



# LIGHT CONTROL BEST PRACTICES GUIDELINE

**VERSION: 1.0 March 2021**

## About the Commission

The BC Oil and Gas Commission (Commission) is the single-window regulatory agency with responsibilities for regulating oil and gas activities in British Columbia, including exploration, development, pipeline transportation and reclamation.



The Commission's core roles include reviewing and assessing applications for industry activity, consulting with First Nations, ensuring industry complies with provincial legislation and cooperating with partner agencies. The public interest is protected by ensuring public safety, protecting the environment, conserving petroleum resources and ensuring equitable participation in production.

## VISION

Safe and responsible energy resource development for British Columbia.

## MISSION

We provide British Columbia with regulatory excellence in responsible energy resource development by protecting public safety, safeguarding the environment and respecting those individuals and communities who are affected.

## VALUES

### Transparency

Is our commitment to be open and provide clear information on decisions, operations and actions.

### Innovation

Is our commitment to learn, adapt, act and grow.

### Integrity

Is our commitment to the principles of fairness, trust and accountability.

### Respect

Is our commitment to listen, accept and value diverse perspectives.

### Responsiveness

Is our commitment to listening and timely and meaningful action.



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## Manual Revisions

The Commission is committed to the continuous improvement of its documentation. Revisions to the documentation are highlighted in this section and are posted to the [Documentation Section](#) of the Commission's website.

Stakeholders are invited to provide input or feedback on Commission documentation to [OGC.Systems@bcogc.ca](mailto:OGC.Systems@bcogc.ca) or submit feedback using the [feedback form](#).

Version Number	Posted Date	Effective Date	Chapter Section	Summary of Revision(s)
1.0	March 2, 2021	March 2, 2021	Various	This is a new document. Users are encouraged to review in full. For more information, please refer to INDB 2021-08 on the Commission's website.

# Preface

The Light Control Guideline (guideline) outlines the recommended best practices for light control from operations associated with wells and facilities in the province of British Columbia under the jurisdiction of the Oil and Gas Activities Act (OGAA). The primary focus of this guideline is light emanation resulting from operations at a well or facility, including gas processing plants and liquefied natural gas (LNG) facilities.

## Scope

This guideline focuses exclusively on recommended best practices and processes associated with the BC Oil and Gas Commission's (Commission) legislative authorities and does not provide information on legal responsibilities that the Commission does not regulate. It is the responsibility of the permit holder to know and uphold its other legal responsibilities.

## Additional Guidance

As with all Commission documents, this manual does not take the place of applicable legislation. Readers are encouraged to become familiar with the acts and regulations and seek direction from Commission staff for clarification.

Commission documentation focuses on the requirements and processes associated with the Commission's legislative authorities. Some activities may require additional requirements and approvals from other regulators or create obligations under other statutes. It is the applicant and permit holder's responsibility to know and uphold all legal obligations and responsibilities. For example, Federal Fisheries Act, Transportation Act, Highway Act, Workers Compensation Act and Wildlife Act.

Additional resources include:

- [Glossary and acronym listing](#) on the Commission website.
- [Documentation and guidelines](#) on the Commission website.
- [Frequently asked questions](#) on the Commission website.
- [Advisories, bulletins, reports and directives](#) on the Commission website.
- [Regulations and Acts](#) listed on the Commission website.

# Chapter 1: Requirements and Expectations

This guideline is intended to help define legal requirements for managing light emissions from well and facility operations as set out in the Drilling & Production Regulation and the Liquefied Natural Gas Facility Regulation. The objective is to assist permit holders with managing light from their operations and to prevent, “excessive emanation of light,” so that well and facility operations comply with the legal requirements. Excessive emanation of light is defined as light that is in excess of that required for site security and safe operations, and that causes a material adverse impact to a person. For compliance, emission of light that causes an adverse impact to a person and/or dwelling that reasonably should have been controlled by the oil and gas operator of the site is deemed excessive light.

The Commission addresses light emissions within both the Drilling and Production Regulation and the Liquefied Natural Gas Facility Regulation as follows.

## Drilling and Production Regulation, Section 40:

### **Light**

**40** *A permit holder must ensure that operations at a well or facility for which the permit holder is responsible do not cause excessive noise or excessive emanation of light.*

## Liquefied Natural Gas Facility Regulation, Section 4(1)(e):

### **Noise and light control**

**4(1)** *An LNG facility permit holder must, subject to anything in the LNG facility permit, ensure that the engineering design and siting for an LNG facility.*

**(e)** *Is based on a consideration of the effects of light associated with the normal operation of the LNG facility.*

## Liquefied Natural Gas Facility Regulation, Section 15:

### **Noise and light control**

**15** *An LNG facility permit holder must ensure that the construction of and normal operations at the LNG facility do not cause excessive noise or excessive emanation of light.*

The Drilling and Production Regulation (DPR) and the Liquefied Natural Gas Facility Regulation (LNGFR) state that the permit holder must ensure operations activities do not cause excessive emanation of light. The LNGFR also addresses light emissions from construction activities. The guideline encourages the effective management of light for all facilities and wells from both construction and operations activities.

For the purposes of this guideline, well and facility operations includes drilling, completing, recompleting, intervening, re-entering, carrying out a workover, suspending, or abandoning a well, and routine and non-routine activities at a facility.

In the development of this guideline the Commission engaged with other oil and gas regulatory jurisdictions, both in Canada, and at an international level. This cooperation resulted in a more valuable guidance tool.

## 1.1 Need for Balance

This guideline considers the interests of both nearby residents and permit holders. It holds the permit holder responsible for minimizing and managing light on their sites. . The guideline ultimately aims to address light emissions experienced by residents near a well or facility while allowing the permit holder to maintain safe operations. Where applicable, permit holders must adhere to the Occupational Health and Safety (OHS) Regulation illumination requirements, particularly the sections on minimum illumination levels and emergency lighting, to maintain a safe oil and gas activity operation.

## 1.2 Receptor Based

The guideline refers to light at the point of the receptor, rather than at the property line. For the purposes of this guideline the term, “receptor” is defined as: a dwelling, occupied building, oil and gas or resource road, any enclosure for livestock such as a barn, and livestock feeding or breeding areas.

### Please Note:

All oil and gas activities taking place near government maintained public roads under the jurisdiction of the Ministry of Transportation and Infrastructure (MOTI) are to comply with MOTI lighting requirements and restrictions. Nuisance lights, bright lights, or distracting lights potentially impacting motorists travelling on MOTI roads are regulated and enforced under the Transportation Act.

Nuisance Lighting is further defined in Section 1.6.1 of the Highway Permits and Approvals manual, available at: [https://www.th.gov.bc.ca/permits/manual1/permit\\_manual.pdf](https://www.th.gov.bc.ca/permits/manual1/permit_manual.pdf) .

Additional lighting information is available under MOTI's Electrical and Traffic Engineering Manual, Section 300, Lighting Design, available at: <https://www2.gov.bc.ca/assets/gov/driving-and-transportation/transportation-infrastructure/engineering-standards-and-guidelines/electrical/electric-design-manual/300/section-300-lighting-design.pdf>

The following considerations are associated with light emissions:

- Light trespass – the light spilling beyond the boundary of the property on which a light is located, sometimes shining through windows and curtains and affecting sleep;
- Glare – the uncomfortable brightness of a light source when viewed against a darker background. Glare may affect safety by affecting the vision of people operating motor vehicles or vessels; and,
- Sky glow – the pink or orange glow we see for miles around towns and cities caused by a scattering of artificial light by airborne dust and water droplets. A well or facility flare is an example of a sky glow source.

## 1.3 Best Practices

A way for permit holders to demonstrate due diligence is by following a best practices approach to light management within their construction, maintenance and operating procedures. This includes regular reviews to determine if there are any significant changes to light emanating from the well or facility. Permit holders seeking more information on a best practices approach may contact the Commission.

## 1.4 Scope Levels

This guideline applies to specific oil and gas activities approved under the Oil and Gas Activities Act.

The specific activities include: wells, facilities, and liquefied natural gas facilities. Primary considerations are permanent production facilities such as liquefied natural gas facilities, gas processing plants, compressor stations, and, more specifically, operations that continue 24 hours/day where more intense light is required for the activity to safely occur.

In some cases, activities will need to be managed on a site-specific, issues-oriented basis. The Commission recommends light emissions from well, construction, and operations activities be conducted with consideration for potential light impacts.

For more details about construction light, see Section 2.2 of this guideline.



# Chapter 2: Light Assessments

## 2.1 Intent and Objective

Permit holders should complete a Light Assessment (LA) for any new well or facility where there is reasonable expectation of an excessive light situation at a receptor. This includes situations when modifications are proposed at existing facilities where there is a reasonable expectation of changes in light source or level, and if there is a nearby receptor.

A LA is a practical tool to demonstrate that the permit holder has a plan in place to address light emissions at a well or facility site that may impact a receptor, and does not necessarily require a lighting expert to prepare. Permit holders should ensure that mitigation measures are incorporated into the design and documented in the LA if one is required. In some situations where a receptor is in very close proximity to the well or facility operation, a more extensive LA developed by a professional may be required. Unless specified by the Commission, a LA with applicable supporting information should be included in the consultation and notification process, and with the well or facility permit application submission if one was completed.

The International Commission on Illumination (CIE) 150 Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations can be used by permit holders for guidance on meeting the requirement to not cause excessive emanation of light from well or facility operations.

Mitigation measures that should be considered include:

- Minimizing the amount of lighting required while ensuring safe operation of the facility,
- Minimizing brightness of lights to the extent practicable,
- Use of automated sensors that shut down lighting in areas of no activity, where it is safe to do so (e.g. nighttime hours normal operations); and,
- Re-angling, shading or screening of lighting.
- To the extent practicable, site lighting should be directed downward and inward, and shielded to avoid glare at receptors.

Permit holders moving into an area should establish good relationships by discussing light emanation matters with area residents throughout the life of the activity.

When planning a well or facility in an area where there is an existing facility or approved energy-related facility, the permit holder should ensure that its planned operations will not cause the cumulative light levels to be excessive. The permit holder may wish to discuss the proposed project with adjacent permit holders to examine potential light mitigation measures that are both effective and economical.

## 2.2 Construction Light

Permit holders should consider the following reasonable mitigating measures to reduce construction light emissions on nearby receptors from new or modified wells and facilities.

- Conduct construction activity between the hours of 07:00 and 22:00;
- Advise nearby residents of potential excessive light-causing activities and schedule these events to reduce disruption;
- Ensure all lighting equipment is focused on the area of activity and not impacting nearby receptors;
- Take advantage of natural light screening from existing on-site buildings to shield receptors from construction equipment light; and,
- Utilize other applicable and innovative mitigation to address light emissions.

Construction light management is a required consideration for liquefied natural gas facilities as stated in Section 15 of the Liquefied Natural Gas Facility Regulation.

# Chapter 3: Adherence to Best Practices

## 3.1 Light Complaints

Permit holders should make every reasonable attempt to investigate any light-related complaint in a timely manner. When investigating a light complaint, the permit holder is requested to work with the complainant to resolve the concern.

If a complaint filed with the Commission cannot be resolved, the permit holder may be required to submit any of the following:

- A review of the existing LA, if applicable, to demonstrate conformance;
- A new LA that includes documentation of the existing condition and recommendations; and
- A detailed light control mitigation plan, including timelines.

If a well or facility operation is found to be causing excessive emanation of light, the permit holder is expected to implement the necessary mitigations.

### **Please Note:**

Permit holders may receive excessive light complaints directly from a complainant or via complaints that are filed with the Commission.

## 3.2 Compliance Verification

Well and facility operations light emissions may be evaluated at the application/permitting phases, during inspections, through audit, or on a complaint basis. Permit holders are expected to address light concerns early in the planning phase, and to act immediately to remedy any problems.

If the Commission determines that an event or operation at a well or facility causes light levels to be excessive, the Commission may take compliance and enforcement actions including, but not limited to audit, inspection, or suspension of operations.

## Appendix A: Glossary of Terms

Dwelling	<p>Any permanently or seasonally occupied structure used for habitation for the purpose of human rest; including a nursing home or hospital with the exception of an employee or worker residence, dormitory, or construction camp located within an energy-related industrial plant boundary. Trailer parks and campgrounds may qualify as a dwelling if it can be demonstrated that they are in regular and consistent use.</p> <p>A permanent dwelling is a fixed residence occupied on a full-time basis. In the case of a condominium or apartment complex, each unit is considered a dwelling.</p> <p>A seasonally occupied dwelling is a fixed residence that, while not being occupied on a full-time basis, is occupied on a regular basis. A regular basis does not imply a scheduled occupancy but implies use of six weeks per year or more. The dwelling must not be mobile and should have some sort of foundation or features of permanence (e.g., electrical power, domestic water supply, septic system) associated with it. Summer cottages or manufactured homes are examples of seasonally-occupied dwellings, while a holiday trailer simply pulled onto a site is not.</p> <p>The nearest dwelling may not necessarily be the one most impacted by light because of factors such as topography or manmade features. For example the nearest dwelling to a facility may be behind an intervening ridge, while a more distant dwelling may be in direct line of sight of the facility and experience brighter light.</p>
Excessive light	<p>Light that is in excess of that required for site security and safe operations, and that causes a material adverse impact to a person and/or dwelling. For compliance, emission of light that causes an adverse impact to a person and/or dwelling that reasonably should have been controlled by the oil and gas operator of the site is deemed excessive light.</p>
Public road	<p>A road maintained by the Ministry of Transportation and Infrastructure (MOTI), a resource road, or any other road accessible to the public.</p>