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Darlington New Nuclear Project (DNNP) - Health and Safety Plan

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Darlington New Nuclear Project (DNNP) - Health and Safety Plan

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Internal Use Only			
Document Number: Usage Classification:			
NK054-PLAN-01210-00034		Reference	
Sheet Number:	Revision Number:	Page:	
N/A	R001	2 of 15	

Title

Darlington New Nuclear Project (DNNP) - Health and Safety Plan

Table of Contents

	Pa	age
Revision Execut	on Summarytive Summary	4 5
1.0	INTRODUCTION/REGULATORY CONTEXT	6
2.0	SAFETY PRINCIPLES AND REQUIREMENTS	7
2.1 2.1.1 2.1.2	Safety and PrinciplesSafetyCOVID Safety Requirements	7
2.2	Pre-Qualification of Contractors	8
3.0	CONTRACTOR SAFETY PLANS	8
3.1 3.2	OPG as an Owner-Only OPG as Constructor/DNNP Staff Safety	
4.0	RISK MANAGEMENT AND OVERSIGHT	10
5.0	CONTRACT EXECUTION AND OVERSIGHT	10
6.0	TRAINING	11
7.0	CONTRACTOR SAFETY, AND PERFORMANCE ASSESSMENT	. 11
8.0	EPC EMERGENCY RESPONSE AND EVACUATION PLAN	11
8.1 8.2	Emergency Response and Evacuation	
9.0	EPC FIRE PREVENTION AND RESPONSE PLAN	12
10.0	DOSE MANAGEMENT	13
11.0	REFERENCES	13

Darlington New Nuclear Project (DNNP) - Health and Safety Plan

Appendix A:	Owner Only Safe	ety Requirements	14
Appendix B: 0	Constructor Safet	y Requirements	15

Internal Use Only			
Document Number: Usage Classification			
NK054-PLAN-01210-00034		Reference	
Sheet Number:	Revision Number:	Page:	
N/A	R001	4 of 15	

Title:

Darlington New Nuclear Project (DNNP) - Health and Safety Plan

Revision Summary

Revision Number	Date	Comments
R000	2021-10-27	Initial Issue
R001	2022-04-12	Reorder references. Safety Principles Section 2.1.3 Environmental removed. Not required as separate section in H&S plan. Section 3.0 The word "may" removed. Section 3.2-More concise text. Section 5.0-More concise language. Section 7.0-OPG reserves the right to Audit Safety Performance Section 8.0 More concise emergency management wording and change of Durham EMS to Durham Paramedic Services.
		Section 10: Context and reference updates for dose statements and use of licensed radioactive sources for purpose of NDE and or geotechnical measurements. Appendix A: removal of environmental policy from list.

Internal Use Only			
Document Number: Usage Classification:		Usage Classification:	
NK054-PLAN-01210-00034		Reference	
Sheet Number:	Revision Number:	Page:	
N/A	R001	5 of 15	

Title:

Darlington New Nuclear Project (DNNP) - Health and Safety Plan

Executive Summary

This Health and Safety Plan describes how Ontario Power Generation (OPG) and contractors will manage the Health and Safety (H&S) of all workers associated with the New Nuclear project. It establishes the framework for the management of worker health and safety in accordance with defined health and safety values, goals, objectives, and expectations of OPG.

The use of Engineering Procurement Construction (EPC) contractors for DNNP work is required. The project vision is zero worker incidents and injuries during all phases of DNNP. To meet the goal of zero safety incidents, contractor safety management requirements are identified to ensure that health and safety risks are managed at all stages of the contract, from the early planning stages to project close-out.

Safety excellence is governed via Employee Health and Safety Policy [R1], which implements safety procedures and guides requiring contractors to maintain a high level of safety equivalent to that of OPG employees while at OPG workplaces.

Fire and paramedic response during the site preparation phase of DNNP will be by Clarington Emergency and Fire Services (CEFS) and Durham Paramedic Services through existing OPG MOUs or as established by EPC.

Internal Use Only			
Document Number: Usage Classification:		Usage Classification:	
NK054-PLAN-01210-00034		Reference	
Sheet Number:	Revision Number:	Page:	
N/A	R001	6 of 15	

Title:

Darlington New Nuclear Project (DNNP) - Health and Safety Plan

1.0 INTRODUCTION/REGULATORY CONTEXT

OPG intends to prepare the Darlington New Nuclear Project (DNNP) site for the future construction and operation of a new nuclear power generating plant.

OPG received a licence to prepare site from the Canadian Nuclear Safety Commission (CNSC), following the acceptance of the Environmental Assessment (EA) by the Joint Review Panel (JRP) of the Canadian Environmental Assessment Agency and CNSC in August 2012. This Health and Safety Plan (H&S Plan) for DNNP is submitted to fulfill the following DNNP site preparation regulatory commitments per DNNP Commitments Report [R-2]:

- D-P-2 EPC Occupational Health and Safety Plan
 - o D-P-2.1 EPC Occupational Health and Safety Plan
- D-P-5.2 EPC Emergency Response and Evacuation Plan
- D-P-5.3 EPC Fire Prevention and Response Plan

Internal Use Only			
Document Number: Usage Classificati		Usage Classification:	
NK054-PLAN-01210-00034		Reference	
Sheet Number:	Revision Number:	Page:	
N/A	R001	7 of 15	

Title:

Darlington New Nuclear Project (DNNP) - Health and Safety Plan

2.0 SAFETY PRINCIPLES AND REQUIREMENTS

This H&S Plan covers site preparation activities for the DNNP project. The project will be executed using a combination of work designations. For some packages/sub-projects, OPG will be Owner/Constructor and for others, OPG will only be the Owner, as defined by the Occupational Health and Safety Act (OH&S Act).

The H&S Plan will be reviewed and revised as required over the project life.

The H&S Plan identifies the safety elements for a vision of zero worker incidents and injuries. Contractor safety management requirements are in place to ensure that health and safety risks are managed at all stages of the contract, from the early planning stages to project close-out.

2.1 Safety and Principles

2.1.1 Safety

OPG-POL-0001, Employee Health and Safety Policy [R-1] states that OPG shall require that its contractors maintain a level of safety equivalent to that of OPG employees while at OPG workplaces.

Under the Policy as per OPG's Contractor Safety Management procedure [R-3], OPG:

- (1) Pre-qualifies and selects suppliers, general contractors, and specialized contractors based on their ability to manage the contracted work to OPG's safety and other applicable requirements.
- (2) Assesses the risk associated with the contracted work, as appropriate, in order to develop the health, safety, and environmental requirements for the work.
- (3) Clearly identifies health, safety, and environmental requirements in contract documents.
- (4) Communicates health, safety, and environmental expectations to the contractor in advance of awarding the work.
- (5) Monitors health, safety, and environmental performance and addresses any deficiencies during the execution of the contract. Monitoring and commenting on a contractor's safety performance is subject to specific limitations and practices where OPG is acting as owner only for a construction project.
- (6) Assesses and documents contractor performance for future selection.
- (7) OPG's Contractors' Site-Specific Safety Plans (SSSP) become contractual obligations that are subject to OPG contract compliance oversight.
- (8) It is expected that any contractors' safety procedures and instructions will be equivalent or superior to any relevant OPG health and safety program governance. In order to utilize their own procedures at an OPG workplace, contractors will need to be able to demonstrate equivalency of their processes and procedures to OPG's processes and procedures. A contractor's level of safety must be equivalent to OPG employee's level of safety.

Internal Use Only		
Document Number: Usage Classification:		Usage Classification:
NK054-PLAN-01210-00034		Reference
Sheet Number:	Revision Number:	Page:
N/A	R001	8 of 15

Title:

Darlington New Nuclear Project (DNNP) - Health and Safety Plan

2.1.2 COVID Safety Requirements

In case of a pandemic, Enterprise Projects will follow the OPG guidelines and instructions including OPG-GUID-08115-0001, Contractor and Project Management: Guideline for Managing COVID-19 in the Workplace, and OPG-INS-08115-0001, OPG COVID-19 Response, or similar governance established to manage a pandemic.

2.2 Pre-Qualification of Contractors

Pre-qualification of contractors is one of the first steps in the OPG Contractor Safety Management procedure [R-3], which ensures contractors, and their sub-contractors are committed to equivalent health and safety goals as OPG.

OPG selects contractors based on their ability to manage safety, environment, and quality requirements, in addition to satisfying other technical and commercial criteria.

OPG procures the services of ISNetworld (ISN), a safety certification company, to assist in effective management of contractor Health & Safety, Environment, and Quality (HSEQ) prequalification requirements, and to serve as OPG's primary contractor/supplier information management system.

ISN, OPG, and contractors do the following:

- (1) ISN collects safety, procurement, sustainability, quality and regulatory information from contractors and suppliers, verifies its accuracy, and then reports the results in the database "ISNetworld".
- (2) OPG ensures all contractors have been pre-qualified in ISNetworld.
- (3) Contractors are also required to ensure their sub-contractors working at OPG workplaces have registered with ISNetworld, and receive at least a "C" rating.

3.0 CONTRACTOR SAFETY PLANS

The EPC contractor will:

- (1) Establish a safety organization to ensure safe work planning and provide field coaching. EPC safety officers will have an on-site office.
- (2) Provide a SSSP.
- (3) Have a documented process of how they will provide field oversight to their subcontractors.
- (4) Review all sub-contractors Work Plans prior to work execution.
- (5) Demonstrate Nuclear Safety Culture elements in their site-specific health and safety plan (example, conservative decision making).

Internal Use Only			
Document Number:		Usage Classification:	
NK054-PLAN-01210-00034		Reference	
Sheet Number:	Revision Number:		Page:
N/A	R001		9 of 15

Title:

Darlington New Nuclear Project (DNNP) - Health and Safety Plan

The contractor's H&S Plan will be based on their scope of work, and how they will meet their legislative and OPG requirements while executing the work.

Sub-contractors fall under the prime contractors SSSP unless otherwise agreed. The SSSP is to include work to be completed by sub-contractors unless there is agreement with OPG that the work is specialized, and the sub-contractor will provide their own safety program and site-specific safety plan.

All sub-contractors individual H&S Plans are to be incorporated in the main SSSP that is being developed by the prime contractor. Prime contractors will also ensure that sub-contractor ISN status is in good standing and scoring is up to date.

OPG performs periodic audits and monitoring of EPC company or sub contractor SSSP's as specified in OPG Safety and Environmental instructions for Contractors, and in accordance with N-INS-00120-10008 Nuclear Contractor Safety Management Process.

3.1 OPG as an Owner-Only

Corporate Health and Safety reviews all Owner-Only determinations and advises management of feasibility. Owner Only projects are executed according to the requirements of OPG's Owner-Only Project Guide [R-5]. The implementing governance for the guide is Contractor Safety Management procedure [R-3].

OPG ensures that:

- (1) The EPC contractor prepares:
 - a) Project SSSP, which includes fire, first aid, assembly and accounting and site evacuation.
 - b) Site Specific Environment Plan(s)/procedure(s) (SSEP) equivalent to DNNP EMPP [R-6].
- (2) The EPC contractor's workers complete safety training requirements as described in section 6.0.
- (3) The EPC contractor has planned Safety Audits that conform to the EPC's Quality Management System (QMS).
- (4) All EPC contractor plans are reviewed and accepted by OPG.
- (5) Contractor oversight requirements are established, documented, and adhered to based on the level of safety risk of the work being executed. [R-3] [R-5]
- (6) The Contractor maintains contract compliance with regard to Health and Safety contractual requirements, through monitoring or oversight by OPG staff. [R-3] [R-5].
- (7) Oversight is provided to ensure Contractor safety incidents are reported and investigated as required by Regulatory authorities. [R-3] [R-5]
- (8) Contractor safety evaluation reports account for a portion of the contractor's overall performance score. Evaluations are conducted upon completion for all contracted work, or for multi-year contracts, at the end of Q4 of each year that the contract is in execution.

(9) Emergency plan drills (fire, station emergency and site evacuation) may be held at the project site or require all Darlington Controlled Area personnel to participate.

(10) Field Assessments of the contractor's adherence to the SSSP are completed. OPG audits are conducted based on the risks associated with the project as deemed necessary.

OPG Owner Only Procedures and Guide are listed in Appendix A.

3.2 OPG as Constructor/DNNP Staff Safety

For some site construction work, OPG may act as the Constructor. Appendix B contains applicable governance and procedures for OPG as Constructor.

OPG reviews Contractor Safe Work Planning documents. [R-3]

4.0 RISK MANAGEMENT AND OVERSIGHT

Business Unit local procedures are utilized to assess the health, safety and environmental risks associated with the contracted work.

Oversight activities will monitor contractor safety performance as defined in Appendix A and Appendix B, Owner Only, and constructor governance and procedures. [R-3] [R-5]

The potential safety risks for contracted work are evaluated and documented appropriately in relation to the scope and complexity of the specific contracted work to be executed, typically in a project Risk Register.

5.0 CONTRACT EXECUTION AND OVERSIGHT

Per [R3] and related governance, OPG ensures that:

- (1) The contractor communicates the safety plan to all workers under the contractor's supervision prior to commencement of any work. This is typically accomplished through the Project SSSP, and field-level documents such as Safe Work Plan, Job Safety Analysis, and written Pre-Job Briefs.
- (2) The contractor is fulfilling the health and safety, environment, and quality requirements of the contract agreement and any Memorandum of Understanding [R-5].
- (3) Contractor oversight requirements are established, documented, and adhered to based on the level of safety risk of the work being executed.
- (4) Contract workers adhere to the approved Safe Work Plan through monitoring by OPG staff.
- (5) The safety plan(s) are revised as needed to address changes in the work environment or scope of work and submitted for OPG acceptance.

(6) Under Constructor contracts, Contractor safety incidents are reported and investigated as required by OPG-PROC-0120, Safety Incident and Regulatory Event Response, and OPG-PROC-0121, Safety Incident Investigation and Corrective Actions. The OPG Contract Representative shall be notified, and provision made to escort external EMS onto site, as per the Contractor's Project SSSP.

- (7) Contractors will have established processes for responding to warning signals in accordance with D-INS-03490-10007 Response to Warning Signal, as referenced in [R-7]
- (8) Other task-specific procedures such as OPG-PROC-0138, Identification of Buried and Embedded Services, OPG-PROC-0133, Temporary Safety Warning Signs and Warning Barriers, OPG-PROC-0122, Confined Space Management, OPG-PROC-0123 Electrical Safety, and other applicable H&S governance will be utilized by the contractor, or the contractor will have equivalent procedures. In the case of equivalent procedures, OPG oversight would be applied where required.

6.0 TRAINING

Training requirements are described in NK054-PLAN-01210-00029, Darlington New Nuclear Project (DNNP) Training Plan.

EPC Contractors are required to provide equivalent to OPG training programs as defined in the Contractor Training Plan.

7.0 CONTRACTOR SAFETY, AND PERFORMANCE ASSESSMENT

Contractor evaluation reports account for a portion of the contractor's overall performance score. Evaluations are conducted upon completion for all contracted work, or for multi-year contracts, at the end of Q4 of each year that the contract is in execution. OPG reserves the right to audit Safety and Environment plans in its contract agreements.

OPG also reserves the right to audit for compliance to clearly prescribed environmental legislative requirements. [R-4] [R-5] [R-6]

8.0 EPC EMERGENCY RESPONSE AND EVACUATION PLAN

8.1 Emergency Response and Evacuation

The DNNP site is located within the operating DNGS Controlled Area. The DNNP Nuclear Emergency Preparedness Plan [R-7] provides a written basis to document the concepts, roles and resources required by OPG to implement and maintain its emergency response on the DNNP site to protect employees, visitors, and contractors in the unlikely event of a nuclear or radiological emergency from the DNGS.

Internal Use Only			
Document Number:		Usage Classification:	
NK054-PLAN-01210-00034		Reference	
Sheet Number:	Revision Number:	Page:	
N/A	R001	12 of 15	

Title

Darlington New Nuclear Project (DNNP) - Health and Safety Plan

In the unlikely event of a Station Emergency that results in a requirement for site evacuation, workers shall be evacuated in accordance with site emergency procedures as outlined in the DNNP Nuclear Emergency Preparedness Plan [R-7].

DNNP site personnel will be notified of a nuclear emergency at the Darlington site by Public Address system tones, Contract Monitor/Administrator or Site Security Staff. The notification protocol is required to ensure timely notification of personnel on the DNNP construction site that an emergency has occurred; and if any protective actions (sheltering or evacuation) are required. OPG will ensure that all Contractors are compliant with the plan through the acceptance of the Contractors' SSSPs.

In the event of a Station Emergency at DNGS with a potential risk to site personnel during site preparation, assembly and accounting including contractor, visitors, DNNP staff, will occur per D-INS-03490-10007 Response to Warning Signal, as referenced in [R-7].

As part of OPG's nuclear emergency preparedness drill/exercise program, fire, station emergency and site evacuation drills may be held at the Project site or require all Darlington site personnel (including the DNNP construction site) to participate.

Conventional accidents and malfunctions involving spills are addressed under Section 9.1 of the DNNP Environmental Management and Protection Plan for Site Preparation [R-6].

8.2 Contractor Fire and Injury Protocol

Fire and paramedic response during the site preparation phase of DNNP will be by Clarington Emergency and Fire Services (CEFS) and Durham Paramedic Services through existing OPG MOUs or as established by EPC.

Owner only EPC contractor calls external emergency services if required and escorts the responding emergency services to the required location.

Calls to OPG DNNP and/or DNGS site representative occur per existing Owner Only Guide and Constructor instructions. [Refer to Appendix A and B procedures]

9.0 EPC FIRE PREVENTION AND RESPONSE PLAN

This Plan will be detailed in the EPC contractor SSSP.

OPG will review and accept construction Contractors' SSSPs that will be implemented at site as part of fire safety planning.

The contractor will have Fire Prevention measures that have oversight by contractor personnel.

Fire response during the site preparation and construction will be by Clarington Emergency and Fire Services (CEFS) and Durham Paramedic Services through existing OPG MOUs or as established by EPC.

Internal Use Only				
Document Number:		Usage Classification:		
NK054-PLAN-01210-00034		Reference		
Sheet Number:	Revision Number:	Page:		
N/A	R001	13 of 15		

Title

Darlington New Nuclear Project (DNNP) - Health and Safety Plan

Future DNNP project buildings and construction trailers will be identified on an as required basis or for annual review with CEFS.

The EPC contractor and OPG will ensure safe future installation of extensions to existing DNGS fire water and domestic water Systems to support DNNP site preparation and construction activities.

10.0 DOSE MANAGEMENT

During Site Preparation, workers will not be at risk of receiving radiation doses exceeding regulatory public dose limits as sources of radiation at the DNNP site are within the background levels. Workers on the DNNP site are not required to be Nuclear Energy Worker, unless working under a CNSC licence, e.g. radiography work.

The DNNP site is within the DN site boundary and is in the proximity of the Darlington waste management facility (DW\MF). Since there will be no radioactive materials on site during the site preparation and construction activities, apart from DNNP contractors/EPC companies' tools that may contain radioactive nuclear substances, the measured radiation dose surrounding the DWMF is a good representation of dose to be received by workers at the DNNP site. The measured dose has been well below the public dose limits.

DNNP contractors/EPC companies may use construction related tools containing radioactive nuclear substances. These tools shall be licensed and managed by contractors authorized by the CNSC. As part of N-PROC-MA-0108, Conduct of Radiography by Independently Licensed Radiography Contractors (ILRCs), contractors shall provide a list of all licensed radiological devices that they may bring to site. Contractors shall notify OPG when any source is brought to site. The Contractor shall be required to be in compliance with their own CNSC issued licence and to perform compliance oversight as part of their project management process

11.0 REFERENCES

- [R-1] OPG-POL-0001, Employee Health and Safety Policy
- [R-2] NK054-REP-01210-00078, Darlington New Nuclear Project Commitments Report
- [R-3] OPG-PROC-0160, Contractor Safety Management
- [R-4] OPG-POL-0021, Environmental Policy
- [R-5] OPG-GUID-08965-0004, Owner-Only Project Guide
- [R-6] NK054-PLAN-07730-00022- Darlington New Nuclear Project (DNNP) Environmental Management and Protection Plan for Site Preparation
- [R-7] NK054-PLAN-01210-00002, DNNP Nuclear Emergency Preparedness Plan

Internal Use Only			
Document Number:		Usage Classification:	
NK054-PLAN-01210-00034		Reference	
Sheet Number:	Revision Number:	Page:	
N/A	R001	14 of 15	

Title:

Darlington New Nuclear Project (DNNP) - Health and Safety Plan

Appendix A: Owner Only Safety Requirements

- (1) D-INS-03490-10007, Response to Warning Signal
- (2) D-INS-03490-10030, Evacuation Relocation
- (3) N-PROC-RA-0020, Preliminary Event Notification
- (4) N-PROG-RA-0001, Consolidated Nuclear Emergency Plan
- (5) NK054-PLAN-01210-00002, DNNP Nuclear Emergency Preparedness Plan
- (6) OPG-GUID-00211-0001, Contractor LOTO on Contractor Owned Equipment
- (7) OPG-GUID-08965-0004, Owner-Only Project Guide
- (8) OPG-PROC-0120, Safety Incident and Regulatory Event Response
- (9) OPG-PROC-0160, Contractor Safety Management
- (10) OPG-PROG-0005, Environment Health and Safety Managed Systems

Internal Use Only			
Document Number:		Usage Classification:	
NK054-PLAN-01210-00034		Reference	
Sheet Number:	Revision Number:	Page:	
N/A	R001	15 of 15	

Title

Darlington New Nuclear Project (DNNP) - Health and Safety Plan

Appendix B: Constructor Safety Requirements

When OPG acts as the Constructor, under OPG-PROC-0160 [R-3], management ensures:

- Safety requirements are identified for the contracted work including:
 - OPG policies and procedures
 - Corporate Safety Rules
 - Common Safety Rules which shall be adhered to by all contractors.
 - Risk Based Safety Rules applicable to the contracted work.
 - Local business unit level policies and procedures
 - Training and qualification requirements
 - o Emergency Response, Nuclear Emergency Management, First Aid and Fire Safety
- Safety requirements are identified that the contractor's safety program must achieve if the
 contractor is to use their own policies and procedures for the execution of the work. A
 contractor's use of their own Lockout/Tagout (LOTO) program is a typical example
- Safety requirements are documented using the appropriate contract standard or template.
- Safety requirements are provided for the contracted work to Supply Chain for incorporation into Requests for Proposal (RFP), Requests for Quotation (RFQ), or Purchase Order, as appropriate
- Contractor submissions are assessed for success in meeting the stated requirements

Contractor submissions are assessed for success in meeting the stated requirements.

Key governance and procedures for OPG as Constructor includes but is not limited to:

- (1) OPG-POL-0001, Employee Health and Safety Policy
- (2) OPG-PROG-0005, Environment Health and Safety Managed Systems
- (3) OPG-POL-0021, Environmental Policy
- (4) OPG-STD-0144, Corporate Safety Rules
- (5) OPG-PROG-0038, Contract Management
- (6) N-INS-00120-10008, Nuclear Contractor Safety Process (shall apply within Ontario Power Generation Nuclear (OPGN))
- (7) OPG Safety and Environmental Instructions for Contractors (Reference document on OPG's intranet)
- (8) OPG-PROC-0129, Safe Work Planning
- (9) OPG-PROC-0120, Safety Incident and Regulatory Event Response
- (10) OPG-PROC-0121, Safety Incident Investigation and Corrective Actions
- (11) N-PROC-RA-0020, Preliminary Event Notification
- (12) OPG-STD-0088, Corporate Work Protection Standard
- (13) OPG-PROC-0140, Health and Safety Management System Compliance and Assessment
- (14) OPG-PROC-0134, First Aid Requirements
- (15) N-PROG-RA-0001, Consolidated Nuclear Emergency Plan