Fermilab

Project Close-Out Report

ESH&Q Operational Readiness Clearance Notable Project

Version 1.1

3/21/2017

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Close-Out Report Revision Log

Revision	Description	Effective Date
V0.8	Draft at project closure	12/05/2016
V0.9	Modest adjustments per feedback	12/06/2017
V1.0	Add description of Dec'16-Jan'17 ORC work	1/13/2017
V1.1	Add references to Feb'17 block of work agreed to by mgmt	3/21/2017

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1. Project Abstract

The Operational Readiness Clearance and Technical Scope of Work processes have been utilized by Divisions at Fermilab for many years. The ORC is a type of ES&H review that is applied to experiments, tests and research and development activities. AD, PD, ND and TD have internal procedures that define the ORC for those divisions. The TSW is a mechanism by which Divisions receive and approve scientific proposals for work utilizing Fermilab resources. It has been recognized that the lab would benefit from an overall ORC policy that can standardize the approach. As a result, the DOE has issued the following Notable Outcome for FY16 as part of Goal 5 Sustain excellence and enhance effectiveness of Integrated Safety, Health, and Environmental Protection:

> Objective 5.1 The Laboratory will develop a formal uniform approach to Operational Readiness Clearance (ORC) that defines lab-wide requirements and standards for the ORC process.

The new policy will:
- Define a lab-wide ORC and related TSW process
- Pull together all ES&H review requirements that are buried in various FESHM chapters

The new tool will:
- Guide individuals through the TSW and ORC review process
- Help users obtain reviewers
- More efficiently move through the approval process

2. Project Documentation

Most project documentation is available on the project SharePoint site:
> https://fermipoint.fnal.gov/organization/cs/ccd/spp/Proj/tsworc

3. Supporting Documentation

The FESHM Chapter 2005 – Operational Readiness Clearance (project deliverable) is available at:
> http://esh-docdb.fnal.gov/cgi-bin/ShowDocument?docid=3311

The official User Landing Page for TSWs and ORCs at Fermilab is available at:
> http://programplanning.fnal.gov/tsw_orc

User documentation is posted in OneNote at:
> https://fermipoint.fnal.gov/service/tsworc/_layouts/15/WopiFrame.aspx?sourcedoc=/service/tsworc/SiteAssets/Training%20Documentation

Site Admin documentation is posted in OneNote at:
> https://fermipoint.fnal.gov/service/tsworc/SitePages/For%20Site%20Administrators.aspx

4. Reason for Closing the Project

The project succeeded in achieving its goals and met its acceptance conditions. FESHM Chapter 2005 – Operational Readiness Clearance defines a consistent lab-wide process for ORCs. It has been developed, reviewed, and formally published. The new lab-wide ORC and TSW processes have also been communicated to the users and are in general use. The approval procedures for TSW-noBeam, TSW-Beam, ORC-noBeam, and ORC-Beam have been agreed to, documented, and implemented in the new TSW/ORC approval tool.

The new TSW and ORC form and approval tools have received generally positive user feedback. We hreceived some requests for improvements to this new tool as we gain more experience in the field under pressure to approve ORC approvals in a timely manner. To ensure that the tool meets user expectations, the project monitored the tool experience beyond the original project close-out target of October 2016, continuing through the December 2016 beam turn-on period. The project was extended further to January 2017 after issues were found while processing the December ORC's. In January 2017, both the TSW and ORC tools were judged production-ready.

In early February 2017, several significant issues arose while using the ORC tool. After a meeting between Amber Kenney, Jon Bakken, and the Project Core Team, the following tasks were agreed to before closing the project:
- Change 1: Support multi-Safety Officer, Multi-Divisional ORC workflows
- Change 2: Revise how notes/comments are handled
- Change 3: Resolve Win10/Edge issue
- Resolve open incidents and reduce incident rate to a "reasonable" level.

In addition, the project team implemented a version management scheme to better manage the roll-out of new versions and support users reporting incidents since users can identify which version of the app is running in their local browser. This changes and incidents were addressed by the end of February. Also, a race condition has been resolved if two or more reviewers are posting changes to the tool site at the same time. Since then, the incident rate has been reduced to a more reasonable level.

5. Project Objectives and Metrics

The Project Charter defines the following objectives as defined in the Project Scope section:

1. The project will be considered successful if DOE acknowledges that the deliverables meet the Notable Objective.
   o This was accomplished on September 20, 2016. *DONE*.
   o The DOE Fermi Site Office requested a follow-up review of the Notable Objective deliverables after one year, approximately October 2017.
2. In addition, success will include positive feedback from stakeholders that find improved TSW and ORC clarity and efficiency, especially in the approval process.
   o We received generally positive feedback about the tool, even during the time-critical ORC-Beam approval processes around beam turn-on. There will still be benefits from continued evolution of the tool, to make it more robust and convenient for users and approvers. *DONE*.

3. The implementation tool will be focused on achieving the ORC notable, but will likely be capable of capturing any ESH review.
   o The implementation tool also treats the TSW-Beam and TSW-noBeam approval processes, demonstrating that this tool can be used to capture other approval processes for reviews. *DONE*.

The Project Charter also defines the following acceptance conditions:
1. Policy is accepted and published. *DONE*.
2. Process and procedures are documented. *DONE*.
3. Tool passes user acceptance tests and is deployed. *DONE*.
4. Fermi Site Office has signed off on the PEMP Notable Outcome as achieved. *DONE*.
   a. The DOE Fermi Site Office requested a follow-up review of the Notable Objective deliverables after one year, approximately October 2017.

6. Project Deliverables

The Project Charter defined the following deliverables, all defined in the original Charge:

1. A lab-wide policy (FESHM chapter) that is approved by the lab director.
   a. The FESHM Chapter 2005 – Operational Readiness Clearance is available at: http://esh-docdb.fnal.gov/cgi-bin/ShowDocument?docid=3311 *DONE*.
2. An online tool used to implement the lab-wide ORC policy and related TSW process.
   o The TSW/ORC approval management tool, implemented in SharePoint, has been in use since September 2016. It implements the approval flowcharts agreed to and published in FESHM Chapter 2005. *DONE*.

7. Project Schedule

7.1 Original Project Timeline

The project had a hard deadline: achieve the ESH&Q ORC Notable Outcome by the end of FY2016. The Project Charter defined a high-level timeline to achieve this.

- Policy (FESHM) due – 3/31/2016
- Deploy pilot tool – 4/2016
- Stakeholder meetings – 5/2016
- Expand pilot – 6/2016
- Stakeholder meetings (if necessary) – 7/2016
- Deploy tool lab-wide – 7/15/2016
- Notable outcome due – 9/30/2016

7.2 Actual Project Timeline

The actual high-level project timeline shows the time it took to mature the approval process tool due to resource conflicts, development/test instance conflicts, and an incomplete specification

of its dynamic behavior during requirements gathering early in the project. Once these issues were addressed, the tool implementation and deployment proceeded more smoothly. This timeline is also available in a different format on the Project SharePoint Site:

Oct 2015 – Nov 2015:   Initial Project Discussions
Nov 2015 – Dec 2015:   Common Process Draft
Dec 2015 – Feb 2016:   Develop Draft TSW & ORC Requirements
Jan 2016 – Jun 2016:   Tool Prototype: Develop and Test:
- *Staff resources impacted by unexpected competing EPRA project*
- *Multiple test failures due to use of test instance for development*
- *Iterative design improvements of dynamic tool behavior were time-consuming. Requirements gathered did not describe dynamic behavior in detail.*

Mar 2016:   Draft ORC Policy
Apr 2016 - Aug 2016:   Initial ORC Policy Review
Jun 2016 – Jul 2016:   Basic Tool v1: Develop and Test
- *Version 1 tool was not frequently used for TSW/ORC approvals due to: (a) few user requests, (b) high rate of incidents.*

Jul 2016 – Sep 2016:   Polished Tool v2: Develop and Test
- *Version 2.0 tool was frequently used for TSW/ORC approvals.*
- *Documented dynamic tool behavior with approval flowcharts and state diagrams. Broader agreement achieved before implementation, fewer iterative design improvements. This also contributed to FESHM Chapter 2005 ORC – Program Description.*

Aug 2016 – Oct 2016:   Final ORC Policy developed, communicated, and published
Sep 20, 2016:   ORC PEMP Notable Presentation: Successful
Oct 2016:   Tool v2.1: Develop, Test, and Release
- *Version 2.1 tool is regularly used for TSW/ORC approvals.*

Oct 2016 – Jan 2017:   Project Close-Out:
- *Originally planned duration was less than a month, this was extended to watch for patterns due to infrequent TSW/ORC use and then address issues identified during December ORC's.*

February 2017:   February Agreement to Address Specific ORC Issues
- *Several significant issues were encountered in late January/early February which were addressed by the end of February. After this, the ORC incident rate was considered acceptable and tool updates became more manageable.*

8. Project Team

The project organization described in detail in the Project Charter, Section 11, was used throughout the project, with one exception: Testing & Training responsibilities were shifted to Kimberly Myles in mid-project.

9. Budget and Financial Information

As described in the Project Charter, this project had no formal M&S budget. The project was allotted a 10% – 50% of the Project team members listing in Section 11. This was the average allotment over the entire project timeframe, and some team members spent more than this time fraction on the project for significant periods of time.

10. Outstanding Risks and Issues

The project's "Lessons Learned Doc" contains a list of risks and opportunities at project Close-out along with possible mitigations. It is posted in the following area on the project SharePoint site: Project Documents / Project Close-Out. In summary, the remaining outstanding risks are:

- Risk: SharePoint-based approval workflow tools are sensitive to users using out-of-date web browsers, email browsers, and/or mobile devices.
- Risk: The current approach to assigning Service Providers (SharePoint Development Services) as the initial responder to service tickets is based on a model developed for large Enterprise Applications rather than small approval process automation tools. This approach will not scale well for a small development team creating and supporting potentially dozens of such approval process automation tools.
- Risk: TSW/ORC lacks a procedure to adapt to Fermilab organizational changes.

An opportunity exists which may help future similar projects execute more smoothly:
- Opportunity: To better support future engagements like this one, we recommend developing a template to guide those seeking to design, develop, and deploy an approval process tool like this. The template would include example design documents that combine the experience of this project and the EPRA project. This may help guide customers to begin work on an approval process specification before engaging the development team to create an initial tool. This will help jumpstart future projects by providing real examples from delivered production tools. Having common formats for the specifications will also assist in the long-term maintenance of the processes by customers and of the tools by service providers.

11. Operations and Support

Maintenance of the TSW/ORC approval tool will be provided by the Content Management Group (known as "SharePoint Development Services" in ServiceNow), led by Keenan Newton. The TSW/ORC approval tool support will be on a 5 x 8 basis, except for computer security alarms defined to be page-able events which will be supported on a 7 x 24 basis.

12. Next Steps

The following tasks will continue to be pursued by the SharePoint Development Services group as the project closes:
- Resolve open incidents (at least, work-arounds). Look for patterns in the incidents.
- Apply to TSWs those December 2016 changes to ORCs that are appropriate
- Address highest priority request(s), including treatment of delegation for roles with multiple actors.
- Organize separate "template" development effort for similar future projects.

The DOE Fermi Site Office requested a follow-up review of the Notable Objective deliverables after one year, approximately October 2017. ESH&Q will lead the effort to address this review.

13. Lessons Learned

The project's "Lessons Learned Doc" is posted in the following area on the project SharePoint site: Project Documents / Project Close-Out.