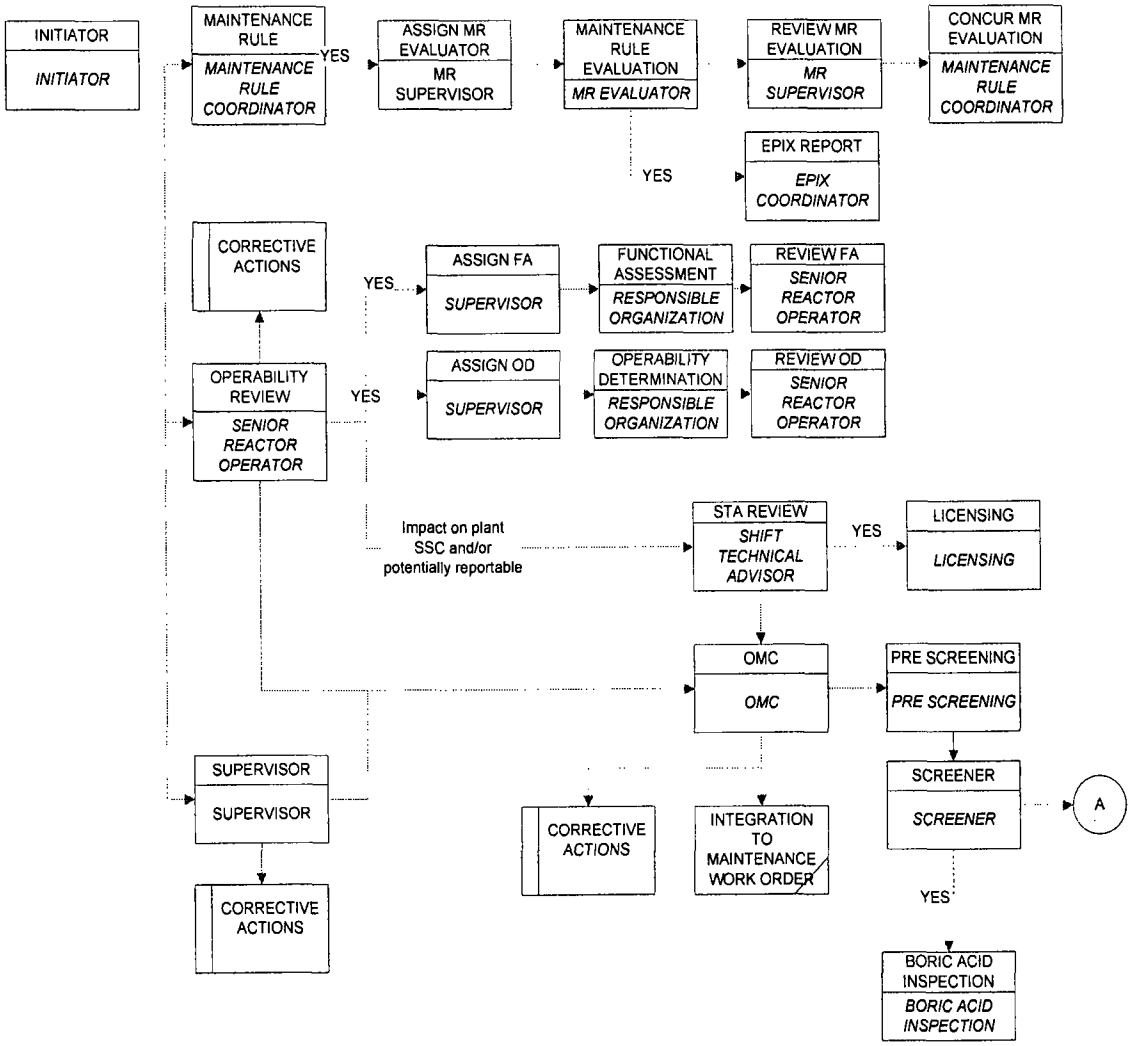
7.0 RECORDS

7.1. Upon closure, all condition reports and associated documentation are Quality Records and shall be processed per CNG-PR-3.01-1000, Records Management.

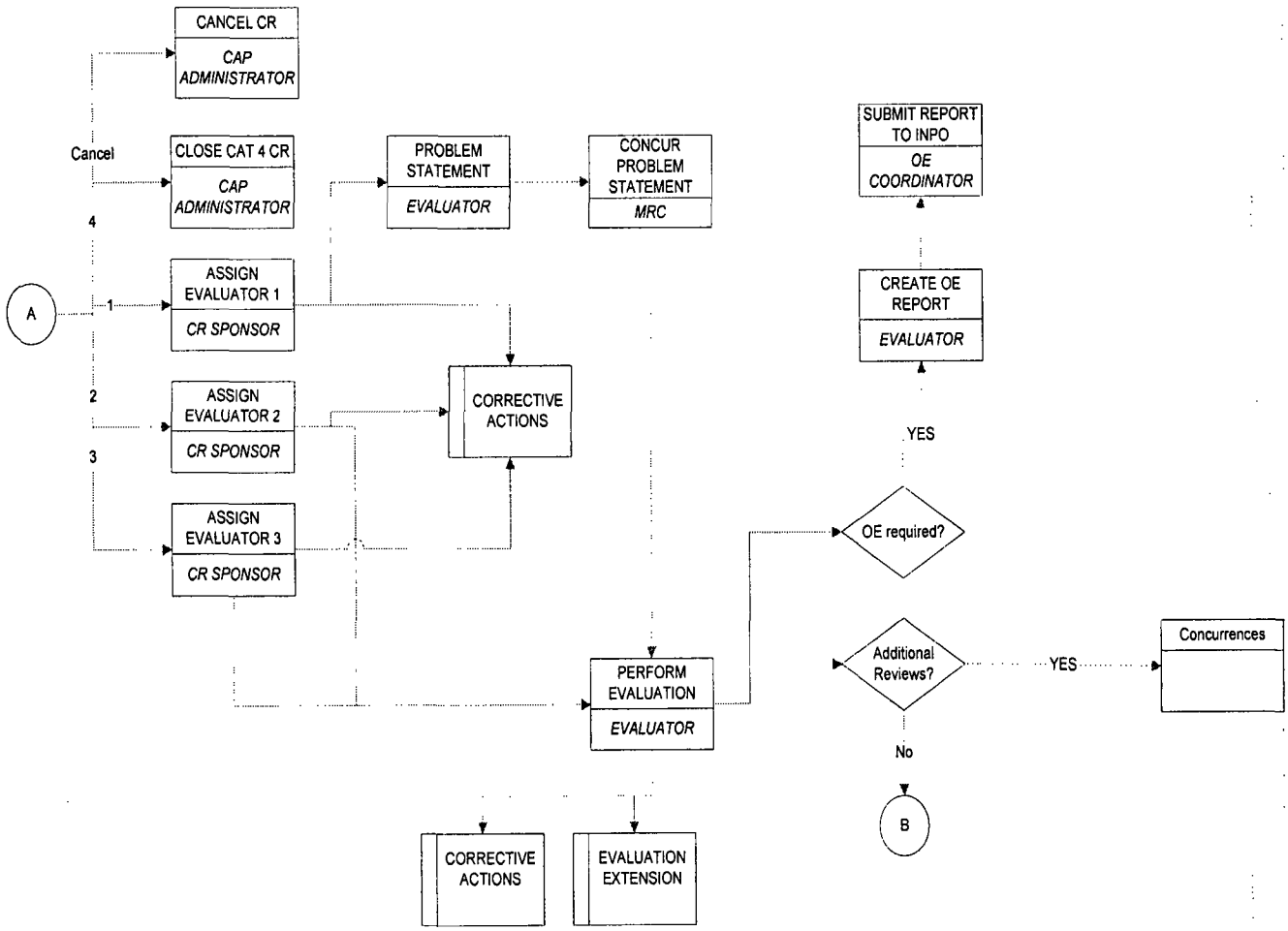
Attachment 1, Station Process Flow Diagrams and Descriptions

NOTE

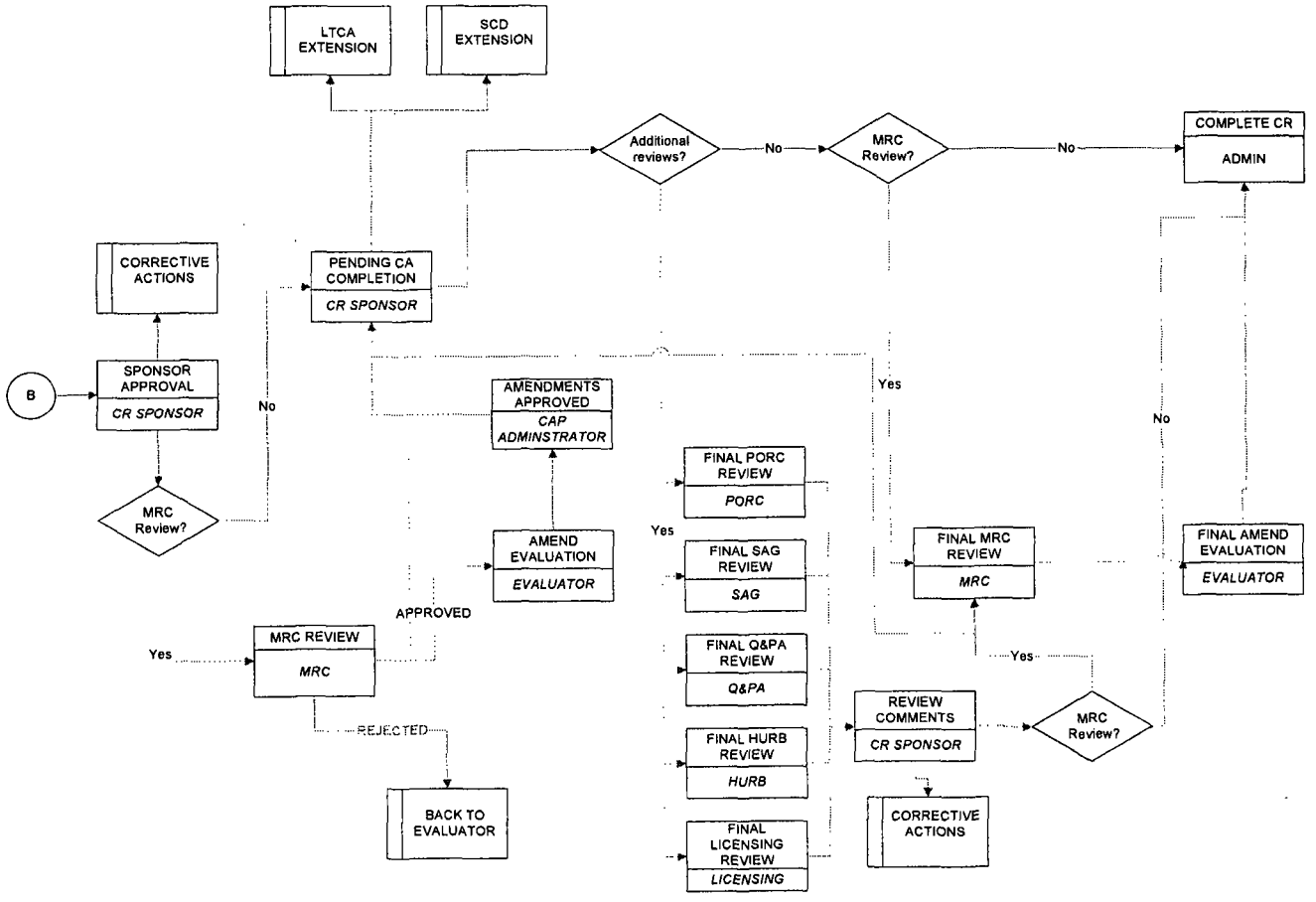
Anonymous condition reports will be submitted to the ECP Coordinator via Attachment 5, ePIC Condition Report, or electronically.



Attachment 1, Station Process Flow Diagrams and Descriptions (Continued)



Attachment 1, Station Process Flow Diagrams and Descriptions (Continued)



Attachment 1, Station Process Flow Diagrams and Descriptions (Continued)

INITIATOR
INITIATOR

Personnel may initiate the CR using the ePIC software, or may submit the issue directly to supervision using a paper form when the software is unavailable. (Attachment 3, Condition Report Categorization Criteria contains examples of CR initiation criteria).

NOTE

1. If a personnel or equipment safety concern is being identified, then the issue is to be discussed with a supervisor or management, or Operations when a supervisor is unavailable.
2. If an operability, reportability or a potential trip/reactivity concern is identified, then the initiator shall contact the supervisor and Operations. **[FB0291]**
3. Quarantine the affected equipment/area to assist in causal analysis. Quarantining is valuable in discovering problem causes.
4. Use job titles to describe individuals versus names.

Ginna Specific notes for hardware or equipment issues:

- The CR initiator shall complete and attach a deficiency tag to identify deficient, installed plant equipment where possible. If a deficiency tag exists, a new CR should not be written unless the issue identified has degraded.

Calvert Cliffs Specific notes for hardware or equipment issues:

- A single CR should not address more than one component under more than one plant system.
- The CR initiator shall complete and attach a deficiency tag to identify deficient, installed plant equipment except as noted below. A new CR should not be written unless the issue identified has degraded.
- Tagnets may be used for control room panels only. The CR initiator shall place a copy of the CR in the Panel Tagnet books.
- Do not place tags on security alarm doors, alarm equipment, security fencing, or any other equipment required for the physical security of the plant. **[FB0035]**
- Do not place tags on equipment in containment or on security systems equipment.
- When a new WO is needed as a corrective action for a causal analysis, the CR initiator shall communicate this to the reviewing supervisor and OMC to ensure the WO is prioritized correctly.

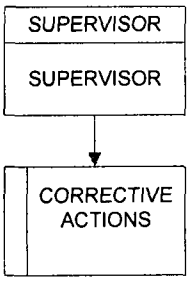
The following information is required in the CR for WO generation:

- WO Required
- Mode to Work
- WO Priority
- WO Type
- WO Category
- Responsible Work Group
- Affected Location
- Mode Restraint

Attachment 1, Station Process Flow Diagrams and Descriptions (Continued)

The following documents or information applicable to the CR should also be linked to the CR by the initiator.

- Affected Components
- Affected System
- Related Condition Reports
- CAP Templates
- Affected Documents
- WO Number



The supervisor review ensures the adequacy of immediate corrective actions and ensures that Operations is informed of conditions that potentially affect the operability of safety-related structures, systems or components or might require reporting to external organizations.

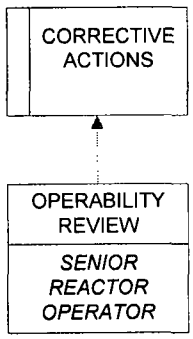
Specifically, the duty of the supervisor review is to check the CR for appropriateness, completeness, technical accuracy and:

- Evaluate the effect of continuing the activity. If continuing an activity would obscure or preclude identification and correction of a deficiency, or would increase the extent of the deficiency, or lead to an unsafe condition, the activity shall be stopped.
- Ensure immediate actions taken are appropriate and if necessary, controls are applied to prevent inadvertent use or installation.
- If the reviewing supervisor determines that the condition adverse to quality requires immediate action (for example, an immediate personnel/equipment safety concern, operability concern, reportability concern, or trip concern exists) he/she or the initiator shall immediately notify the Shift Manager/Control Room Supervisor or WEC/WCC.
- Clarify any ambiguous or inaccurate information and provide any missing information.
- Fitness for duty issues should be considered by the supervisor for all HU, near miss and industrial injuries.
- Initiate corrective actions as necessary to track recommended actions, including necessary compensatory or interim actions and other actions that need to be completed quickly and appropriate quarantine measures taken. **[FB0310]**

Attachment 1, Station Process Flow Diagrams and Descriptions (Continued)

NOTE

1. If an operability, reportability or a potential trip/reactivity concern is being identified, then Operations is to be called. **[FB0291]**
2. If the issue being identified involves a Plant Tampering Concern, then Security is to be notified.
3. *The following documents or information applicable to the CR should also be linked to the CR by the* supervisor.
   - Affected Components
   - Affected Systems
   - Related CRs
   - CAP Template
   - Affected Documents
   - WO Number



Every CR requires an Operations/SRO review for operability/reportability using the guidance provided in Operations procedures, NRC Regulatory Issue Summary 2005-20, Conduct of Operability Determinations/Functionality Assessments, and other applicable station/fleet procedures. Examples of criteria for this review include:

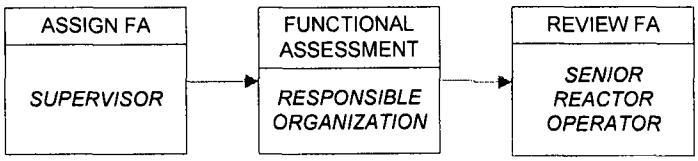
- Represents an immediate hazard to nuclear, industrial, radiological or environmental safety
- Impacts Technical Specifications related equipment.
- Affects compliance with licensing documents such as the Technical Specifications, Offsite Dose Calculation Manual, Fire Hazards Analysis, etc.
- Requires an operability/reportability determination or a functional assessment
- Threatens plant availability.
- Has potential for significant economic impact, such as the threat of major equipment damage.
- Any condition which needs to be brought to the attention of the Shift Manager.
- Any potential plant trip concerns.

Initiate corrective actions as necessary to track recommended actions, including necessary compensatory or interim actions and other actions need to be completed quickly.

Attachment 1, Station Process Flow Diagrams and Descriptions (Continued)

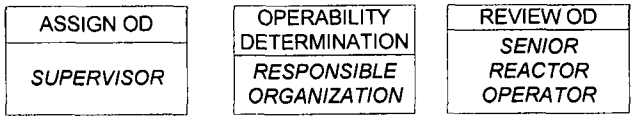
The following documents or information applicable to the CR should also be linked to the CR by the SRO performing this review.

- Affected Components
- Affected System
- Related Condition Reports
- CAP Templates
- Affected Documents
- WO Number



If a CR is determined to require an Operability Determination (OD) or a Functional Assessment (FA), then a Supervisor will assign an individual to perform the OD/FA. The Shift Manager or designee shall comply with the requirements of Conduct of Operability Determinations/Functionality Assessments, for operability requirements and/or operability determinations. Entries for the Assign FA or Assign OD fields are the name of the selected individual and that individual's organization.

The assigned Engineer/Individual will then perform the OD or FA and document the results in the OD/FA Evaluation section of the OD or FA page, and will also complete the Functional Assessment Template.

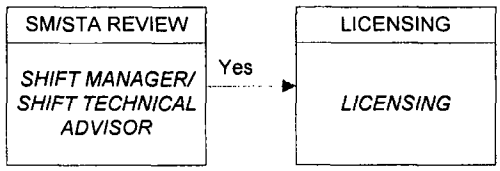


The completed OD or FA will then be reviewed and approved by a licensed SRO. Review of Functional Assessment is acknowledged by simply "completing" the page. Entries for the Review Operability Determinations include:

- Supporting Analysis Concurrence
- OD Compensatory Actions
- Operability Confirmation
- Operability Determination Approved?

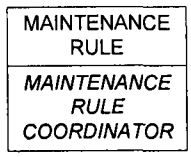
Attachment 1, Station Process Flow Diagrams and Descriptions (Continued)

Similar to other pages, documents or information applicable to the CR may also be linked to the CR by the SRO performing these reviews. Documentation to be linked shall include the Operability Determination documentation created in accordance with *Conduct of Operability Determinations/Functionality Assessment*. If an approved Operability Determination must be changed, the Shift Manager/Designee shall ensure that the OD revision is completed and attached to the CR.



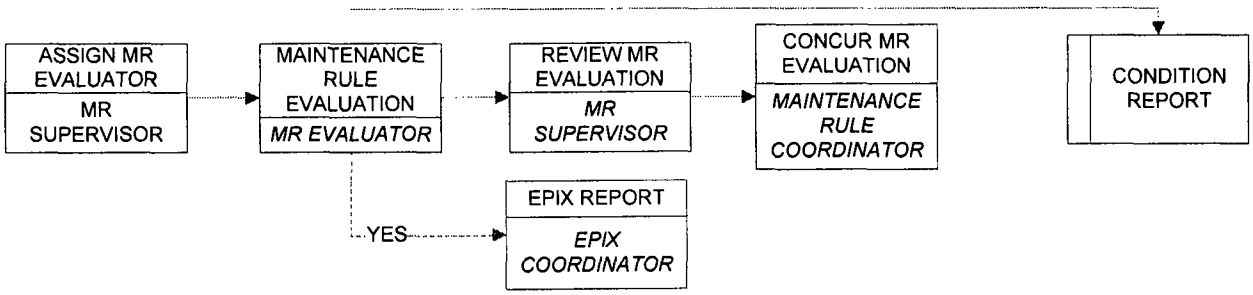
If a CR has been determined to be potentially reportable during the Operability/Reportability review stage by the SRO reviewing the CR, then the Shift Manager/Shift Technical Advisor (SM/STA or other individual assigned this task) will review the CR to ensure appropriate reporting related actions are taken as required by the situation. If technical assistance is needed to determine reportability, assistance should be requested from appropriate plant staff.

This SM/STA review SHALL NOT DELAY any required regulatory notifications. If the SM/STA concurs with the SRO's Past Operability or NRC Immediate Notification calls, then a representative from Licensing must review the CR in accordance with appropriate Licensing procedures and provide appropriate comments on the Licensing review page (Licensing Comments field). Documents generated in support of these reviews should be linked to the CR by the SM/STA and Licensing representatives performing these reviews. This includes other new or existing related CRs, operability/reportability documentation and other documents directly affected by the reportable condition. This documentation should include why and/or how the operability/reportability conclusions were reached.



Every CR is reviewed by the Maintenance Rule Coordinator. If the MR Coordinator determines that the condition described in the CR requires a Maintenance Rule Evaluation or is EPIX reportable, the Coordinator will check the "MR Applicable" check box, provides any appropriate comments relative to the applicability of the Maintenance Rule to describe the condition and then selects an appropriate MR Supervisor to be responsible for performance of a Maintenance Rule Evaluation of the described condition.

Similar to other pages, documents or information applicable to the CR may also be linked to the CR by the responsible party performing these reviews.



Attachment 1, Station Process Flow Diagrams and Descriptions (Continued)

The Supervisor selected by the MR Coordinator will select an individual to perform the MR Evaluation.

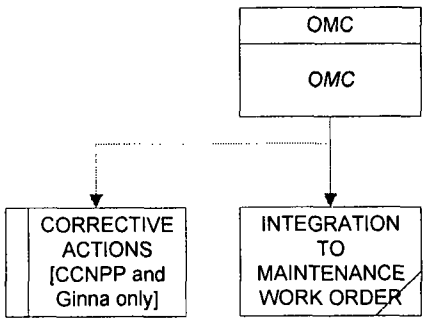
The selected MR Evaluator will answer the following questions, provide the associated information and link documents generated in support of this MR Evaluation (e.g. new CR initiated for (a)(1) evaluation if required) to the CR. **[FB0147]**

- Maintenance Rule Functional Failure (FF)?
- FF Basis
- Maintenance Preventable Functional Failure (MPFF)?
- MPFF Basis
- Repeat Maintenance Preventable Functional Failure (Repeat MPFF)?
- Repeat MPFF Basis
- (a)(1) Evaluation required?
- (a)(1) Evaluation Required Comments
- EPIX Report Required?
- EPIX Report Comments

If the MR Evaluator determines that an INPO EPIX Failure report is required, then the INPO EPIX Failure number must be entered on the EPIX Report page and the appropriate cause codes documented and applied per INPO 98-001 and Attachment 8, CDE/EPIX Reporting Critical Component Failure.

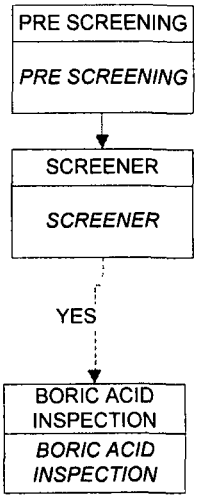
Following completion of the MR Evaluation, the previously selected MR Supervisor will either approve or disapprove the evaluation and provide appropriate comments relative to this MR Evaluation.

The MR Coordinator will then either concur with the MR Evaluation for closure or rework the MR Evaluation and provide appropriate comments.



Attachment 1, Station Process Flow Diagrams and Descriptions (Continued)

All CRs require an OMC review to determine if a Work Request is required. A work request may be deemed appropriate and may be initiated at this step in the process. A corrective action may also be deemed appropriate to take immediate or compensatory measures.



The plant station Screening Committee consists of selected department PICs, CAP Staff and representatives from other departments, including Operations who are designated by plant management and normally meet each business day.

All screeners and CAP Staff present have voting privileges. If consensus is not reached, decisions are made by a majority vote.

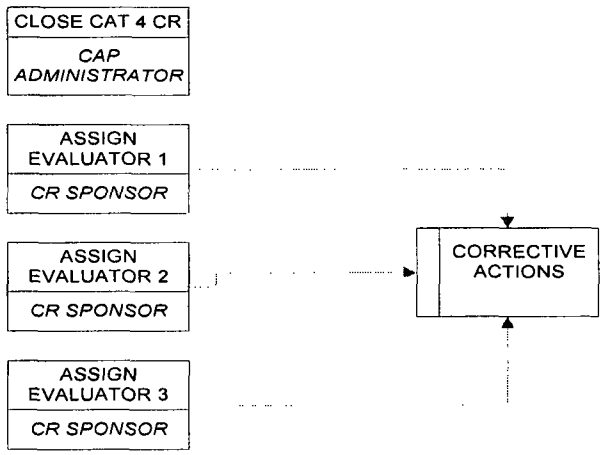
A summary of the screened CRs is prepared by the CAP group for presentation to MRC.

Each CR is assigned trend codes to facilitate identification of repetitive issues and other trends.

Failures, malfunctions, deficiencies, defective items and nonconformance's involving Safety Related or Fire Protection SSCs shall be treated as Conditions Adverse to Quality and shall use the CAP, in addition to the Work Management System for resolution. **[FB0035]**

If the condition described on the CR reflects a boric acid leakage issue, a check is placed in the Boric Acid Checkbox. (Ginna and CCNPP only)

Attachment 1, Station Process Flow Diagrams and Descriptions (Continued)

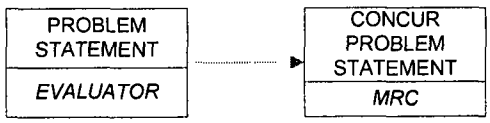


Category 4 - CRs will not require a cause investigation or assignment. These events or conditions are of very low risk not requiring documented corrective action, but would provide useful precursor information if tracked and trended.

For Category 4 CRs with HU issues, trend codes, key words, cause code(s) and causal dept. code(s) are entered, if applicable or noted as N/A in accordance with station requirements.

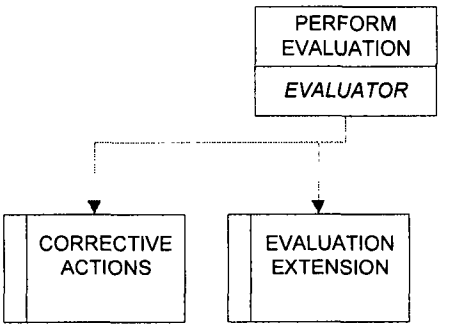
Subject to confirmation or change by MRC, the Category 4 CR can be closed out without further processing. Category 4 CRs must document actions taken to resolve the issue.

Evaluation of 10 CFR 21 nonconformance shall be accomplished in accordance with CNG-NL-1.01-1005, 10 CFR 21 Screening, Evaluating and Reporting.



MRC will review root cause problem statements within 3 business days of a root cause evaluation being assigned and reviews immediate actions (compensatory) taken or planned to ensure potential high-risk consequences are appropriately addressed in parallel with the root cause.

Attachment 1, Station Process Flow Diagrams and Descriptions (Continued)



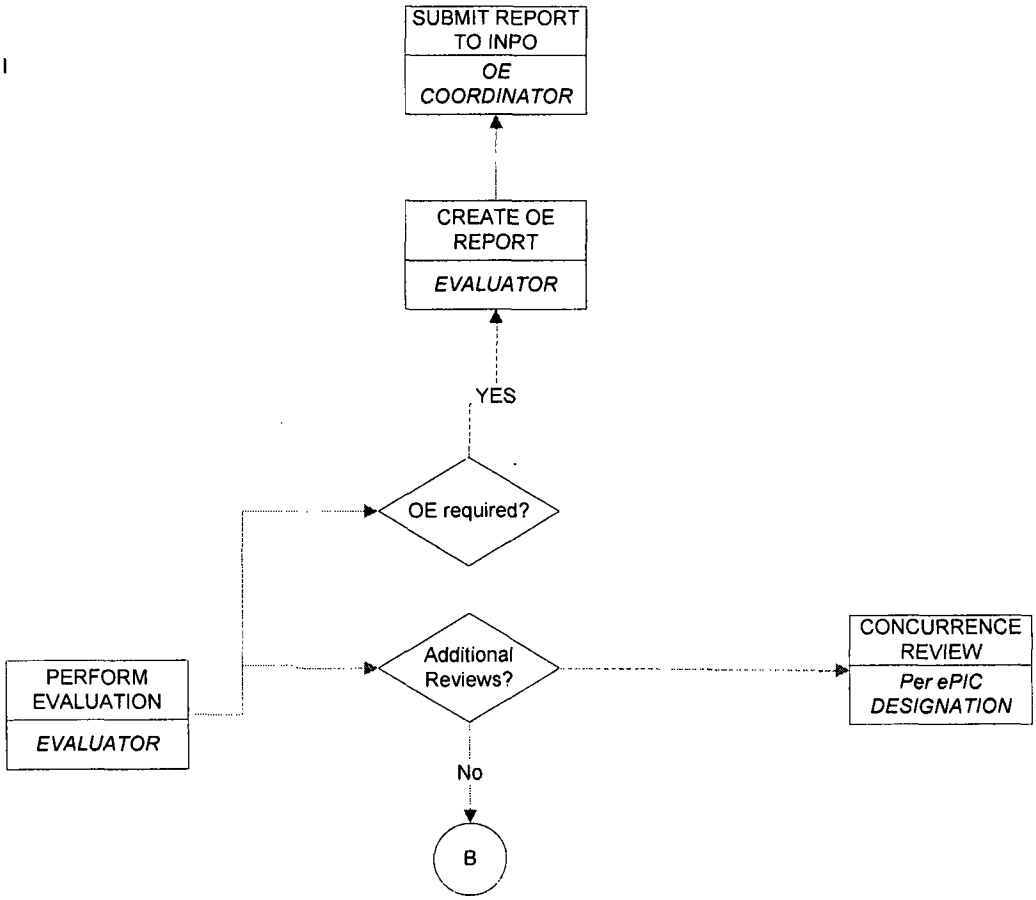
The scope and depth of the evaluation will be conducted in accordance with assigned Category level (1, 2 or 3).

Category 1: A Root Cause Analysis is required to determine underlying causal factors per CNG-CA-1.01-1004, Root Cause Analysis. Corrective actions, preventive actions, and an effectiveness evaluation are required.

Category 2: An Apparent Cause Evaluation is required, including identification of underlying apparent cause, corrective and preventive actions. An effectiveness evaluation may be required.

Category 3: Corrective actions may be required. Resolution does not require causal analysis or preventive actions.

Attachment 1, Station Process Flow Diagrams and Descriptions (Continued)

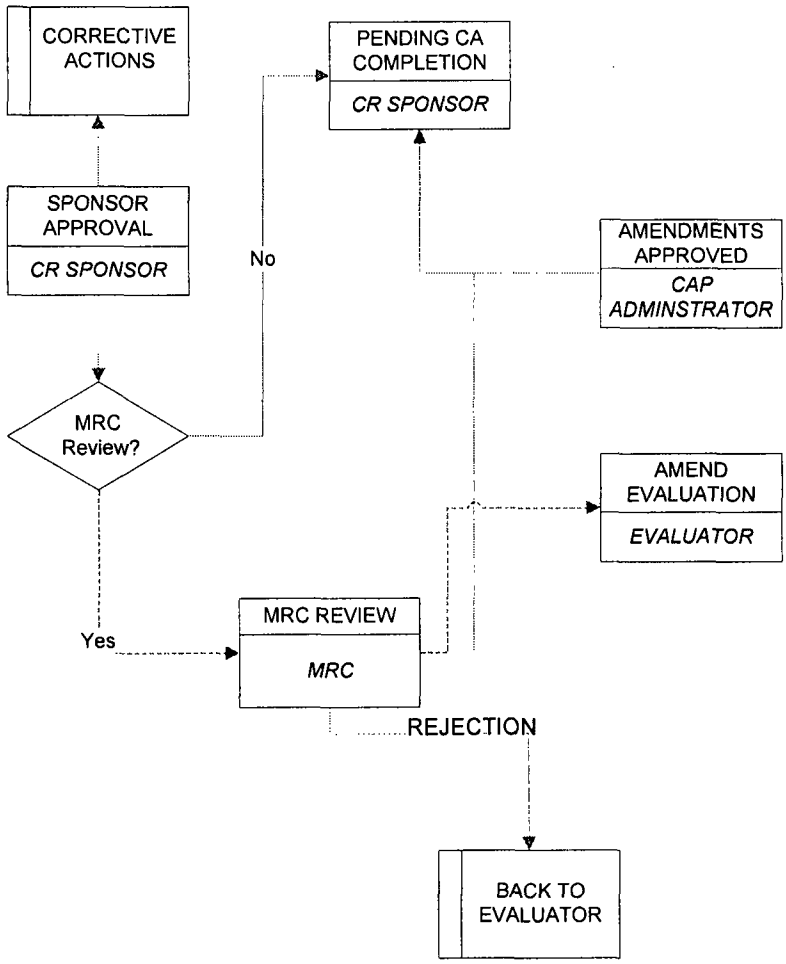


If not previously determined, the evaluator will determine if the condition or issue should be disseminated on the Nuclear Network. If yes, the evaluator will provide the necessary details for submittal by the OE Coordinator

The evaluator, working with the CR Sponsor, will ensure additional reviews are completed as noted during the screening process. This will be accomplished before CR Sponsor Approval.

If required, MRC review is performed AFTER the required additional reviews have been completed and AFTER the CR Sponsor approves the Evaluation.

Attachment 1, Station Process Flow Diagrams and Descriptions (Continued)



The CR sponsor is responsible to ensure the evaluation has met all required elements (Root Cause, Apparent Cause, appropriate actions, and so forth) and all required reviews.

If required, MRC review is performed AFTER the required additional reviews have been completed and AFTER the CR Sponsor approves the Evaluation.

If MRC approves submittal with comments, the evaluator - working with the CR Sponsor - will amend evaluation as directed and provide to PIU CAP Admin to update and approve.

Attachment 2, Condition Report Threshold Guidance

Condition Reports should be written to document:

An actual or suspected Condition that is a nonconformance, a departure from specified requirements, a departure from expectations, a deviation, a deficiency, a concern, an undesirable state or a near miss. CRs also should be written to document nonconsequential events or potential issues needing further investigation or analysis. CRs may also be written for conditions adverse to business or with negative economic impact. **[FB0035]**

Following is a list of examples for which a CR is appropriate. The list is not all inclusive and should be interpreted conservatively. **If in any doubt, a CR should be written**.

Materials:

- Wrong or deficient part ready for issue to the field
- Wrong or deficient part received from a vendor when the item(s) has been accepted to inventory or the recommended resolution includes Accept-As-Is or Repair
- Wrong or deficient part issued to the field
- Improper storage of material

Workmanship:

- Deficient workmanship
- Inadequate engineering issued to the field
- Safety tagging errors
- Wrong type of oil added to Equipment
- Equipment mispositioning
- Maintenance/Work closed but deficiency still exists

Hardware:

- Vendor reported deficiency for safety related equipment (10CFR21)
- Plant hardware deficiencies
- Instruments and equipment found out of calibration or tolerance required to maintain loop or system function within acceptable calibration or tolerance
- Malfunction or out of specification discovered during performance of Maintenance or a Surveillance Procedure or Engineering Test Procedure, or Performance Monitoring.
- Electrical grounds
- Suspected plant tampering
- All Corrective Maintenance actions for structures, systems or components that are within the scope of the Maintenance Rule (10 CFR 50.65).
- All aging related degradations and failures of SSCs including those within the scope of License Renewal.
- Degraded equipment/material conditions found during the performance of preventive maintenance activities.

Controls:

- Procedure errors, other than editorial corrections, discovered after final approval of the procedure or "in the field"
- Unauthorized modifications
- Foreign material discovered in an FME area
- Unplanned release of radioactive material

Attachment 2, Condition Report Threshold Guidance (Continued)

Documentation:

- Errors, other than non consequential typographical, in work control documents issued for use
- Drawing errors that identify a Personnel/Equipment safety, operability, reportability, or potential trip concern
- Errors discovered in UFSAR or Technical Specifications
- Wrong revision of procedure or drawing in the field

Procedure Compliance:

- Failure to follow or use any procedure when required

Personal Safety:

- All accidents or injuries occurring on station.
- Immediate personnel safety concern such as a steam leak, unguarded floor opening, etc.
- Work related vehicular accidents or ANY on station vehicular accident.
- Failure to comply with radiological protection requirements.
- All industrial or radiological near miss incidents.
- Individual is not wearing required PPE and is in a hazardous environment.
- Individual is susceptible to personnel injury if immediate corrective steps are not invoked by an observer. This would include the following scenarios: someone is about to place his/her hands on energized electrical equipment without doing a live dead live check, proper safety gear not donned when racking out a breaker, not wearing fall protection gear in a fall protection area, and entering a confined space without the confined space monitor in place.

Nuclear Safety:

- Any condition considered to be detrimental to plant safety
- Reactor trips or trip near miss
- Unplanned plant transients
- Unexpected or unexplained plant responses
- Adverse core or fuel performance events described in SOER 03-2 **[FB0313]**
- Reactivity Management event or near miss **[FB0291]**
- Failure to follow security requirements
- Evidence of potential tampering or sabotage **[FB0314]**

Self-Assessment and Benchmarking Process

- Activities that require a CR in accordance with CNG-CA-2.01-1000, Self-Assessment and Benchmarking Process

Attachment 2, Condition Report Threshold Guidance (Continued)

Human Performance (HU)

- Events that meet the Clock Reset Criteria provided in CNG-HU-1.01-1000, Human Performance or for specialized Section/Crew/Unit Clock Reset Criteria established at the Section/Crew/Unit level
- Adverse behavioral trends as identified by Management during performance assessment activities
- Behaviors observed that required immediate intervention to avoid irreversible consequences

Regulatory Impact:

- NRC Notices of Violations and Non-Cited Violations, Inspection Findings, or Reportable events
- INPO Areas for Improvement
- NRC Performance Indicator exceeds 50% of the NRC limits for the green/white PI threshold.
- Code or Permit violations
- Failure to meet Tech Specs, UFSAR or License condition

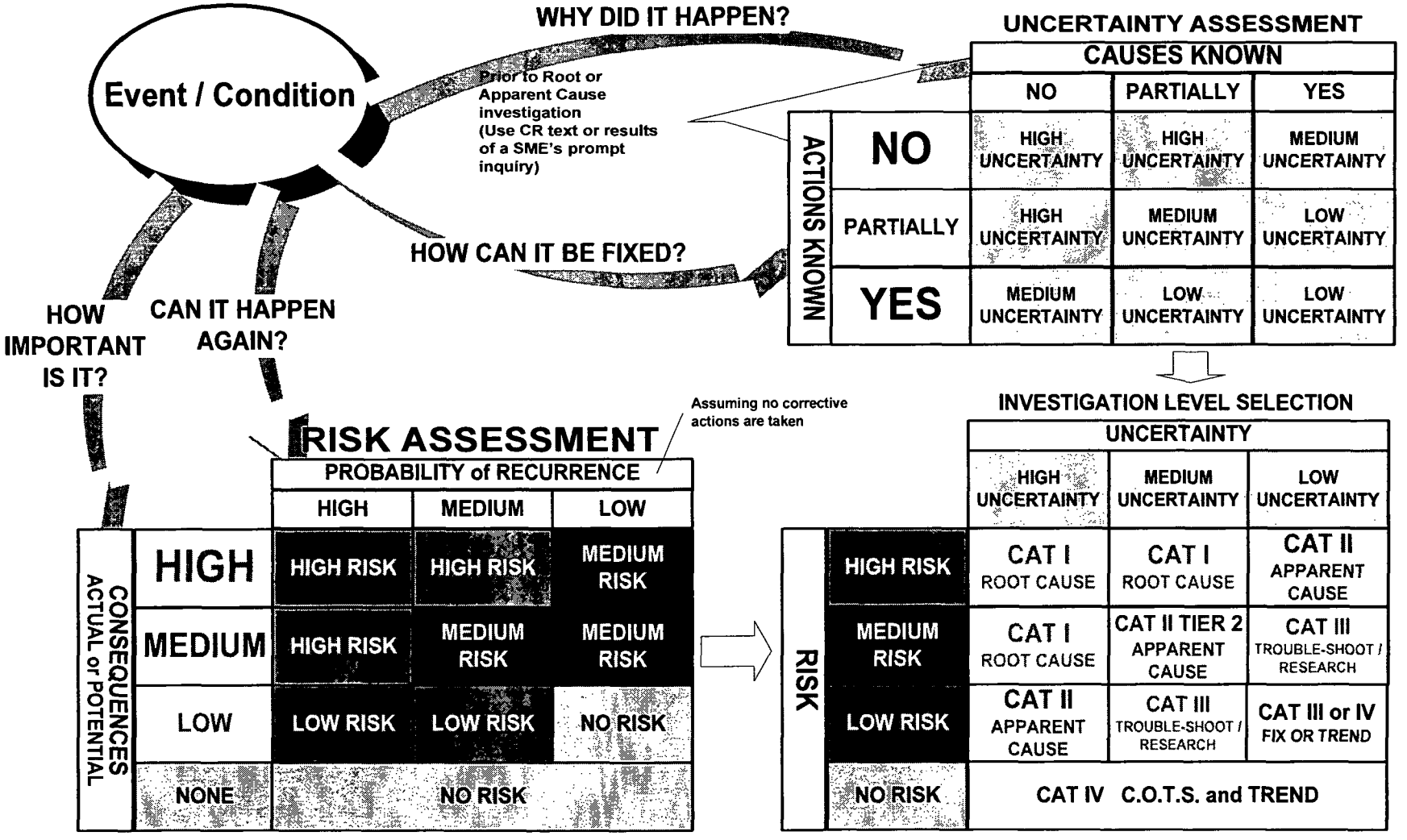
Declining performance as identified in Station or Departmental performance indicators including System, Program, or Component Health Reports:

- Any Station Key Performance Indicator (KPI) that does not meet goals, "Yellow " or "Red"

Other:

- Issue that may result in a negative public reaction
- Adverse trends
- Knowledge of an event at an outside plant that could impact the station; informal OE **[FB0312]**
- Significant outage length extensions
- Significant budget estimate overruns
- Condition that could prevent the station from achieving organizational goals.

Attachment 3, Condition Report Categorization Criteria



Attachment 3, Condition Report Categorization Criteria (Continued)

Category 1	Category 2 Tier 1	Category 2 Tier 2	Category 3	Category 4
Recurrence is unacceptable. RCA is required to determine underlying causal factors. Corrective actions, preventive actions, and effectiveness evaluation are required.	**Rare occurrence is undesirable**. Causal analysis and preventive actions are required. Typically used where cause requires investigation into organizational and programmatic issues. An effectiveness evaluation may be required.	**Rare occurrence may be acceptable**. Causal analysis and preventive action are required. Typically used where cause is known or could be determined with minimal investigation and consequences are minor.	**Occasional occurrence is acceptable**. Corrective actions may be required. Resolution does not require causal analysis or preventive actions. This is often called a Broke/Fix in the Industry.	**This is identical to a Category 3 issue with one exception: The CR documents the actions taken and no further actions are required. This is considered a Trend Only.**
Typical Examples are listed below. The list is not intended to be all inclusive. A higher or lower category may be appropriate in some cases. INPO SOER and SEN responses and other issues which may be identified by MRC are exempt from the performance of a cause analysis regardless of the assigned category.				
Significant condition Adverse to Quality (SCAQ)	QPA Audit Finding	Trend of Category 3 issues	Lost security badge due to neglect or inattention	Lost security badge due to failure of clip, lanyard, and so forth
Reactor Trip	Failure to comply with confined space permit	Significant Component Failure (loss of significant attribute). Refer to CNG-AM-1.01-1000, Equipment Reliability Process for the definition of Significant Component	Failure to comply with administrative procedure which impacts performance	Failure to comply with administrative procedure, but does not impacts performance
	Critical Component Failure (loss of critical attribute). Refer to CNG-AM-1.01-1000, Equipment Reliability Process for the definition of Critical Component		Error on plant logs involving tech Spec related data	Water tight door not properly dogged
	Loss of material traceability for an installed safety-related component	Unplanned LCO entry caused by human error	Test equipment failure needing a usage evaluation	Error on plant logs other than Tech Spec related data
		Severe water hammer event	UFSAR error	Test equipment failure that has been evaluated for usage
	INPO AFI	Maintenance Rule Functional Failure (Low Safety Significance excludes Run to Failure Components)	Deficient administrative procedure	Incorrect non-safety part sent to field, found before field work was impacted.
	OSHA recordable injury		Incorrect non-safety part sent to field, which impacts field work	Safety equipment found beyond inspection date, not being used when found
MSPI equipment failure which results in SDP greater than Green	Maintenance Rule Functional Failure (High Safety Significance)			
	Inadequate Implementation of a Major Project			

Attachment 3, Condition Report Categorization Criteria (Continued)

Category 1	Category 2 Tier 1	Category 2 Tier 2	Category 3	Category 4
Recurrence is unacceptable. RCA is required to determine underlying causal factors. Corrective actions, preventive actions, and effectiveness evaluation are required.	**Rare occurrence is undesirable**. Causal analysis and preventive actions are required. Typically used where cause requires investigation into organizational and programmatic issues. An effectiveness evaluation may be required.	**Rare occurrence may be acceptable**. Causal analysis and preventive action are required. Typically used where cause is known or could be determined with minimal investigation and consequences are minor.	**Occasional occurrence is acceptable**. Corrective actions may be required. Resolution does not require causal analysis or preventive actions. This is often called a Broke/Fix in the Industry.	**This is identical to a Category 3 issue with one exception: The CR documents the actions taken and no further actions are required. This is considered a Trend Only.**
Typical Examples are listed below. The list is not intended to be all inclusive. A higher or lower category may be appropriate in some cases. INPO SOER and SEN responses and other issues which may be identified by MRC are exempt from the performance of a cause analysis regardless of the assigned category.				
Violation of Technical Specifications Safety Limits	Abnormal condition needing explanation **[FB0315]**		Safety equipment used beyond inspection date	Failure to wear PPE
	Any electrical shock of greater than 50 volts		Improperly Radiologically Controlled Area entry/exit, and caused unnecessary dose or contamination of the individual or area	Improper Radiologically Controlled Area entry/exit, with no other adverse impact
Any electrical shock of greater than 250 volts, that results in an injury, or exceeds the let-go threshold	Ineffective corrective actions for a Category 1 or2 issue		Any electrical shock of less than 50 volts	
	Any component failure subsequently determined to be an MSPI failure			
Any event which is determined by SDP to be greater than Green				
Failure to recognize or failure to enter an EAL	Unplanned LCO entry due to program failure			
	CR that requires an LER			
Training Accreditation Station Identified Findings (SIF) and Team Identified Findings (TIF)	*Trend of Tier 2 ACEs*			
	Any event that significantly impacts station goals			
	Serious outage overrun			
	Significant procedure violation **[FB0306]**			
Red, Yellow, or White NRC ROP PI or Finding	NRC Green NCV or Finding that has cross-cutting component	NRC Green NCV or Finding that does not have a cross-cutting component		

Attachment 4, Corrective Action Processing Summary

Category	Process Step	Due Date Guideline	Approvals
1 Root Cause Analysis Required	Approval of Problem Statement and Evaluation Scope	≤ 3 working days from CR designation as Cat 1	CR Sponsor & MRC Extensions: MRC
	Evaluation / Corrective actions Established	≤ 30 days from MRC approval of CR as Category 1 to Sponsor Approval of Evaluation	CR Sponsor & MRC Extensions: CR Sponsor & MRC
	Any Corrective Action/CAPR Closure	≤180 days from CR date of discovery	CR Sponsor & MRC Extensions: CR Sponsor & MRC
	LTCA Designation	Not applicable	CR Sponsor & MRC Extensions: Station PGM
2 Apparent Cause Evaluation Required	Evaluation / Corrective actions Established	≤ 30 days from CR date of discovery	Tier 1 - CR Sponsor & MRC Tier 2 - CR Sponsor Extensions: CR Sponsor & MRC if CR age > 30 days
	Corrective Action Closure	< 180 days from CR date of discovery	CR Sponsor Extensions: If CR age <180 days old, CR Sponsor If CR age ≥180 days old, CR Sponsor & MRC
	LTCA Designation	Not applicable	CR Sponsor & MRC Extensions: Station PGM
3 "Broke/Fix"	Evaluation / Corrective actions Established	≤ 30 days from CR date of discovery	Supervisor Extensions: CR Sponsor & MRC if CR age > 30 days
	Corrective Action Closure	< 180 days from CR date of discovery	Supervisor Extensions: CR Sponsor
	LTCA Designation	Not applicable	CR Sponsor & MRC Extensions: Station PGM
4 Trend Only	N/A	N/A	N/A

Attachment 5, ePIC Condition Report

Condition No. or N/A: _____

Records Category 2.39 Reviewed: _____

Brief Description *: _____

Condition Report
(refer to CNG-CA-1.01-1000)

WO Required? ☐ No ☐ Yes
WO No. or N/A _____
Priority: _____
Emergency 1 2 3 4
Records Category 6.5
Reviewed: _____

Date/Time Discovered *
Date: _____ Time: _____

Location: _____

Component ID: _____
Unknown Component: _____

System Number: _____

Deficiency Tag Hung? ☐ No ☐ Yes Tag# _____ Tag Location: _____
Tag Type: ☐ MID Tag # ☐ MID Tag #C

Identified By * ☐ Internally ☐ NRC ☐ INPO ☐ QPA ☐ NEIL ☐ Other

Identified by Comments: _____

INITIATOR

Identified By Process *
(check one)
- ☐ NRC Inspection
- ☐ INPO Assessment
- ☐ QA/QC Function
- ☐ Mgmt Review Mtg
- ☐ Screening
- ☐ Safety Committee
- ☐ Trend Report
- ☐ Self-Assessment
- ☐ OE (Internal)
- ☐ OE (Industry)
- ☐ Benchmark
- ☐ INPO Assist Visit
- ☐ ERO/Drill Exercise
- ☐ Training Class
- ☐ Plant Tour
- ☐ Testing
- ☐ Internal Inspection
- ☐ Maintenance
- ☐ Operator Round
- ☐ Routine Observation

Detailed Description * _____

Immediate Actions Taken: _____

Extent of Condition: _____

Perceived Cause: _____

Recommended Actions: _____

Personnel/Equipment Safety Concern:	☐ No	☐ Yes - Discuss with Supervisor	Related CRs _____
Operability Concern:	☐ No	☐ Yes - Call Operations	
Reportability Concern:	☐ No	☐ Yes - Call Operations	Related Docs _____
Potential Trip or Reactivity Concern:	☐ No	☐ Yes - Call Operations	
Mode Restraint Concern:	☐ No	☐ Yes	Related WOs _____
OOS and Degraded Condition	☐ N/A	☐ Degraded ☐ Out of Service	
Critical Component Failure	☐ No	☐ Yes	

Initiator: _____ Date: _____ Phone Ext. _____ Ident. Dept. Code _____

Supervisor Review/Approval & Planning _____

***Required Fields are Shaded**

Attachment 5, ePIC Condition Report (Continued)

SUPERVISOR

☐ Hardware (Deliver to Control Room**)
☐ Human Performance (Deliver to Operations Office, or Control Room off hours**)
☐ Programmatic (Deliver to Operations Office, or Control Room off hours**)
☐ Duplicate to CR # _____
☐ Invalid
☐ PM/Non-Corrective Maintenance Work Request (Not a CR - deliver to OMC)
☐ Corrective Maintenance for CR # _____ (No new CR - deliver to OMC)
**** In Modes 2, 3, 4, 5, 6, D, hand deliver all Condition Reports to the Work Management Office**

Recommended WO Maintenance Group _____
Recommended CR Assigned Department _____
Recommended Category _____

Fitness for Duty Considered ☐ N/A ☐ Yes
(Refer to FFD Program)

Prompt Investigation Initiated ☐ Yes
☐ N/A (HU CRs CNG-HU-01.01-1000)

Plant Tampering Concern: ☐ No ☐ Yes

Personnel/Equipment Safety Concern: ☐ No ☐ Yes
Operability Concern: ☐ No ☐ Yes - Call Operations
Reportability Concern: ☐ No ☐ Yes - Call Operations
Potential Trip or Reactivity Concern: ☐ No ☐ Yes - Call Operations
Mode Restraint Concern: ☐ No ☐ Yes

Clarification of Operability Recommendation
☐ Condition could not affect Operability of an SSC
☐ Condition could, but does not affect Operability of an SSC
☐ Condition made SCC inoperable, but Operability restored
☐ Operability Concern - Called Operations

Supervisor Operability Explanation _____

Supervisor Immediate Actions: _____

Supervisor Compensatory Actions: _____

Supervisor Recommended Actions: _____

Supervisor Comments: _____

Unknown Component _____

Critical Component Failure: ☐ No ☐ Yes

Supervisor Approval ☐ Approved
☐ Duplicate
☐ Invalid Supervisor: _____ Date: _____

PLANNING

WO ONLY: Activity Safety Class ☐ SR ☐ SS ☐ NS ☐ Maint Rule ☐ RCM ☐ Mod ☐ Rework Planning Group/Disc. _____
Planning Coordinator _____ Date: _____

Reason for Cancellation: (WOs Only) _____
MID Tags: ☐ Removed & Destroyed ☐ Linked to new WO _____ ☐ N/A Cancelled By: _____ Date: _____

Send copy to CR Evaluator if no WO number is assigned, original to originator.

Attachment 5, ePIC Condition Report (Continued)

Immediate Notification: (Refer to Attachment 6 of IP-CAP-1) ☐ Operations Management ☐ Public Service Commission ☐ Sr. Plant Management ☐ Emergency Planning ☐ NRC Resident ☐ Other ☐ Engineer, Name _____	Operability Prior to this event ☐ Not Operable ☐ Operable ☐ Operable but degraded or nonconforming ☐ N/A	SSC required in current mode? ☐ Yes ☐ No ☐ N/A	Based on this event, the SSC was: ☐ Not Operable ☐ Operable ☐ Operable but degraded or nonconforming ☐ N/A

Operability /Function Assessment (FA) Justification: _____ _____ _____ _____ _____ _____	Operability Determination Required? ☐ No ☐ Yes OD Engineering Supervisor _____ Org OD Due Date _____ OD Time Due _____ Past Operability Determination? ☐ No ☐ Yes OD Engineering Supervisor _____ Org OD Due Date _____ OD Time Due _____

Ops Compensatory Actions: _____

Functional Assessment Required? ☐ *No* ☐ *Yes FA Engineering Supervisor* _____ *Org* _____ *FA Compensatory Actions:* _____

Reportability Call Required ☐ SCC impact or potential Reportability?

Plant Operational Mode 1 2 3 4 5 6 Defueled (at time of event discovery) Mode Restraint 1 2 3 4 5 6 Mode(s) of Applicability 1 2 3 4 5 6

LCO Entry ☐ N/A (non-ITS, TRM, ODCM issues) ☐ Yes ☐ No ITS, TRM, ODCM LCO Reference:

Prompt NRC Notification Necessary? ☐ No ☐ 1 hr. ☐ 4 hr. ☐ 8 hr. ☐ 24 hr. Reportability Requirement: _____

Special Indicators _____

WO Required? ☐ *No* ☐ *Yes WO Priority Emergency 1 2 3 4*

SRO/Operations Personnel _____ Date Time: _____

Concurrence with Past Operability ☐ No (Rework to Ops-Rep Call) ☐ Yes Concurrence with NRC Immediate Notification ☐ No (Rework to Ops-Rep Call) ☐ Yes

S T A

NRC Written Notification Required? ☐ No ☐ Yes (Contact Licensing)
Notification Requirement: ☐ 2 day ☐ 14 day ☐ 15 day ☐ 30 day ☐ 60 day
NRC Written Notification Reference: _____ STA Comments: _____

STA Date: _____ *Time:* _____

Attachment 6, Request Extension

CA #:	Due Date:	New Proposed Due Date:

ACTIONS REQUIRED:

ACTIONS TAKEN:

EXTENSION REQUESTS:

1. Reason for Extension:

2. Safety Significance of Extension; must also address probability of recurrence:

3. Economic Significance of Extension:

4. Long Term Corrective Action Requests (if applicable) – Circle applicable criteria # below:

Criteria # Criteria

- ☐ *A plant outage is required to implement corrective actions.*
- ☐ *Long lead time to manufacture/procure parts.*
- ☐ *A design change per applicable station design change process is required.*
- ☐ *The TRB/PHC/PRC process rejects authorization of funds in the current fiscal year.*
- ☐ *Training that will take multiple cycles to complete.*
- ☐ *Actions which are dependent upon a licensing submittal which requires NRC response/approval.*
- ☐ *Significant programmatic change, or*
- ☐ *If completion in <180 days contradicts work management prioritization according to AP-928.*

5. Justification for going beyond 180 days:

APPROVALS:

Responsible Individual: _____/_____
Printed Name and Signature Date

CR Sponsor: _____/_____
Printed Name and Signature Date

MRC Approval: _____/_____
Printed Name and Signature Date

Attachment 7, Condition Report Programmatic Criteria

Listed below are examples of Hardware CRs that should be considered Programmatic CRs. These are examples and this is not an all inclusive list.

- Event that causes a trip, trip near miss, plant transient, or identified reactivity management challenges **[FB0291]**
- Any issue with Tech Spec implications
- Unplanned entry into an LCO, TRM or ODCM
- Event listed as Equipment Clock Reset
- Issue associated with a Mode Restraint
- Hardware failure caused by a HU problem
- Occasional occurrence of hardware failure identified as not acceptable
- Adverse or emerging trend may exist within a like grouping of hardware conditions
- Extent of condition for the hardware failure is warranted
- Hardware failure challenges equipment reliability
- Issue results in the need to perform compensatory actions or causes a work around
- Representative hardware failures as documented by either the CR initiator or reviewing supervisor (consideration for equipment trend codes)
- Critical or Significant Component failure
- Critical or Significant Component Functional Degradation
- Issue may be result of Inadequate PM Frequency or Procedure Deficiency
- Issue resulting in megawatt loss

Attachment 8, CDE/EPIX Reporting Critical Component Failure

Description

Component Classification	
(AP-913)	Incorrect classification
(AP-913)	Not classified
Performance Monitoring (System and Component)	
(AP-913)	Monitored scope inadequate (levels, temp, pressures, vibration)
(AP-913)	Monitoring frequency not appropriate
(AP-913)	Monitoring execution less than adequate
Preventive Maintenance	
(AP-913)	PM did not exist
(AP-913)	PM frequency not appropriate
(AP-913)	PM task content not appropriate (or less than adequate)
(AP-913)	PM template/basis less than adequate
(AP-913)	PM execution less than adequate
(AP-913)	PM feedback not implemented
Work Practices	
(AP-913)	Work planning, instruction, preparation less than adequate
(AP-913)	PMT not performed or less than adequate
(AP-913)	Work activities incorrectly performed
Design	
(AP-913)	Original design less than adequate – Component not appropriate for its configuration/application
(AP-913)	Design change less than adequate – Component not appropriate for its configuration/application
Manufacturer/Vendor quality, Procurement, Shipping, or Storage	
(AP-913)	Vendor quality or workmanship issues (manufacturing defects)
(AP-913)	Procurement less than adequate (examples Specification, Equivalence)
	Receipt, Inspection, and Storage less than adequate (examples: Environment, Shelf Life, Control of Scavenged Parts, Storage PM)
Previous Corrective Action Implementation	
(AP-913)	Previous corrective actions less than adequate or not timely
Operational Performance	
(AP-913)	Equipment was not operated within design
Long term Planning and LCM	
(AP-913)	Aging/obsolescence concern, asset management/LCM plans less than adequate
(AP-913)	Previous business plan related items not implemented, not timely, or deferred
Other	

ENCLOSURE 2

Condition Reports CR-2010-010056 and IRE-028-233

Calvert Cliffs Nuclear Power Plant, LLC
February 00, 2011

Condition Report CR-2010-010056

Brief Description	Stage	Eval Due Date
WHILE PREPPING TRANSFER CASK FOR ISFSI MOVE #64 DISCOVERED SEVERAL GOUGES IN CANISTER INTERIOR.	PENDING CA COMPLETION	10/22/2010
Category	**Age**	**CR SCD**
3	119 Days	2/24/2011

Initiator

Brief Description	WHILE PREPPING TRANSFER CASK FOR ISFSI MOVE #64 DISCOVERED SEVERAL GOUGES IN CANISTER INTERIOR.
Date Discovered	9/23/2010
Time Discovered	1000 Hrs
Originating Site	Calvert
Unit #	All
Location	
Identified By	Internally
Identified by Comments	
Identified By Process	Routine Observation
Detailed Description	DURING THE PREP WORK ON THE ISFSI TRANSFER CASK AN INTERNAL INSPECTION IS PERFORMED PER ISFSI-03 PROCEDURE.DURING THIS INSPECTION THERE WERE SEVERAL GOUGES NOTICED ON THE INTERIOR OF THE CASK. SOME APPEAR TO BE CLOSE TO 3/32 OF AN INCH DEEP.
Immediate Actions Taken	Supervisor notified engineering notified CR generated
Perceived Cause	unknown
Recommended Actions	
Personnel/Equipment Safety Concern	No
Operability Concern	No
Reportability Concern	No
Potential Trip or Reactivity Concern	No
Mode Restraint Concern	No
WO Required?	No
Deficiency Tag Hung?	No
Tagnet #	none
Tag Location	none
Tag Type	
Unknown Component	

Extent of Condition	this transfer cask
OOS and Degraded condition	N/A

Affected Components

Number	Description	AP-913 Classification	MR Scoped?
CAL0::0PZVISFSI002	ISFSI ON-SITE XFER CASK		

Affected System

Number	Description
101	DRY FUEL STORAGE (DFS)

Responsibilities

Responsibility	Org Code	Organization Name	Person Code	Person Name
Supervisor	NCMM	MAINTENANCE MECHANICAL	E39111	HILLEBRAND, MARK
Initiator	NCMM	MAINTENANCE MECHANICAL	E41887	HICKEY, THOMAS
Recommended Assigned Department	NEF	NUCLEAR FUEL SERVICES		,
Evaluator	NEFCGG	NUCLEAR FUEL SERVICES - CGG	E42031	MASSARI, JOHN
Assigned Department	NEFCGG	NUCLEAR FUEL SERVICES - CGG	E42031	MASSARI, JOHN

Notes

Condition Report CR-2010-010056

Brief Description	Stage	Eval Due Date
WHILE PREPPING TRANSFER CASK FOR ISFSI MOVE #64 DISCOVERED SEVERAL GOUGES IN CANISTER INTERIOR.	PENDING CA COMPLETION	10/22/2010
Category	**Age**	**CR SCD**
3	133 Days	2/24/2011

Evaluation

Potential 10CFR21 Notification	No
Evaluation Comments	ESR-10-000958 WAS CREATED AND ASSIGNED TO FIN ENGINEERING. DRAWING 84025 DETAIL 2 INDICATES THAT THE INNER SHELL IS 0.75" NOMINAL THICKNESS WITH A 0.5" MIN WALL THICKNESS REQUIREMENT. NDE DETERMINED THAT NONE OF THE GOUGES REDUCED THE INNER SHELL THICKNESS TO LESS THAN THE ALLOWABLE MINIMUM. FIN ENGINEERING ISSUED AT-RISK ENGINEERING UNDER ECP-10-000756 ON 9/24 INDICATING THE CASK WAS ACCEPTABLE FOR USE "AS-IS". NO FURTHER CAP ACTIONS ARE REQUIRED SINCE COMPLETION OF THE REMAINING ENGINEERING PAPERWORK IS BEING HANDLED UNDER THE CNG-CM-1.01-1003 PROCESS.
Critical Component Failure	No
Outgoing OE?	No
Evaluation Due Date	10/22/2010
Problem Statement	
Outage Related	No
Outage Type	
Scheduled Completion Date	2/24/2011
Documenting Evaluation Manhours	
Evaluation Manhours	
LTCA	

Affected Components

Number	Description	AP-913 Classification	MR Scoped?
CAL0::0PZVISFSI002	ISFSI ON-SITE XFER CASK		

Affected System

Valenta, Heidi M

From: HAROON Raheel (TRANSNUCLEAR INC) [raheel.haroon@transnuclear.com]
Sent: Tuesday, October 26, 2010 8:30 AM
To: Valenta, Heidi M
Cc: Sponsel, John R; SHIH Peter (TRANSNUCLEAR INC); BUYASKAS Sue (TRANSNUCLEAR INC)
Subject: RE: Dwg. 84-027 NUHOMS-24P onsite transfer cask
Attachments: oledata.mso

Heidi,

The analysis of the 32P Transfer Cask presented in Calculation 1095-035 Rev. 2 is based on a 0.75" nominal wall thickness for the inner liner plate. Those analyses demonstrated the acceptability of the 0.75" plate. No attempt was made to establish a minimum acceptable thickness. A preliminary calculation was performed to determine the maximum allowable scratch depth.

Since the scratches are localized, they would not have an impact in the general membrane (P_m) or general membrane plus bending ($P_m + P_b$) stresses. The maximum allowable scratch depth was determined based on the stress ratios of local membrane (P_L) and local membrane plus bending ($P_L + P_b$) and primary plus secondary stresses ($P_L + P_b + Q$) stresses.

Local Membrane Stresses (P_L)

For a constant load, a membrane stress is directly proportional to the thickness of the loaded section. Thus the maximum allowable scratch depth for membrane stress is calculated based on the analysis of 0.75" thick inner liner plate and the ratio of the calculated and allowable stresses. For a constant load, the maximum scratch depth is:

$$d_{scratch} = t_{analysis} - t_{analysis}\left(\frac{S_{calculated}}{S_{allowable}}\right)$$

Local Membrane + Bending Stresses ($P_L + P_b$) or ($P_L + P_b + Q$)

For a plate subject to bending, the stress is proportional to the thickness squared (i.e. section modulus for a unit width of plate is $t^2/6$). Thus the stress is proportional to the square of the thickness and the maximum scratch depth is calculated as follows:

$$d_{scratch} = t_{analysis} - t_{analysis}\left(\frac{S_{calculated}}{S_{allowable}}\right)^{\frac{1}{2}}$$

This relationship is also used for primary plus secondary stresses ($P_L + P_b + Q$).

The Table below calculates the maximum scratch depth for each load combination presented in calculation 1095-035 Rev. 2. The Level D combination controls and the maximum scratch depth is 0.149 inches.

Stress Classification	Combined Stress Intensity	Allowable Stress Intensity	Stress Ratio	Max Allowable Scratch Depth (in)
Load Combination Level A/B (D + T + H)				
PL	11.78	28.1	0.419	0.436
PL + PB	15.28	28.1	0.544	0.197
PL +PB + Q	32.6	56.1	0.581	0.178
Load Combination Level C (D + H + E)				
PL	1.4	33.7	0.042	0.719
PL + PB	1.4	33.7	0.042	0.597
Load Combination Level D (D + T + FD)				

Vertical Drop				
PL	6.5	64.4	0.101	0.674
PL + PB	6.5	64.4	0.101	0.512
Horizontal Drop				
PL	41.3	64.4	0.641	0.269
PL + PB	41.3	64.4	0.641	0.149
Corner Drop				
PL	30.9	64.4	0.480	0.390
PL + PB	41.3	64.4	0.641	0.149

Thanks,
Raheel

From: Valenta, Heidi M [mailto:Heidi.Valenta@cengllc.com]
Sent: Monday, October 25, 2010 3:17 PM
To: HAROON Raheel (TRANSNUCLEAR INC)
Cc: Sponsel, John R
Subject: RE: Dwg. 84-027 NUHOMS-24P onsite transfer cask

Thanks Raheel.
Heidi

From: HAROON Raheel (TRANSNUCLEAR INC) [mailto:raheel.haroon@transnuclear.com]
Sent: Monday, October 25, 2010 3:00 PM
To: Valenta, Heidi M
Cc: Sponsel, John R
Subject: RE: Dwg. 84-027 NUHOMS-24P onsite transfer cask

Heidi,

I knew that we had run into this for our other transfer cask and I was trying to find the justification that was used there. I couldn't find the right people to talk to last week, I was able to get a hold of them today and it seemed that the issue was resolved by analyzing for the minimum thickness. I will work on the write-up tomorrow and should have it to you by lunch.

Thanks,
Raheel

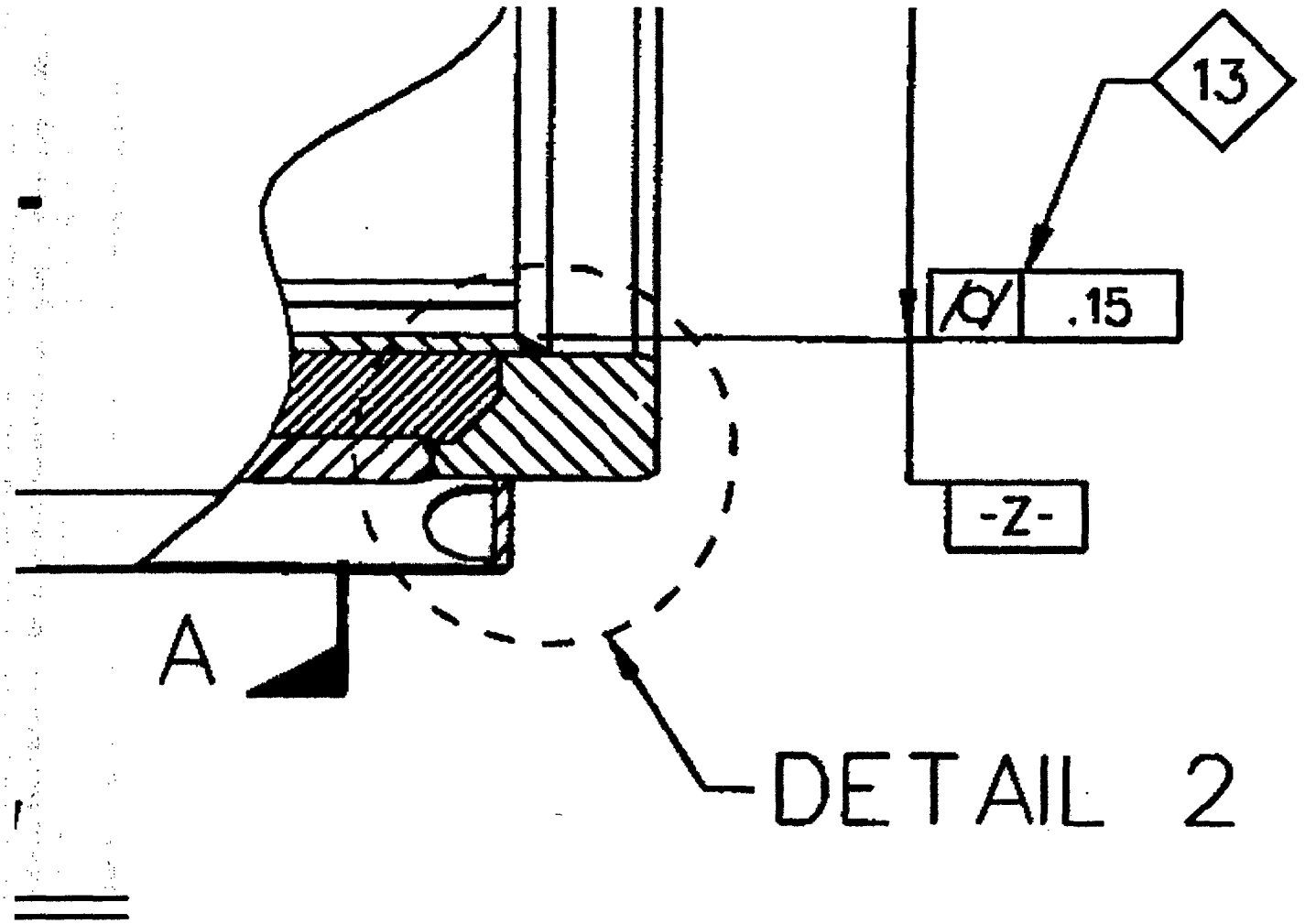
From: Valenta, Heidi M [mailto:Heidi.Valenta@cengllc.com]
Sent: Monday, October 25, 2010 10:25 AM
To: HAROON Raheel (TRANSNUCLEAR INC)
Cc: Sponsel, John R
Subject: RE: Dwg. 84-027 NUHOMS-24P onsite transfer cask

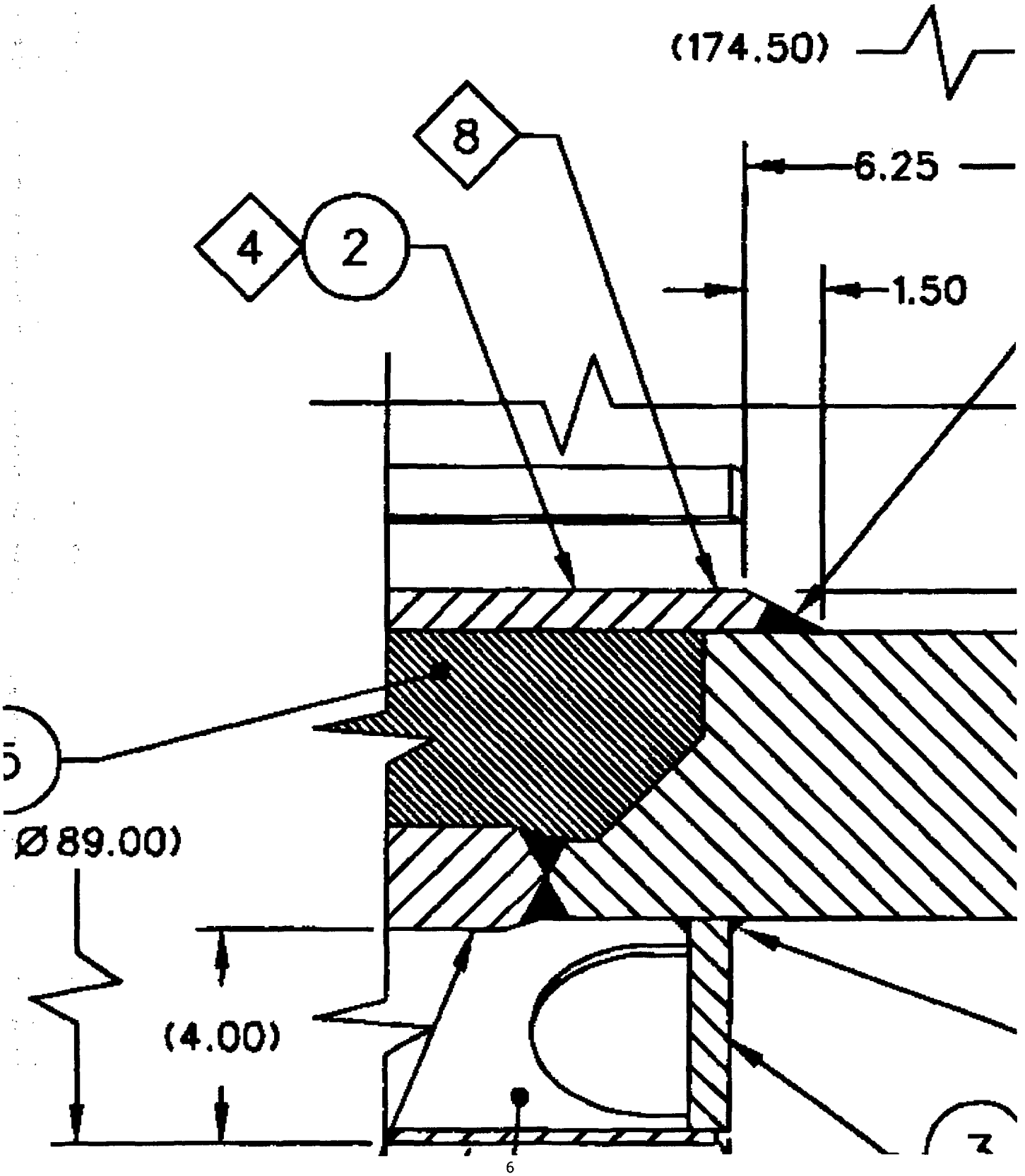
Raheel
When can we expect a write-up concerning the tolerance on the transfer cask liner? Thanks.
Heidi

From: HAROON Raheel (TRANSNUCLEAR INC) [mailto:raheel.haroon@transnuclear.com]
Sent: Tuesday, October 19, 2010 1:19 PM
To: Valenta, Heidi M; BUYASKAS Sue (TRANSNUCLEAR INC)
Cc: TAVASSOLI Kamran (TRANSNUCLEAR INC); Schade, Eric; SHIH Peter (TRANSNUCLEAR INC)
Subject: RE: Dwg. 84-027 NUHOMS-24P onsite transfer cask

To: BUYASKAS Sue (TRANSNUCLEAR INC)
Cc: Schade, Eric
Subject: Dwg. 84-027 NUHOMS-24P onsite transfer cask

Sue
I would lilke to speak with someone regarding the ½" tolerance on the lining shown in Detail 2. I'd like to know which number the calc. was based on. I assume it would be the ½". Thanks.
Heidi




(174.50)
8
6.25
4
2
1.50
5
Ø89.00)
(4.00)

PLEASE PRINT ALL INFORMATION

ISSUE REPORT

Additional Information Attached - YES (NO)

PART A - INITIATOR Complete PART A including **Hardware** and /or **Non-Hardware** section(s) as applicable. Use additional space on reverse, if needed.

NO. IR3-028-233

1. Do you have a **Personnel/Equipment Safety** Concern? (NO) YES
2. Do you have an **Operability** (Tech Spec/Other) Concern? (NO) YES
3. Do you have a **Reportability** Concern? (NO) YES
4. Do you have a Potential **Trip** Concern? (NO) YES

If 1,2, 3 and/or 4 are YES then IMMEDIATELY contact your Supervisor.

5. DESCRIBE THE ISSUE: Structural bolting material and clip angle inside I.S.F.S.I. Horizontal Storage Module #048 is exhibiting signs of corrosion (paint has fallen off and heavy rust is present in areas).

Three day delay on reporting due to investigation

6. Date/Time Discovered: 11 / 02 / 99 ; 11 (AM)/PM 7. Activity in Progress When Discovered: Audit 99-10
8. Was Issue Corrected-On-The-Spot? (NO) YES 9. Immediate Actions Taken: Discussed with S.E. 11-5-99
10. Apparent Cause: unknown 11. Effect of Issue: Poss. degrade bolting Mdl.
12. Extent of Issue: All existing HSM's 13. Is This A Recurring Issue? (NO) YES
14. Recommendation: Eng. evaluate existing condition, check for poss. PM

HARDWARE INFORMATION 15. Equipment Noun Name: HSM's 16. Unit#: 0 17. System#: 101

18. Equipment Number: Location: ISFSI Vendor/Mfg: Nutholms
19. Tag(s) placed? (NO) YES Type: Tag Location:
20. If "NO", Explain: No access - Doors are installed

NON-HARDWARE INFORMATION 21. Title & ID Number of Controlling Document (include Rev. No.):

22. Requirement Violated (if known):
23. **INITIATOR'S NAME (PRINT):** Ken Massey Ext.: 2204 Date: 11 / 5 / 99 Time: 7 (AM)/PM Group: QV

PART B - REVIEWING SUPERVISOR If 1, 2, 3 and/or 4 "YES", IMMEDIATELY contact the Shift Supervisor. IF "NO", forward to IAU/OMC.

1. Is this an **Immediate** Personnel/Equipment Safety Hazard? (NO) YES 5. Compensatory Actions Taken:
2. Do you have an **Operability** (Tech Spec/Other) Concern? (NO) YES
3. Do you have a **Reportability** Concern? (NO) YES
4. Do you have a Potential **Trip** Concern? (NO) YES
6. Root Cause Analysis **Recommended**? (NO) YES Explain why:
7. Was Issue Corrected-On-The-Spot? (NO) YES Are Further actions required? NO (YES) (Indicate in "Recommended Actions" below):
8. **Recommended** Group(s) to Resolve Issue: PB3 Discussed With: LEFT VOICE MESSAGE W/ KEN ROBINSON
9. **Recommended** Actions to Resolve Issue: A. 14 CAT I
10. Approve IR? (YES) NO 11. NAME (Print/Sign) J W Dosuell / J W Dosuell Ext.: 4790 Date 11 / 5 / 99

PART C - SHIFT SUPERVISOR REVIEW Complete this section if 1, 2, 3 or 4 of the Reviewing Supervisor section is answered "Yes": Forward to OMC/IAU.

1. Is Issue an **Immediate** Personnel/Equipment Safety Hazard? NO YES 7. Comments:
2. Is this an **Operability** (T. S./Other) Concern? T. S. # _____ NO YES
3. Is this a **Reportability** Concern? RM-1-101 Report # _____ NO YES
4. Do you have a **Trip** concern? NO YES
5. Operability Determination Implemented Per NO-1-106? NO YES
6. Compensatory Actions Taken:

NAME (Print & Sign) _____ / _____ **Ext.:** _____ **Date** ___/___/___ **Time:** _____

PART D - OMC & IAU REVIEW. ALL ISSUE REPORTS ARE SENT TO IAU. HARDWARE ISSUES TO OMC FIRST.

1. MO Required? YES NO 2. Priority: _____ 3. Mode to Work _____ 4. RMG: _____ 5. Operability Concern? NO YES
6. Mode Restraint? NO YES 7. RM-1-101 Report Needed? NO YES 8. Shift Supervisor Approval required Prior to Starting Work? NO YES
9. Compensatory Actions Taken:
10. Work Considerations/Comments:
11. OMC Signature: _____ Date: ___/___/___ 13. OMC Clerk: MO#: _____
12. IAU Category: II AIS# IR99001419 Comments: _____ MO#: _____

NOV 05 1999

4101 Rev. 12/97

BGE

MEMORANDUM

DE05052 *Civil Engineering Unit*

TO: C. J. Dobry

FROM: J. E. Remeniuk

SUBJECT: ISFSI HSM Impact of Failed Coatings on Steel

REF: Memo, M. C. Murphy to C. J. Dobry, ISFSI Module Failed Coating, dated 11/30/99

DATE: January 31, 2000

Per your request, I performed a review of ISFSI HSM documentation to determine the potential impact of failed coatings on the steel connections for loaded HSM Numbers 1 through 24 utilizing a very conservative 1 mil per year atmospheric rate of corrosion. It is my understanding that the coatings for the unloaded HSM Numbers 25 through 48 have been repaired, and as such, are not included in this review. This review is being performed in lieu of conducting an inspection in one of the loaded HSM's, which would not be ALARA wise. Below is a summary of my findings.

I reviewed the above referenced memo which concluded that the corrosion found on bolts and some welds was superficial and not expected to impact the structural capacity of the steel. The corrosion is fostered due to condensation. This makes sense, especially for the unloaded HSM's. However, the loaded HSM's have a constant heat source from the DSC's which would substantially reduce (if not eliminate) the potential for condensation. As such, utilizing a 1 mil per year atmospheric rate of corrosion is indeed very conservative.

I also spoke to Marty Murphy, the author of the above referenced memo, for clarification of what was actually found. He stated that corrosion was found mainly on the bolts and welds, and that the main structural members were fine. He believes that the structural members were coated prior to shipment to the site, but that uncoated bolts were installed and torqued. Marty also stated that it appears that the coatings for the bolts and welds were applied after some corrosion had occurred, and that a lack of surface preparation caused the coatings to be ineffective. As such, this review will focus on the bolts and welds.

BGE Drawing No. 84-092-E provides the details for the DSC support steel in the HSM. BGE Calculation CA04533, Rev. 0 is the active calculation of record. A review of these documents has revealed that for normal operating conditions, the combined axial and bending stresses amount to only 40% of the allowable capacity. For both the off-normal and accident load conditions operating conditions, the combined axial and bending stresses amount to only 55% of the allowable capacity. In essence, there is considerable reserve of strength. Furthermore, a review of the welded and bolted connections revealed that there is enough reserve material to ensure that the HSM's are structurally adequate through the life of the current license and a potential twenty-year license extension.

This completes my review. Please contact me on x-2424 should you have any questions or concerns.

Copies to: P. D. Patel

Closed Corrective Action Document

Document Status: Closed

AIT #:	IR199901419	**Event Date:**	11/02/99
Iss Rept #:	IR3-028-233	**Date Received:**	11/10/99
Document Type:	IR	**Acknowledge by Date:**	12/01/99

Issue/Event Description:
STRUCTURAL BOLTING MATERIAL AND CLIP ANGLE INSIDE ISFSI HORIZONTAL STORAGE MODULE 048 IS EXHIBITING SIGNS OF CORROSION (PAINT HAS FALLEN OFF AND HEAVY RUST IS PRESENT IN AREAS).

IR INITIATOR: K. MASSEY
IR SUPERVISOR: J. DOSWELL

IssueReportDocument: 3028233.max

AIT Due Date: 07/27/2000
Responsible Orgn: 41-31-02 Primary Systems
Responsible Indiv: Dobry Chris J

Event Narrative:
On 11/02/099, Horizontal Storage Module (HSM) # 48 was inspected by Civil Engineering personnel. During the inspection it was noted that the majority of the bolts hex heads, in the HSM, had no coating on them and had surface corrosion.
Problem Analysis/Validation:
Executive Summary:
On November 11, 1999, an inspection of HSM #39 was conducted by Plant Engineering, Civil Engineering (CEU), and Materials Evaluation and Inspection (MEIU) personnel. The inspection revealed very minor coating separation on a few bolt heads as well as the support angle weldments The original construction specification was reviewed and found to not have coating touch up requirements. The new construction specification delineates the coating touch up requirements on BGE drawing 84091. Maintenance Order 0199902257 repaired the coating deficiencies in HSMs 25 through 48. HSMs 1 through 24 were evaluated by MEIU and CEU and determined to not require inspection until the year 2032. AIT IR199901419 Milestone # 2 was opened to perform the inspection in the year 2027.
Analysis:
PSEU chose HSM # 39 to inspect because it would be representative of all HSMs excluding #'s 47 and 48. HSMs 47 and 48 did not have their closure doors installed for approximately 6 years and were exposed to the environment. HSMs 47 and 48 were the left open for tours of the Independent Spent Fuel Storage Installation (ISFSI).
The bolting and weldments coatings, in HSM #39, were inspected and revealed very minor coating separation on a few bolt heads as well as the support angle weldments The coating separation was determined to be the result of poor surface preparation. The original construction paper work was reviewed and it was found that there was no specification for touch up work on the metal surfaces in the HSMs. Touch up requirements were placed on BGE drawing 84091 for the construction of the new HSMs.
An evaluation was performed by Civil Engineering, with input from Material Engineering and Inspection Unit, and it was conservatively determined that the loaded HSMs are structurally adequate for the remainder of their license period and a twenty years license extension. AIT IR199901419 Milestone # 2 was opened to perform the inspection in the year 2027.

UEI:
System #: 101
Event Driven: N
Milestone req'd: N
Event Driven Comments:

Problem Summary Table

Problem #	Problem Summary	Problem Key Words
A		
B		

ISSUE REPORT RESOLUTION REQUEST

IR NUMBER: IR 3-028-233 IR DUE DATE: 12/31/2027

AIT NUMBER: IR199801419 DATE OF RESPONSE: 10/24/2000

Plant Engineering requests closure of this Issue Report.

SUMMARY OF ISSUE:
Perform an inspection of the structural bolting material in one of the HSMs in phase One (#1 to 24). The inspection is to be completed by 12/31/2027.

ACTION TAKEN:

10/24/2000 – Rep Task 0101201(B) was created to conduct an inspection of the bolting and weldments inside a phase 1 HSM. The frequency with which the inspections will be performed will be based on the results of the inspection.

REVIEWED BY RESP. IND.: C. J. Dobry DATE: 10/24/2000

REVIEWED BY PE - PSEU:: K. F. Robinson DATE: 10/25/00

DISTRIBUTION:

Source Contact: _____

IR Initiator: _____

IR Supervisor: _____

System File #: _____ II.A.12

Unit File (-300) _____

KEEP A COPY OF THE ISSUE REPORT ATTACHED TO THIS RESPONSE

ENCLOSURE 3

List of ISFSI Condition Reports

Calvert Cliffs Nuclear Power Plant, LLC
February 00, 2011

List of ISFSI Condition Reports

Document Number	Description
IR0-0166-304-19940110-00001 CAL-CR	SIGNS ON THE ISFSI ACCESS GATE ARE DETERIORATING AND FALLING OFF.
IR0-029-164-19951130-00001 CAL-CR	THE SR PARTS STORED AT THE ISFSI SHED AND IN THE ISFSI COMPOUND ARE NOT MAINTAINED PER CCI-207.
IRE-007-426-20050808-00001 CAL-CR	IMPROPER DRILL CONTROLLER ACTIONS CONTRIBUTED TO POOR DRILL PERFORMANCE. EXAMPLES INCLUDE ISFSI INTRUDER BEING STOPPED BEFORE ENTERING THE ISFSI AND NOT REALIZING THE MECHANICS WENT TO THE INCORRECT LOCATION FOR THE ADV ISOLATION VALVE.
IRE-020-526-20070301-00001 CAL-CR	GENERATE AN MO FOR CEA SWAPS IN THE SFP, TENTATIVELY SCHEDULED FOR THE WEEK FOLLOWING THE UNIT 2 CORE ONLOAD (26 MARCH 2007). THESE SWAPS ARE NEEDED TO REMOVE CEAS FROM FUEL THAT IS ELIGIBLE FOR THE ISFSI.
IRE-027-610-20071211-00001 CAL-CR	WHILE PERFORMING THE WEEKLY AREA STATUS IN ACCORDANCE WITH RSP 1-104, DISCOVERED A STANCHION AND RADIOLOGICAL POSTING ON THE GROUND AT THE ISFSI YARD. ALSO DISCOVERED THE RAM TAGS MISSING FROM THE ATCOR VAULT (EMPTY) AND THE RCP INSPECTION STAND BOX AT LA
IRE-001-847-20041209-00001 CAL-CR	PER SS-60 ISFSI VENT INSPECTION LOGS SHALL BE REVIEWED AND APPROVED BY THE SECURITY SHIFT SUPERVISOR (SSS), THE CURRENT PRACTICE IS THE SSS WILL INITIAL THE COMPLETED LOGS AFTER HIS REVIEW. A RANDOM REVIEW OF 20 COMPLETED LOGS SHOWED THAT THE SSS INITIAL FOR APPROVAL WAS MISSING ON 7 LOGS REVIEWED FROM 4/28/03 TO 11/07/04.
IR0-039-529-19950504-00001 CAL-CR	ISFSI SHIELD PLUG BGE 24P-R013 WAS RECEIVED W/ A KEY WAY DEPTH OF PREPARATION OF 1/2" RATHER THAN THE .380" +/- .05 REQUIRED ON DWG 84-007-E SH 2 DETAIL 4
IR1-018-565-19961023-00001 CAL-CR	THERE WAS EXCESSIVE WATER LEAKAGE FROM ISFSI TRANSFER CASK DURING TRANSPORT TO HSM STORAGE MODULE.
IR3-025-503-19981015-00001 CAL-CR	THE PAGE REPLACEMENT PACKAGE I RECEIVED TO PERFORM THE ISFSI UFSAR UPDATE (REV 7) IS UNSATISFACTORY. COPIES ARE POOR, PAGE NUMBERS AND REVISION NUMBERS ARE UNREADABLE. DOCUMENT WAS COPIED SINGLE-SIDED AND SHOULD HAVE BEEN COPIED DOUBLE-SIDED.
IR3-075-578-20010711-00001 CAL-CR	TYPOGRAPHICAL ERROR IN ISFSI SAR SECTION 3.3.4.5. NOMINAL K-EFFECTIVE VALUE OF 0.93114 SHOULD READ 0.93144 PER ISFSI SAR SECTION 3.3.4.4 AND CA03895.
IR4-023-975-20031211-00001 CAL-CR	DURING ISFSI #46 THE DRY FUEL STORAGE CANISTER (DSC) LID WELD FAILED PT EXAM REQUIRING ADDITIONAL WORK WHICH INCREASED THE RADIATION DOSE RECEIVED.
IRE-017-071-20060912-00001 CAL-CR	DURING PLACEMENT OF FUEL INTO AN ISFSI CANISTER, OPERATIONS PERSONNEL RAN OVER THE CAMERA CABLE OF THE CAMERA SYSTEM USED TO PERFORM VERIFICATION OF THE FUEL. THE CABLE WAS DAMAGED SUCH THAT THE CAMERA SYSTEM NEEDS TO BE REPLACED. THE CABLE WAS MOVED BY MAINTENANCE PERSONNEL TO SUPPORT PLACEMENT OF THE CANISTER INTO THE POOL.
IR4-009-203-20021002-00001 CAL-CR	A CAN OF PR1-102 (SEALANT) WAS FOUND IN THE CASK WASHDOWN PIT WITHOUT A CONTROLLED MATERIAL LABEL. THE SEALANT IS APPROVED FOR RCA (WITH LABEL) AND WAS BEING USED ON THE ISFSI CANNISTER LOADING JOB.
IR3-030-389-20000224-00001 CAL-CR	WHILE PERFORMING LEAKTEST ON ISFSI CANISTER #R-026, THE CALIBRATION STANDARD #TP157 HAD A LEAK RATE ABOVE THAT WHICH WAS REQUIRED IN LEAK TEST PROCEDURE NDE-5902-CC, REV. 0, 3.2X10 -5 ATM-CC/SEC.
IRE-008-950-20051020-00001 CAL-CR	DURING THE RAISING OF THE ISFSI TRANSFER CASK LIFTING YOKE FOLLOWING THE PLACEMENT OF THE TC/DSC INTO THE SFP, SEVERAL PAINT CHIPS APPEARED IN THE WATER OVER THE TC/DSC, SOME SETTLING ONTO THE TC (WNW EDGE) -- THESE WERE HYDRO-VAC'D FROM THE TC. ALSO PERFORMED UNDERWATER CAMERA INSPECTION OF THE TC/DSC TO ENSURE ALL DEBRIS WAS REMOVED.

List of ISFSI Condition Reports

IR4-023-968-20031119-00001 CAL-CR	ISFSI #49 WE HAD PROBLEM WELDING COVER PLATE ON, WE NEEDED TO GRIND ON PLATE 3 TIMES BECAUSE OF THE HEAT (CAN BECOME DISTORTED). ADDITIONAL DOSE ACCUMULATED FROM ADDITIONAL GRINDING AND WELDING.
IRE-009-475-20051114-00001 CAL-CR	GENERATE AN MO FOR ISFSI LOADING #51 IN 2006, USING A NUHOMS-32P DSC.
IR5-022-311-19950503-00001 CAL-CR	ISFSI DSC 24P-R001 IS GOUGED & SCARRED FROM PERFORMING ISFSI ETPS. NDE UNIT TO TAKE DEPTH, THICKNESS READINGS AND SEND TO DES FOR EVALUATION
IR0-029-216-19950714-00001 CAL-CR	COVER PLATE SHIELD PLUG AND DRY CANISTER #R 016 IS BEING STORED IN THE ISFSI SHED WITHOUT THE PROPER TRACEABILITY PER CCI-207
IR1-043-511-19971017-00001 CAL-CR	THE CALC FOR MAXIMUM INTERNAL DSC PRESSURE FOR THE ISFSI WAS A NON CONSERVATIVE ASSUMPTIONS FOR THE INITIAL FUEL IN HELIUM FILL GAS TEMPERATURE & PRESSURE.
IRE-006-023-20050531-00001 CAL-CR	GENERATE AN MO TO TAKE DELIVERY OF AND UNLOAD NEW 32-P DRY SHIELDED CANISTERS (DSC) FOR STORAGE AT ISFSI FACILITIES.
IRE-011-278-20060206-00001 CAL-CR	THIS IR IS WRITTEN SPECIFICALLY TO DOCUMENT AN NRC OCCUPATIONAL RADIATION SAFETY CORNERSTONE PERFORMANCE INDICATOR OCCURRENCE DUE TO LOSS OF RADIOLOGICAL CONTROL OVER ACCESS TO AN AREA >1 REM/H, DURING HELIUM TEST ON ISFSI #50 CASK LOADING.
IR0-044-005-19960109-00001 CAL-CR	ISSUE EXISTS FOR ENSURING COMPLIANCE WITH ISFSI TECH SPEC 3.2.3.1. THERE HAVE BEEN SMEARS DOCUMENTED THAT EXCEED 22,000 DPM/100CM.
IR0-029-212-19950201-00001 CAL-CR	DURING INVESTIGATION OF RCA REPORT 94-21 PROCEDURE ISFSI-01 (CONTINUOUS USE) STEP 6.15.1.H WAS PERFORMED BEFORE COMPLETING STEP 6.15.1.G WHICH IS A PROCEDURE VIOLATION.
IR3-050-806-20020122-00001 CAL-CR	A 72.48 EVALUATION WAS APPROVED IN SEPTEMBER 2000 WHICH EVALUATED A CHANGE TO THE ISFSI USAR. THIS CHANGE DID NOT REQUIRE ANY FIELD WORK AND SHOULD HAVE BEEN INCLUDED IN THE SEPTEMBER 2001 ANNUAL USAR SUBMITTED. HOWEVER, A UCR WAS NOT COMPLETED PER RM-1
IRE-009-042-20051025-00001 CAL-CR	INADEQUATE VENDOR OVERSIGHT ON SEVERAL CCNPP PROJECTS HAS CHALLENGED PLANT OPERATION AND ISFSI LICENSING AND DESIGN ACTIVITIES FOR NEW FUEL STORAGE CANISTERS.
IR3-000-809-19980512-00001 CAL-CR	THE ISFSI SAR HAS INCONSISTENCIES BETWEEN SECTION 9.1.1.2 AND 9.1.2.1. IT ALSO CONTAINS SOME INCORRECT REFERENCES TO THE UFSAR
IRE-006-424-20050623-00001 CAL-CR	GENERATE AN MO TO FABRICATE MOCKUPS FOR ISFSI 32P DSC VENT/SIPHON COVER PLATES.
IR1-044-752-19961121-00001 CAL-CR	THERE HAS BEEN AN OBSERVED INCREASING TREND IN DOSE DURING RECENT ISFSI SHIPMENTS.
IR3-043-645-20001214-00001 CAL-CR	ISFSI SHIPMENT #36 HAD A SPREAD OF CONTAMINATION AT THE COMPLETION OF THE VACUUM DRYING PROCESS. AN AREA IN THE NON-CONTAMINATED AREA BESIDE THE CASK WORK PIT WAS CONTAMINATED. THIS ALSO HAPPENED ON SHIPMENT #35, A CAUSAL ANALYSIS HAS BEEN ONGOING & COMPENSATORY ACTIONS WERE IN PLACE.
IRE-011-392-20060208-00001 CAL-CR	EVALUATE THE READINESS TO PERFORM THE ISFSI #51 LOADING.
IRE-019-210-20070104-00001 CAL-CR	WHILE MOVING FUEL ASSEMBLIES IN PREPARATION FOR ISFSI #53, VERIFICATION OF NO FME STUCK IN BOTTOM PLATE OF THE FUEL ASSEMBLY WAS NOT PERFORMED.
IRE-024-972-20070828-00001 CAL-CR	INSPECT/LOAD TEST RIGGING GEAR FOR NEW FUEL SHIPPING CASK HANDLING EQUIPMENT LOCATED IN ISFSI BUILDING. PRIOR TO RECEIPT OF NEW FUEL. REPLACEMENT WITH QUALIFIED RIGGING GEAR IS ACCEPTABLE.
IRE-018-703-20061207-00001 CAL-CR	VARIOUS "NO ENTRY SIGNS" ASSOCIATED WITH ISFSI PROTECTED AREA FENCE NEED ADDITIONAL MOUNTING SUPPORT AND LEVELING.
IRE-022-235-20070424-00001 CAL-CR	SECURITY ISFSI UPS BATTERIES SHORTED OUT. BATTERIES NEED REPLACED

List of ISFSI Condition Reports

IR0-033-366-19951021-00001 CAL-CR	NRC INSPECTION OF DSC VENDOR (RANOR) FOUND CANISTER WELD THICKNESS BELOW MINIMUM REQUIREMENTS. 14 DSCS AT CCNPP ARE NOT YET LOADED INTO ISFSI. EVALUATE THE ISSUE FOR APPLICABILITY TO CCNPP DSCS.
IR3-028-289-19991102-00001 CAL-CR	M&TE USAGE IS NOT BEING RECORDED IN TECHNICAL PROCEDURE ISFSI-01, AS REQUIRED BY ADMIN PROCEDURE MN-2-100.
IR4-029-788-20040819-00001 CAL-CR	THE LIFTING TRUNIONS ON THE ISFSI CASK WERE FOUND TO BE CONTAMINATED UP TO 3000 DPM/100 CM2. THE CONTAMINATED TRUNIONS WERE PROTRUDING BEYOND THE CONTAMINATED AREA BOUNDARY.
IRE-032-696-20080707-00001 CAL-CR	SEVERAL HILTI BOLTS WERE FOUND WITH LOOSE NUTS ON THE LADDERS THAT ACCESS THE TOPS OF THE HSMS INSIDE THE ISFSI YARD.SOME OF THE HOUSEKEEPING PADS UNDER THE FEET OF THESE LADDERS ARE CRACKED AND BREAKING APART.
IR4-025-330-20031205-00001 CAL-CR	CRANE IN AUX BUILDING (MAIN HOOK) NOT WORKING, ISFSI CASK IS HANGING ON THE YOKE WHICH IS ATTACHED TO THE HOOK. INSPECT CABLE FOR DAMAGE.
IR3-005-170-19980225-00001 CAL-CR	WHILE REWORKING THE STRUCTURAL ANALYSIS CALCULATIONS FOR THE NUHOMS - 24P ISFSI DRY SHIELDED CANISTER (DSC), A DISCREPANCY WAS IDENTIFIED BETWEEN THE PRESSURES USED IN THE EXISTING NUTECH CALCULATIONS AND THE ACTUAL BLOWDOWN AND REFLOOD PRESSURE CONDITION
IR3-018-955-20010621-00001 CAL-CR	DOCUMENT DISTRIBUTION COULD NOT BE COMPLETED DUE TO MISSING / NOT CHECKED OUT DOCUMENTS, ISFSI, 4 VOLUMES ON THE 2ND FLOOR NEF.
IRE-006-027-20050527-00001 CAL-CR	REFERENCE WAS MADE TO AN UNAPPROVED REVISION OF C OF C IN AN ISFSI LICENSE AMENDMENT REQUEST. THE LAR IS 18 MONTHS OLD AND WAS ISSUED PRIOR TO CURRENT QUALITY CONTROL MEASURES.
IRE-020-530-20070301-00001 CAL-CR	GENERATE AN MO FOR ISFSI LOADING #55, USING A NUHOMS-32P DSC. THE LOADING IS TENTATIVELY SCHEDULED FOR 4 JUNE 2007.
IR0-039-937-19951020-00001 CAL-CR	UPDATE AND REVISE THE ISD ARCHIVE SOFTWARE PROGRAM FOR THE ISFSI AUTOMATIC WELDER.
IR4-011-505-20021021-00001 CAL-CR	THE OFFSITE DOSE CALCULATION MANUAL (ODCM) REQUIRES THAT THE ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT (AREOR) INCLUDE A TABLE THAT STATES THE DISTANCE AND DIRECTION FROM THE CENTRAL POINT OF THE INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI
IR4-015-603-20031110-00001 CAL-CR	WHEN ATTEMPTING TO CHANGE THE SFP AREA EXHAUST FAN HEPA FILTERS TO SUPPORT ISFSI MOVES IT WAS DISCOVERED THAT THE SITE DID NOT HAVE ENOUGH REPLACEMENT FILTERS TO PERFORM THE MAINTENANCE. ALL PRIOR CHECKS AND PM'S WERE PERFORMED SATISFACTORILY. THIS HAS CAUSED CRITICAL ISFSI MOVES FROM BEING PERFORMED AS SCHEDULED.
IR3-022-372-19991223-00001 CAL-CR	OUR ISFSI VENDOR, TRANSNUCLEAR WEST (TNW) HAS ISSUED CORRECTIVE ACTION REPORT (CAR) 99.242 ABOUT THE OVER TORQUING OF THE CASK LIFTING YOKE BOLTS. THIS PROBLEM WAS DISCOVERED DURING THE ASSEMBLY OF A YOKE FOR ANOTHER UTILITY. THE BGE YOKE WAS ASSEMBLED PER THE DRAWINGS AND PROCEDURES. THE ISSUE IS THAT THE VENDOR DOCUMENTATION WAS INCORRECT. A LOWER TORQUE VALUE SHOULD HAVE BEEN USED.
IRE-019-382-20070112-00001 CAL-CR	WHILE PREFORMING INITIAL FME INSPECTION OF ISFSI CANISTER # 53,PRIOR TO BRINGING CANISTER TO AUX BULDING,TWO ITEMS WERE FOUND INSIDE CANISTER.1) A COILED METAL CHIP/SHAVING (STAINLESS STEEL)APPROXIMATELY 1 1/2" LONG. 2) A PIECE OF ALUM.MIG WIRE APPROXIMATELY 1" LONG.
IR4-032-767-20040826-00001 CAL-CR	WHILE PERFORMING SURVEY ON ISFSI CASK IN SPENT FUEL POOL, BOLT FROM INSTR. (6112B) FELL OUT OF THE METER HOUSING LANDING ON DAMM. COULD HAVE FALLEN IN SFP.
IR0-033-355-19940110-00001 CAL-CR	DURING THE 1ST & 2ND LOADING OF THE ISFSI PROJECT, THE SWITCH ON THE BACK OF THE VAC DRYING SYS. VAC GAUGE WAS SET IN THE WRONG POSITION.

List of ISFSI Condition Reports

IR1-044-567-19970107-00001 CAL-CR	THERE IS A POSSIBILITY THAT ISFSI TECH. SPEC. 3 / 4.7 (NO FUEL ASSEMBLY WEIGHING GREATER THAN 1,300 LBS. SHALL BE LOADED INTO THE ISFSI SITE) HAS BEEN VIOLATED.
IR3-027-737-19990524-00001 CAL-CR	COULD NOT LOCATE 0 TO 100 TORR TRANSDUCER. SUPPOSED TO BE CONNECTED TO HOSE FOR ISFSI VACUUM SKID.
IR3-035-681-19991228-00001 CAL-CR	ISFSI EXPANSION PROJECT OFFICE TRAILER CONSTRUCTED NORTH OF ISFSI WITHOUT CONSULTING RADIATION SAFETY SECTION. NO ASSESSMENT WAS FIRST MADE OF POTENTIAL EXPOSURE TO PROJECT PERSONNEL.
IR4-018-007-20030602-00001 CAL-CR	UPS SYSTEM FOR ISFSI SHOWS ABNORMAL STATE
IRE-009-579-20060210-00001 RCAR	IMPROPERLY SEATED TOP SHIELD PLUG WAS WELDED ONTO DRY SHIELDED CANISTER DURING FIRST NUHOMS-32P ISFSI LOADING
IRE-019-904-20070207-00001 CAL-CR	SECURITY DOOR AT THE ISFSI LATCH BROKE. SEE SMR 200701300829G FOR DETAILS. THIS CR IS FOR TRACK AND TREND PURPOSES.
IRE-010-757-20060116-00001 CAL-CR	DSC SHIELD PLUG RADIAL GAP DIMENSION DOES NOT MEET ISFSI-03 PROCEDURE REQUIREMENTS
IR4-009-206-20021031-00001 CAL-CR	MN-1-113, SPONSORSHIP AND CONTROL OF NON-CCNPP PERSONNEL, REQUIRES THE USE OF ATTACHMENT 4, NON-CCNPP WELDING CHECKLIST. THIS CHECKLIST WAS NOT USED AS REQUIRED FOR WELDING ACTIVITIES ON THE DRY SHIELDED CANISTER FOR ISFSI LOADING #37.
IR3-008-240-20000705-00001 CAL-CR	CONTRACTOR EMPLOYEE, WHEN LIFTING/PULLING STEEL REBAR THROUGH #A WALL MODULE AT THE ISFSI STORAGE STRAINED LOWER BACK.
IR3-020-026-20000918-00001 CAL-CR	A TACK WELD WAS TERMINATED WHEN THE TUNGSTEN ELECTRODE ON THE AUTO WELDER MADE CONTACT WITH THE BASE MATERIAL ON AN ISFSI CANISTER. GRINDING AND REMOVAL OF THE PARTIAL TACK WELD AND POSSIBLE TUNGSTEN CONTAMINATION WAS NOT PERFORMED PRIOR TO RE-WELDING THIS TACK WELD OVER THE INCOMPLETE TACK WELD.
IR0-0161-619-19940518-00001 CAL-CR	FORGOT TO ADD ISFSI LICENSE DOCKET NUMBER TO ANNUAL DOSE REPORTS.
IR0-039-577-19950217-00001 CAL-CR	ISFSI-01 IS AMBIGUOUS ON WHEN TEMPERATURE SURVEILLANCES ARE REQUIRED. THE PROCEDURE TIMEFRAMES NEED TO BE CLARIFIED.
IR3-028-988-19990929-00001 CAL-CR	CHANGE RMG FOR ISFSI PM TO INSPECT HSMS FOR EXPOSED REBAR TO PSEU.
IR3-052-137-20020129-00001 CAL-CR	ISFSI TECH. SPEC. MANUAL COPY A-1 LOCATION NEF - NUCLEAR ENGINEERING 0132 IS OUT OF DATE. CURRENT AMENDMENT IS 9 AND USAR REV. 10. ISFSI USAR IS OUT OF DATE AS WELL.
IRE-001-846-20041209-00001 CAL-CR	BIENNIAL REVIEWS OF ISFSI-01 AND 02 WERE NOT PERFORMED AS REQUIRED BY PR-1-101
IRE-015-656-20060705-00001 CAL-CR	ISFSI DRAINAGE (STORM) CULVERT'S ARE BLOCKED WITH DEBRIS.
IRE-023-173-20070606-00001 CAL-CR	DURING LIFT OF ISFSI TRANSFER CASK THE SPENT FUEL HANDLING CRANE REMOTE BOX SHUT DOWN MUTIPLE TIMES.
IRE-032-843-20080711-00001 CAL-CR	EMERGENCY LIGHT LOCATED AT THE ISFSI ELECTRICAL EQUIPMENT SHED IS NOT LIT
IRE-016-986-20060907-00001 CAL-CR	DURING ISFSI MOVE #51 MECHANICS DID NOT TORQUE THE RAM TRUNNION SUPPORT PILLOW BLOCK BOLTS USING AN ALTERNATING SEQUENCE AS REQUIRED PER THE ISFSI-03 PROCEDURE.
CR-2009-004098 CAL-CR	ISFSI MICROWAVE HARDWARE CORRODED

ENCLOSURE 4

10 CFR 72.48 Evaluations (CD)

Calvert Cliffs Nuclear Power Plant, LLC
February 10, 2011

ENCLOSURE 5

ISFSI Area Radiation Surveys

Calvert Cliffs Nuclear Power Plant, LLC
February 00, 2011

Area Posting

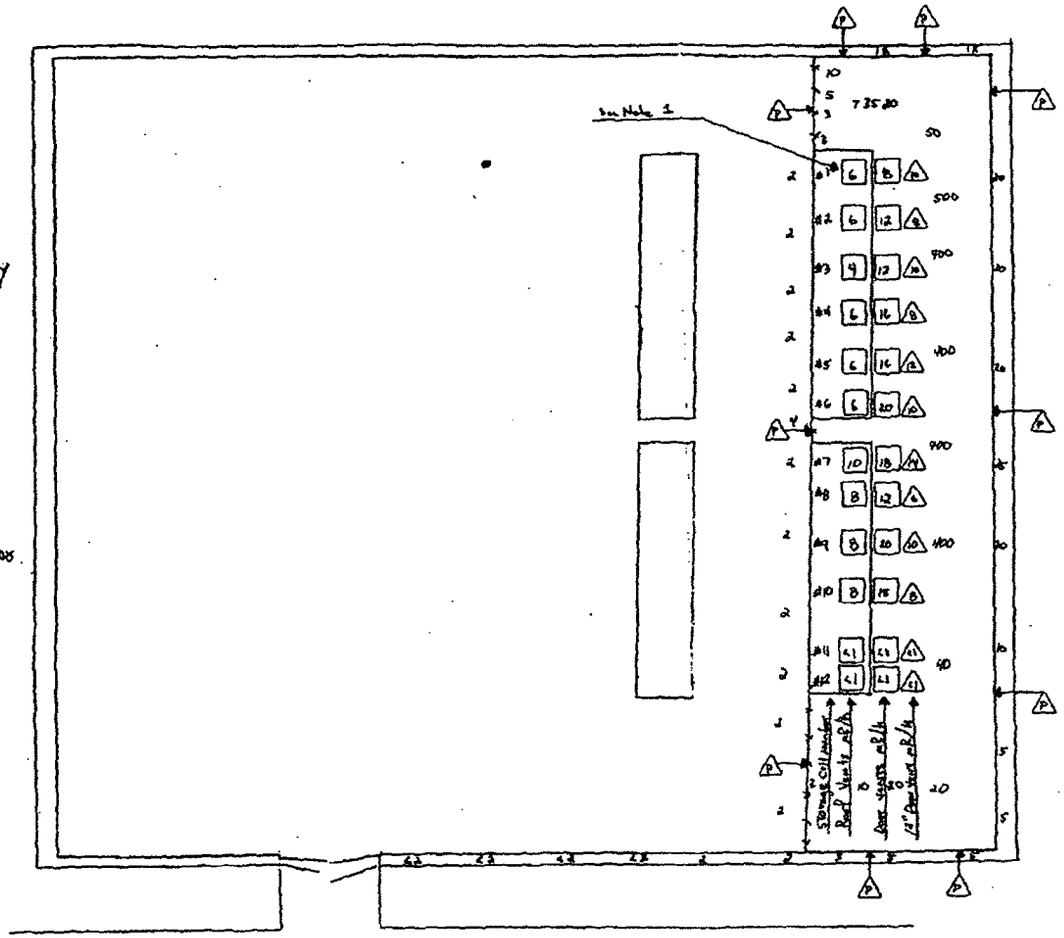
Caution
Radiologically
Controlled Area
Boundary
Radiation Area
Radioactive Material
Scap Required for Entry
No Eating, Drinking
Smoking or Chewing
No Frisk Required

Note #1
Smears were taken on ground level and both roof vents for each fuel storage cell. All smears were <1 kdpm/100 cm²

Note #2
Storage Cells #1 through #10 contain spent fuel

Note #3
Added to the 7 signs on security fence the following wording, "No Frisk Required", same to match rope posting inside ISFSI Area.

Note #4
RST Dose 0.5 mR for Map.



7-9

DESCRIPTION ISFSI AREA MAP # 7-9
DATE/TIME 5/4/96 11:00 RX PWR: U-1 100 % U-2 100 % SWP # 5A
RST Simon SIGNATURE
REASON FOR SURVEY: (✓) Routine ( ) Other Monthly
INSTRUMENTS/SERIAL # Ludlum # 83-90 Rog # 9764
Rm 7 # 539 Rm 14 # 619
LEGEND: (All readings (dose rates) in mR/hr unless otherwise noted.)

Denotes GENERAL AREA reading
Denotes CONTACT reading
Denotes 12" reading
Denotes SMEAR (d/m per 100 cm2 unless noted)
Denotes LARGE AREA SMEAR (LAS)
Denotes AIR SAMPLE location
SCP Denotes Step Off Pad
X-X-X Denotes RADIOLOGICAL AREA BOUNDARY

SMEAR RESULTS: ( ) See attached sheet

	β,γ	α		β,γ	α		β,γ	α		β,γ	α
1			17			31			31		
2			12			22			32		
3			13			23			33		
4			14			24			34		
5			15			25			35		
6			16			26			36		
7			17			27			37		
8			18			28			38		
9			19			29			39		
10			20			30			40		

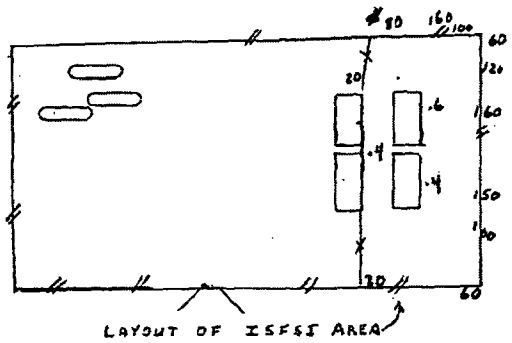
A N

(✓) All β,γ contamination levels < 1000 d/m/100cm² (area surveyed) or < MDA unless otherwise noted.
( ) No α ( ) < MDA α (✓) N/A α ( ) No SNM DETECTED (✓) N/A
( ) All Large Area Smears < 100 cpm/probe/LAS N/A
( ) All Radiation levels < 0.2 mrem/h unless otherwise noted.
(✓) No Beta Detected ( ) N/A
AIR SAMPLE RESULTS: N/A
1) ____ β ____ uCi/cm³ SAMPLE TIME ____ A/S # ____
2) ____ β ____ uCi/cm³ SAMPLE TIME ____ A/S # ____

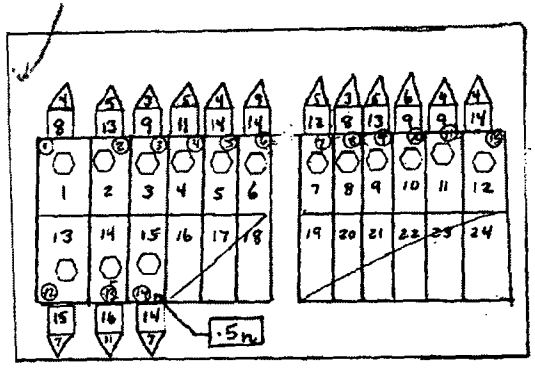
REMARKS: Contact and 12" readings for storage cells are 100 mR/h with RO3. General area dose rates are 100 μR/h with PRM7. No Neutrons were detected on contact with storage cell or in G/A.

REVIEWED: PRST:

MISCELLANEOUS SURVEY MAP



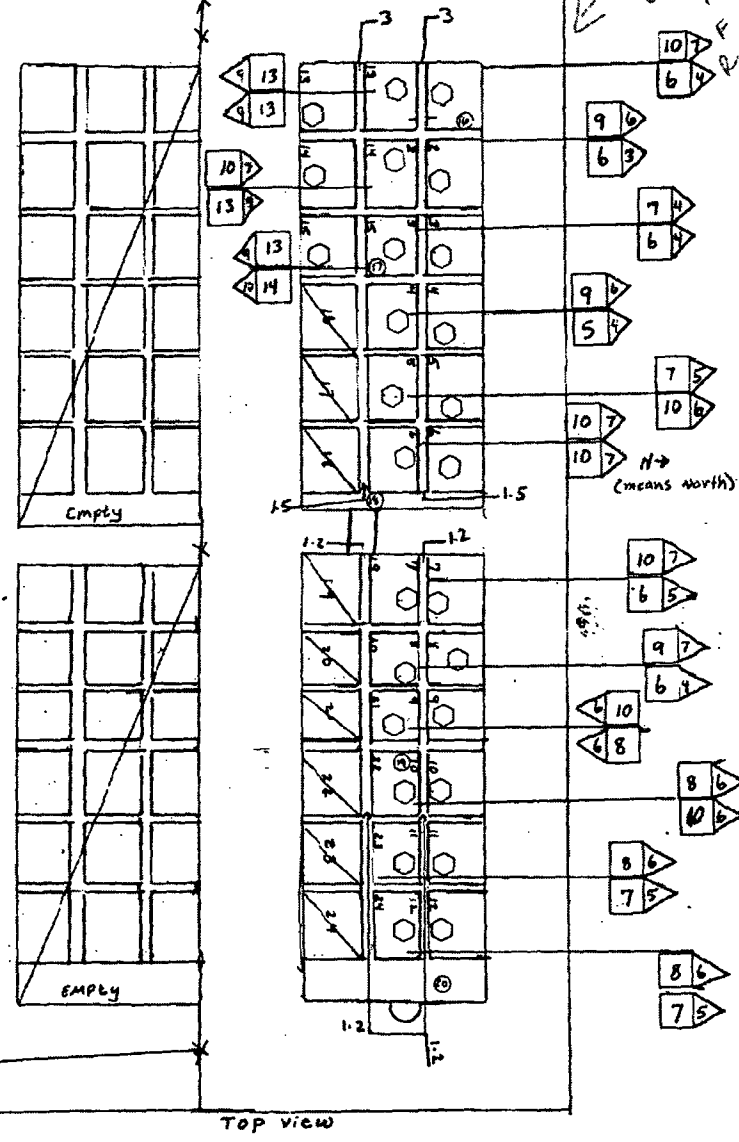
LAYOUT OF ISFSI AREA



Bottom VENT DOSE RATES HSMS 1-24

Posting

Radiologically controlled Area boundary
Radiation area
Radioactive material
SWP required
No eating, drinking, smoking or chewing
No FRISK Required



TOP VIEW

DESCRIPTION ISFSI Area MAP # 7-9

DATE/TIME 9-9-97/1000 RX PWR: U-1 100 % U-2 100 % CWP # 5C

EST Deborah Sweatsgard/Pickett DS/ PRINT SIGNATURE

REASON FOR SURVEY: [✓] Routine [ ] Other Monthly

INSTRUMENTS/SERIAL # 12 NRD #83378 RO20 #0618 PAM-7 #539 RM14 #989 Sam #130

LEGEND: (All readings (dose rates) in mrem/h unless otherwise noted.)

- Denotes GENERAL AREA reading
- Denotes CONTACT reading
- Denotes 12" reading
- Denotes SMEAR (d/m per 100 cm2 unless noted)
- Denotes LARGE AREA SMEAR (LAS)
- Denotes AIR SAMPLE location
- SOP Denotes Step Off Pad
- X-X-X Denotes RADIOLOGICAL AREA BOUNDARY

SMEAR RESULTS: [ ] See attached sheet

	β,γ	α	β,γ	α	β,γ	α	β,γ	α
1			11		21		31	
2			12		22		32	
3			13		23	NA	33	
4			14		24		34	
5			15		25		35	
6			16		26		36	NA
7			17		27		37	
8			18		28		38	
9			19		29		39	
10			20		30		40	

[✓] All β,γ contamination levels < 1000 d/m/100cm² (area surveyed) or < MDA unless otherwise noted.

[ ] No α [ ] < MDA α [✓] N/A α [ ] No SWPs DISPLAYED [✓] N/A

[✓] All Large Area Smears < 100 cpm/probe/LAS

[✓] All Radiation levels < .2 mrem/h unless otherwise noted.

[ ] No Beta Detected [✓] N/A

AIR SAMPLE RESULTS: NA

1) _____ E ____ uCi/cm³ SAMPLE TIME _____ A/S # _____

2) _____ E ____ uCi/cm³ SAMPLE TIME _____ A/S # _____

REMARKS: North DR top

*Perimeter Readings in mrem/hr

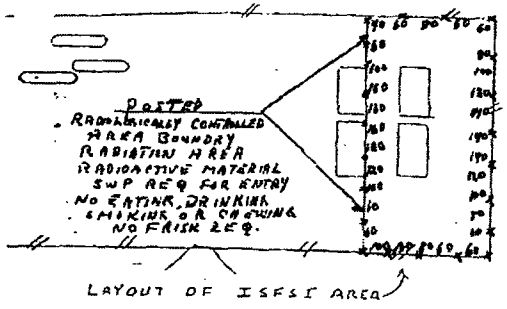
All other reading in mrem/hr

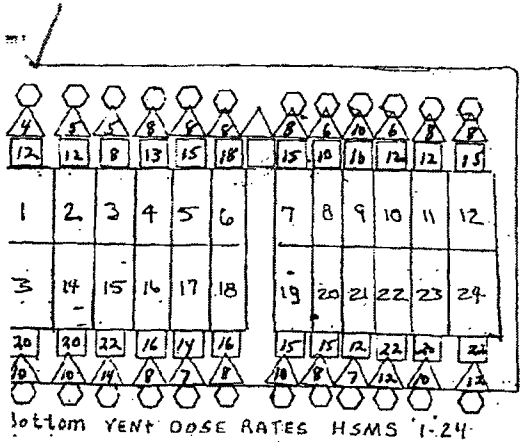
#15 .5m NO other Neutrons Found

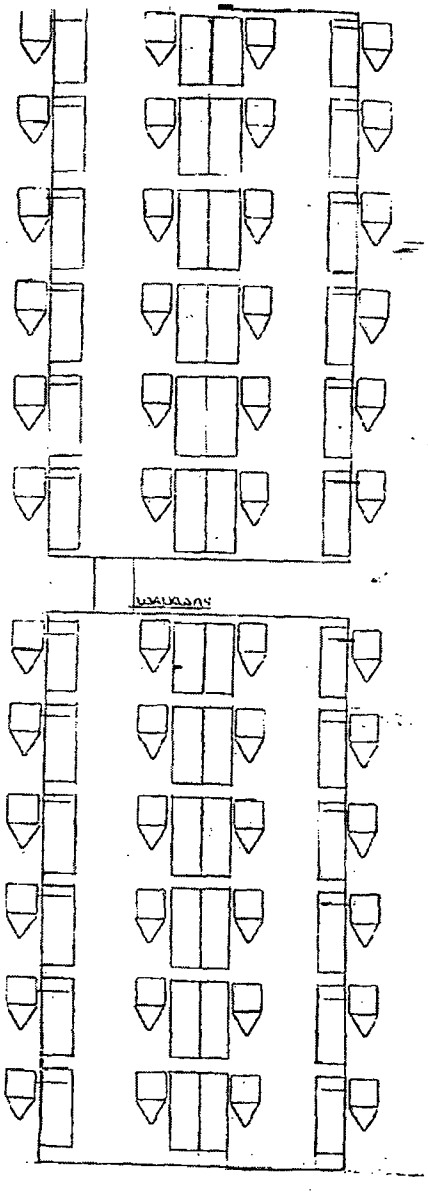
all (N) readings <.5 neutron mrem/hr

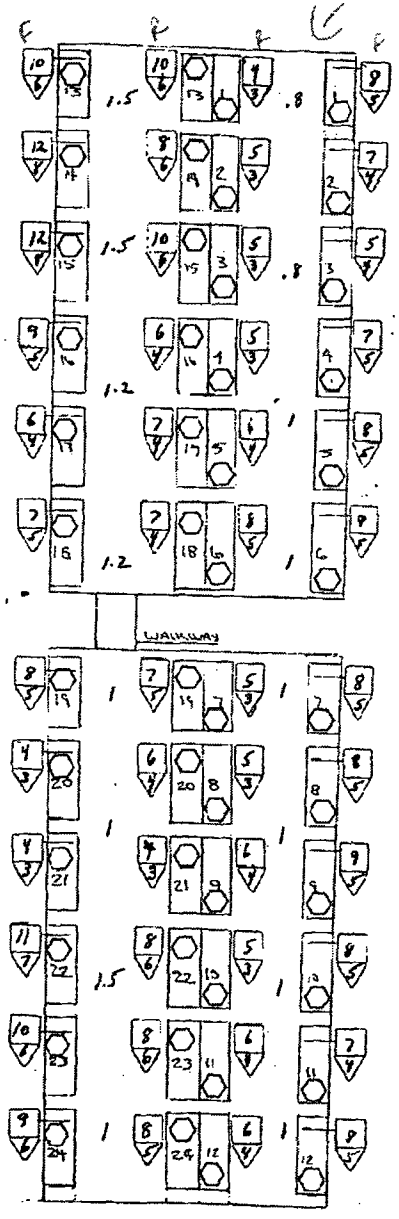
REVIEWED: DATE:

VC-14-018









Front Page

DESCRIPTION: ISFSI MAP#: 7-5

DATE/TIME: 10-17-98 1330 RX PWR: U-1 100% U-2 100% SWP#: 3A

RST: EDWARD T. KUCHNIR Sr. Health Physicist, Edward T. Kuchnir Jr. Health Physicist
PRINT SIGNATURE

REASON FOR SURVEY: (X) Routine ( ) Other MONTHLY

INSTRUMENT/SERIAL #: RO2 #4256 PRM7 #529 NRD-12 #95265 RM18 #962

LEGEND: All Readings (Dose Rates) in mrem/h unless otherwise noted

- # Denotes GENERAL AREA reading
- # Denotes CONTACT reading
- # Denotes 30 cm (12") reading
- # Denotes SMEAR (dpm per 100 cm² unless noted)
- # Denotes LARGE AREA SMEAR (LAS)
- Denotes AIR SAMPLE location
- SOP Denotes STEP OFF PAD
- -X-X-X- Denotes RADIOLOGICAL AREA BOUNDARY

SMEAR RESULTS: ( ) See Attached Sheet

	β,γ	α		β,γ	α		β,γ	α		β,γ	α
1			11			21			31		
2			12			22			32		
3			13			23			33		
4	N		14	N		24	N		34	N	
5			15			25			35		
6			16			26			36		
7		A	17		A	27		A	37		A
8			18			28			38		
9			19			29			39		
10			20			30			40		

( ) All β,γ contamination levels < 1000 dpm/ 100 cm² (area surveyed) or < DL unless otherwise noted.
( ) No α ( ) < DL α ( ) N/A α (X) No SRPs Detected ( ) N/A
(X) All Large Area Smears < 100 cpm/probe/LAS

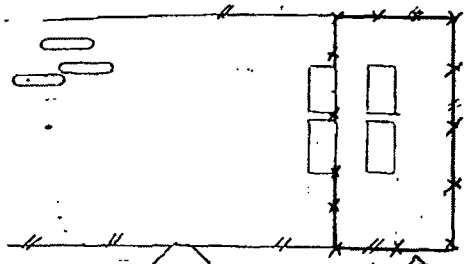
(X) All Radiation levels < 0.2 mrem/h unless otherwise noted.
(X) No Beta Detected ( ) N/A

AIR SAMPLE RESULTS:
1) N/A DAC-P N/A DAC-I Sample Time N/A A/S # N/A
1) N/A DAC-P N/A DAC-I Sample Time N/A A/S # N/A

REMARKS: No NEUTRONS DETECTED

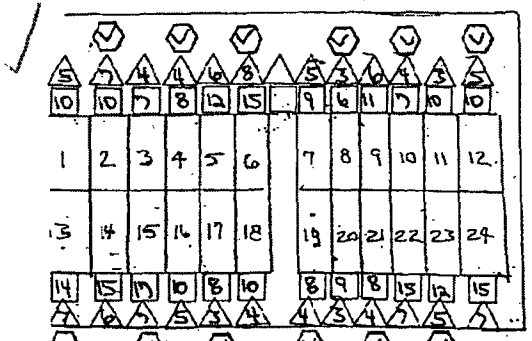
REVIEWED PRST: [signature]

RSP 1-101-6
(1/98)

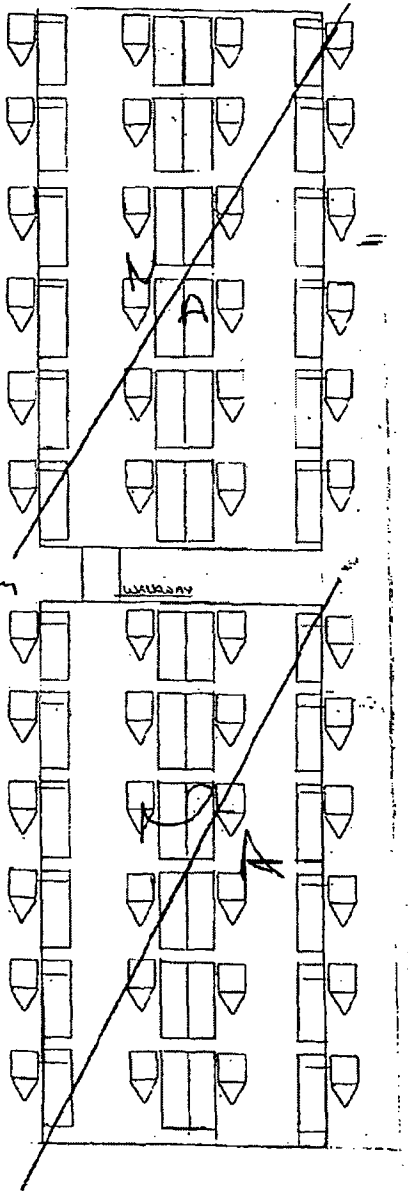


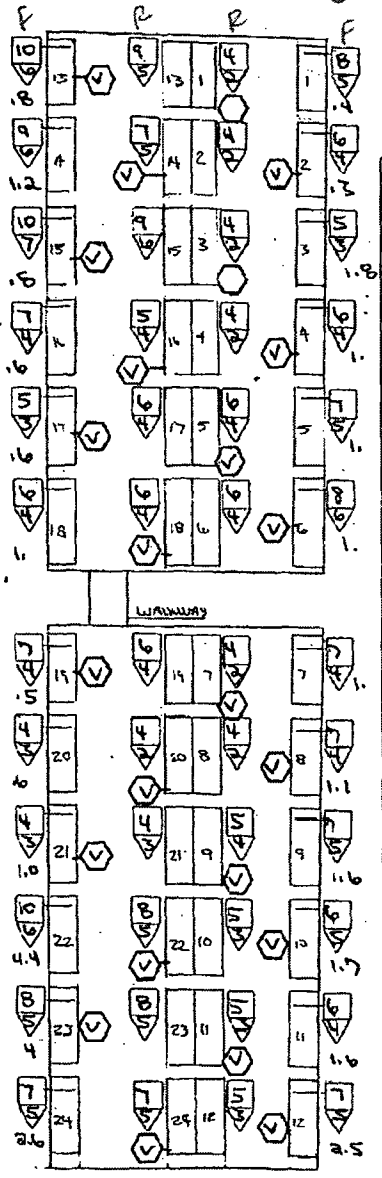
LAYOUT OF ISFSI AREA

- Radiation area
- Radioactive material
- SWP Req'd for entry
- No Fecal Req'd
- Contact Radcon prior to entry



Bottom VENT DOSE RATES HSMS 1-24





Front / Rear

DESCRIPTION: ISFSI MAP# 7-9

DATE/TIME: 11-11-99 / 1000 RX>WR: U-1 100 % U-2 100 % SWP#: 3

RST: R Courtney (PRINT) R Courtney (SIGNATURE)

REASON FOR SURVEY: (✓) Routine ( ) Other Monthly

INSTRUMENT/SERIAL: RO20 #0017, NRD/12 #33104 Bar in the site

LEGEND: All Readings (Dose Rates) in mrem/h unless otherwise noted

- # Denotes GENERAL AREA reading
- # Denotes CONTACT reading
- # Denotes 30 cm (≈12") reading
- # Denotes SMEAR (dpm per 100 cm² unless noted)
- # Denotes LARGE AREA SMEAR (LAS)
- * Denotes AIR SAMPLE location
- SOP Denotes STEP OFF PAD
- -X-X-X- Denotes RADIOLOGICAL AREA BOUNDARY

(V) = vent

SMEAR RESULTS: ( ) See Attached Sheet

	β,γ	α		β,γ	α		β,γ	α		β,γ	α
1			11			21			31		
2			12			22			32		
3			13			23			33		
4			14			24			34		
5			15			25			35		
6			16			26			36		
7			17			27			37		
8			18			28			38		
9			19			29			39		
10			20			30			40		

( ) All β,γ contamination levels < 1000 dpm/ 100 cm² (area surveyed) or < DL unless otherwise noted.

( ) No α ( ) < DL α ( ) N/A α ( ) No SRP's Detected ( ) N/A

(✓) All Large Area Smears < 100 cpm/probe/LAS

(✓) All Radiation levels < 0.2 mrem/h unless otherwise noted.

(✓) No Beta Detected ( ) N/A

AIR SAMPLE RESULTS:

1) DAC-P Start Sample Time A/S #

2) DAC-P DAC-T Sample Time A/S #

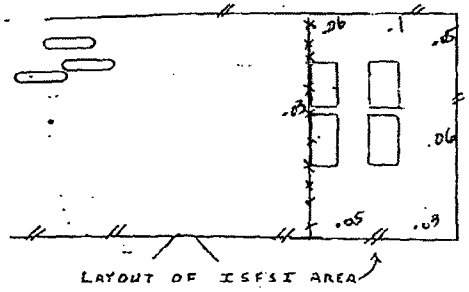
REMARKS: All neutron dose rates @ contact w/ module, hoop (max 2.5 - 15 mR/hr) - All gamma dose rates < 0.2 mR/hr

REVIEWED PRST Signature 11/12/99

RSP 1-101-8 (1/99)

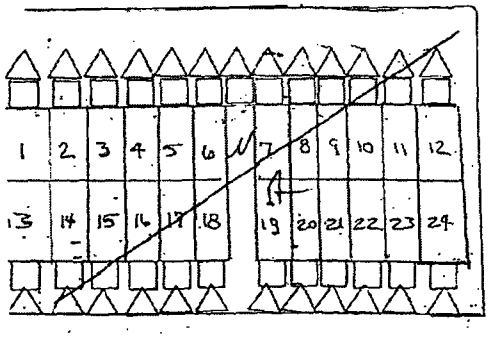
RST dose: 2.8 mRem

Duration: 2.5 hrs

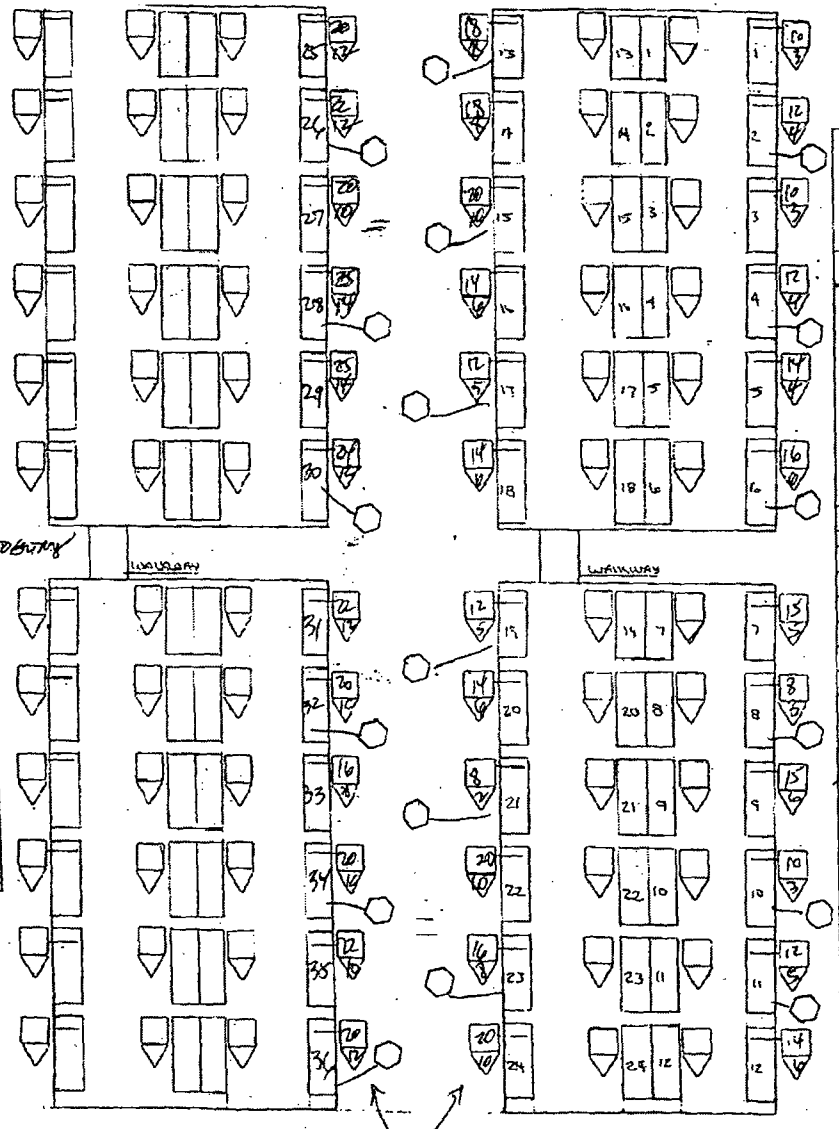


LAYOUT OF ISFSI AREA

AREA POSTED: RADIATION AREA
RADIOACTIVE MATERIALS
SLIP REQUIRED
CONTACT RAD CON PRIOR TO ENTRY



Bottom VENT DOSE RATES HSMS 1-24



ALL READINGS on BOTTOM VENTS

DESCRIPTION: ISFSI MAP#: 7-9

DATE/TIME: 12.21.00 1315 RX PWR U-1 100% U-2 100% SWP#: 3

RST: Johnson (PRINT) [signature] (SIGNATURE)

REASON FOR SURVEY: (✓) Routine ( ) Other

INSTRUMENT/SERIAL #: RDT-486, NRD12-8392 ESG 823 RAIV: 4/30

LEGEND: All Readings (Dose Rates) in mrem/h unless otherwise noted

- # Denotes GENERAL AREA reading
- # Denotes CONTACT reading
- # Denotes 30 cm (≈12") reading
- # Denotes SMEAR (dpm per 100 cm² unless noted)
- # Denotes LARGE AREA SMEAR (LAS)
- • Denotes AIR SAMPLE location
- SOP Denotes STEP OFF PAD
- -X-X-X- Denotes RADIOLOGICAL AREA BOUNDARY

⬡ LAS on VENT

SMEAR RESULTS: ( ) See Attached Sheet

	β,γ	α		β,γ	α		β,γ	α		β,γ	α
1			11			21			31		
2			12			22			32		
3			13			23			33		
4			14			24			34		
5			15			25			35		
6			16			26			36		
7			17			27			37		
8			18			28			38		
9			19			29			39		
10			20			30			40		

(✓) All β,γ contamination levels < 1000 dpm/ 100 cm² (area surveyed) or < DL unless otherwise noted
( ) No α ( ) < DL α (✓) N/A α ( ) No SRPs Detected (✓) N/A
(✓) All Large Area Smears < 100 cpm/probe/LAS

(✓) All Radiation levels < 0.5 mrem/h unless otherwise noted.
( ) No Beta Detected ( ) N/A

AIR SAMPLE RESULTS:
1) N/A DAC-P N/A DAC-I Sample Time N/A A/S # N/A
2) N/A DAC-P N/A DAC-I Sample Time N/A A/S # N/A

REMARKS: ALL DOSE RATES < mR/HR. ALL BOTTOM READINGS < 5 mR/HR

REVIEWED PRST: [signature] Signature

RSP 1-101-8 (1/99)

MAP NO. 7-9

ISFSI	HSM
PAGE 1 OF 1	REASON FOR SURVEY: Routine
SWP / REV / ACTIVITY: 3 / 0 / 2	SURVEYED BY: PRINT [illegible] / S. Dyson; SIGNATURE [illegible]
INSTR. / SERIAL NO.	REMARKS: No Neutron Exposure activity detected during Survey.
RO-20 / 0614	
E520 / 428	A/S RESULTS: N/A Total DAC
RM-14 / 979	☑ ALL LAS < 100 CCPM/PROBE/LAS; N/A NO SRPS
NRD #2 / 83459	N/A β-γ CONTAMINATION LEVELS < 1000 dpm/100 cm² (AREA) UNLESS NOTED

POWER: U-1 100 %; U-2 100 %

REVIEWED (INIT): [illegible]

DATE/TIME SURVEY COMPLETED: 9/26/01, 1115

AREA POSTING:
- LOCKED HRA
- HIGH RADIATION AREA (HRA)
- A RADIATION AREA
- B RADIOACTIVE MATERIALS
- CONTAMINATED AREA

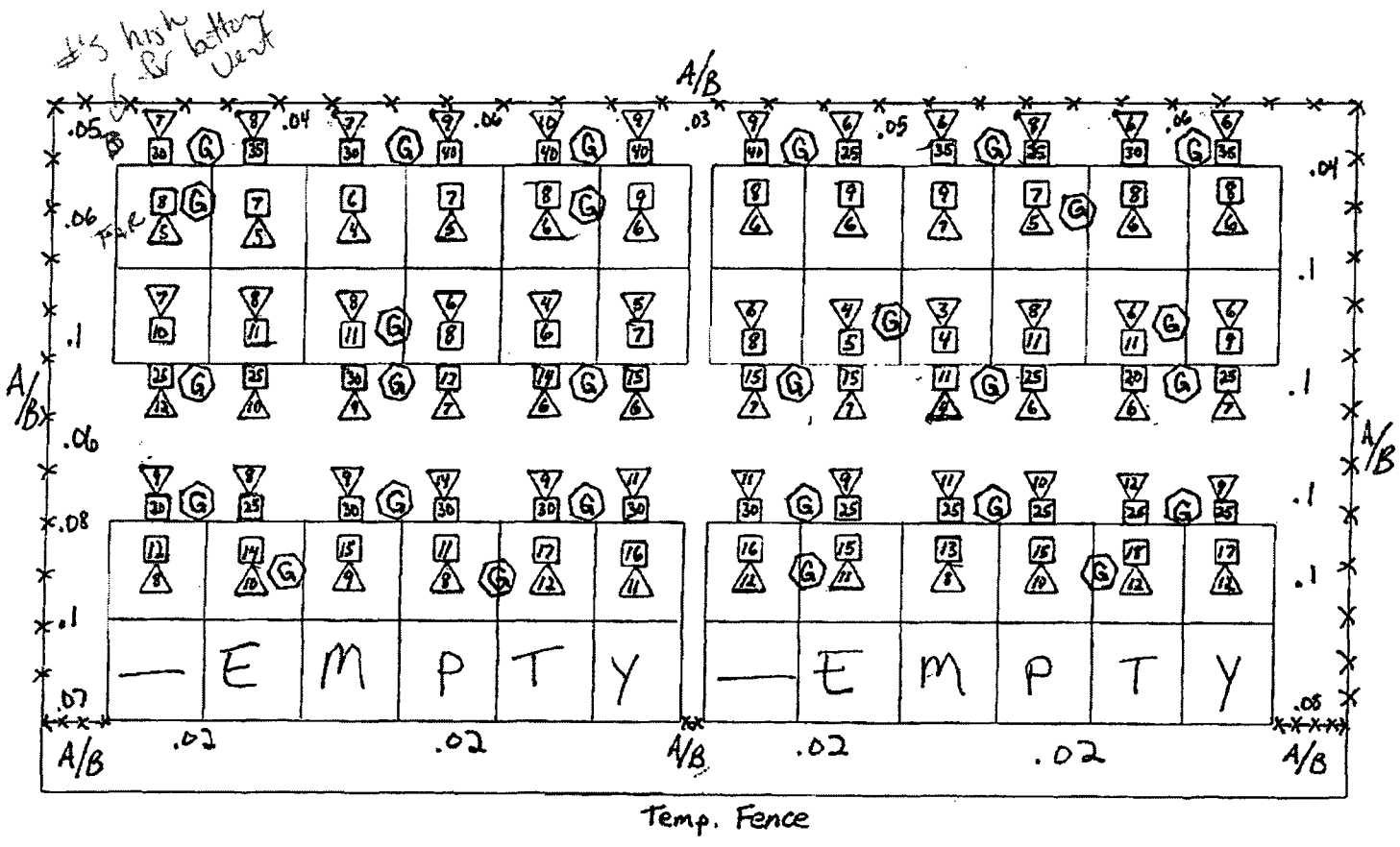
GENERAL AREA READING
CONTACT READING
30 cm (≈12") READING
* AIR SAMPLE
# SMEAR (G) - Grating
# LARGE AREA SMEAR (LAS)
E-EQUIP SRP-SRP CHECK
F-FLOOR W-WALL
-X-X- RADIOLOGICAL AREA BOUNDARY

ROOM NO. N/A

N

DOSE RATES RECORDED IN mrem/hr UNLESS OTHERWISE NOTED

INTER 69148 .DGN



PT	DPM/100 cm² BETA/GAMMA	ALPHA
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

N/a

Bottom ✓

MAP NO. 7-9

ISFSI		HSN
PAGE 1 OF 1	REASON FOR SURVEY: Routine	SURVEYED BY: PRINT CHRIS BREWS / J. Dyson; SIGNATURE [signature]
SWP / REV / ACTIVITY: 3 / 0 / 2		
INSTR. / SERIAL NO.	REMARKS: BOUNDARY SURVEY PERFORMED WITH E-520.	
R02 / 4758		
E-520 / 4209	A/S RESULTS: N/A Total DAC N/A	
Rm-14 / 434	☑ ALL LAS < 100 CCPM/PROBE/LAS N/A NO SRPS	
LVO-12 / 83364	N/A β-γ CONTAMINATION LEVELS < 1000 dpm/100 cm² (AREA) UNLESS NOTED	

RX POWER: U-1 100 % U-2 100 %

REVIEWED (INIT.): [illegible]

DATE/TIME SURVEY COMPLETED: 9/20/02, 1145

AREA POSTING: LOCKED HRA; HIGH RADIATION AREA (HRA); A RADIATION AREA; B RADIOACTIVE MATERIALS; CONTAMINATED AREA

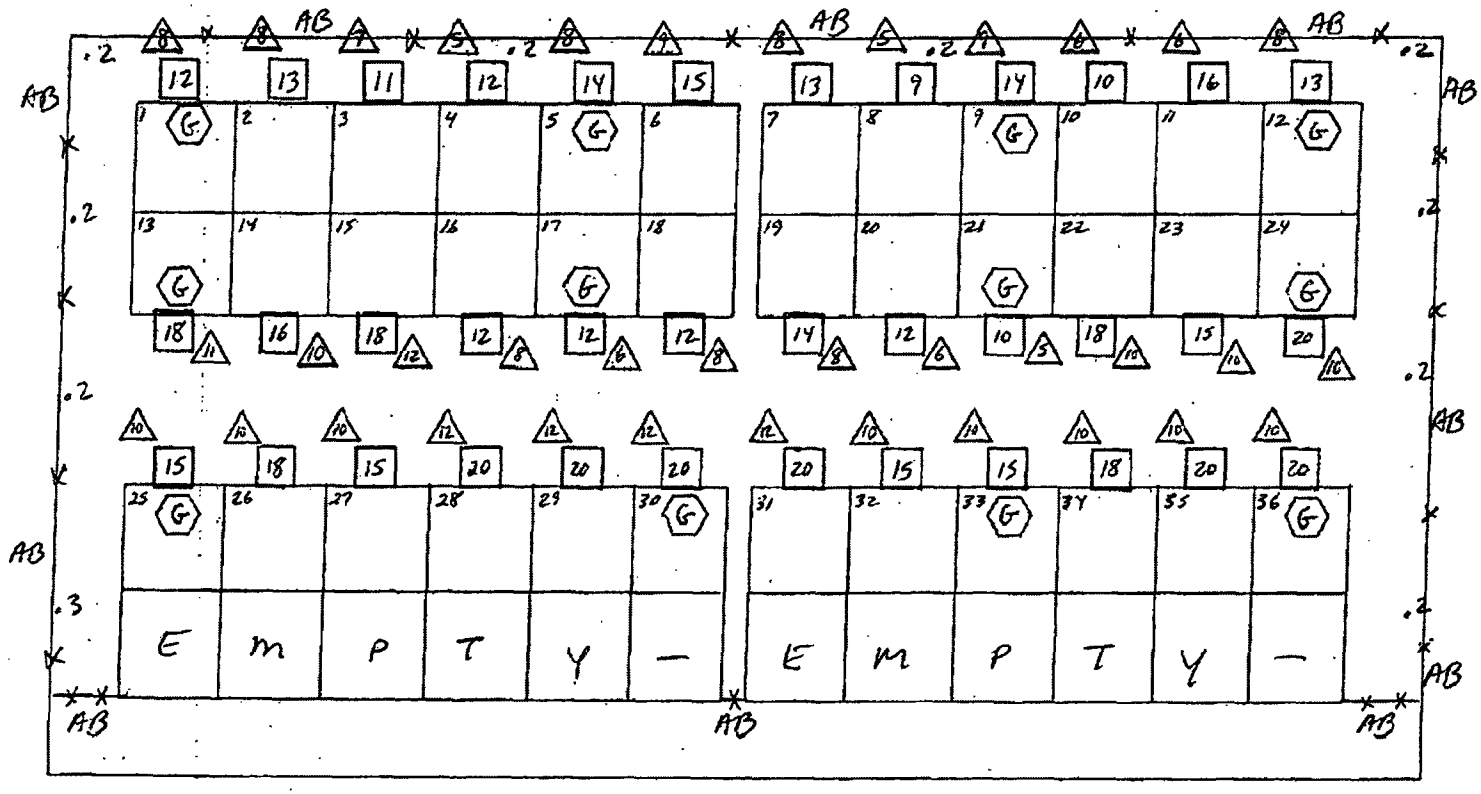
GENERAL AREA READING; # CONTACT READING; 30 cm (12") READING; AIR SAMPLE; SMEAR; LARGE AREA SMEAR (LAS); E-EQUIP SRP-SRP CHECK; F-FLOOR W-WALL; -X-X- RADIOLOGICAL AREA BOUNDARY

ROOM NO. N/A

DOSE RATES RECORDED IN mrem/hr UNLESS OTHERWISE NOTED

INTER 691X8 .IDN

NEUTRON DOSE RATES ON ALL ISFSI VENT GRATING RANGED FROM 3 mrem/hr TO 8 mrem/hr. (G) = ISFSI VENT GRATING



PT	DPM/100 cm² BETA/GAMMA	ALPHA
1		
2		
3		
4		
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7		
8		
9		
10	N A	
11		
12		
13		
14		
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30		

note: numbers 1-36 indicate the individual ISFSI storage units.

MAP NO. 7-9

Bottom ✓

ISFSI		HSM
PAGE 1 OF 1	REASON FOR SURVEY: routine	SURVEYED BY: PRINT Wright, Raymond
SWP/ REV/ ACTIVITY 3/0/2		SIGNATURE
INSTR. / SERIAL NO.	REMARKS: On dose rates <0.2 mr/hr – 1.0 mr/hr	
RM-14 / 4358	Boundary dose rates – 10 μR/hr	
12/URD / 117163	AIS RESULTS: NA Total CAC	
RO2A / 2574	☒ ALL LAS < 100 CCPM/PROBE/LAS – lower counts	NA NO SRPS
E-520 / 5575	NA β-γ CONTAMINATION LEVELS < 1000 dpm/100 cm² (AREA) UNLESS NOTED	

RX POWER: U-1 100 % U-2 100 %

REVIEWED UNIT: 4/R

DATE/TIME SURVEY COMPLETED: 6-25-03, 1000

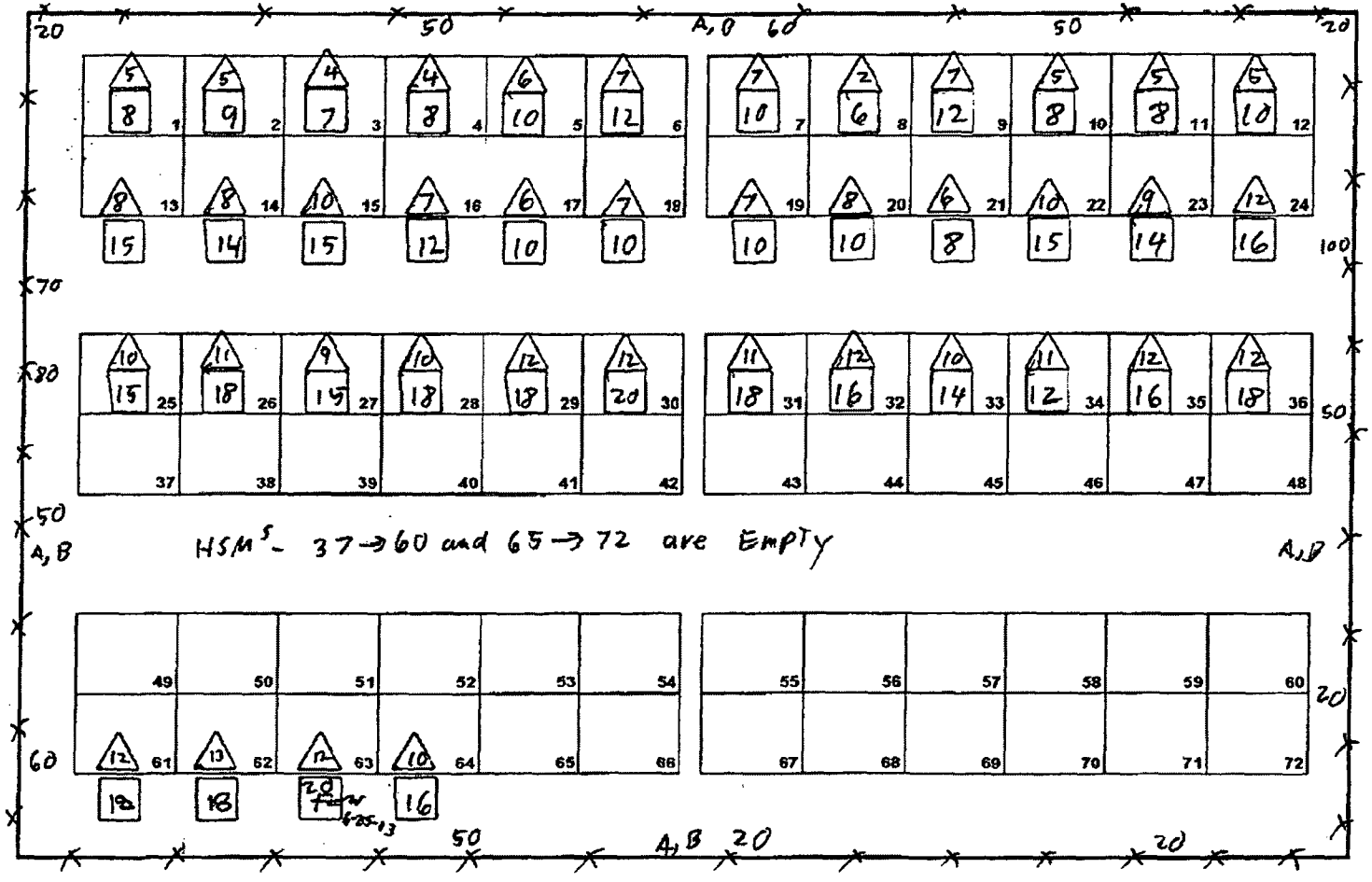
AREA POSTING:
- LOCKED HRA
- HIGH RADIATION AREA (HRA)
- A RADIATION AREA
- B RADIOACTIVE MATERIALS
- CONTAMINATED AREA

- # GENERAL AREA READING
- # CONTACT READING
- # 30 cm (≈12") READING
- AIR SAMPLE
- # SMEAR
- # LARGE AREA SMEAR (LAS) E-EQUIP SRP-SRP CHECK F-FLOOR W-WALL
- -X-X- RADIOLOGICAL AREA BOUNDARY

ROOM NO. N/A

DOSE RATES RECORDED IN mrem/hr UNLESS OTHERWISE NOTED

INTER E9148 .DGN



PT	DPM/100 cm² BETA/GAMMA	ALPHA
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12	N	A
13		
14		
15		
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17		
18		
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21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

MAP NO. 7-9

bottom

ISFSI	HSM	RX POWER: U-1 100 % U-2 100 %	REVIEWED BY:	GENERAL AREA READING; CONTACT READING	ROOM NO. N/A
PAGE 1 OF 1	PERSON FOR SURVEY: Quarterly Routine	SURVEYED BY: PRINT J.W. Deichmeyer	DATE/TIME SURVEY COMPLETED 8-2-04 / 1200	30 cm READING; AIR SAMPLE; SMEAR; LARGE AREA SMEAR (LAS); E-EQUIP SRP-SRP CHECK; F-FLOOR W-WALL; -X-X- RADIOLOGICAL AREA BOUNDARY	
SMP/ REV/ ACTIVITY 3 / 0 / 2		SIGNATURE	AREA POSTING: LOCKED HRA; HIGH RADIATION AREA (HRA); RADIATION AREA; RADIOACTIVE MATERIALS; CONTAMINATED AREA		

INSTR.	SERIAL NO.
RO2	5138
NRD12	83459
E520	5595
RM14	8395

REMARKS: Contact neutron dose rates on bottom screens 0.4-1.0. LASs taken on bottom vent screens.

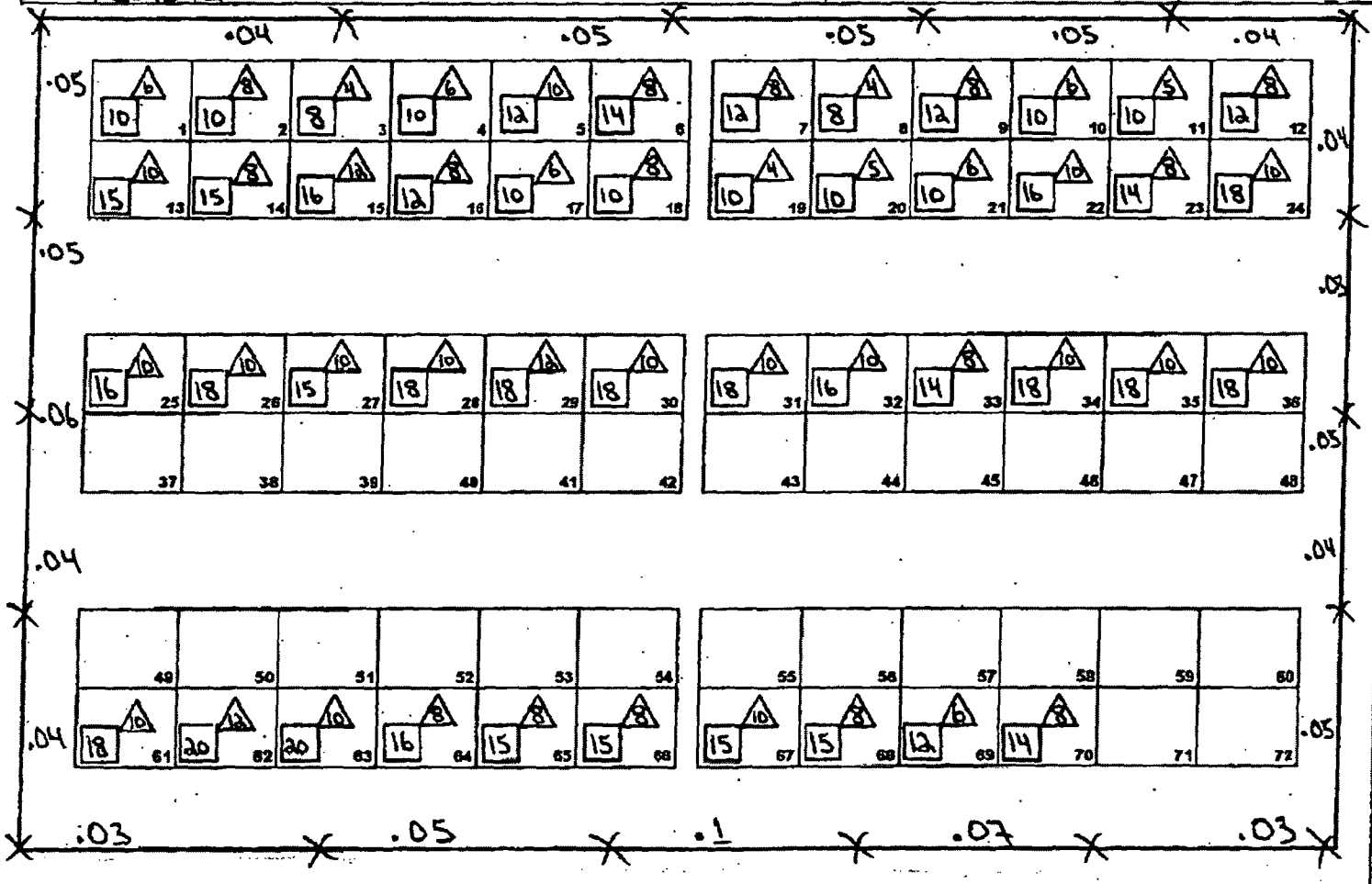
AIR RESULTS: N/A TOTAL DAC

[■] ALL LAS < 100 DPM/PROBE/LAS [ ] NO SRPS

[ ] β-γ CONTAMINATION LEVELS < 1000 dpm/100 cm² (AREA) UNLESS NOTED

DOSE RATES RECORDED IN mrem/hr UNLESS OTHERWISE NOTED

INTER 69748 .DGN



PT	DPM/100 cm² BETA/GAMMA	ALPHA
1		
2		
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4		
5		
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7		
8		
9		
10		
11		
12		
13	N	
14		
15		
16		
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24		
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30		

Bottom

RSL7-9 006

ADA4287466

ISFSI Area - Horizontal Storage Modules	Page 1 of 1	Room # ISFSI	Map # 7-9

Remarks: HSM roof areas not surveyed. Fence boundary survey done with E-520. LASs taken on all odd-numbered occupied HSMs showed no detectable activity above background.

Instr. Type	Serial No.
RO-2	5134
NRD-12	75365
E520	5575
E600	2580
SHP-360	866
N/A	N/A

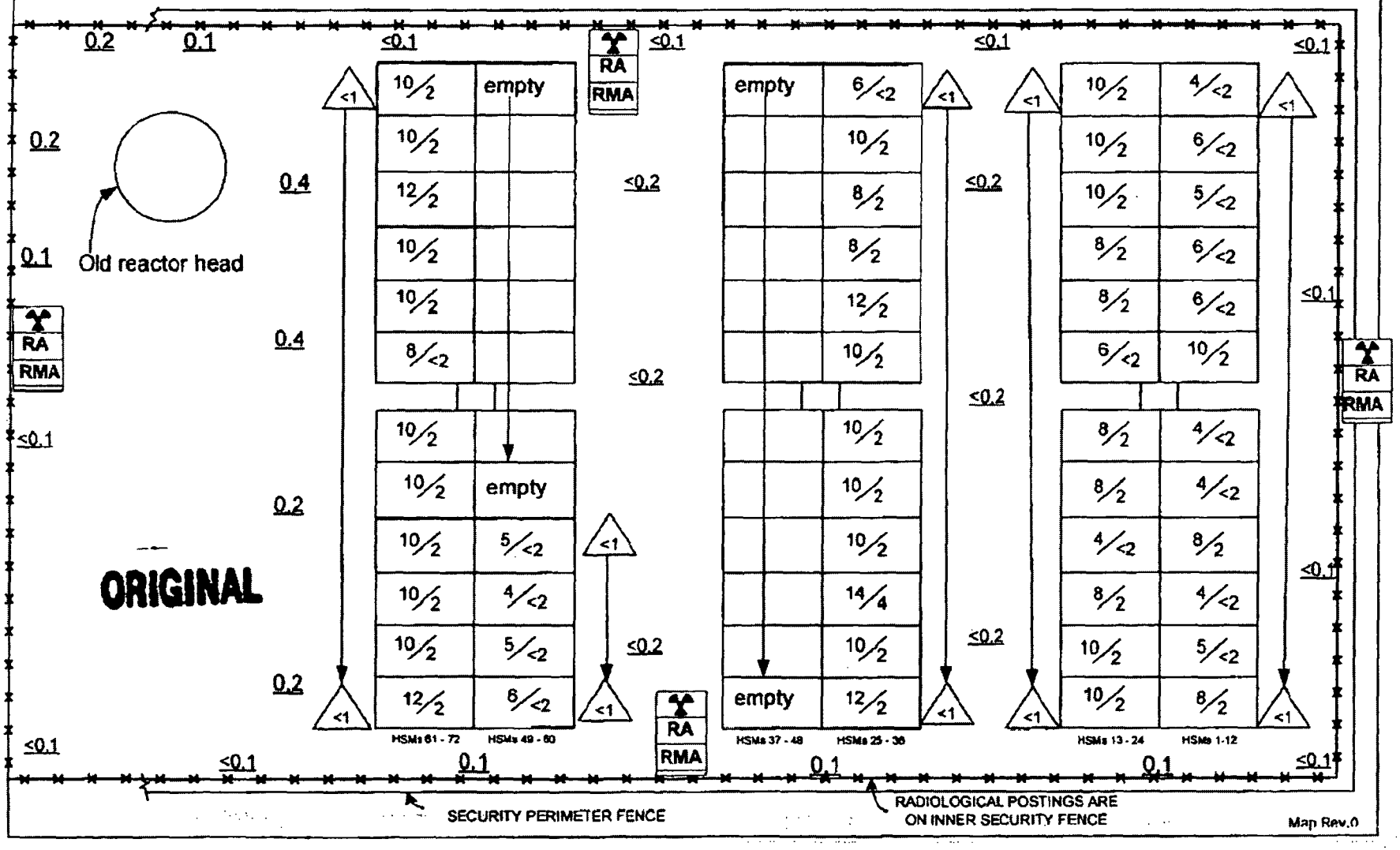
Reviewed by: Al Ball

SWP/Rev/Act: 3/2/2
Reason: routine
Frequency: annual
U-1 Rx Power: 100 % ☑ No SRP's
U-2 Rx Power: 100 % ☐ All Dose Rates < 0.2 mRem/h unless noted
A/S Results: N / A Total DAC
Surveyed by: J.W. Detchemendy
Date/Time: 10-30-2006 / 1300

mRem/hr General Area (unless noted)
β mRad/hr General Area (unless noted)
#/# mRem/hr Contact / 30 cm
#|# γ|β Contact = #|# γ|β 30 cm
γ = gamma mRem/hr β - beta mRad/hr
(#) - Smear in dpm/100cm2
(#) - LAS in cpm/probe/las
● - Smear location <1000 dpm/100cm2
Boundary (rope, tape, etc)
(#) Neutron reading in mRem/hr
Air Sample Location
Radiological Posting
SOP Step Off Pad

Approved Abbreviations
RMA = Radioactive Materials Area
CA = Contaminated Area
ARA = Airborne Radioactive Area
RA = Radiation Area
HRA = High Radiation Area
LHRA = Locked High Radiation Area

Dose Rates recorded in mRem/hr unless otherwise noted



Map Rev.0

ISFSI Area - Horizontal Storage Modules	Page 1 of 1	Room # ISFSI	Map # 7-9

Remarks: Dose rates at inner fence taken with E520. Dose rates on HSMs taken with Teletector. HSM roof areas not surveyed. LASs on all even numbered occupied HSM screens showed no detectable activity above background.

Instr. Type	Serial No.
E520	3294
Teletector	115259
NRD12	75365
RM14	1618
N/A	N/A
N/A	N/A

Reviewed by: Al Ball

SWP/Rev/Act: 3/0/2
Reason: Routine survey
Frequency: annual
U-1 Rx Power: 100 % ☐ No SRP's
U-2 Rx Power: 100 % ☐ All Dose Rates < 0.2 mRem/h unless noted
A/S Results: N/A Total DAC
Surveyed by: JWDetchemendy
Date/Time: 11-19-07 / 0900

mRem/hr General Area (unless noted)
β mRad/hr General Area (unless noted)
#/# mRem/hr Contact / 30 cm
#|# = γ|β Contact / γ|β 30 cm
γ = gamma mRem/hr β - beta mRad/hr

(#) - Smear in dpm/100cm2
(#) - LAS in cpm/probe/las
● - Smear location <500 dpm/100cm2
Boundary (rope, tape, etc)
(#) Neutron reading in mRem/hr

Air Sample Location
Radiological Posting
SOP Step Off Pad

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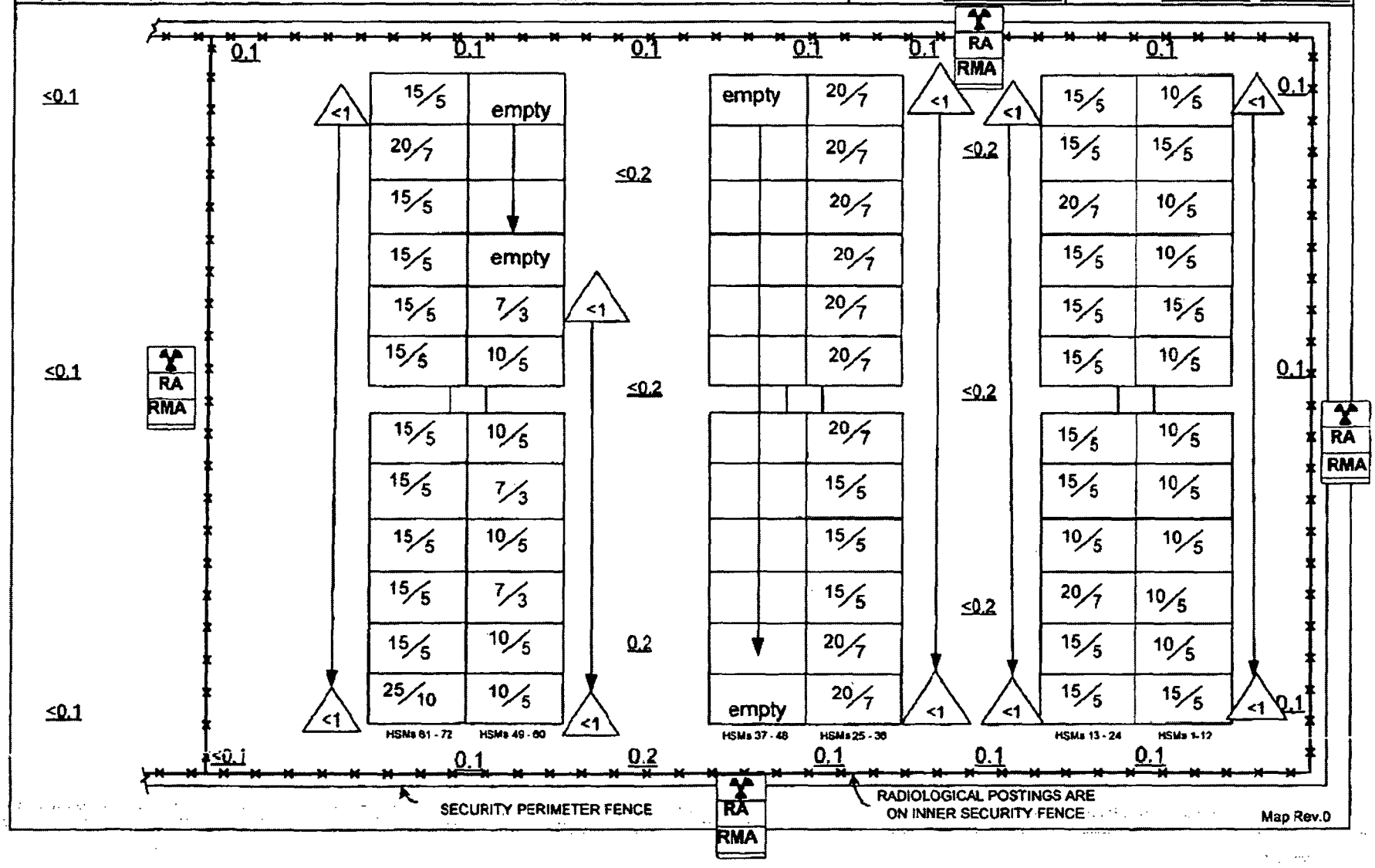
Dose Rates recorded in mRem/hr unless otherwise noted



Map Rev.0

Gotham

2918425

ISFSI Area - Horizontal Storage Modules	Page 1 of 1	Room # ISFSI	Map # 7-9

Remarks: Dose rates HSMs taken with RO2. Fence survey taken with E520

Instr. Type	Serial No.
E520	4029
Teletector	115259
NRD12	83371
RM14	988
RO2	5138
N/A	N/A

Reviewed by: Al Ball

SWP/Rev/Act: 3/0/2
Reason: Routine survey
Frequency: Annual
U-1 Rx Power: 100 % ☐ No SRP's
U-2 Rx Power: 100 % ☐ All Dose Rates < 0.2 mRem/h unless noted
A/S Results: N/A Total DAC
Surveyed by: Svendgaard/J.W.Deschmendy
Date/Time: 10-06-08 / 0900

mRem/hr General Area (unless noted)
β mRad/hr General Area (unless noted)
#/# mRem/hr Contact / 30 cm
#|# = γ|β Contact / γ|β 30 cm
γ = gamma mRem/hr β - beta mRad/hr

(#) - Smear in dpm/100cm2
(#) - LAS in ccpm/probe/as
● - Smear location <500 dpm/100cm2
Boundary (rope, tape, etc)
Neutron reading in mRem/hr

Air Sample Location
Radiological Posting
SOP Step Off Pad

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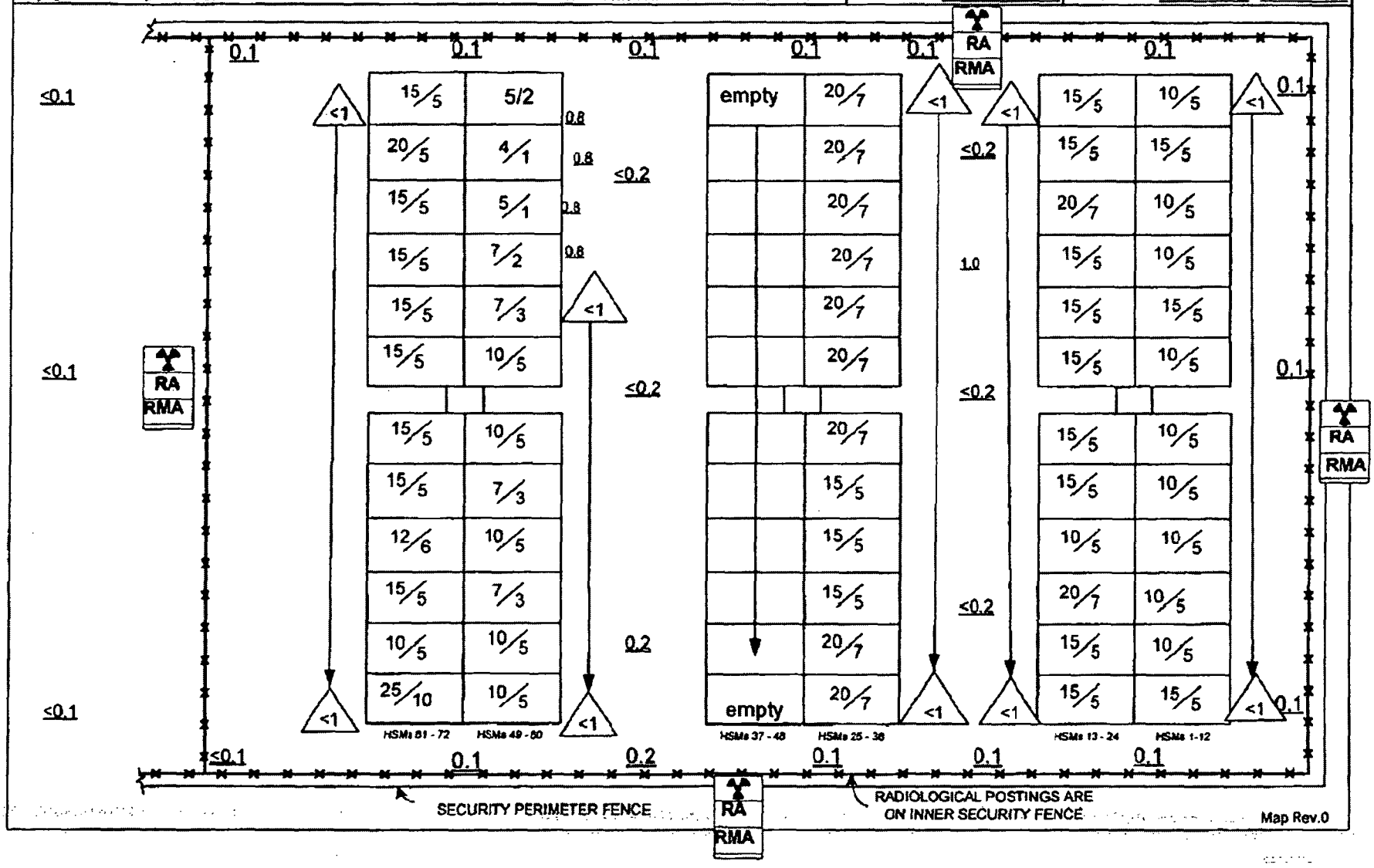
Dose Rates recorded in mRem/hr unless otherwise noted



Map Rev.0

ISFSI Area - Horizontal Storage Modules	Page 1 of 1	Room # ISFSI	Map # 7-9

Remarks: Dose rates are for top and lower vents. Both top and lower vents read the same. No neutron dose found.

Instr. Type	Serial No.
Tele	97624
Rm14	4976
12NRD	83459
E520	1004
SAM11	236
N/A	N/A

Reviewed by: Al Ball

SWP/Rev/Act: 3/0/2
Reason: Annual
Frequency: Annually
U-1 Rx Power: 100 % ☐ No SRP's
U-2 Rx Power: 100 % ☐ All Dose Rates < 0.2 mRem/h unless noted
A/S Results: NA Total DAC
Surveyed by: Fulks/Svendsgaard
Date/Time: 11/04/09 / 1130

mRem/hr General Area (unless noted)
β nRad/hr General Area (unless noted)
#/# mRem/hr Contact / 30 cm
#|# / #|# = γ|β Contact / γ|β 30 cm
γ = gamma mRem/hr β - beta mRad/hr

(#) - Smear in dpm/100cm2
(#) - LAS in ccpm/probe/las
- Smear location <500 dpm/100cm2
Boundary (rope, tape, etc)
Neutron reading in mRem/hr

Air Sample Location
Radiological Posting
SOP Step Off Pad

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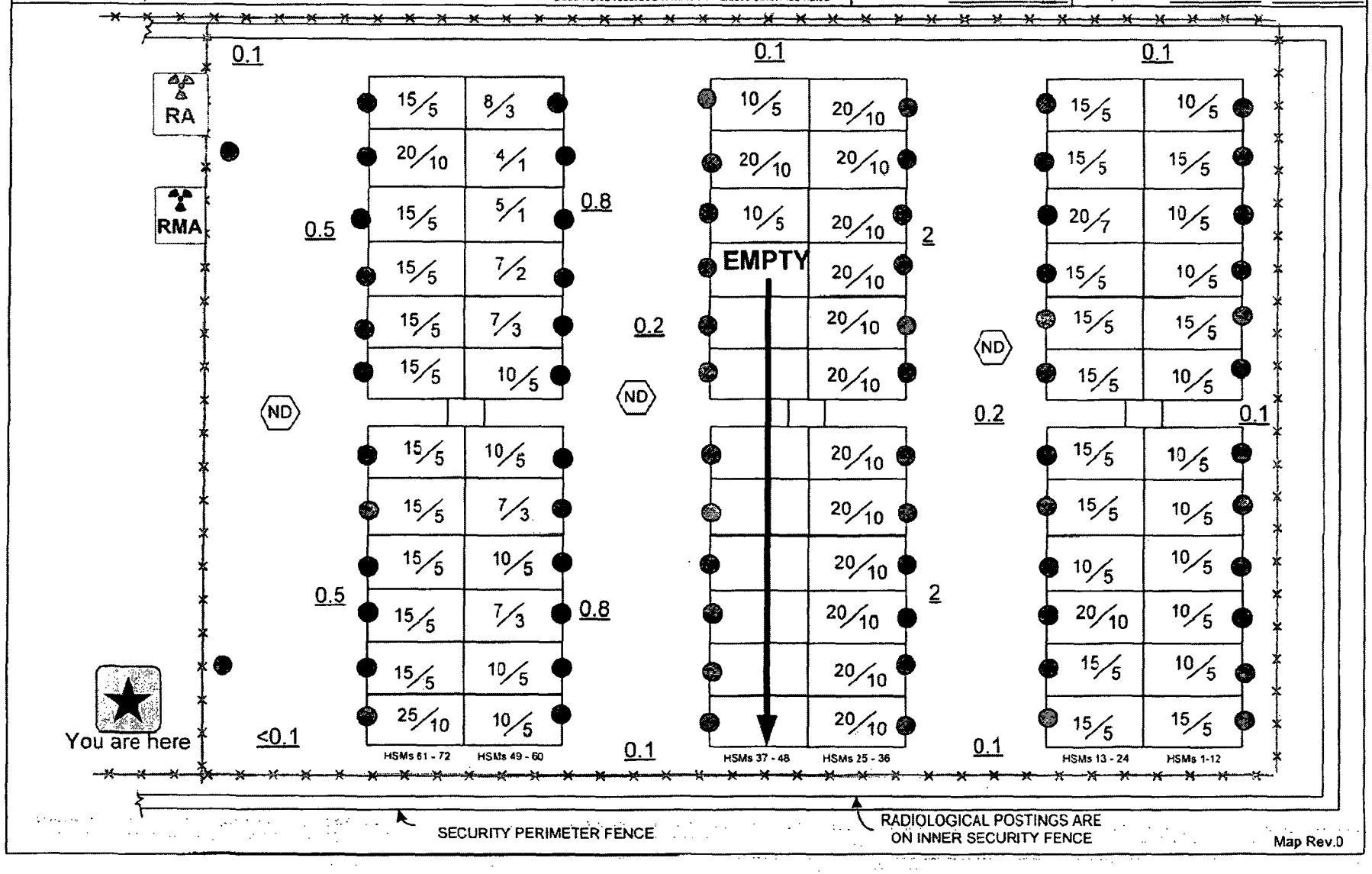
Dose Rates recorded in mRem/hr unless otherwise noted



Map Rev.0