STAFF REVIEW PROCEDURE:
Application for Licence to Prepare Site
For a New Nuclear Power Plant

SRP-2.01-SP-11NNNN-025

Rev. 000

Site Selection Threat and Risk Assessment (SSTRA) – Security Risks Presented by the Site Location

APPLICANT SUBMISSIONS AND RESULTANT REVIEW CORRESPONDENCE RELATED TO THIS REGULATORY REVIEW ARE TO BE CLASSIFIED AS PRESCRIBED INFORMATION UNDER THE NUCLEAR SAFETY AND CONTROL ACT.

Directorate of Regulatory Improvement and Major Projects Management
New Major Facilities Licensing Division
Preface

Staff Review Procedures have been developed by the CNSC staff, as internal working documents, to be used by CNSC staff to assist them in the conduct of regulatory reviews of a potential licensee’s (proponent) application for a Licence to Prepare Site (LTPS) for a new nuclear power plant in Canada. They are not regulatory documents, although their respective topics of assessment and criteria are based on regulations under the Nuclear Safety and Control Act, General Nuclear Security and Control Regulations, Class I Nuclear Facilities Regulations and/or Nuclear Security Regulations.

The initiative to develop Staff Review Procedures was undertaken in order to ensure a consistent application of the internal processes for the review of licence applications for new nuclear power plants, and to improve the efficiency and effectiveness of such reviews.

Staff Review Procedures are considered by CNSC staff to be “living documents”, which will evolve based on the experience gained from licensing reviews.

Context

An application for a Licence to Prepare Site for a new nuclear power plant is submitted by a proponent pursuant to Section 24(2) of the Nuclear Safety and Control Act (NSCA), in order to initiate the licensing process for the preparation of a site for the future construction and operation of a facility regulated under the NSCA.

The application for a Licence to Prepare Site, in concert with the submission of a Project Description, triggers an environmental determination (as per Section 5 of the Canadian Environmental Assessment Act), which in turn triggers the Environmental Assessment (EA) process.

As part of CNSC’s licensing process, an application for a Licence to Prepare Site will be reviewed against the “Application for Licence to Prepare Site” Staff Review Procedures. The Procedures represent CNSC expectations and guidance supporting the assessment of each application by CNSC staff, and are intended to augment and support licensing recommendations by staff to the Commission tribunal.
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<td>2008-10-15</td>
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### GNSCR 2(1)(d)
An application for a licence shall contain...a description of any nuclear facility, prescribed equipment or prescribed information ³ to be encompassed by the licence;

### Class I Regs 3(i)
if the application is in respect of a nuclear facility referred to in paragraph 2(b) of the Nuclear Security Regulations, the information required by section 3 of those Regulations;

4(a) a description of the site evaluation process and of the investigations and preparatory work that have been and will be done on the site and in the surrounding area;

4(b) a description of the site's susceptibility to human activity and natural phenomena, including seismic events, tornadoes and floods;

4(c) the proposed program to determine the environmental baseline characteristics of the site and the surrounding area;

### Nuclear Security Regulations 3(g)
The current threat and risk assessment.

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### Part Area of Review **

--- Adequacy of the analysis of physical barriers to security presented by the location of the site, over the full proposed life-cycle of the site. [submitted as a Site Selection Threat and Risk Assessment (SSTRA) Report]

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1 Topics are defined, for both Environmental Assessment and Licence to Prepare Site in E-DOCS# 3217469.

2 General Nuclear Safety and Control Regulations

3 Text that has been struck through does not imply that that portion of the regulation does not apply, but rather that that portion of the regulation is not the focus of this Staff Review Procedure.
1. **Topic of Review**

This review focuses on the adequacy of the information presented in the Site Selection Threat and Risk Assessment (SSTRA) report.

The applicant’s submission (SSTRA Report) and all correspondence related to the regulatory review is considered to be *Prescribed Information* under the *Nuclear Safety and Control Act* and is to be maintained at the level of security accorded to *Prescribed Information*.

The SSTRA is conducted during the site evaluation process and the resulting report contains an analysis of physical barriers to security presented by the location of the site over the full proposed life-cycle of the site. The intent of the SSTRA is to aid the proponent / applicant in determining the suitability of the site from a security perspective. The information from the SSTRA will feed into the process of developing appropriate security mitigation measures for activities to be encompassed by a future licence under the *Nuclear Safety and Control Act*.

2. **Criteria and Objectives**

*Objective:* The information presented in the Site Selection Threat and Risk Assessment (SSTRA) report is adequate.

A suggested layout of a SSTRA Report is outlined below.

2.1 **Summary of SSTRA**

This section summarizes the findings from the completed SSTRA including:

- A summary of threats and resulting risks that were categorized as not acceptable or require mitigating measures;
- Possible changes in the threat environment that may result in increased levels of risk;
- New or emerging threats, that while they may not be significant at the time of submission, are perceived to have the potential of becoming significant in future;
- Regardless of the methodology used to derive contributory values (either a qualitative or quantitative method), risks are reported using a graduated scale from a low to a high level of risk and including threat level, vulnerability rating, and effectiveness of existing or proposed countermeasures in mitigating the risk;
- If applicable, any changes from a previous SSTRA submission.
2.2 **SSTRA Process Management**

The SSTRA Report contains a description of the proponent organization that provided oversight for the SSTRA process. The description demonstrates the technical capability of the organization to competently perform the assessment and assess mitigation measures and includes:

- The composition of the team, member names, titles, position in the organization, area of expertise or input to the report, relevant qualifications and experience;
- Contributory organizations or subject matter experts not identified as team members or intelligence sources.

2.3 **Quality Assurance**

The SSTRA is developed under a quality management system that is designed to continually improve performance based on established principles for improving performance.

Activities necessary for verifying quality of the SSTRA are described including:

- Methods of verifying accuracy and completeness of data;
- Describing assumptions and interpretations of CNSC or other legal guidance;
- Methods of documenting storing and retaining SSTRA basis records for use in future security analyses;
- Details of the program or process to periodically review and update the SSTRA with a goal of merging processes into the future site Threat and Risk Assessment analysis process.

2.4 **Policies and Procedures**

The security policies, procedures, standards, Procedures or related documentation that provide the basis for the management and conduct of the SSTRA are identified.

Procedures/processes that may require development as a result of SSTRA findings are identified.

2.5 **Description of SSTRA Methodology**

2.5.1 **Analysis Methods**

Methods of performing the SSTRA are described and include where applicable;

- Process flowcharts with SSTRA critical phases identified and described;
- Descriptions of the theoretical frameworks or types of risk analysis methodologies used (e.g., fault trees, EASI, SAVI or other attack modeling data);
- Descriptions of assessment considerations or limitations.
2.5.2 Intelligence Inputs

Intelligence sources used to gather threat related data in support of the SSTRA are identified and include, but are not limited to the following:

- Government sources;
- Threat trending and analysis;
- Local sources;
- Law enforcement sources;
- Non-governmental sources of intelligence related data, including open source data, professional organizations, academic resources, published literature and crime studies.

2.6 Results of the Analysis

2.6.1 Information About the Site

The site location is described, with the aid of illustrations (including topographical maps), all threat environments, risks or vulnerabilities presented by the location of the proposed site and includes but is not limited to:

- A layout of all configurations of site structures being considered;
- A description of what needs to be safeguarded;
- Proximity to provincial or national borders;
- Landscape features overlooking the site (topographical details);
- Proximity to access roads (includes details such as road size, traffic patterns and bounding vehicle types);
- Proximity to rail corridors (includes details such as traffic patterns, cargo characteristics);
- Proximity to water and navigable water routes (includes details such as traffic patterns, cargo characteristics and bounding ship types);
- Proximity to airports and air access routes (includes details such as traffic patterns, and bounding aircraft types);
- Proximity to publicly accessible areas or buildings around the site;
- The location of the nearest communities;
- Specific details of industrial operations surrounding the site and threats they may present to the site.
2.6.2 Identification of Threats and Resulting Risks That Could Affect the Site

A description of threats and resulting risks is provided for areas on or near the site and includes but is not limited to:

- vulnerabilities from landscape features;
- vulnerabilities from water approaches;
- vulnerabilities from land approaches;
- areas where visibility or detection methods may be affected by weather related events such as snow, fog;
- areas where ‘blind-approaches’ may be possible that require additional security mitigation to compensate;
- areas where groups or individuals may take action against the facility (e.g., set up blockades etc.);
- areas where normal public access might ‘distract’ security staff with nuisance alarms / alerts therefore providing unnecessary diversion of security personnel from other areas to be protected.

Postulated events are identified for each threat including events that could cause loss of or harm in the construction of the nuclear power plant. These events are categorized as deliberate or non-deliberate.

The bounding postulated events and accompanying rationale are clearly identified.

Postulated events have considered public perception impacts.

For deliberate threat events to the site, a description of the various threat agents is discussed including an assessment of organizational capabilities, motivations, equipment, potential etc. The likelihood or probability of the threat events being realized by threat agent action has been analyzed. Consideration has been given to the target suitability, feasibility of the action and acceptability to the threat agent.

The report contains relevant intelligence data related to threat agents and events to support conclusions.

For non-deliberate threat events, a brief description of the event is provided including a description of the potential vulnerability concerns and estimates of event occurrence based upon both historical and statistical data.
2.6.3 Mitigation of Identified Threats and Risks

Risk acceptance criteria developed and employed to manage the threat are identified.

Possible mitigation measures and countermeasures are identified, at a high level, for each threat and are appropriate for the likelihood or probability of the threat events. (detailed descriptions of mitigation measures and countermeasures will be required for the licence application process under the NSCA).

An explanation is provided of the amount of risk reduction expected once proposed countermeasures or security measures are implemented to reduce the risk to an acceptable level. The explanation should include:

- For each proposed mitigation measure, residual security risks as a result of mitigation, are examined to ensure that residual risks will not present unreasonable challenges to the future site security program. (i.e., mitigation may result in new security enhancements that were not anticipated).

2.7 References Used in the SSTRA

All references used as the basis for the SSTRA are clearly listed and include, but are not limited to:
- policies,
- procedures,
- guidelines,
- industry references,
- contributory reports.

 Classified source information is to be listed by full reference to the title, author, date and source agency.

3. Review Procedure

The Review Lead, as identified in the project-specific Assessment Plan, verifies that the information criteria listed in Section 2 has been satisfied, and is credible. Field verification may be necessary to confirm the credibility of the submitted information and analyses.

The review, documentation of assessment results and report approval will be conducted in accordance with the project-specific Assessment Plan. Results of the review will be presented in a Review Report template that is included in the project-specific Assessment Plan. The report is to be approved by the appropriate signing authorities. The approved report will be assigned an E-DOCS number under File 2.01 for the appropriate facility.
4. **Evaluation Conclusions and Recommendations**

With a specific focus on the suitability of the proposed site from a security point of view, the review report should comment on whether the applicant has provided sufficient detail to confirm that all physical barriers to security presented by the location of the site can be effectively mitigated over the full proposed life-cycle of the site.

The review report should, for this topic area, contain a statement of whether the contents of the applicant’s SSTRA report has satisfied security related requirements of:

- Section 3(1)(d) of the *General Nuclear Safety and Control Regulations*;
- Section 3(i), 4(a)(b) and (c) of the *Class I Facilities Regulations*;
- Section 3(g) of the *Nuclear Security Regulations*.

If the requirement has not been met, the review report shall contain recommendations for how the applicant can resolve the gap in information. The review report will contribute to the basis for licensing recommendations to the Commission.

5. **References**