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Health Services and Medical Emergency Response Strategy

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1. Purpose

This Health Services (Health) and Medical Emergency Response (MER) strategy outlines the approach to guide the development and provision of services Health and MER along the project life cycle from Early Works construction through Operations, within a standardized and integrated approach. This strategy provides a reference framework for the minimum general Health and MER requirements for the LNG Canada (LNGC) Project. It ensures the following key Health and MER components are covered in every phase of the project:

- Structured Health and MER resources strategy.
- Minimum competency requirements and roles and responsibilities.
- Health Centre Requirements.

This document is an evergreen document that will be reviewed and updated at every project phase or as needed.

2. Scope

These health and MER requirements include, but not limited to:

- **Occupational first aid and management of occupational injuries/illnesses** by providing care for typical occupational injuries on-site as much as possible (e.g. foreign body in eye, lacerations, musculoskeletal conditions)
- **Management of non-occupational injuries and illnesses** on-site as much as possible and minimize impact on local public health care system infrastructure to As Low as Reasonably Practicable (ALARP).
- **Medical emergency response** (tiered response for MER)
- **Occupational health services** such as pre-placement and periodic fitness to work and medical surveillance, disability management, and assessments for LNGC employees.
- **Disability management and return to work program** in line with WorkSafeBC for injured workers.
- **Lessons learned** review and incorporation / implementation of Global and Canadian Mega-project health and MER lessons learned

3. Health and MER Strategy

3.1. Early Works Construction

3.1.1. Early Works Project Assumptions

- Medical services to be located in the Project Site Office (PSO) area with transition to Temporary Construction Facilities (TCF) when complete.
- Peak manpower 150 to 200 during early works peak, housed in offsite Camp (Sitka Lodge) in Kitimat, BC.

3.1.2. Minimum Health and Medical Services Support Requirements

- Minimum mid-level provider(s) (e.g. Nurse Practitioner (NP) or Physician Assistant (PA) provided with medical direction and clinical oversight as appropriate) to manage Canadian triage and acuity scale (CTAS) level 5 and 4, as well as some level 3 as appropreate, conditions on-site during day shift, and via on-call at night at the Sitka Lodge. These individuals will have current:
    - Advanced cardiac life support (ACLS).

    - International trauma life support (ITLS).
    - BC occupational first aid (OFA) level 3 certification.
- On-site medical services supported with 24/7 remote MD access via telemed (preferably video) – to provide clinical assistance to mid-level provider.
- LNGC Early Works construction requires a minimum of 1 mid-level health care professional working a 10-hour day shift and must be on-call during off-shift to support workers during night shifts as relevant and workers in camp accommodations during off hours.

Note: Additional health care professionals may be required on-site during night shifts based on the WorkSafe BC requirements and/or as deemed necessary by risk assessment.

- Additional occupational first aiders must be provided by Implementation Contractors (ICs) and their sub-contractors to meet provincial WorkSafe BC legislation.

3.1.3. Medical Infrastructure

- First Aid / Medical facilities will be either in the existing Terminal buildings or a standalone fit-for-purpose (med centre) trailer.
- Mobile Treatment Centre (MTC) will be appropriately staged (e.g. on-site and / or Sitka lodge) during day and night shifts, as necessary.
- Emergency transport vehicle (ETV) or industrial ambulance staged on-site for emergency conveyance only.

3.2. LNG Plant and Port Construction

3.2.1. Project Assumptions

- Main medical services clinic located in the worker accommodation centre (Cedar Valley Lodge).
- Peak manpower: 5000 primarily living in on-site camp (possible camp expansion to 7000), working 24/7 (See References: Construction Execution Health Management Plan).

3.2.2. Minimum Health and Medical Services Support Requirements

- Minimum mid-level provider(s) Nurse Practitioner (NP) or Physician Assistant (PA) provided with medical direction and clinical oversight as appropriate) to manage Canadian triage and acuity scale (CTAS) level 5 and 4, as well as somelevel 3 as appropreate, conditions on-site during day and night shifts, and via on call at night at the Construction Village. They will have current:
    - Advanced cardiac life support (ACLS).
    - International trauma life support (ITLS).
    - BC occupational first aid (OFA) level 3 certification.
- Mid-level provider to be supplemented by other health care professionals (e. g. ACP (Advanced Care Paramedic)) and occupational first aiders (OFAs) per legislated requirements or as deemed necessary by risk assessment (e.g. registered nurses (RNs) and advanced care paramedics (ACPs) with appropriate current certifications (e.g. ACLS/ITLS/OFA3), medical direction/clinical oversight; in consideration of workforce numbers, work activities, locations and hours, and patient visit volumes, etc.).

- The need for an on-site physician (MD) working day shifts, and on-call during night shifts will be based on; a risk assessment and LNG Canada / international Major Projects best practices.
- If / when there is no MD on-site, mid-level provider(s) to be supported with 24/7 remote MD access via telemed (including in Construction Village at night) (preferably video) – to provide clinical assistance to mid-level provider.
- Telemed to be used to access specialists as necessary (e.g. cardiologist, orthopaedic surgeon, psychiatrist/psychologist/EAP/SAP assessment).
- During peak LNGC construction, minimum 3 to 4 health care professionals working 12-hour day shift, and 2 health care professionals working 12-hour night shift (if construction workers working night shift, and based on risk assessment); an administrative support person may also be considered (see Appendix 1 for further detail).
- Additional occupational first aiders must be provided by IC contractors and their sub-contractors to meet provincial WorkSafe BC legislation.

3.2.3. Medical Infrastructure

- Adequately sized and equipped (per Shell best practice and legislated requirements) health centre at Cedar Valley Lodge in close proximity to the Construction site / on-site, supported by additional area specific 'satellite' medical facilities (e.g. MTC) on the construction site as deemed necessary.
- PCF (Primary Care Facility) is approximately 560 square meters (6,028 sq.ft.) Class 3 Facility, with specifications in full compliance and exceeding Class 3 requirements. The PCF includes Emergency Transport Vehicle (ETV) bay with good access to health centre trauma room.
- Emergency vehicle(s) as per legislative requirements (e.g. ETV or industrial ambulance, and equipment per legislated requirements as minimum).

NOTE: During construction (early works, plant and port) as well as construction, provider may also be asked to provide:

- Health centre equipment and supplies (except for basic office equipment e.g. desk, desk chairs, (filing) cabinets) to stock clinical facility for contracted scope of work in order to manage CTAS level 5 and 4, as well as some level 3 as appropriate , conditions on-site*; as well as emergency vehicle(s) (emergency transport vehicle, industrial ambulance and /or mobile treatment centre) and equipment to meet provincial occupational first aid requirements, as a minimum.

3.3. Operations

3.3.1. Operations Assumptions

- Medical facilities to be located in the operations administration complex.
- Approximately 300 LNG Canada FTE employees and 200 to 300 supporting contractors for base operations, working 24/7.

3.3.2. Minimum Health and Medical Services Support Requirements

- Minimum mid-level provider (e.g. NP with remote occupational health nursing certification) with current ACLS, ITLS, OFA level 3 certification during day shift, with 24/7 remote MD telemed (preferably Videocon) support, supplemented by other health care professionals and OFAs per legislated requirements or deemed

necessary (e.g. additional health care professional staff may be required during turnarounds based on the pre-turnaround, risk assessment).

3.3.3. Medical Infrastructure

- Adequately sized and equipped (per Shell Canada / LNG Canada MER guidance best practices and per legislated requirements) health centre/first aid facility.
- ETV/industrial ambulance and equipment (per legislated requirements as minimum).

4. Minimum Requirement for Care

4.1. Occupational Health and Primary/Urgent Care Health Services

- All health care professionals must be currently licensed and a member in good standing with their respective professional licensing body in BC, must have 5 years industrial or construction project and remote work experience, and NPs/RNs must have BC remote nursing practice certification.
- On-site occupational first aid and injury/illness management per provincial requirements, in consideration of OSHA/PMR recordability rules, and including fitness to work assessment (i.e. provide occupational '1st aid' per provincial OHand S requirements). Provider expected to be able to provide care for typical occupational injuries on-site as much as possible (e.g. foreign body in eye, lacerations, musculoskeletal conditions).
- Non-occupational injury/illness management – particularly if there are fitness to work concerns. Manage as much on-site as possible and minimize impact on local public health care system infrastructure to ALARP.
- Medical emergency response - advanced cardiac life support (ACLS) provision on the emergency response team (ERT).
- On-site, post incident and reasonable cause alcohol and drug (Aand D) testing to minimize need to transport patients to town and use local resources.

Note: Pre-site access A and D testing must be done prior to arrival at site.

- Disability management and return to work program (per WorkSafeBC for injured workers).
- Pre-placement and periodic Fitness to Work (FTW) +/- Medical Surveillance (MS), Spirometry, Vision, RPE Fit Testing and disability management, assessments for LNG Canada staff.
- Public health activities – in consultation with Northern Health as appropriate, such as health promotion, and communicable disease surveillance and management.
- Construction scope of work may also include activities such as, but not necessarily limited to:
    - Respirator fit testing.
    - Follow-up of contractor workers pre-placement FTW/MS assessments.

5. Minimum Health Centre Requirements

5.1. Early Works Construction

- Must meet WorkSafe BC minimum requirements for a first aid room.
- Clinic space requirements to include:
    - Appropriately sized and separated waiting area.
    - Reception area to be separated from waiting room for privacy purposes.
    - Controlled access into clinical space.
    - 1 treatment / trauma room (sufficient space for 360 degree patient access and critical equipment), with sink (plumbed with hot and cold potable running water), and counter and cupboard space, adjacent emergency transport vehicle (ETV) parking, and appropriate (e.g. ramp) access between ETV parking and trauma room.
    - 1 washroom (that could be 'taped' off for urine drug testing purposes) and emergency eye wash and decontamination/shower facilities, as appropriate,
    - Locked storage file room for confidential health information and restricted medical supplies (e.g. controlled medications), and room for fax machine; will need space for medication fridge.
    - General storage space – for other medical equipment and supplies, and general (e.g. office) supplies.

5.2. LNG Plant and Port Construction

- Separate waiting room, preferably with washroom.
- Reception area – separated from waiting room for privacy purposes.
- Controlled access into clinical space.
- Large trauma room (sufficient space for 360 degree patient access and critical equipment), with sink (plumbed with hot and cold potable running water), and counter and cupboard space adjacent emergency transport vehicle (ETV) parking, and appropriate (e.g. ramp) access between ETV parking and trauma room.
- 4 exam and treatment/test rooms – large enough to accommodate exam table and equipment; with sink, and counter and cupboard space.
- Office spaces.
- Lunch room/meeting space.
- 2 washrooms (1 that could be 'taped' off for urine drug testing purposes) and emergency eye wash and decontamination/shower facilities (preferably located where a contaminated worker can be showered/decontaminated on entrance to health centre as appropriate).
- Locked storage file room – with file storage for confidential health information and restricted medical supplies (e.g. controlled medications), and room for fax machine; will need space for medication fridge.
- General storage space – for other medical equipment and supplies, and general (e.g. office) supplies.
- Hallways that can accommodate stretcher/wheelchair.
- Sufficient electrical outlets and IT connections in rooms with back-up, electrical power source; appropriate HVAC and lighting; auditory and visual privacy.

5.3. Operations

- Waiting area, preferably with washroom.
- Receptionist area to be separated from waiting room for privacy purposes.
- Controlled access into clinical space.
- 1 Treatment / trauma room (sufficient space for 360 degree patient access and critical equipment).
- Treatment/test room, and office with adjacent exam room, appropriately equipped with sink (plumbed with hot and cold potable running water), and counter and cupboard space adjacent emergency transport vehicle (ETV) parking, and appropriate (e.g. ramp) access between ETV parking and trauma room.
- 1 washroom (that could be 'taped' off for urine drug testing purposes) and emergency eye wash and decontamination/shower facilities .
- Locked sorage file room for confidential health information and restricted medical supplies (e.g. controlled medications), and room for fax machine; will need space for medication fridge.
- General storage space – for other medical equipment and supplies, and general (e.g. office) supplies.

Note: in addition to the provision for on-site Health care facilities and services there will be an SLA (Service Level Agreement) established with Northern Health to provide access to additional Medical support and infrastructure as defined and agreed in the SLA, examples include Lab services for Blood work, X-ray, Ultra Sound, CT, MRI etc. Patent Transport and additional Medical Emergency Response support will be provided through the District of Kitimat (DoK) EMS.

6. Health Care Professional Qualifications / Certifications

All health care professionals must:

- be currently licensed and a member in good standing with their professional licensing body in BC (e.g. College of Physicians and Surgeons of BC, College of Registered Nurses of BC, Emergency Medical Assistants Licensing Board);
- have current WorkSafeBC OFA level 3, ACLS, and ITLS certifications;
- have 5 years industrial, construction and/or remote work experience; and
- NPs/RNs must have BC remote nursing practice and STI certification, and occupational health nursing certification for operations.

Depending on the project phase, sufficient health staff must have other relevant training/certifications to conduct testing duties (e.g. breath alcohol testing and drug samples collections; and audiometry, spirometry and vision testing).

7. References

- **HSSE Plan 0015 Construction Execution Health Plan**: L001-000-HH-5798-0001.
- **Emergency Response Plan for Construction:** L001-000-HX-6019-0001.
- Shell Medical Emergency Response, EP2005-0151, and Worker Welfare and Accommodation Guide.
- WorkSafe BC, BC Oil and Gas Commission, and Northern Health (Health and Medical Services Plan, Best Management Guide for Industrial Camps; and Infection Control Plan Best Management Guide for Industrial Camps).

Appendix A: Medical Support Matrix

Number of People on site based on Work Risk	Low	Medium	High
0 to 24			
25 - 49			
50 to 99			
100 to 199			
200 to 499			
> 500			

Note 1: LNGC will continuously monitor & adjust as necessary: as minimum to meet occupational 1st aid requirements; & based on risk assessment in consideration of factors such as (but not necessarily limited to) workforce numbers, work activities, locations & hours, patient volumes, & nature & acuity of visits.

Note 2: Equivalencies for site medical support may be applied where there is access to additional medical services such as the DoK EMS within the medical response requirements and times identified in the Medical Emergency Response Plan

Note 3: the term "Local" for the purposes of this matrix are those individuals who are resident (physically living) in the regional area of Skeena BC i.e. Kitimat, Terrace and Prince Rupert regions.

Note 4: Risk Categories are tied to the criteria listed below and based on the highest risk combination. For those risks not identified either the LNGC RAM should be applied or default to the WorkSafe BC guidance as a minimum.

Example of Risk Combinations				
#People	Low	Medium	High	Support Type
150	100	30	20	NP / PA + OFA
100	10	30	60	NP / PA + ACP + OFA
500	400	50	50	NP / PA + OFA

Note: these are e.g. only, medical support congruent to the risk always takes precedence.

*OFA (s)	*Level of OFA support requirements (1, 2 or 3) will be based on the assessment of work and minimum WorkSafe BC requirements.
**NP / PA(s) + *OFA (s)	**Number of "Mid Level" Medical Support (NP / PA) will be based off of WorkSafe BC and / or LNGC Medical Resourcing Plan
**NP / PA (s) + **ACP (s)	

Low	Limited Interfaces between Personnel and Machinery and Heavy Equipment No Simops or Concurrent activities Work activities occurring on single work fronts Non Manual (Office Based) work activities Working in close proximity to project medical infrastructure (Admin Offices, Site Med Centre, Camp, etc.)
Medium	Limited SIMOPS activities with low risk activities Multiple work front geographically separated in the same work area Heavy Equipment operation Working on or near Water (within 1 metre or where a fall to water is possible) Level 1 Confined Space work (as defined by WorkSafe BC OH&S Requirements)
High	Work force over 500 people regardless of risk Significant interfaces between Personnel and Machinery Simops activities occurring Multiple work fronts or contractors in a work area Working at Heights (above 1.8 meters) Level 2 / 3 Confined space work (as defined by WorkSafe BC OH&S Requirements) Work on or with energized systems or equipment Remote work area (Limited communications, access and / or egress) On or Over Water (within 1 meter of a water body of source) Timber Cutting Timber salvage and Hauling Heavy Lift Crane Installation Tank Cleaning