November 10, 2003

MEMORANDUM TO: Robert C. Pierson, Director
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

THRU: Brian W. Smith, Section Chief **/RA/**
Special Projects Section
Special Projects and Inspection Branch
Division of Fuel Cycle Safety
and Safeguards,NMSS

FROM: Scott A. Gordon, Student Engineer **/RA/**
Special Projects Section
Special Projects and Inspection Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS

SUBJECT: INITIAL FINDINGS REPORT FOR THE FUEL CYCLE SAFETY AND SAFEGUARDS BUSINESS PROCESS IMPROVEMENT EFFORT

The attached document, *Initial Findings Report for the Fuel Cycle Facility Licensing Process*, describes the initial phase of the Business Process Improvement effort performed throughout Fuel Cycle Safety and Safeguards. The document describes the methodology used and results discovered throughout this process. The recommendations presented in the document are for review by the Division Director to determine the ones to be investigated further for potential implementation into the technical review process of a materials license application.

Attachment: Initial Findings Report for the
Fuel Cycle Facility Licensing Process

November 10, 2003

MEMORANDUM TO: Robert C. Pierson, Division Director
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

THRU: Brian W. Smith, Section Chief **/RA/**
Special Projects Section
Special Projects and Inspection Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS

FROM: Scott A. Gordon, Student Engineer **/RA/**
Special Projects Section
Special Projects and Inspection Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS

SUBJECT: INITIAL FINDINGS REPORT FOR THE FUEL CYCLE SAFETY AND SAFEGUARDS BUSINESS PROCESS IMPROVEMENT EFFORT

The attached document, *Initial Findings Report for the Fuel Cycle Facility Licensing Process*, describes the initial phase of the Business Process Improvement effort performed throughout Fuel Cycle Safety and Safeguards. The document describes the methodology used and results discovered throughout this process. The recommendations presented in the document are for review by the Division Director to determine the ones to be investigated further for potential implementation into the technical review process of a materials license application.

Attachment: Initial Findings Report for the
Fuel Cycle Facility Licensing Process

DISTRIBUTION:

FCSSr/f SPIBr/f	MLeach, PMDA	JGreaves, DWM
WBrach, SFPO	BTroskoski, SPIB	CMiller, IMNS

ML033160010
G:\FCSS\SPB\SAG\Final BPI Findings Report.wpd

OFFICE	SPIB	SPIB	SPIB	SPIB		
NAME	SGordon	LGross	BSmith	JGiitter		
DATE	11/ 10 /03	11/ 10 /03	11/ 10 /03	11/ 10 /03		

INDICATE IN BOX: "C"=COPY W/O ATTACHMENT/ENCLOSURE, "E"=COPY W/ATT/ENCL, "N"=NO COPY

OFFICIAL RECORD COPY

FCSS
Business Process Improvement (BPI)

Initial Findings Report for the Fuel Cycle Facility Licensing Process

Version 1.1
November 2003

United States Nuclear Regulatory Commission
Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Materials Safety and Safeguards
Washington, DC

TABLE OF CONTENTS

1. Introduction and Overview

This document describes the initial findings by the Division of Fuel Cycle Safety and Safeguards (FCSS) of the Office of Nuclear Materials Safety and Safeguards (NMSS) for a business process improvement (BPI) effort for the fuel cycle facility licensing process. There are two main procedures associated with the fuel cycle facility licensing process–administrative and technical review. The administrative process includes the flow of information between the participants involved in a materials application review from beginning to end. The technical review process determines the adequacy of an application to meet federal regulations. To initiate the technical review, the application materials are supplied to the review staff through the administrative process. While the two processes work in tandem, the result of the technical review determines whether or not an application is accepted by the Nuclear Regulatory Commission (NRC).

The purpose of this initial BPI effort is to determine potential enhancements to the technical review process. Since the majority of staff within FCSS perform technical review activities, it is beneficial to focus the BPI effort on this area. Previous BPI efforts have examined the administrative process of the materials license review; the results of which were implemented by FCSS management into the current process. The *Materials Licensing Procedures Manual*, updated in July 1999, serves as guidance for the staff throughout the process and as a benchmark for this BPI project. The administrative and technical review procedures described in the *Manual* assist the staff throughout a license review. Although the administrative process is well-organized and improvement should not be necessary, concerns or enhancements to it were noted if mentioned by the review staff. Therefore, this BPI effort examined concerns and potential enhancements to the current technical review activities.

The primary role of project managers, technical review staff, and licensing assistants within FCSS has been to perform the administrative and technical review procedures on applications requesting materials licenses submitted by members of the nuclear industry. Although these processes were initiated and implemented by management, inefficiencies and nonvalue-added procedures emerged as staff performed the activities daily. It is the goal of this BPI effort to identify these inefficient activities within the technical review process noted by the staff and determine improvements to them.

1.1 Scope

This initial BPI effort concentrated on the technical review process of the materials licensing procedures performed by FCSS staff. The same BPI approach could analyze other routinely performed tasks by FCSS staff (outside of materials licensing) and/or assist other divisions in the NRC with their BPI efforts.

1.2 Objective

The purpose of this initial BPI effort was to discover concerns with the current technical review process, identify the reasons for them, and determine potential solutions. This information was collected through interviews from a sampling of staff across FCSS. The results of this report allow for further evaluation to determine the feasibility and impact of implementing the potential solutions.

1.3 Roles and Responsibilities

The Division Director and Deputy Director for FCSS are the sponsors of this BPI effort. Their involvement in this effort was to establish the overall goals and determine the appropriate scope. Assistance from staff of both branches of the Division, Fuel Cycle Facilities Branch (FCFB) and Special Projects and Inspection Branch (SPIB), were required for the success of this project.

Branch chiefs and section chiefs promoted the importance of the BPI effort to their staff to ensure adequate participation for interviews. Project managers and technical reviewers were the main focus of this initial effort because they perform the review activities on a daily basis. Conducting interviews with them helped gain full understanding of the current materials licensing process and potential improvements for the technical review.

1.4 Performance Measures

Performing Business Process Improvement is directly correlated with performance goals set forth in the *US Nuclear Regulatory Commission FY2000–2005 Strategic Plan*. Two important performance goals for Nuclear Material Safety are:

- Make NRC activities and decisions more effective, efficient, and realistic, and;
- Reduce unnecessary regulatory burden on stakeholders.

Both of these goals are met by the implementation of BPI for materials licensing. Although the full extent of how BPI will help the materials licensing process will not be known until potential improvements are identified and implemented, there are steps along the way for measuring its progress. The full methodology of the initial BPI approach is presented in Section 2.0; however, as a summary, major steps in the process include the following:

- Identifying FCSS staff with intimate knowledge of the materials licensing process (i.e., project managers, licensing assistants, technical reviewers)
- Conducting interviews with those individuals knowledgeable in the technical review of materials licensing
- Discovering areas of concern and the causes of the concerns
- Identifying enhancements to the current technical review process
- Determining ways of implementing the enhancements
- Reviewing the revised processes periodically to determine their effectiveness

2.0 Methodology

The approach for conducting the initial BPI effort is categorized into four parts and described in each subsection.

- 2.1 Review of Current Process
- 2.2 Creation of Interview Materials
- 2.3 Conduct Interviews
- 2.4 Analyze Results

2.1 Review of Current Process

The most recent version of the *Materials Licensing Procedures Manual* was updated in July 1999 by staff from the now-reorganized Licensing and International Safeguards Branch formerly within FCSS. The *Manual* describes the materials licensing procedures (e.g., administrative, technical review) that project managers and the review staff should follow to interact with current and potential licensees. The *Manual* is a thorough guidance document that helped during the staff interviews and in determining improvements to the current technical review process.

2.2 Creation of Interview Materials

The staff interviews were the core of this initial BPI effort for gathering information on the current technical review process and determining potential areas for improvement. It was necessary to present interviewees with clear questions and thorough materials on the technical review process. An interview questionnaire was created (see Appendix A), which included flowcharts of the entire licensing process (see Appendix B) based on the *Manual*, to aid in interview discussions. The questionnaire focused on the current technical review for the materials licensing process along with questions eliciting information about process drawbacks and improvements. The accompanying flowcharts visually displayed the licensing process. A high-level flowchart was created along with four second-level flowcharts divided into the following areas:

- Processing of Initial Correspondence
- Acceptance Review
- Review Licensing Action (*Main technical review area and focus of interviews)
- Produce Materials License

2.3 Conduct Interviews

A sample of project managers and technical review staff from FCSS were identified as interviewees due to their intimate knowledge of the technical review process. In order to gain unbiased results, it was essential to interview staff with varying technical backgrounds and levels of experience. A total of twelve reviewers were interviewed from FCSS: four from Fuel Manufacturing Section, four from Special Projects Section, three from Uranium Processing Section, and one from Criticality Team. After a few initial interviews were conducted, a review of the interview questionnaire was performed to clarify confusing questions and remove

redundant or irrelevant ones. The flowcharts were also updated based on interviewee comments and suggestions.

2.4 Analyze Results

Upon completion of the interviews, an initial table was created listing all comments relevant to the technical review process. These comments were evaluated to determine their categorization as either background information, review process concern, or review process improvement. (Comments on the administrative process, although not a primary component of this initial BPI effort, were noted and are summarized in the *Findings* section of this report.) Like concerns and improvements among the interviewees were consolidated resulting in seven issues. Findings and potential solutions were determined for these seven issues and are discussed in the *Findings* section.

3.0 Findings

3.1 Current Licensing Process

While the results of the staff interviews were being evaluated, certain characteristics of the current technical review process became apparent. First, the technical review staff within FCSS have strong experience reviewing applications for a wide variety of nuclear facilities, including fuel fabrication, uranium recovery, enrichment, and power and non-power reactors. Along with technical review duties, most of the staff act as project manager for at least one site. Second, over the years, the technical review process seems to have adapted to the environment around it. At one time, the review staff could ask almost any question of an applicant to ensure proper safety of a facility. But, the current direction–and Agency goal–is to ask more pointed and relevant questions in order to reduce applicant burden. The process has also conformed to the changes in regulations. The revisions to 10 CFR 70 have increased the use of risk as a major factor for determining the adequacy of a facility to meet its safety requirements. Although many reviewers felt that risk insights have always been accounted for during a technical review, the recent regulation revisions only helped make them more prominent. Third, the overall opinion by the staff of the current technical review process is favorable. However, there are areas where certain improvements could be made. These areas are discussed further in the following section.

3.2 Process Improvements

As a result of the BPI interviews, seven areas of the technical review process emerged as being concerns to the staff. Reasons for the concerns and potential improvements are listed under each area. Although each process improvement is discussed separately, they are all related within the technical review process. Therefore, it may not be necessary to improve each area individually. Rather, improvements to a few areas may result in improvements to the other areas. The areas are listed in descending order of the frequency with which they were mentioned by the interviewees.

3.2.1 Applicant Communication

Finding:
The RAI process between reviewers and applicants can become iterative and lengthy. The length of time for reviewers to receive sufficient additional information to adequately make a determination is based on clear reviewer-applicant communication and on the quality of the application. Although the type of application can play a role in the request for additional information (RAI) process duration, it is more dependent on the quality and complexity of the application. The higher quality applications tend to foster fewer numbers of RAIs.

Potential Solution:
The quality of applications that the NRC expects to receive should be clear to applicants as plenty of information (e.g., previous application submittals, standard review plans (SRPs), safety evaluation reports (SERs) is available to assist them in creating a high-quality application. Pre-submittal meetings and workshops have often been set up between applicants and NRC staff, should face-to-face interactions prior to application submission be requested. The purpose of a pre-application submittal meeting is for the reviewers and applicants to

communicate potential issues before the application is received. If a pre-submittal meeting, usually initiated by the applicant, is proposed, the NRC project manager should clearly establish the purpose, goals, and scope of the meeting. Unfocused meetings can be burdensome on all parties involved.

Once the application is received, every project manager has his/her own way of handling communication with the applicant. Some project managers would prefer their reviewers follow the RAI process for any additional information needed. Other project managers try to reduce RAIs by setting up on-site meetings or conference calls with applicants to clarify both major and minor issues. Project managers should use their and other's experience to determine the best way to handle the need for additional information, bearing in mind that while the RAI process should be predictable, each reviewer-applicant relationship is unique. In any case, proper planning and focus is essential to reduce the burden of an iterative RAI process.

In June 2002, a task force within the Spent Fuel Project Office (SFPO) was chartered to evaluate their licensing process and suggest activities for increased efficiency and effectiveness. While a review of the task force's complete results may prove beneficial to related FCSS areas, one aspect of their conclusions focused on staff interactions with applicants. An analysis of this area may show potential ways for applicant communication in FCSS to improve.

3.2.2 Management Oversight

Finding:
Although there are many benefits for managers to gain executive experience by performing branch and/or section chief duties throughout NRC, frequent management changes can have side effects on project managers and the technical review staff. When technical expertise of the various projects is concentrated at the staff level rather than at the manager level, the staff feels a general lack of direct management ownership. Although managers have a strong understanding of NRC's policy and management issues, it may take them some time to learn the details about the various projects being managed within their branch and/or section. This learning curve to grasp all the projects' technical details can lessen the depth of technical reviews. To counter this, it is the staff's perception that the Office of the General Counsel (OGC) and senior management have decided to broaden the scope of SERs by ensuring that technical reviews are performed in every area, both primary and supporting. This is also a finding discussed further in the *Complexity of Technical Reviews* section.

Potential Solution:
The current direction of NMSS is to push empowerment from the manager level down to the staff level. This is a major philosophy shift for staff, especially those with significant years of experience within NRC. Easing staff into this management approach will require effective steps to ensure their smooth transition. The roles and responsibilities of the section chief, branch chief, and division director, need to be clearly defined, delineated, and communicated to the staff so that a feeling of managerial duplication is not apparent. The former managerial approach, which is familiar to many experienced staff, was for the section chiefs to have the greatest technical knowledge of all their staff, regardless of their managerial style. Currently, section chiefs, while very technically competent, are more effective as strong managers rather than as a source of technical guidance for their staff. Clearly communicating these new roles to

the staff and ensuring that managers adhere to these roles could help staff gain confidence in this new managerial philosophy.

3.2.3 Complexity of Technical Reviews

Finding:
It is possible for the technical review of simple applications to be performed only by a project manager. However, as applications increase in technical complexity, a project manager may need to solicit review staff from varying backgrounds of technical disciplines to participate in the complete technical review. It has been the practice that project managers have the authority to determine the technical areas that pose the most safety significance, thereby requiring an extensive review (i.e., the dedication of an entire SER chapter) versus the technical areas that do not require their own SER chapter, but rather act in support of the main areas. This determination tends to come with experience, although it should be straightforward as to what areas require a more thorough review, even for new project managers. Recently, it is the staff's perception that OGC and senior management want reviewers to evaluate every technical area to support an application determination. Requiring every technical area, both primary and supporting, to receive the same thorough review negatively effects and burdens staff by adding time to perform their reviews and potentially delays the schedule for producing an outcome. Performing such thorough reviews of every technical area directly effects applicants because they will be required to produce and submit the same level of extensive application materials on the supporting areas as they normally would on the primary areas.

Potential Solution:
Due to the revisions of 10 CFR 70, applicants needing to meet these regulations are required to submit an integrated safety analysis (ISA) summary as part of an application or amendment. An adequate ISA summary will clearly identify risk levels for areas of potential hazards within fuel fabrication facilities. These potential hazard and high risk areas should help clarify the technical review areas that require extensive evaluation by the staff in addition to revealing the supporting areas. Once the project manager has determined the primary technical review disciplines, further discussions with his/her section chief and branch chief may be necessary to begin coordinating the review team.

Since ISA summary review is a new concept to most staff, it is essential that the project manager properly and clearly communicate the purpose, goals, and scope of the ISA review process. This includes the manner in which the staff appropriately performs an ISA summary review and the interaction the ISA has among all technical review areas. Once the ISA summary review becomes more clearly defined, it is possible that training and guidance documents will be needed to appropriately familiarize reviewers with the correct procedures. The Risk Task Group (RTG) will assist FCSS in the development of interim staff guidance (ISG) for risk-informing licensing decisions based on the ISA summary review. Recently, an ISA workshop was conducted to begin discussing issues related to NRC's review of ISA summaries. This and other topics were acknowledged and preliminary development is underway.

For technical reviews within FCSS of applications outside the scope of 10 CFR 70, the use of an ISA summary to determine primary and supporting technical review areas is not relevant. Under the commission's direction, a major initiative was undertaken in the Uranium Processing Section to create NUREGs in support of 10 CFR 40, Appendix A. NUREGs 1569 and 1620 were published in June 2003 to assist technical reviewers in the evaluation of applications

related to these regulations. These documents were created over a two and a half year period and incorporate internal guidance (i.e., branch technical positions, interim staff guidance) and stakeholder comments.

3.2.4 Staff Scheduling

Finding:
In most instances, technical reviewers assigned to review a specific area of an application may also have project manager or review duties on other projects. So, a reviewer may have more tasks on his/her personal schedule than simply reviewing the proposed application. Scheduling conflicts can arise when the project manager sets the review schedule without consulting each of the technical reviewers. Conflicts can also arise if the project manager only consults a reviewer's section chief, who may not know all of the other activities on which the reviewer is working. Reviewers feel that assigning them tasks without proper scheduling discussions and/or negotiations can overburden them, leading to delays in an application review or lower quality work due to a schedule crunch. Although this type of situation is out of a reviewer's control because he/she was not adequately consulted on the review schedule, the lower standard performance could contradict goals set forth in the Oerating Plan or be reflected negatively as part of the reviewer's performance appraisal.

Potential Solution:
The most effective means for avoiding scheduling issues is for clear communication of roles and expectations to be made apparent at a project's onset. As soon as a project manager becomes aware that the assistance of other technical reviewers will be needed as part of an application review, he/she should discuss the schedule requirements with the designated reviewers. As much as possible, the project manager needs to be flexible with the review schedule to account for other commitments that the reviewers have. A concurrent discussion between the project manager, reviewer, and reviewer's section chief should produce clear communication of the expected schedule and requirements by all parties.

A slightly different approach to this situation involves an organizational restructuring. The duties of project managers would be separated from the duties of technical reviewers. At the initiation of an application review, the project manager would choose a review team from a "pool" of technical reviewers. This reviewer "pool" would include staff with backgrounds in all the necessary technical disciplines to perform a technical review. Essentially, this matrix organizational branch would include a project manager section and a technical review section comprising a number of "review teams" for different application reviews. While technical reviewers could still be working on multiple application reviews concurrently, their project management duties would be left to the project managers. This type of organizational structure is similar to that in the SFPO. Should this solution be investigated further, meetings with SFPO staff will be conducted to determine its organizational effectiveness. Because this solution could result in a major resource effort, a less burdensome approach could be to clearly define the roles of project managers versus technical reviewers.

3.2.5 Technical Review Guidance

Finding:
A majority of current technical reviewers learned how to perform technical reviews through on-the-job training. Most were given portions of a technical area to review at first, followed by the

review of a complete technical area. Experience was gained by consulting review guidance (e.g., regulations, regulatory guides, standard review plans) and by asking questions of senior reviewers. In addition, all technical reviewers had to meet requirements set forth in their individual qualification program. Although many reviewers have experience with fuel fabrication facilities, they also have knowledge of power and non-power reactors, enrichment facilities, and production facilities. From the staff's perspective, the technical review process has stayed relatively consistent. However, with the recent revisions in regulations, the content of what to review and how to review it has changed without any additional staff training.

Potential Solution:
The creation of a one-day training course on how to perform technical reviews would benefit new reviewers and act as a refresher course for experienced reviewers to remain up-to-date on new or updated requirements based on regulation revisions. This course would be offered annually and encouraged to be taken by the review staff on that frequency. The course could provide an overview of the review process and explain the interaction of all internal and external parties involved. It could also explain the relationship between the technical review, the regulations it needs to meet, and management's expectations. It is important for reviewers to learn the correct style, format, and level of detail needed in safety evaluation reports, environmental assessments, and environmental impact statements. The correct RAI process is essential to learn in order to gain an understanding of how to elicit information from the applicant that require additional clarification. It is also necessary for reviewers to become aware of the variety of guidance documents available for performing technical reviews, not only internally (e.g., regulations, regulatory guides, standard review plans) but externally as well (e.g., industry standards, academic research).

A major initiative would be to update the *Materials Licensing Procedures Manual*–it was last updated in July 1999. The *Manual* describes materials licensing procedures for interaction between staff and current and/or potential licensees. However, it does not describe procedures for communicating internally. Internal communication is just as important, and in some cases more important, as external communication for performing a technical review. The duties of project managers and review staff are so numerous that many aspects can get overlooked. For example, the revised *Manual* could provide proper guidance for the development of a preliminary review schedule (see Section 3.2.4) or a pre-submittal meeting agenda (see Section 3.2.1) to ease unnecessary project manager and staff burden. Incorporating a process for reviewing the *Manual* on an annual basis would ensure consistency throughout the division and encourage staff feedback for updates. The annual updates to the *Manual* would be a major topic in the proposed technical review training course.

The review and update of other internal guidance documents (i.e., branch technical positions, interim staff guidance) at the conclusion of major application reviews is a related solution. These guidance documents would further clarify existing materials (e.g., NUREGs) and inform reviewers on lessons learned from prior technical reviews. Upon the completion of a review, the project manager and the review team could meet to discuss issues that occurred throughout the review. The project manager could share the lessons learned with the division and determine necessary updates to the guidance documents and the *Manual*. Incorporating this step into every application review would ensure that the internal guidance act as living documents to assist future review teams. Conversely, reviewing and updating NUREGs to incorporate lessons learned from major reviews would be quite resource intensive and not an effective use of staff time.

3.2.6 Review Team Communication

Finding:
When reviewers from multiple disciplines are required to perform a technical review, team communication becomes a critical focal point. Because the SER should read as if it were written by a single reviewer, format, style, and level of detail needs to remain consistent throughout the document. Prior to the 10 CFR 70 revisions, each reviewer theoretically could write his/her section independent of the others. However, now that an ISA summary is required to be reviewed, open communication among the different technical disciplines is crucial. Although each technical area is reviewed and evaluated to ensure adequate safety, the ISA summary review needs to incorporate the safety significance of each technical area in relationship to one another. Therefore, general communication among the review team needs to be improved.

Potential Solution:
Successful technical reviews are dependent on effective project management. Open lines of communication between the technical reviewers will occur smoothly if facilitated by project managers. Because differences of opinion could occur causing delays in the project schedule, expectations for the SER should be clearly conveyed by the project manager. Although SRPs provide technical reviewers with a general process for evaluating applications, more detailed procedures could be written to ensure appropriate consistency of the content and format of SER chapters. For example, reviewers could focus their evaluations on the potential accident analyses of the application. Once the facility's hazards are identified and located, the accident sequences that expose personnel and the environment to the hazards can be identified. Then, selected strategies and controls to effectively mitigate these hazards could be described, along with the management measures and safety requirements associated with them. This type of evaluation process is one example of how to clearly focus the review toward the level of safety significance required by the revisions to 10 CFR 70.

Reviewers of the same technical discipline working on different projects, including those outside of FCSS, may benefit from periodic peer meetings to learn the similarities and differences on how they perform reviews. Disparities between years of experience and interpretation of the regulations could cause the same technical area reviewers to perform very different reviews in terms of level of detail and style. Although different applications naturally will necessitate different reviews, technical reviewers may find it beneficial to discuss new and continuing issues in their specific area.

3.2.7 Internal Technical Assistance

Finding:
A technical assistance request (TAR) is required to solicit personnel outside of a branch with specific technical knowledge to help support an application review. Although the TAR process is a necessary administrative procedure, it tends to increase project time and adds little value. The TAR process is needed due to a lack of technical expertise, possibly resulting from a loss of certain staff with insufficient work of that specific type, within some branches. When a TAR is prepared, the project manager should attach all relevant documents relating to the technical review (e.g., license application, SRP) to the TAR so the reviewer has all necessary information. However, this is not always done. It was found that it depended on the project

managers as to whether the review documents were attached to the TAR. Reviewers that did not receive an attachment along with the TAR wasted valuable time searching for the application materials.

Potential Solution:
As part of the administrative process to initiate a TAR, it should be required that all relevant and necessary documents needed by the reviewer be attached to the TAR. This will reduce the effort and time of the reviewer to search for documentation. It is the responsibility of project managers to provide reviewers with the application review materials to perform the work. Conversely, project managers cannot be responsible for all guidance materials as there may be situations where the reviewer needs to search for additional materials specific to his/her technical discipline with which the project manager might not have experience. In addition, there is an electronic version of the TAR that could be used to expedite the process.

4.0 Recommendations

This section describes recommendations for implementing the potential solutions for the seven process improvement areas identified in the *Findings* section. These recommendations provide qualitative, rather than quantitative, solutions for the concerns expressed by staff. They should provide resource savings, however, it will not be realized until the recommendations have been implemented for a period of time. These recommendations should be reviewed by FCSS management to determine their feasibility and importance. Once management has determined which recommendations to pursue, they will be investigated in more detail.

Over the next few years, a portion of the FCSS budget has been allotted to BPI activities–approximately 0.5 FTE and $25,000 per year. Now that the first stage of the BPI approach has been initiated, the upcoming years can focus on subsequent activities. A preliminary schedule for specific BPI steps can be similar to the following, however, a portion of each year should be devoted to the recurring activity of reviewing lessons learned from technical reviews and determining updates to internal guidance documents.

- FY 2004 – Determine the recommendations to be implemented, develop an implementation strategy, and implement the actions.
- FY 2005 – Evaluate the effectiveness with the staff and revise as necessary.
- FY 2006 – Review and evaluate the ISA summary review process after two years of experience

Applicant Communication
For staff-applicant meetings prior to or after application submission, the meeting's focus and goals should be established clearly to maximize effectiveness. A review of the current version of the *Materials Licensing Procedures Manual* should be performed to ensure that staff-applicant meeting procedures coincide with those done by the staff. In addition, a review of the SFPO licensing process should be performed to determine if similar reviewer-applicant activities would benefit FCSS.

Management Oversight
Instill confidence in the staff that the current management philosophy is the appropriate action to achieve successful results. The roles and responsibilities of the section chief, branch chief, and division director, need to be clearly defined, delineated, and communicated to the staff so a feeling of managerial duplication is not apparent.

Complexity of Technical Reviews
The project manager should use the ISA summary as a basis for determining the categorization of technical areas of an application as primary versus supporting sections for an SER. Guidance for this should be incorporated into the *Materials Licensing Procedures Manual* or other internal guidance documents.

Once the ISA summary review becomes more clearly defined, RTG will assist FCSS in the development of interim staff guidance (ISG) for risk-informing licensing decisions based on the ISA summary review.

Staff Scheduling
Once the project manager has established a preliminary review schedule, he/she should confirm it with the technical review staff and their section and/or branch chief. All necessary adjustments should be made to accommodate everyone's schedule. Guidance for this should be incorporated into the *Materials Licensing Procedures Manual* or other internal guidance documents.

Further investigation should be taken to determine the possibility of converting FCSS' organizational structure to include a project manager section and a technical review section. Meetings and interviews with other divisions of NRC that incorporate this structure are necessary to discover its effectiveness.

Technical Review Guidance
Create an annual training course on performing technical reviews that gives new reviewers an orientation to the process and existing reviewers a refresher on recent changes to the process.

Include a step at the conclusion of the review process for the team to discuss lessons learned throughout the review. These items will enable the creation of new or update to existing guidance documents to be used for future reviews.

Perform a major review and update to the *Materials Licensing Procedures Manual* and conduct annual reviews based on lessons learned.

Review Team Communication
The project manager should clearly establish expectations for the application review to assist the review team in maintaining consistency across the SER. Guidance for this should be incorporated into the *Materials Licensing Procedures Manual* or other internal guidance documents.

Establish peer review meetings for staff with similar technical disciplines throughout NMSS to discuss current issues and relevant topics.

Internal Technical Assistance
The project manager should provide technical reviewers outside of the branch with all possible review materials as an attachment to the TAR. Updated guidance for this should be incorporated into the *Materials Licensing Procedures Manual* or other internal guidance documents.

Other Recommendations
Review the results from the NMSS Office-wide BPI project to determine any applicable administrative improvements for the FCSS licensing process.

Appendix A:
Materials Licensing Interview Questionnaire

Materials Licensing Interview Questionnaire

Interviewee: Date:

Branch/Section: Title:

Instructions: Review the Materials Licensing Process flowcharts created from the *Materials Licensing Procedures Manual*. Determine how accurate these flowcharts represent the actual process used by the staff, specifically for technical reviews. Make any necessary changes or updates on the flowcharts. The following questions are used to gain a greater understanding of the interviewees role in the technical review of materials licensing and to establish major or minor process changes.

Current Licensing Process:

1. What are your roles on a technical review of a materials license application?

2. What types of materials license applications have you reviewed?

3. What NRC documentation do you use during the technical review process?

4. How did you first learn the correct review process?

5. Has the technical review process changed since you began reviewing applications? If so, how?

6. At what stage in the review process might an RAI become necessary?

7. How long do RAIs usually take to write and can any other review steps be accomplished while waiting for the applicant's response?

8. Are multiple RAIs usually necessary? If so, how can that be streamlined?

9. What step(s) in the process takes the longest time? Shortest time?

10. What step(s) in the process do you consider to be the most efficient? Why?

11. How are reviews documented? Is there a standard format? What is the documentation review process?

12. What is your overall opinion of the current technical review process?

Process Improvements:

13. Are there any bottlenecks in the technical review process? If so, how are they caused and what can be done to rectify them?

14. How long does it usually take for your part of the review? If too long, how could the time be shortened?

15. What aspects of the technical review process would you like to see changed?

16. Are risk insights currently used in the technical review process to increase efficiency and effectiveness? If not, how could they?

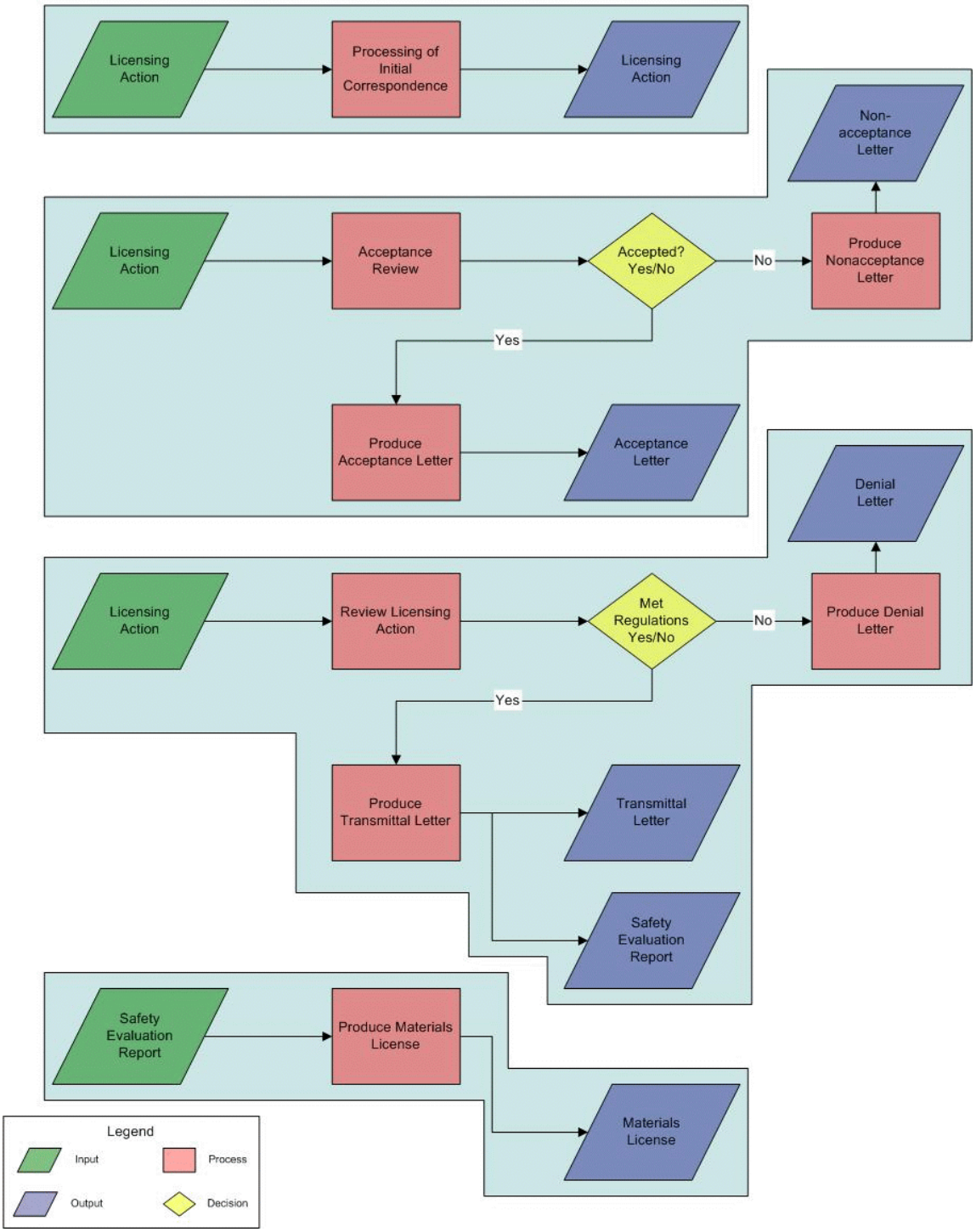
17. Are there any incentives to you for finishing your part of the review quickly?

18. What types of incentives would you need (e.g., spot award, recognition) for performing a quicker review?

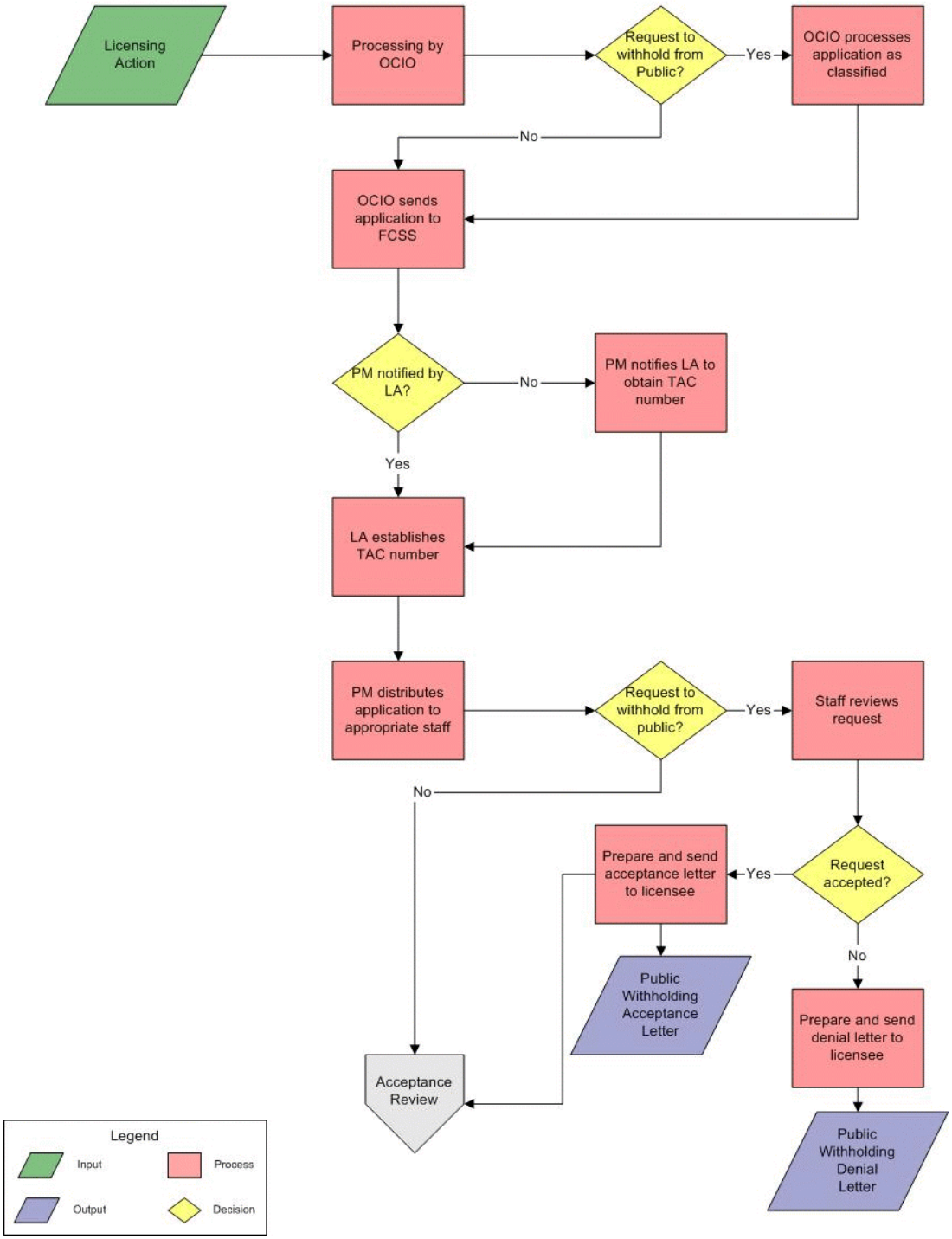
19. Could certain aspects of the process be standardized (e.g., checklist, fill in the blank)?

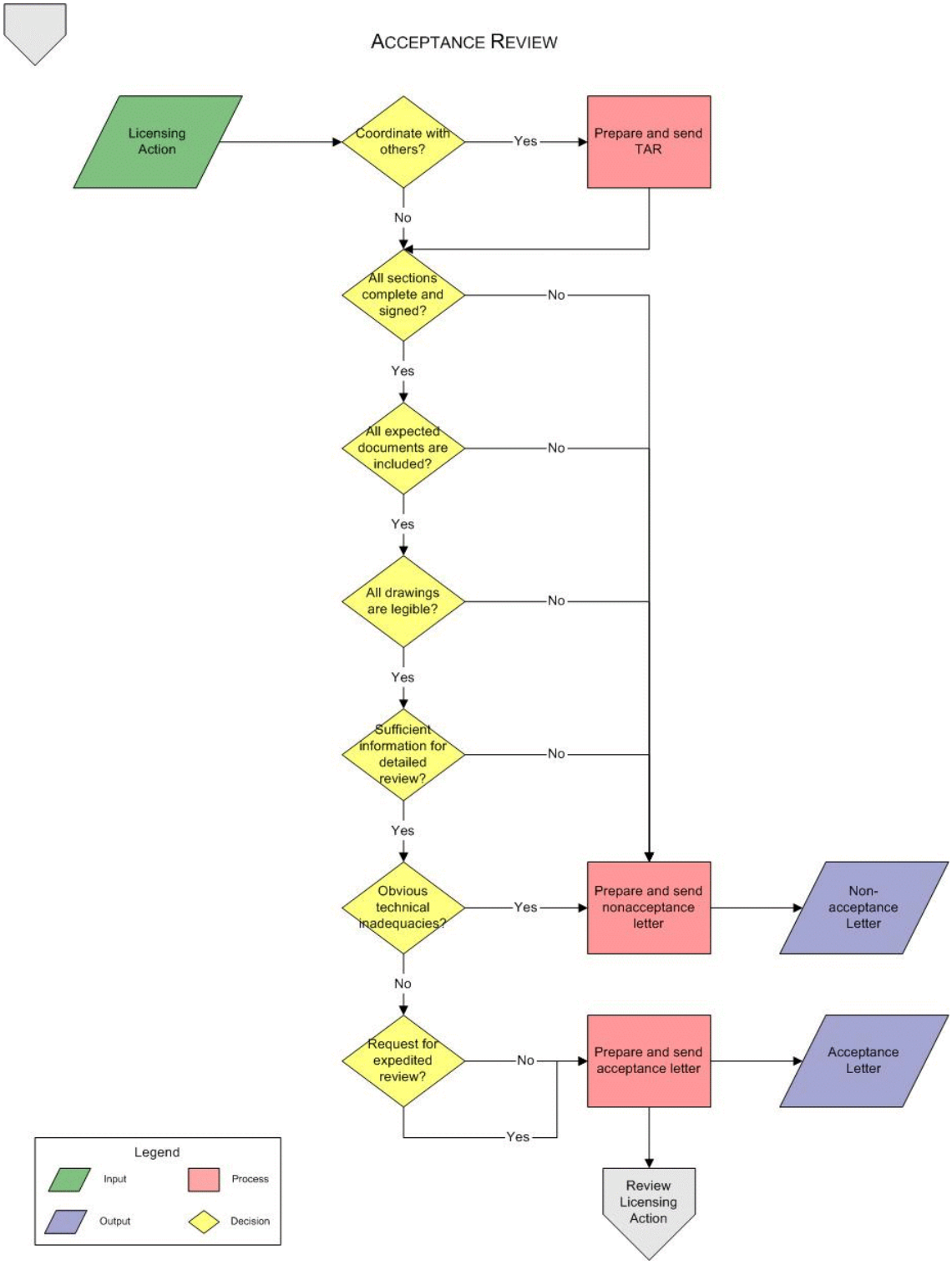
Appendix B:
Materials Licensing Process Flowcharts

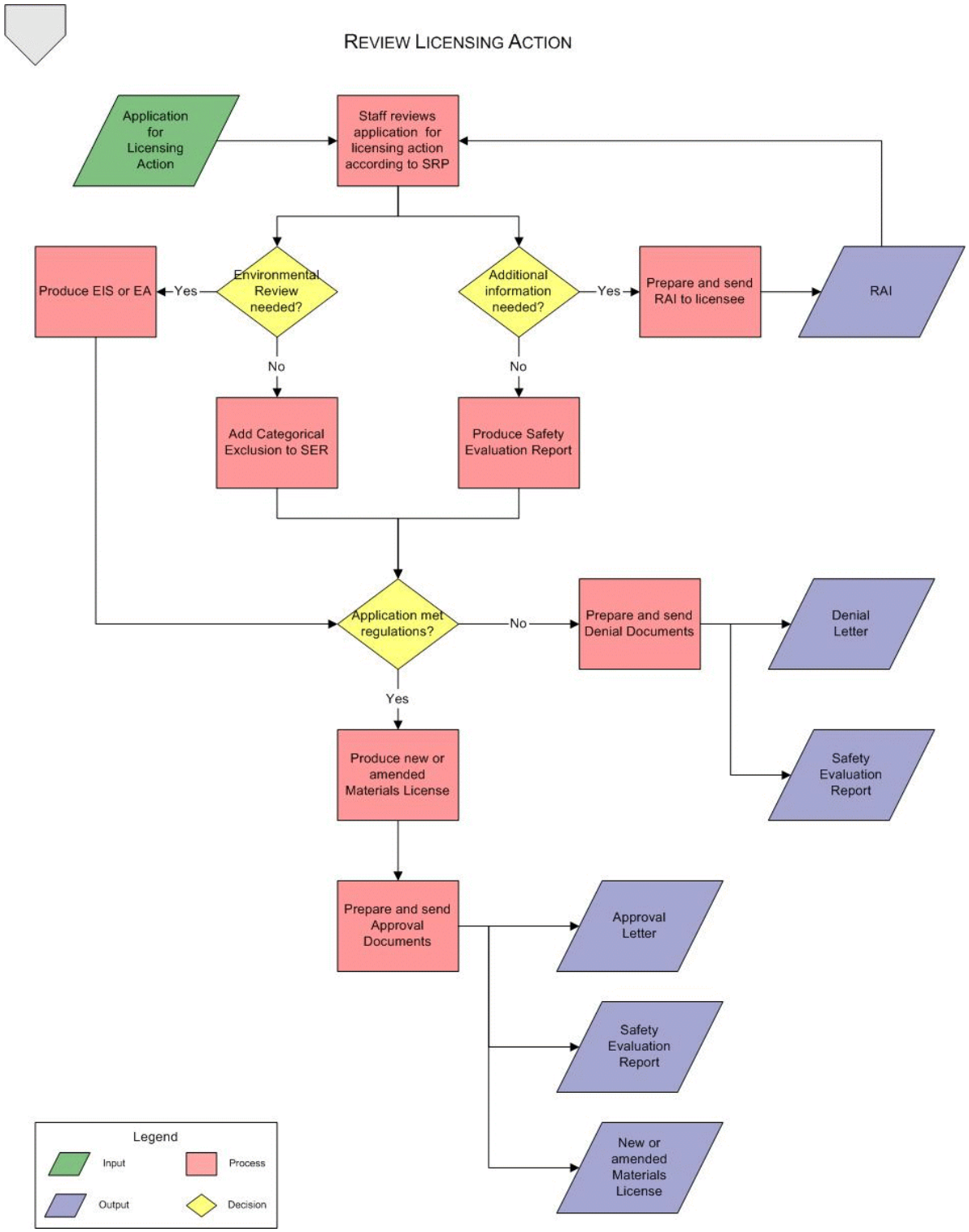
HIGH LEVEL MATERIALS LICENSING PROCESS

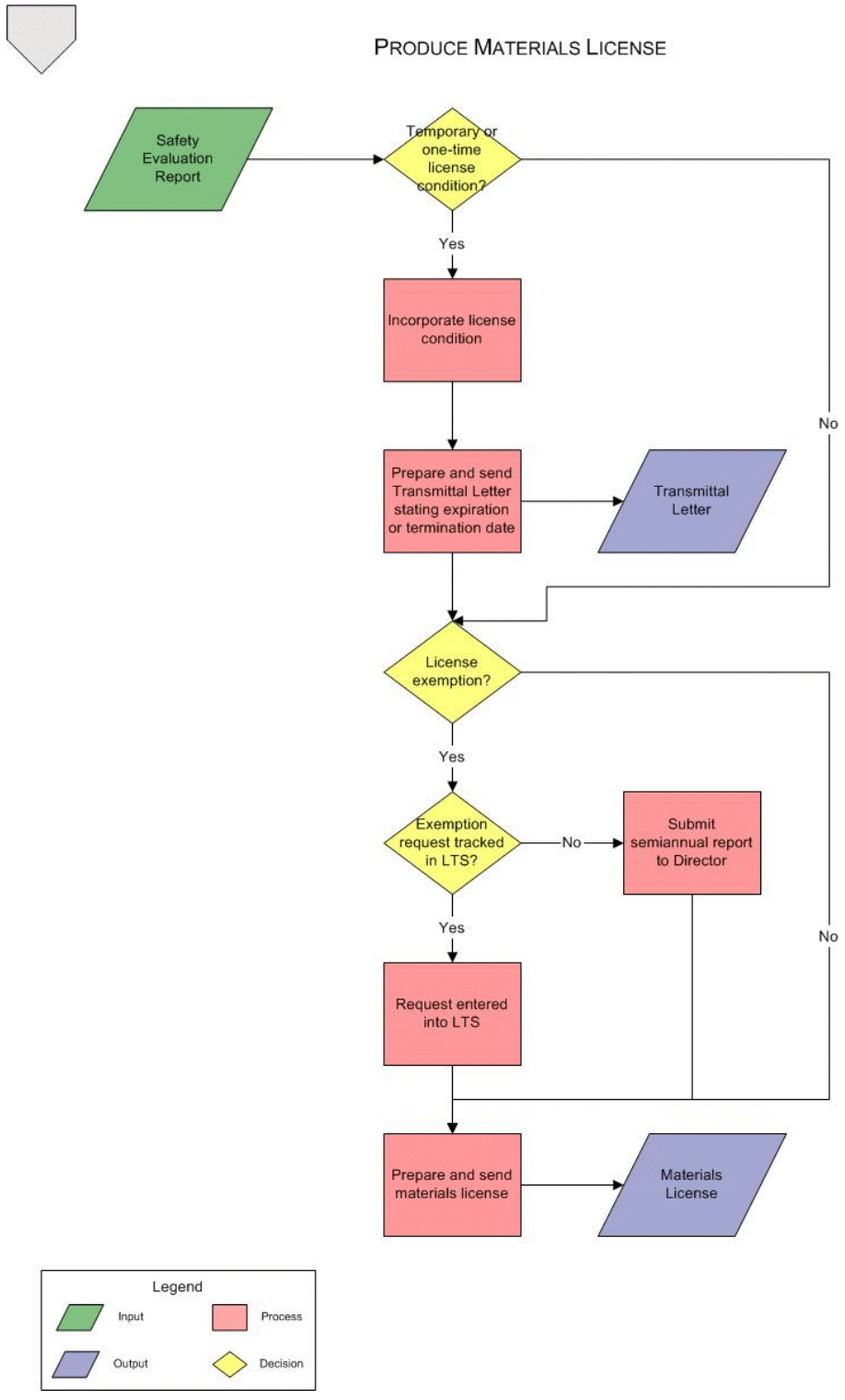


PROCESSING OF INITIAL CORRESPONDENCE




ACCEPTANCE REVIEW
Licensing Action
Coordinate with others?
Yes
Prepare and send TAR
No
All sections complete and signed?
No
Yes
All expected documents are included?
No
Yes
All drawings are legible?
No
Yes
Sufficient information for detailed review?
No
Yes
Obvious technical inadequacies?
Yes
Prepare and send nonacceptance letter
Non-acceptance Letter
No
Request for expedited review?
No
Prepare and send acceptance letter
Acceptance Letter
Yes
Review Licensing Action
Legend
Input
Process
Output
Decision


REVIEW LICENSING ACTION
Application for Licensing Action
Staff reviews application for licensing action according to SRP
Produce EIS or EA
Yes
Environmental Review needed?
No
Add Categorical Exclusion to SER
Additional information needed?
Yes
Prepare and send RAI to licensee
RAI
No
Produce Safety Evaluation Report
Application met regulations?
No
Prepare and send Denial Documents
Denial Letter
Safety Evaluation Report
Yes
Produce new or amended Materials License
Prepare and send Approval Documents
Approval Letter
Safety Evaluation Report
New or amended Materials License
Legend
Input
Process
Output
Decision


PRODUCE MATERIALS LICENSE
Safety Evaluation Report
Temporary or one-time license condition?
Yes
No
Incorporate license condition
Prepare and send Transmittal Letter stating expiration or termination date
Transmittal Letter
License exemption?
Yes
No
Exemption request tracked in LTS?
No
Submit semiannual report to Director
Yes
Request entered into LTS
Prepare and send materials license
Materials License
Legend
Input
Process
Output
Decision