| Guideline | Internal Use Only | | |
|---|---|---|---|
| | Document Number: NK38-GUID-09701-10054 | | Usage Classification: Information |
| | Sheet Number: N/A | Revision Number: R001 | Page: 1 of 25 |

Title: **NUCLEAR REFURBISHMENT LESSONS LEARNED**

© Ontario Power Generation Inc., 2018. This document has been produced and distributed for Ontario Power Generation Inc. purposes only. No part of this document may be reproduced, published, converted, or stored in any data retrieval system, or transmitted in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise) without the prior written permission of Ontario Power Generation Inc.

# Nuclear Refurbishment Lessons Learned

**NK38-GUID-09701-10054-R001**
2018-11-13

Order Number: N/A
Other Reference Number:

**Internal Use Only**

Prepared By:

Reema Agarwal
Sr Perfomance Improvement Officer
Subsequent Unit Planning

Reviewed By:

Nina Baba
Project Leader
Subsequent Unit Planning

Approved By:

Joshua Guin
Manager
Subsequent Unit Planning

## Revision Summary

| Revision Number | Date | Comments |
|---|---|---|
| R00 | 2018-06-21 | Initial Issue |
| R001 | 2018-11-13 | Section 4.3, Revised Tier 2- Opportunity has potential savings/avoidance to >500k<br>Section 4.4 Revised Tier 0 Processing<br>Appendix H, Lessons Learned Phase 2 Process |

## Table of Contents

1.0 PURPOSE ..... 4

2.0 LESSONS LEARNED PROCESS ..... 4

3.0 PHASE 1 IDENTIFICATION AND DOCUMENTATION ..... 5

3.1 Identification ..... 5
3.1.1 Post-Window Lessons Learned ..... 5
3.1.2 Program Lessons Learned ..... 6
3.1.3 Strategic Lessons Learned ..... 7
3.2 Documentation ..... 7
3.3 Metrics and Reporting ..... 8

4.0 PHASE 2 EVALUATION AND INCORPORATION ..... 8

4.1 Lessons Learned Tracking File ..... 8
4.2 Screening ..... 9
4.3 Evaluation ..... 9
4.4 Implementation ..... 10
4.5 Gating Process ..... 11
4.6 Metrics and Reporting ..... 11

5.0 PHASE 3 VERIFICATION ..... 12

6.0 MILESTONE COMPLETION REPORTS ..... 12

7.0 ROLES AND ACCOUNTABILITIES ..... 13

8.0 ABBREVIATIONS AND ACRONYMS ..... 15

9.0 RECORDS AND REFERENCES ..... 16

9.1 Records ..... 16
9.2 References ..... 16
Appendix A: List of Milestone Completion Reports ..... 17
Appendix B: TGR Lessons Learned Process ..... 18
Appendix C: Template for the LL Meeting Package ..... 19
Appendix D: LL Tracking File Template ..... 22
Appendix E: CANATAOM LL Meeting Template ..... 23
Appendix F: Lessons Learned Phase 2 Process ..... 25

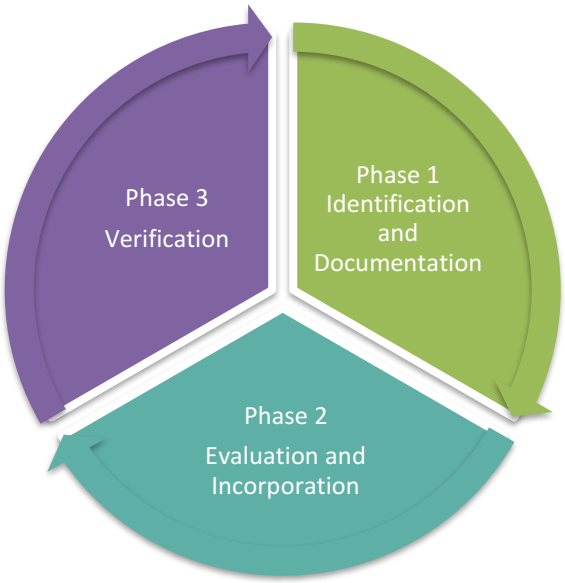
## 1.0 PURPOSE

The purpose of this guide is to describe the Darlington Refurbishment Internal Lessons Learned Process. A Lessons Learned is the knowledge gained during a project which shows how project events were addressed or are to be addressed in the future with the purpose of improving future performance. For Darlington Refurbishment this is specific to knowledge gained during Refurbishment work planning and execution that can be used for the planning and execution of subsequent Refurbishment units, or Station Maintenance.

This Guide receives authority from N-MAN-00120-10001 INT, Nuclear Projects Integration Management **[R2]**.

## 2.0 LESSONS LEARNED PROCESS

The Darlington Refurbishment Project uses a three phase process to ensure lessons are learned for subsequent units.




**Phase 1 Identification and Documentation** ensures that lessons are identified and documented as part of the entire project lifecycle.

**Phase 2 Evaluation and Incorporation** ensures that lessons are screened, prioritized and actioned appropriately to ensure incorporation into the planning and execution of future work.

**Phase 3 Verification** ensures lessons are reviewed post-implementation into subsequent units to determine if the lesson was learned.

## 3.0 PHASE 1 IDENTIFICATION AND DOCUMENTATION

The Darlington Refurbishment Lessons Learned processes ensures that lessons are identified and documented as part of the entire project lifecycle.

### 3.1 Identification

All Refurbishment employees and vendor partners have a responsibility to identify and document lessons learned. Lessons are to be be identified on an ongoing basis during the planning and execution of work, or as soon as possible after key work completion to ensure the information is accurate and complete.

Darlington Refurbishment Planning and Execution Milestones and Hold Points represent potential opportunities to identify lessons learned. Key sources of lessons learned include:

a) Refurbishment Post-Window Lessons Learned Meetings per NK38-MAN-09701-10005 MLST Refurbishment Unit Planning Milestones **[R4]**.
b) Refurbishment Program Lessons Learned Meetings/Workshops as identified by employees and vendor partners
c) Daily Project Logs
d) Interviews

#### 3.1.1 Post-Window Lessons Learned

Post-Window Lessons Learned meetings are a significant source of lessons which can be applied to subsequent unit planning and execution. Post-window lessons learned meetings are a mandatory milestone **[R4]**. These milestones are only required for scope that is planned to be repeated on a future refurbishment unit or maintenance scope in planned outages. If a project has consecutive windows of relatively short duration, post-window lessons learned and/or next unit milestones may be combined to include more than one window of similar work in the same meeting.

Following the completion of an execution window the Lessons Learned Program will engage the Project Team to arrange a Post-Window Lessons Learned meeting. This includes identification of key stakeholders from the Project Team within OPG and the vendor partners (as applicable) in addition to operations, maintenance, work management, design engineering, system engineering, radiation protection, risk management and others as required.

In preparation for the Lessons Learned meeting the Lessons Learned Program will assemble a meeting package which includes:

- Purpose
- Attendees List
- Agenda
- Scope Overview

- Field Initiated Change (FIC) Summary
  - List and summary of all Engineering Field Changes
- Station Condition Records (SCRs)
  - List of applicable SCRs for the project scope
- Key Project Risks
  - List of Key Project Risks as identified and presented by the Risk Management SPOC
- Other Lessons Learned (to date)
  - Lessons previously documented in the RMO tool or by vendor partners in their quality management systems.
- Schedule Performance
  - Includes a P6 variance analysis of execution milestones actuals as compared to the baseline.
- Cost Performance
  - Includes a list of relevant Project Change Authorizations/Directives but excludes specific values.
- References

The meeting package is to be sent to the attendees one week in advance of the meeting. In most cases the Post-Window Lessons Learned meetings will be facilitated and minuted by the Program Lessons Learned Team on behalf of the project. Refer to Appendix C to review a meeting package template.

The Turbine Generator and Retube & Feeder Replacement Projects will follow a modified approach for Post-Window Lessons Learned.

<u>Turbine Generator Project</u>

The Turbine Generator Project scope is executed over a few large execution windows. In order to ensure lessons are captured while memories are still fresh, Lessons Learned meetings will be held post-major component completion. These meetings should be faciliated by the Lessons Learned Program.

In addition to post-major component completion the Turbine Generator Project Vendor Partner, CANATOM, documents lessons learned at the Work Order (WO) level. See Appendix B for the CANATOM Turbine Generator Project Lessons Learned Process.

<u>Retube & Feeder Replacement Project</u>

The Retube & Feeder Replacement Project Lessons Learned meetings are conducted post-Comprehensive Work Package (CWP) completion and are facilitated by the vendor partner CANATOM. These meetings include participation of both CANATOM and OPG staff. The format of the meeting packages follows the CANATOM template. Refer to Appendix E for the CANATOM LL meeting template.

### 3.1.2 Program Lessons Learned

Program Lessons Learned meetings or Workshops will be arranged and faciliated by the Lessons Learned Program Team. Program lessons learned cover a wider range of

topics and focus areas. These meetings may also cover cross cutting or trending issues, reactor critical hold points (RCHP), functional programs, Refurbishment Planning Program Milestones, program risks etc.

All employees and vendor partners may request a Program Lessons Learned meeting by sending an e-mail request to the Lessons Learned Program Manager. Meetings or workshops are typically facilitated by the Lessons Learned Program Team, however, individuals or Project Teams are encouraged to facilitate sessions with support from the Lessons Learned Program Team.

### 3.1.3 Strategic Lessons Learned

The intent of post-window and program level learned meetings and workshops is to capture the tactical lessons in order to improve on performance for subsequent units. There is also a need to identify strategic lessons which may provide value added or enhancing alternative strategies which may not be captured otherwise. These lessons are expected to cover a broader view and may include contract strategy changes, scope additions/removals, alternative execution strategies, signficant process changes, and organizational changes. Strategic lessons will be identified through executive interviews including both OPG and Vendor Partners. Interviews will be conducted on a per Segment basis.

## 3.2 Documentation

Refurbishment Lessons Learned are documented in the Risk Management and Oversight (RMO) Tool – Lessons Learned Module. The RMO Lessons Learned Module serves as a single repository for the documentation of all Refurbishment Lessons Learned. The RMO Lessons Learned Module is accessible by all employees and vendor partners to enter and view lessons learned.

Note: Review N-GUID-09701-10123, Nuclear Projects Risk Management and Oversight (RMO) Tool for details on how to initiate a lessons learned **[R1]**.

When initiating a request, complete all mandatory fields (signified by an *) and as much information as possible in the remaining fields. Lessons documented should be concise and references attached/linked as applicable.

As a minimum RMO LL entries include a Title, Owner, Type of LL, Sub Bundle/Project #, and Window #, Impacted Organization, Categories, Outage Window and the Program Phases.

An identification number will automatically be generated once saved at “Draft” status. Once complete, change the LL status from “Draft” to “Saved”.

Contributions to the Lessons Learned Module include:

- Post-Window Lessons Learned Meetings
- Program Meetings/Workshops
- Strategic Lessons

- Lessons Learned Reports (N-TMP-10204 **[R3])**
- Self Assessments
- SCRs
- Human Performance Lessons Learned (HULL)
- Weekly Critical Path Gains/Losses
- Project/Functional Issues/Findings

For post-CWP meetings completed by RFR the Lessons Learned Program Team will assemble final minutes for all CWPs within a single window and create a single Lessons Learned entry for the RFR window.

### 3.3 Metrics and Reporting

The status of post-Window and Program Lessons Learned meetings will be monitored by the Lessons Learned Program Team. A monthly Lessons Learned Status Report will be issued to the Refurbishment Management Team. Reporting will include:

- Lessons Learned Summary
  - Status of Lessons Learned meetings complete by Segment
  - Status of Lessons Learned meeting by CWP (for R&FR CANATOM)
  - Number of Program Lessons Learned meetings held
- Lesson Learned Meetings Held This Period
- Key Lessons This Period
- Upcoming Meetings
- RMO Lessons Learned Database Quicklinks

## 4.0 PHASE 2 EVALUATION AND INCORPORATION

The Darlington Refurbishment Lessons Learned processes ensures that lessons are screened, prioritized and actioned appropriately to ensure incorporation into the planning and execution of future work. For detailed outline of the Phase 2 LL process, refer to Appendix F.

### 4.1 Lessons Learned Tracking File

The nature of the RMO Lessons Learned Module is to support ease of use by initiators in order to document lessons learned, including the attachment of files which may contain one or more individual lessons.. In order to facilitate a comprehensive review the Lessons Learned Program Team will utilize a Lessons Learned Tracking File to sort the data into discrete individual lessons using key data fields including Execution

Window, Bundle, Project. Appendix D contains a template of the Lessons Learned Tracking File. This file will be maintained on SharePoint.

The Lessons Learned Program Team will conduct a pre-screening of each Lessons Learned entered into the RMO Lessons Learned Module to determine if the entry requires further review by a Project or Functional Manager in order to evaluate the lessons for incorporation. Screened entries will be added to the tracking file.

Once lessons have been added to the tracking file the Lessons Learned Program Team will contact the respective Project or Functional Managers to conduct a review meeting or workshop to screen, evaluate, and action the lessons learned.

## 4.2 Screening

Project or Functional Managers will use their experience to conduct an initial screening of lessons from the Lessons Learned Tracking File. Should additional input be required Project or Functional Managers may include support by SMEs or individuals who raised the original lesson. This may warrant the use of a workshop to facilitate the process in some cases.

Lessons may be screened on the following basis:

- Lessons identified to have limited to no value in purusing
- Lessons which are no longer applicable (resolved or descoped)
- Lessons which are behavioral in nature

Lessons which are screened as ‘N/A’ within the Lessons Learned Tracking File are closed. No further action is required from the Project or Functional groups. All lessons learned including the screened items will be reviewed as part of the Gating Process (*refer to Section 4.5*).

## 4.3 Evaluation

In order to ensure the organization focuses on the right lessons, Project or Functional Managers will evaluate each lesson into a four tier priority ranking system. Tier 1 lessons represent high-value high-importance to the organization while Tier 3 lessons generally represent value added lessons which are captured within exisitng work processes. Tier rankings help determine the implementation of actions for the LL. The following conditions specify tier rankings, but are not limited to:

**Tier 0** - Strategic lessons identified by the Executive Team as being considered imperative to the organization.

**Tier 1** - One of the following apply:

a) Outside of approved scope or outside of budget with contingency
b) Change involves First of a Kind (FOAK) or First in a While (FIAW) approach
c) Opportunity has potential savings/avoidance >$5m
d) New impact to one or more projects (schedule/logic/ties)
e) Director/ Project Manager, Functional Manager or above requested

**Tier 2 -** One of the following apply:

a) Exceeds control budget but within contingency
b) Opportunity has potential savings/avoidance >$ 500k
c) Critical Path schedule savings
d) Non-Critical Path schedule savings >5 days
e) Change in impact to one or more projects (schedule/logic/ties)
f) Trending issues
g) Project Manager, Functional Manager, or Lessons Learned Manager requested

**Tier 3 -** All of the following apply:

a) Within current scope
b) Within current control budget
c) No Critical Path impact
d) Non-Critical path impact <5 days
e) No impact on other projects

Lessons Learned requiring no further action will be categorized as N/A.

## 4.4 Implementation

Lessons Learned implemetion includes the use of action tracking and existing processes to ensure lessons are implemented into planning and execution of work on subsequent units.

**Tier 0**

Tier 0 lessons will be discussed as part of the of Darlington Refurbishment Initiative Tracking & Consolidation (ITC) Team meetings. The ITC team consolidates inputs from various sources including lessons learned, opportunities, cognitive trends etc. and recommends which should be put forward for NPET approval to pursue. Project Charters will be created for approved strategic initiatives and are managed by the Darlington Refurbishment Strategic Project Initiatives department.

In order to facilitate the completion of Tier 0 lessons, additional reviews may be required including preparation of a DRAS, CCF or a leadership forum including Options Review Board (ORB), Change Control Board (CCB), Program Scope Review Board (PSRB), etc.

**Tier 1 and Tier 2**

Both Tier 1 and Tier 2 lessons require formal action tracking. Actions are added into the RMO Action Tracking and linked to the associated Lessons Learned entry. Action Owner, RMO Action, Status, Action, DRAS # (if aplicable), Due Date are added to the

Lessons Learned Tracking File. For work assigned to CANATOM, where applicable, actions will also be managed through the CANATOM ACER (or equivalent) Program.

In order to facilitate the completion of Tier 1 lessons additional reviews may be required including preparation of a DRAS, CCF or a leadership forum including Options Review Board (ORB), Change Control Board (CCB), Program Scope Review Board (PSRB), etc. Requirements for these are to be considered during action creation.

**Tier 3**

Tier 3 lessons do not require formal action tracking. These lessons are planned or have been managed through an existing work process, such as Engineering Change Control. Ensure Tier 3 lessons contain an appropriate disposition identifying how the actions will be managed. If there is no existing work process, then create a formal action in RMO to manage it's completion.

## 4.5 Gating Process

As a project progresses through its development, it will progress through a project life cycle, or phases, including: initiation, development, definition, execution, and closeout.

The transition from one phase to the other is called a Gate. Project Gates are used to assess a project's readiness to proceed to the next phase and will assess and recommend funding.

For work being completed on subsequent units, Gates serve as an opportunity to ensure projects have actively incorporated Lessons Learned from previous unit(s) for projects which are being repeated.

Prior to release of execution funding (Gate 3) all lessons learned for the project are to have been reviewed and managed through the Phase 2 process including Evaluation and Implementation.

The Gate 3 Release Packages for subsequent units are to include project confirmation that Lessons Learned have been incorporated and managed through the Lessons Learned process. This will be described in the body of the Gate Package with the copy of the Lessons Learned Tracking File included in an appendix as evidence of completion to the Gate Review Board.

Following a successful Gate the Lessons Learned Program Team will denote the Gate and Date in which lessons learned were validated by the project into the Lessons Learned Tracking File.

## 4.6 Metrics and Reporting

The status of evaluation and implementation of lessons learned will be monitored by the Lessons Learned Program. This includes metrics for:

- RMO entries pre-screened into the Lessons Learned tracker
- Number of individual lessons by bundle
- Evaluations Completed through the tiering process.
- Number of actions open, closed, due within next 30 days, due within next 90 days

## 5.0 PHASE 3 VERIFICATION

The Darlington Refurbishment Lessons Learned Process ensures lessons are reviewed post-implementation into subsequent units to determine if the lesson was learned.

As part of Post-Window Lessons Learned meetings on subsequent units, lessons learned from the previous unit(s) will be reviewed to determine if the lesson *was* learned and if the issue or the extent of the issue was resolved.

Repeat lessons will be monitored by the Lessons Learned Program Team.

## 6.0 MILESTONE COMPLETION REPORTS

Milestone Completions Reports (MCRs) are required to be prepared by the project for a subset of execution windows identified by Refurbishment Senior Leadership as Key Execution Windows. These windows include both critical path and non-critical path work and are outlined in Appendix A.

MCRs include a high-level summary of the project including:

- Milestone Background
- Execution Strategy
- Contract Strategy
- Scope
- Safety
- Quality
- Schedule
  - Performance
  - Resourcing
- Cost
  - Performance & Forecast
  - Subsequent Unit Forecast
- Risk Management
- Project Oversight
- Key Successes & Lessons Learned

- Recommendation & Conclusions

Many of the topics contained within the MCR are discussed within the post-window Lessons Learned meetings. MCRs include contract strategy, cost performance and subsequent unit forecasts. Given the nature of these topics MCRs are confidential documents.

**MCR Completion Timelines**

The associated Project Director is accountable to complete the MCR within 90 days of the Key Execution Window.

## 7.0 ROLES AND ACCOUNTABILITIES

**Project Manager / Functional Manager**

- Participates and supports facilitation of Post-Window Lessons Learned meetings and documentation of minutes following window completion
- Ensures all lessons within their project have been managed through the Lessons Learned three phase process
- Ensures Milestone Completion Reports are prepared, reviewed and issued in Asset Suite as confidential documents.
- Ensures lessons learned are reviewed and documented as part of the Gated Process (Project Manager Only).
- with the copy of the Lessons Learned Tracking File included in an appendix as evidence of completion to the Gate Review Board

**Manager, Subsequent Unit Planning**

- Provides oversight and support to all staff involved in completing all three phases of the Lessons Learned process
- Ensures Post-Window and Program Level Lessons Learned Meeting/Workshops are conducted
- Ensures minutes of Post-Window Lessons Learned meetings are entered into the RMO Lessons Learned database
- Ensures Milestone Completion Reports are completed and filed appropriately
- Ensures Metrics and Reporting for Lessons Learned are available

- Administers the RMO Lessons Learned Database

## 8.0 ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| **CCB** | Change Control Board |
| **CWP** | Comprehensive Work Package |
| **EC** | Engineering Change |
| **FIAW** | First in a While |
| **FOAK** | First of a Kind |
| **FIC** | Field Initiated Change |
| **FM** | Field Manager |
| **HULL** | Human Performance Lessons Learned |
| **IO** | Improvement Opportunity |
| **ITP** | Inspection Test Plan |
| **LL** | Lessons Learned |
| **MCR** | Milestone Completion Report |
| **NR** | Nuclear Refurbishment |
| **OPEX** | Operating Experience |
| **ORB** | Oral review Board |
| **P6** | Project Execution Schedule |
| **PCCB** | Project Change Control Board |
| **PM** | Project Management |
| **RFR** | Retube Feeder Replacement |
| **SCR** | Station Condition Record |
| **SME** | Subject Matter Expert |
| **TG** | Turbine Generator |

## 9.0 RECORDS AND REFERENCES

### 9.1 Records

None

### 9.2 References

**Performance References**

**[R-1]** N-GUID-09701-10123, Nuclear Projects Risk Management and Oversight (RMO) Tool
**[R-2]** N-MAN-00120-10001 INT, Nuclear Projects Integration Management
**[R-3]** N-TMP-10204, Lessons Learned Report
**[R-4]** NK38-MAN-09701-10005 MLST, Refurbishment Unit Planning Milestones

**Developmental References**

- D-GUID-09324-10001, Outage Lessons Learned Desktop Guide
- N-GUID-04947.02-10000, External Events Screening Guide
- N-GUID-04947.02-10003, Guideline for Evaluating OPEX SCRs
- N-INS-01533-10000, Finding and Using Operating Experience
- N-INS-08920-10029, Incorporating Operating Experience into Training
- N-INS-09300-10003, Outage Lessons Learned
- N-MAN-00120-10001 Sht: RISK, Nuclear Projects Risk Management
- Project Management Body of Knowledge (PMBOK) Fith Edition

## Appendix A: List of Milestone Completion Reports

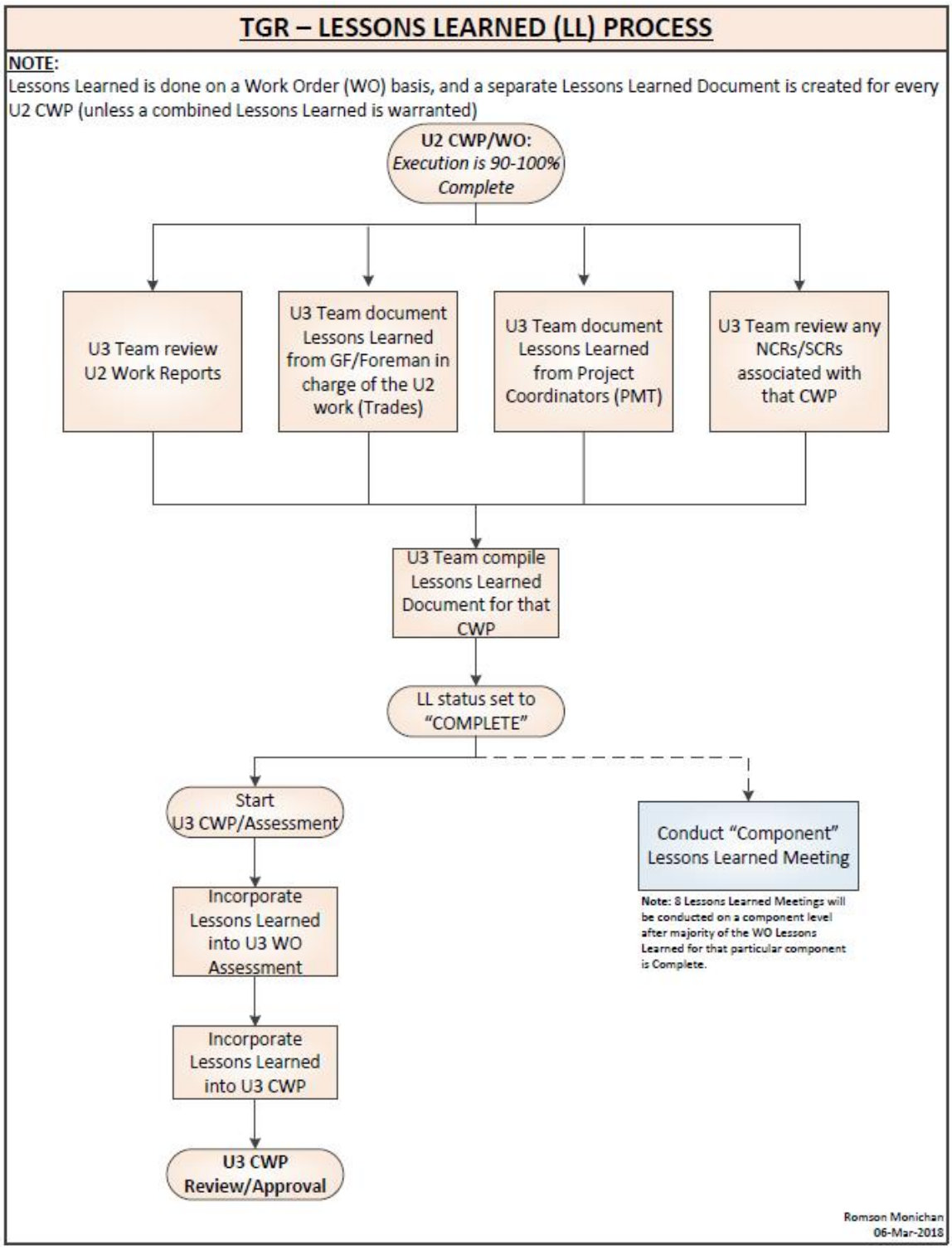
### Critical Path Major Milestones Report

| No | ID | Description | Project | Window | Owner |
|---|---|---|---|---|---|
| 1 | U2040 | U2 Defueling Complete | | W12 | Fueling/Defueling |
| 2 | U2053 | Temporary Containment Boundary (Includes Bulk Head installation and pressure test) | 73113 | W24 | Islanding |
| 3 | U2100 | U2 Feeder Removal Complete | 73113 | W42 | RFR |
| 4 | U2110 | U2 Fuel Channel (CT) Removal Complete | 73113 | W115 | RFR |
| 5 | U2120 | U2 CT Install Series Complete | 73113 | W118 | RFR |
| 6 | U2140 | U2 PT Install Series Complete | 73113 | W119 | RFR |
| 7 | U2130 | U2 Lower Feeder Install Series Complete | 73113 | W83 | RFR |
| 8 | WF2084 | Load fuel | 73113 | W84 | Fueling/Defueling |
| 9 | WF2085 | Air Lock doors closed and Pressure Test Complete | 73113 | W85 | Islanding |
| 10 | U2170 | U2 Vault Restoration Complete | 73113 | W82 | Islanding |
| 11 | U2270 | U2 Run-up, Sync and Balancing Complete | 73113 | W95 | Islanding |
| 12 | WF2085 | Air Lock doors closed and Pressure Test Complete | 73113 | W85 | Islanding |

### Non-Critical Path Major Milestones Report

| No | ID | Description | Project | Window | Owner |
|---|---|---|---|---|---|
| 1 | 73537M0035 | Breathing Air AFS | 73537 | 505,557, 558,559 | SDLU |
| 2 | WF2029 | HTS Vac Dry | 73113 | W29 | RFR |
| 3 | WF2038 | Moderator Drain and Vac Dry | 73113 | W38 | RFR |
| 4 | WF2061 | Turbine Overhaul Complete | 73277 | W61 | TG |
| 5 | 73773MP510 | Shut Down Cooling (Auxiliary SDC) | 73773 | W124 | BOP |
| 6 | WF2051 | Electrical Work - Class 4 Electrical Maintenance | 73407 | W51 | BOP |
| 7 | WF2076 | Upper Feeder Installation | 73113 | W76 | RFR |
| 8 | 73648F8150 | Emergency Heat Sink CCD Scope 7004 EHS - Segment #3 | 73648 | W68 | BOP |
| 9 | WF2062 | Primary Side Clean and Inspection | 73232 & 73222 | W62 | RFR |
| 10 | 73750MS2093 | Valves – BWXT Program (80 Valves) – Tied to CCD | 73750 | W093 | BOP |

## Appendix B:TGR Lessons Learned Process



## Appendix C:Template for the LL Meeting Package

**Refurbishment Post Execution Lessons Learned Meeting – Meeting Package** Date
Project: Page 1
Window(s): Ref:

**Required Attendees:**

- ☐ (Chair) U3 Execution Planning
- ☐ OPG Project Manager
- ☐ Vendor Project Manager
- ☐ Vendor Field Supervisor
- ☐ OPG MTL/PE (as applicable)
- ☐ Vendor MTL/PE (as applicable)
- ☐ Construction Oversight Repr.
- ☐ Ops/Maint Support (as applic.)
- ☐ U3 Execution Scheduler
- ☐ Design Engineering

**Other Attendees:**

- ☐ Next Unit PM (if available)
- ☐ Next Unit WCTL (if available)
- ☐ Project Director
- ☐ DTL (as applicable)
- ☐ Managed Systems Oversight
- ☐ System Engineering
- ☐ Other Support Groups (as applicable):
  - Rad Protection
  - Chemistry
  - Operations

**Agenda:**

Introductions /Attendance/Safety

1. Scope Overview
2. FICs, SCRs & Other Execution Lessons
3. Schedule Performance
4. Safety/Housekeeping/Staffing/Training
5. Quality Performance
6. Cost Performance
7. Contract / Team Performance
8. Other
9. Questions

# 1 Scope Overview

| EC Number | EC Title | Associated CWP(s) |
|---|---|---|
| | | |
| | | |

**Base Scope (at time of award):**

<past from original scope of work – edit to no more than 2-3 paragraphs>

**[Design] Changes to the Scope**

- <one sentence for each major scope change>

# 2 FICs, SCRs and other Execution Lessons Learned

## 2.1 Field Change Summary

<paste or attach FIC Register if available>

| FIC Number | FIC Title/Description |
|---|---|
| | |
| | |

## 2.2 SCRs

<paste in the following columns from the SCR database search>

| SCR Number | SCR Date | SCR Title | Recommended Resolution |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

## 2.3 Other Lessons Learned

<include or attach any other formal Lessons Learned previously completed by OPG Project Team and/or Vendor>Schedule Performance

<Window Variance report supplied by U3 Scheduling – attached at back of package>

# 3 Cost Performance

- 2016 costs w above/below target
- 2017 costs above/below target
- Overall Lifecycle costs e above/below target
- < any ongoing costs?>

# 4 References

## Appendix D:LL Tracking File Template

| RMO LL Entry (if applicable) | Project Title | Bundle | Window | CWP | Lesson/Opportunity | Recommendation from LL | Tier (1, 2, 3, N/A) | Action Owner | RMO Action |
|---|---|---|---|---|---|---|---|---|---|
| 388 | PHT Vac Dry (OPS/Main) 2022/2066, Auxiliary Heat Transport Vacuum Dry Tie in CWP 2237 | RFR | 029 - HTS Vac Dry | 2066/ 2066 A/ 2202/ 2202 A/ 2237 | Staffing - Training - Tooling team did not have time to train on the skids in any kind of operating configuration | PHT has only one skid. Projects should also review the training time requirements and set aside training days. Allot time for training (2 days). | 2 | Construction Tooling and Training | Projects should also review the training time requirements on the skid and set aside training days. Allot time for training (2 days). |
| 405 | Remove FM Bridge and Install RTPs and Bulk Interference Removals for | RFR | 027 - Bulk Interferences Removals 101 - Remove FM Bridge and Install RTPs | 2017/ 2017a | 4-on, 4-off shift rotation works well for repetitive works series but not for conventional construct ion. Suggest changing hours of work structure for next unit. | Consider trying a different shift schedule | 1 | scheduling/construction/ cost | consider different shift work feasibility/cost and schedule |

SAMPLE

## Appendix E:CANATAOM LL Meeting Template

Printed copies are UNCONTROLLED unless stamped CONTROLLED

| SNC·LAVALIN Nuclear / AECON Joint Venture | Last Revised: | June 8, 2017 |
|---|---|---|
| | Rev. | 1 |

### RFR Lessons Learned Report

**Series:** **Date(s) Performed:**

**CWP #:** **Rehearsal Plan Schedule Element:** _____

**Rev No. :**

**Lessons Learned:**

*In the box below, list out any **lessons learned, OPEX, Safety, Tooling, Improvements, and etc** applicable to the series performed.*

| Item No. | Category | Description |
|---|---|---|
| 1 | *Staffing* | |
| 2 | *Material/Material Handling* | |
| 3 | *Tooling* | |
| 4 | *Welding/Special Processes/NDE* | |
| 5 | *Improvements* | |
| 6 | *Engineering* | |
| 7 | *Documentation/ Procedures* | |
| 8 | *Quality/ITP* | |
| 9 | *Contingency* | |
| 10 | *ALARA* | |
| 11 | *Schedule* | |
| 12 | *Other/OPEX* | |

Printed copies are UNCONTROLLED unless stamped CONTROLLED

| SNC·LAVALIN Nuclear / AECON Joint Venture | Last Revised: | June 8, 2017 |
|---|---|---|
| | Rev. | 1 |

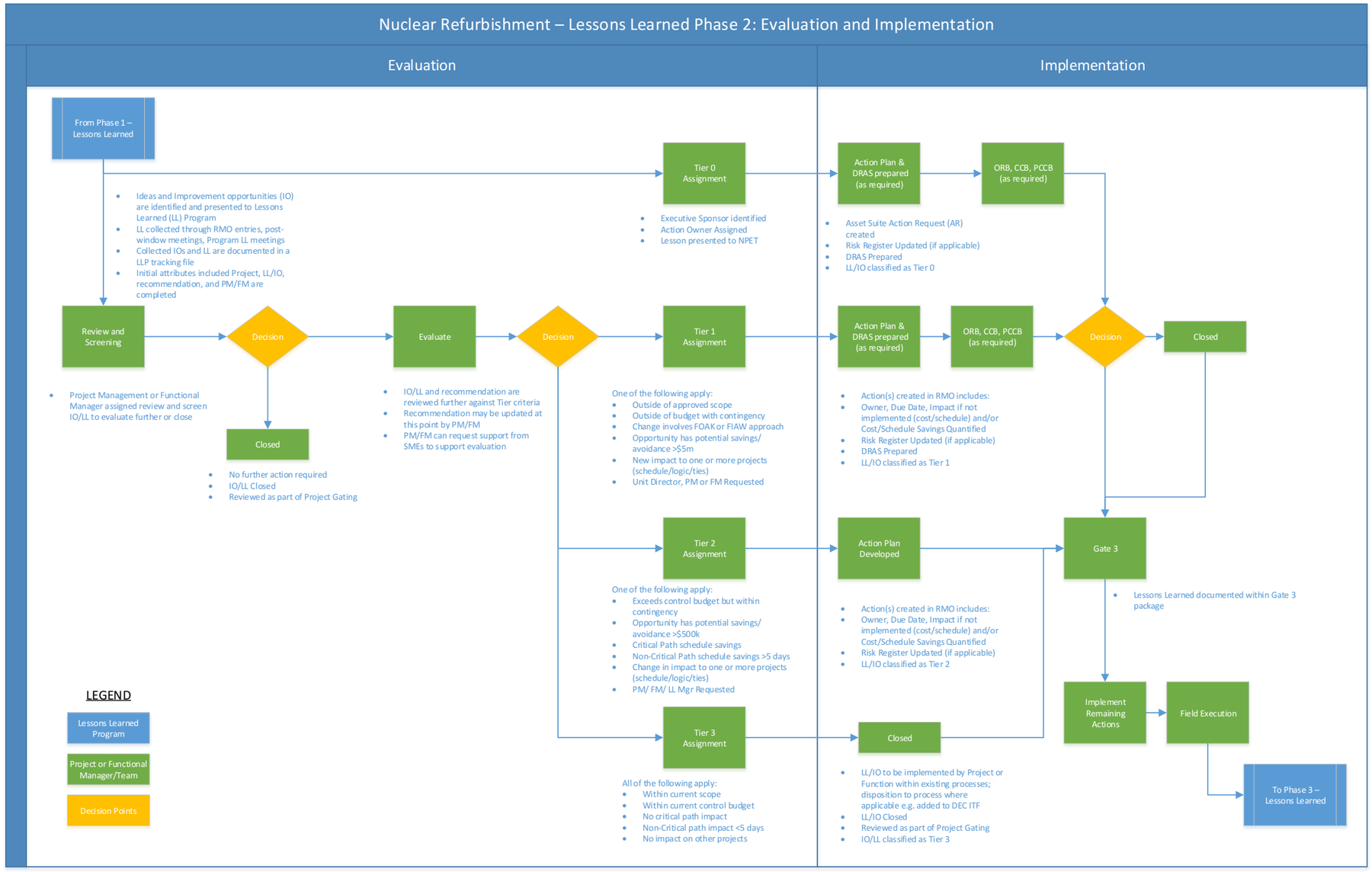
| Revisions to CWP Required | Initiator | Date | Sign |
|---|---|---|---|
| | | | |

| Revision to Training Packages Required | Initiator | Date | Sign |
|---|---|---|---|
| | | | |

| Project Supply List Changes | Initiator | Date | Sign |
|---|---|---|---|
| | | | |

| Tooling Improvements | Initiator | Date | Sign |
|---|---|---|---|
| | | | |

| | | |
|---|---|---|
| Prepared By: | Project Coordinator | Date |
| Reviewed By: | Construction Representative | Date |
| Quality Approval: | Quality Manager | Date |
| Approved By: | Project Manager | Date |
| Client Approval: | OPG Representative (Optional) | Date |

| Guideline | Internal Use Only | | |
|---|---|---|---|
| | Document Number: NK38-GUID-09701-100 | | Usage Classification: Information |
| | Sheet Number: N/A | Revision Number: R00 | Page: 25 of 25 |
| Title: NUCLEAR REFURBISHMENT | | | |

## Appendix F:Lessons Learned Phase 2 Process