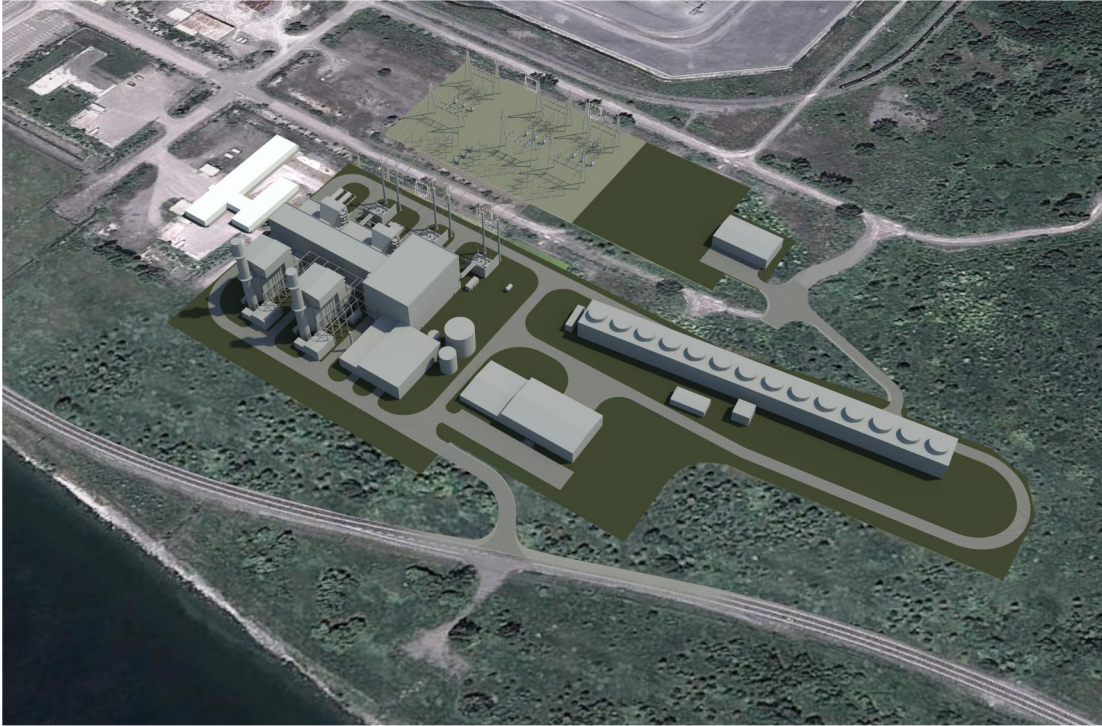


ENVIRONMENTAL REVIEW REPORT

NAPANEE GENERATING STATION



Prepared For:



TransCanada

In business to deliver

Prepared By:



SENE Consultants

AN  ARCADIS COMPANY

January 2014

ENVIRONMENTAL REVIEW REPORT

NAPANEE GENERATING STATION

Prepared for:



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January 2014

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ACRONYMS AND ABBREVIATIONS

@	At
[NH ₄] ₂ NO ₄	Ammonium Sulphate
~	Approximately
A.D.	After Death
AAQC	Ambient Air Quality Criteria
ADCP	Acoustic Doppler Current Profile
ADM	Admin/Warehouse
AG	Active Agricultural
Agency	Canadian Environmental Assessment Agency
ALAC	Architectural and Landscaping Advisory Committee
am	Apres midi
ANSI	Areas of Natural and Scientific Interest
AQ	Air Quality
AUX	Auxiliary boiler
AVTCO	All-volatile treatment (oxidizing conditions)
AWSC	All Way Stop Control
B	Breeding
B(a)P	Benzo(a)pyrene
B.C.	Before Christ
Bbl/d	Barrels per day
bcf/d	Billion cubic feet per day
Beacon	Beacon Environmental
BLIER	Base-Level Industrial Emissions Requirements
CAAQS	Canadian Ambient Air Quality Standards
CAC	Criteria Air Contaminant
CALMET	see definition
CALPUFF	see definition
CAS	Chemical Abstracts Service
CCME	Canadian Council of Ministers of the Environment
cd	Candelas
CEAA 2012	Canadian Environmental Assessment Act, 2012
CEM	Continuous Emissions Monitor
CEPA	Canadian Environmental Protection Act
CES	Clean Energy Supply
CIP	Critical Infrastructure Protection
Cl ₂	Chlorine
CLOCA	Central Lake Ontario Conservation Authorities

Environmental Review Report – Napanee Generating Station

CO	Carbon monoxide
CO ₂	Carbon dioxide
COC	Chemical of Concern
CORK	Canadian Olympic Training Regatta Kingston
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
COSSARO	Committee on the Status of Species at Risk in Ontario
CPUE	Catch Per Unit Effort
CR	County Road
CRCA	Cataraqui Region Conservation Authority
CT	Cooling tower
CUM	Cultural Meadow
CUT	Cultural Thicket
CUW	Cultural Woodland
CWS	Canadian Wide Standard
D.O.	Dissolved Oxygen
DCS	Distributed Control System
DFO	Department of Fisheries and Oceans
DFP	Diesel fire pump
DPH	Dew Point Heater
e.g.	For example
EA	Environmental Assessment
EAAB	Environmental Assessment and Approvals Branch
EB	East Bound
ECA	Environmental Compliance Approval
EDFP	Emergency Diesel Fire Pump
EDG	Emergency standby diesel generator
ELC	Ecological Land Classification
e-mail	Electronic mail
END	Endangered
<i>EPA</i>	<i>Environmental Protection Act</i>
EPA	Environmental Protection Agency
EPS	Environmental Protection Service
ERR	Environmental Review Report
ESA	Environmentally Sensitive Area
<i>ESA</i>	<i>Endangered Species Act</i>
etc.	Etcetera, a Latin expression meaning "and other things" or "and so on"
F	Fired
GS	Generating Station

Environmental Review Report – Napanee Generating Station

GSU	Generator Step-Up
GT/G	Gas Turbine Generator (Unit 1 or 2)
GTA	Greater Toronto Area
Guide	Guide to EA Requirements for Electricity Projects
HHV	High Heating Value
HQ	Hazard Quotient
HRSRG	Heat Recovery Steam Generator
HWY	Highway
Hydro One	Hydro One Networks Inc.
I&E	Impingement and entrainment
i.e.	That is (id est), in other words
IESO	Independent Electricity System Operator
ILE	Institute of Lighting Engineers
ISO	International Organization for Standardization
JSL	Jurisdictional Screening Level
JTU	JTU Consulting Inc.
L&A SOS	Lennox and Addington Seniors Outreach Services
Lennox GS	Lennox Generating Station
Lennox Hydro Wetland	Lennox Hydro Provincially Significant Wetland
L _{eq}	Energy Equivalent Sound Level
LHV	Lower Heating Value
LoS	Level of Service
MAL	Maximum acceptable limit
MAS 2	Mineral Shallow Marsh
min	Minute
MISA	Municipal Strategy for Abatement
MMBtu/hr	Million British thermal units per hour
MNR	Ontario Ministry of Natural Resources
MOE	Ontario Ministry of the Environment
MoE	Measure of Effectiveness
MTCS	Ministry of Tourism and Culture
MTO	Ontario Ministry of Transportation
MWAT	Maximum weekly average temperature
N ₂	Nitrogen Gas
N ₂ O	Nitrus Oxide
NaHSO ₃	NaHSO ₃

Environmental Review Report – Napanee Generating Station

NaOCl	Sodium hypochlorite
NAPS	National Air Pollution Surveillance Network
NERC	North American Reliability Corporation
NGS	Napanee Generating Station
NH ₃	Ammonia
NH ₄ NO ₃	Ammonium Nitrate
NHIC	Natural Heritage Information Centre
NMM	Nonhydrostatic Mesoscale Model
NO	Nitric Oxide
No.	Number
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxide
NPC	Noise Pollution Control
O.Reg.	Ontario Regulation
O ₂	Oxygen
O ₃	Ozone
Obs.	Observation
OH&S	Occupational Health and Safety
OPA	Ontario Power Authority
OPG	Ontario Power Generation Inc.
OTC	Once Through Cooling
OWES	Ontario Wetland Evaluation System
OWRA	Ontario Water Resources Act
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated biphenyls
PCSWMM	see definition
PELASS	Prince Edward-Lennox & Addington Social Services
pH	see definition
PHC	Petroleum hydrocarbons
PM	Particulate Matter
pm	Post meridiem
PM ₁₀	Particulate Matter smaller than 10 μ
PM _{2.5}	Particulate Matter smaller than 2.5 μ
POI	Point of Impingement
POR	Point of reception
PSQG LEL	Provincial Sediment Quality Guideline “lowest effect level”
PSW	Provincially Significant Wetland

Environmental Review Report – Napanee Generating Station

PTTW	Permit To Take Water
PWL	Sound Power Levels
PWQG	Provincial Water Quality Guidelines
PWQO	Provincial Water Quality Objectives
QA/QC	Quality Assurance / Quality Control
Q and A	Question-and-Answer
RO	Reverse Osmosis
S1	NHIC Critically Imperiled
S1?	NHIC critically imperiled, rank uncertain
S2	NHIC Imperiled
S3	NHIC Vulnerable
S4	NHIC Apparently Secure
S5	NHIC Secure
SACTI	Seasonal Annual Cooling Tower Impacts
SAR	Species at Risk
SC	Species of Special Concern
SCR	Selective Catalytic Reduction
SCS	Site Condition Standard
SCS CN	Soil conservation service curve number
SE	Exotic; not believed to be a native component of Ontario's flora.
SENES	SENES Consultants
SF ₆	Sulphur Hexafluoride
SFC	Static frequency converter
SNA	NHIC Not Applicable
SO ₂	Sulphur dioxide
SO ₄	Sulphate
SPL	Sound Pressure Level
SPM	Suspended Particulate Matter
SRANK	Species Rank through NHIC
ST/G	Steam Turbine Generator
STC	Sound Transmission Class
SVOC	Semi-volatile organic compounds
SW/FW	Service water/fire water tank
SWM	Stormwater Management
TDS	Total Dissolved Solids
THR	Threatened
TP	Total Phosphorus
Tranplan	Tranplan Associates

Environmental Review Report – Napanee Generating Station

TransCanada	TransCanada Energy Ltd.
TRC	Total residual chlorine
TRV	Toxicity reference value
TSS	Total Suspended Solids
TWLTL	Two Way Left Turn Lane
TWSC	Two Way Stop Control
UCLM	Upper Confidence Level of the Mean
UF	Unfired
ULR	Upward Light Ratio
Union Gas	Union Gas Limited
US	United States of America
US EPA	United States Environmental Protection Agency
USGPM	United States Gallons per Minute
v/c	Volume to Capacity Ratio
VOC	Volatile Organic Compounds
WHO	World Health Organization
WRF	Weather Research and Forecasting
X	Observed
ΔT	Delta T - Change in temperature

UNITS OF MEASUREMENT

Unit	Description
%	Percent
<	Less than
>	Greater than
≤	Less than or equal to
≥	Greater than or equal to
°C	Degree(s) Celsius
µg/g	Microgram(s) per gram
µg/h	Microgram(s) per hour
µg/m ³	Microgram(s) per cubic metre
µm	Micrometre
c	Candelas
cm	Centimetre(s)
cm/s	Centimetre(s) per second
dB	Decibel(s)
dB(A)	A-weighted decibel
dB(G)	G-weighted decibel
EB	East Bound
g	Gram
g/m ²	Grams per metre squared
g/s	Gram(s) per second
GJ	Gigajoule(s)
GJ/hr	Gigajoule(s) per hour
ha	Hectare(s)
hr	Hour(s)
kcd	Kilocandelas
kg	Kilogram(s) (1000 grams)
kg/hr	Kilogram(s) per hour
kHz	Kilohertz
km	Kilometre(s)
km/hr	Kilometre(s) per hour
kPa	Kilopascal(s)
kV	Kilovolt(s)
kW	Kilowatt(s)
L	Litre(s)
L/d	Litre(s) per day
L/hr	Litre(s) per hour

L/min	Litre(s) per minute
m	Metre(s)
m/s	Metre(s) per second
m/VA	Megavolts ampere
m ²	Metre(s) squared
m ³	Metre(s) cubed
m ³ /hr	Metre(s) cubed per hour
m ³ /s	Metre(s) cubed per second
mg/L	Milligram(s) per litre
mm	Millimetre(s)
mm	Millimetre(s)
mmBtu/hr	Million British thermal unit(s) per hour
MW	Megawatt(s) (million Watts)
ng/L	Nanogram(s) per litre
ppb	Part(s) per billion
ppm	Part(s) per million
psi	Pound-force per square inch
psia	Pound-force per square inch absolute
psig	Pound-force per square inch gauge
t/yr	Tonnes per year
v/c	Volume to capacity
ΔT	Delta T - Change in temperature