Hydrogen Ready Power Plant Project
Environmental Screening and Review Report

Appendix 17.7 Environmental Impact Management Plan

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Hydrogen Ready Power Project
Environmental Impact Management Plan

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1. Commitments, Goals and Specific Objectives

This Environmental Impact Management Plan addresses the implementation and management of the various environmental mitigation measures as identified in the Hydrogen Ready Power Plant (HRRP) project Environmental Screening and Review (ESRR) report. These measures are summarized in Table 1. The goal of this plan is to minimize the environmental impact during all phases of the HRRP project wherever and whenever feasible. The environmental impact of the Hydrogen Ready Power Plant Project will be mitigated and managed in accordance with the provisions of this plan. This goal includes the following specific objectives:

a) implementation of all commitments to mitigation identified in the environmental assessment process and as summarized in Table 1);
b) review of pollution prevention and impact mitigation options prior to each phase of the project (design, construction, operation and decommissioning);
c) implementation of all measures identified as being technically and economically feasible;
d) monitoring of the efficacy of the pollution prevention and impact mitigation measures, and
e) proactive planning for spills, emergencies or other unexpected events which may have serious environmental impact

TABLE 1- Summary of Environmental Impact Mitigation Measures from HRPP Project ESRR

Mitigation Measure	Category of Impact Mitigated
No use of SCR (ammonia)	- Ground and surface water - Natural environment - Air quality - Safety
Use of low NOx technology on gas turbine	- Air quality
Development of emergency and spill response plan	- Ground and surface water - Natural environment - Safety
43 m tall stacks	- Air quality
Good construction practices to mitigate dust	- Air quality - Nearby land yse
Spill containment on acid tanks	- Ground and surface water - Natural environment - Safety
Gas turbine inlet silencing	- Natural environment - Nearby land use
Stack outlet silencing	- Natural environment - Nearby land use
Plant will meet nighttime noise criteria	- Natural environment - Nearby land use
Sound barriers around transformer areas	- Natural environment - Nearby land use
Efficient use of non-renewable resources	- Ground and surface water quality - Natural environment - Air quality
Use of hydrogen/ natural gas fuel mix	- GHG emission reduction - Air quality - Natural environment
Future re-evaluation of cogeneration	- Natural environment - Air quality
Recycling of solid wastes whenever economically feasible	- Natural environment
Maximum practical use of recyclable and reusable materials	- Ground and surface water quality - Natural environment

2. Implementation and Schedule

This plan is to be implemented in conjunction with the planning and scheduling of the overall project. The Project Manager will ensure that all elements of this plan are reflected in the project schedule and are implemented at each project phase accordingly.

3. Design Phase

At the start of the detailed design phase the mitigation measures committed to in the environmental assessment process (Table 1) will be reviewed by the Project Manager, who will then assign responsibility for implementation of each of those measures requiring design input to appropriate members of the project engineering team. Early in the detailed design phase the key members of the engineering team will conduct a review of the project to identify design features of the project, which may prevent pollution or improve the mitigation of environmental impacts.

This review will address both expected and potential environmental impacts in at least the following areas:

a) Surface and Ground Water
b) Air Quality and Visual Impacts
c) Noise
d) Servicing Requirements
e) Natural Environment
f) Waste Generation and Disposal
g) Spills and emergencies
h) Land Use, Traffic and Other Community Impacts

The design features identified by this review will be evaluated to assess whether each of these is technically and economically feasibility. Any of these design features found to be technically and economically feasible will be incorporated into the design. If the evaluation of technical or economic feasibility must await completion of some detailed design, equipment procurement, or regulatory approval activity, the feasibility of that design feature will be revisited at that time.

The Project Manager will prepare and keep updated a list of the mitigation measures committed to in the environmental assessment, and the design features identified for evaluation by this plan. The list will indicate responsibility for evaluation, status of evaluation, decision on feasibility, responsibility for implementation and status of implementation. The Project Manager will conduct sufficient monitoring of the items on the list to ensure successful implementation of all items.

During the design process the engineering team will be encouraged to identify additional design features which may improve mitigation measure or enhance pollution prevention. Any design features found to be technically and economically feasible will be incorporated into the design. Design features which cannot be implemented without risk of substantial delay to the project in-service date will be deferred until the operations phase.

4. Construction and Commissioning Phase

Prior to the mobilization of any construction forces at the site, the Project Manager and the Construction Site Manager will review the mitigation measures committed to in the environmental assessment process that relate to construction activities so as to identify those measures for which an implementation plan and/or contingency plan needs to be developed. Once key members of the construction team are in place, the responsibility for preparing implementation and/or contingency plans will be assigned and carried out. If the preparation and/or implementation of any plan must await completion of some detailed design, equipment procurement, or regulatory approval activity, the feasibility of that design feature will be revisited at that time.

Early in the construction phase the Construction Site Manager will conduct a review of the construction of the project to identify construction practices which may prevent pollution or improve mitigation of environmental impacts.

This review will address both expected and potential environmental impacts in at least the following areas:

a) Erosion and Siltation
b) Construction Noise, Odour and Dust
c) Construction Traffic
d) Servicing Connections
e) Natural Environment
f) Waste Generation and Disposal
g) Spills and emergencies

These construction practices will be evaluated to assess whether each of these is technically and economically feasibility. Any construction practices found to be technically and economically feasible will be implemented. If the evaluation of technical or economic feasibility must await completion of some detailed design, equipment procurement, or regulatory approval activity, the feasibility of that construction practice will be revisited at that time.

The Construction Site Manager will prepare and keep updated a list of the construction impact mitigation measures committed to in the environmental assessment, and the construction practices identified for evaluation by this plan. The list will indicate responsibility for evaluation, status of evaluation, decision on feasibility, responsibility for implementation and status of implementation. The Construction Site Manager will conduct sufficient monitoring of the items on the list to ensure successful implementation of all items.

The Construction Site Manager will prepare an environmental procedures manual which will identify all environmentally related mitigation measures and contingency plans applicable to construction, together with implementation steps, monitoring measures, reporting systems, as well as identification of specific responsibilities for implementation and supervision. The manual will apply to all construction activities including those conducted by direct hired forces, contractors or subcontractors.

The manual shall address at least the following matters:

1. Goals and Specific Objectives
2. Responsibility for Implementation
3. Regulatory Approval and Standards
4. Complaint Investigation and Resolution
5. Prohibited Construction Practices
6. Site Security and Control
7. Temporary Storm Water and Erosion Control Measures
8. Migratory Bird Impact Mitigation
9. Tree and Vegetation Protection
10. Storage of Fuel, Lubricants, Chemicals and Materials
11. Spills Prevention, Readiness and Response
12. Housekeeping and Maintenance
13. Waste Material and Litter Control
14. Contaminated Soils Response
15. Engine Idling
16. Construction Noise
17. Traffic, Parking and Deliveries
18. Site Inspection and Impact Monitoring

The Construction Site Manager will ensure that all elements of the environmental procedures manual are followed, and will establish a regular inspection procedure to ensure the efficacy of the measures set out in the manual. If any measures are not found to be adequate, or if unexpected impacts are discovered, the procedures will be reviewed, revised and remedial measures will be implemented where necessary.

All members of the construction team will be encouraged to identify additional construction practices which may improve any mitigation measure or enhance pollution prevention. Any of such additional construction practices found to be technically and economically feasible will be implemented.

Prior to the start of commissioning, the Project Manager, Construction Site Manager and Chief Operating Engineer will review the status of all mitigation measures applicable to commissioning, including any which were committed to in the environmental assessment process, and any construction practices identified for implementation by this plan which are also applicable to commissioning.

Appropriate responsibility hand-over points for all items in the plan will be defined and implemented.

Early in commissioning, the Chief Operating Engineer will conduct a review of the commissioning of the project to identify commissioning and operating practices which may prevent pollution or improve mitigation of environmental impacts.

This review will address both expected and potential environmental impacts in at least the following areas:

a) Surface and Ground Water
b) Air Quality and Visual Impacts
c) Noise
d) Water and Sewage Utilization
e) Natural Environment
f) Waste Generation and Disposal
g) Spills and emergencies
h) Traffic and Other Community Impacts

These commissioning or operating practices will be evaluated to assess whether each of these is technically and economically feasibility. Any of these commissioning or operating practices found to be technically and economically feasible will be implemented. If the evaluation of technical or economic feasibility must await completion of some construction or regulatory approval activity, the feasibility of that commissioning or operating practice will be revisited at that time.

The Chief Operating Engineer will prepare and keep updated a list of mitigation measures and commissioning practices identified for evaluation by this plan. The list will indicate responsibility for evaluation, status of evaluation, decision on feasibility, responsibility for implementation and status of implementation.

The Chief Operating Engineer shall include on the “punch list” of remaining or deficient construction items, any deficiency or incompleteness of any mitigation measure committed to in the environmental assessment (Table 1) or any items of improvement to mitigation or prevention of pollution identified for implementation.

5. Operation and Maintenance Phase

Shortly after the in-service date of the HRPP facility, the Chief Operating Engineer will conduct a review of the operations and maintenance plans and procedures for the project to identify maintenance practices which could enhance pollution prevention and/or improve mitigation of environmental impacts.

This review will address both expected and potential environmental impacts in at least the following areas:

a) Surface and Ground Water
b) Air Quality and Visual Impacts
c) Noise
d) Water and Sewage Utilization
e) Natural Environment
f) Waste Generation and Disposal
g) Spills and emergencies
h) Traffic and Other Community Impacts

These operations and maintenance practices will be evaluated to assess whether each of these is technically and economically feasibility. Any of these maintenance practices found to be technically and economically feasible will be implemented. If the evaluation of technical or economic feasibility must await completion of some regulatory approval activity, the feasibility of that commissioning or operating practice will be revisited at that time.

The Chief Operating Engineer will prepare and keep updated a list of mitigation measures and maintenance practices identified for evaluation by this plan. The list will indicate responsibility for evaluation, status of evaluation, decision on feasibility, responsibility for implementation and status of implementation.

These various mitigation and maintenance measures will be incorporated as appropriate into a HRPP Emergency Response Preparedness Plan (ERPP) which will address all facility emergency response procedures including those identified above. The HRPP will be reviewed at least yearly for updating as appropriate.

6. Decommissioning Phase

It is not possible to predict precisely when or under what circumstances the project will be decommissioned, but it is unlikely that decommissioning will occur within 25 years. The decommissioning will consist of a removal of some or all of the equipment, buildings and structures, depending on the plans for subsequent use of the site. The greatest impact would likely be as a result of full removal and remediation of the site to allow even the most sensitive of subsequent uses.

Once the decommissioning of the facility is contemplated, the Project Manager will evaluate the decommissioning plan to identify the measures that may be necessary to adequately mitigate the impacts of decommissioning and any measures which may minimize pollution from decommissioning.

This review will address both expected and potential environmental impacts in at least the following areas:

a) Erosion and Siltation
b) Demolition or Construction Noise, Odour and Dust
c) Decommissioning Traffic
d) Decommissioning of Service Connections
e) Natural Environment
f) Waste Generation and Disposal
g) Spills and Emergencies

The Project Manager will prepare and keep updated a list of mitigation measures and pollution minimization measures identified for evaluation by this part of the plan. The list will indicate responsibility for evaluation, status of evaluation, decision on feasibility, responsibility for implementation and status of implementation.