Project Approval

Section 75J of the *Environmental Planning and Assessment Act 1979*

I, the Minister for Planning, approve the project referred to in Schedule 1, subject to the conditions in Schedule 2.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.

Frank Sartor MP
Minister for Planning

Sydney 16/11/ 2006 File No: 9039739

SCHEDULE 1

Application No:	05_0082
Proponent:	Sydney Water Corporation
Approval Authority:	Minister for Planning
Project:	"the seawater intake and discharge system" project
Concept Plan:	the project is a component of the approved concept plan for the Kurnell Desalination Plant (05_0082)
Major Project:	On 25 October 2005, the Minister for Planning formed the opinion pursuant to clause 6 of *State Environmental Planning Policy (Major Projects) 2005* that the proposal is for the purpose of development described in Schedule 1 to that Policy (clause 25(2) – development for the purpose of a desalination plant for drinking water supply with capital investment in excess of $10 million). The proposal is thus declared to be a project to which Part 3A of the *Environmental Planning and Assessment Act 1979* applies.
Concept Plan Authorisation:	On 16 November 2005, the Minister for Planning authorised the submission of a concept plan for the proposal.
Critical Infrastructure:	On 16 November 2005, the Minister for Planning formed the opinion pursuant to clause 6A of the *State Environmental*

Planning Policy (Major Projects) 2005 that the proposal is for the purpose of development described in Schedule 5 to that Policy (clause 1 – Kurnell desalination project). The proposal is thus declared to be a critical infrastructure project within the meaning of section 75C of the Act.

KEY TO CONDITIONS

SCHEDULE 2

Act, the	*Environmental Planning and Assessment Act, 1979*
Conditions of Approval	The Minister's conditions of approval for the project.
Council	Sutherland Shire Council
DEC	Department of Environment and Conservation
Department, the	Department of Planning.
Director-General, the	Director-General of the Department of Planning (or delegate).
DNR	Department of Natural Resources
DPI	Department of Primary Industries
EA	*Environmental Assessment of the Concept Plan for Sydney's Desalination Project*, dated November 2005, and prepared by Sydney Water Corporation
EPA	Environment Protection Authority as part of the Department of Environment and Conservation
EPL	Environment Protection Licence issued under the *Protection of the Environment Operations Act 1997*
Minister, the	Minister for Planning.
Proponent	Sydney Water Corporation, or any party acting under authorisation from and on behalf of the Sydney Water Corporation
Publicly Available	Available for inspection by a member of the general public (for example available on an internet site or at a display centre).
Site	Land to which Major Project Application 05_0082 applies.

1. ADMINISTRATIVE CONDITIONS

Terms of Project Approval

1.1 The Proponent shall carry out the project generally in accordance with the:
   a) Major Project Application 05_0082;
   b) *Environmental Assessment of the Concept Plan for Sydney's Desalination Project*, dated November 2005, and prepared by Sydney Water Corporation;
   c) *Sydney's Desalination Project: Preferred Project Report*, dated August 2006, and prepared by Sydney Water Corporation;
   d) the concept approval granted with respect to the Kurnell Desalination Plant concept plan (05_0082); and
   e) the conditions of this approval.

1.2 In the event of an inconsistency between:
   a) the conditions of this approval and any document listed from condition 1.1a) to 1.1c) inclusive, the conditions of this approval shall prevail to the extent of the inconsistency; and
   b) any document listed from condition 1.1a) to 1.1c) inclusive, and any other document listed from condition 1.1a) to 1.1c) inclusive, the most recent document shall prevail to the extent of the inconsistency.

1.3 Notwithstanding condition 1.2, if there is any inconsistency between this project approval and the concept approval for the Kurnell Desalination Plant concept plan, the concept approval shall prevail to the extent of the inconsistency.

1.4 The Proponent shall comply with any reasonable requirement(s) of the Director-General arising from the Department's assessment of:
   a) any reports, plans or correspondence that are submitted in accordance with this approval; and
   b) the implementation of any actions or measures contained in these reports, plans or correspondence.

Limits of Approval

1.5 This project approval shall lapse on 31 December 2015, unless works the subject of this project approval or any other project approval granted with respect to the Kurnell Desalination Plant concept approval are physically commenced on or before that date. The Director-General may extend this lapse date if the Proponent demonstrates to the satisfaction of the Director-General that the desalination plant technology remains current, appropriate and reflective of best practice at the date the approval would otherwise lapse.

Note: Notwithstanding any condition of this approval, the Government has adopted a policy that the proposed desalination plant and associated infrastructure will only proceed to implementation as a contingency in the event of extreme drought conditions.

2. SPECIFIC ENVIRONMENTAL CONDITIONS

Noise Impacts

2.1 Unless otherwise specified in an approved Noise Management Plan for the construction of the project (refer to condition 4.2b) of this approval), the Proponent shall only undertake construction activities associated with the project that would generate an audible noise at any residential premises during the following hours:
   a) 7:00 am to 6:00 pm, Mondays to Fridays, inclusive;
   b) 8:00 am to 1:00 pm on Saturdays; and
   c) at no time on Sundays or public holidays.

   This condition does not apply in the event of a direction from police or other relevant authority for safety reasons.

Air Quality Impacts

Dust Generation

2.2 The Proponent shall construct the project in a manner that minimises dust emissions from the site, including wind-blown and traffic-generated dust. All activities on the site shall be undertaken with the objective of preventing visible emissions of dust from the site.

Soil and Water Quality Impacts

Construction Impacts

2.3 The Proponent shall employ soil and water management controls to minimise soil erosion and the discharge of sediment and other pollutants to lands and/ or waters during construction of the project, in accordance with *Managing Urban Stormwater: Soils and Conservation* (Landcom, 2004).

2.4 Prior to the commencement of construction of the project, the Proponent shall develop work practices and procedures to be applied during the construction of the project to mitigate potential impacts on seawater quality and aquatic ecology, consistent with *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC, 2000). The Proponent shall consult the DEC and DPI in development of the work practices and procedures. The Proponent shall submit a copy of the final work practices and procedures to the Director-General, prior to their implementation. Nothing in this condition prevents the Proponent from staging compliance with this condition, consistent with the staging/ timing of construction works (for example, where on-shore and off-shore works are to be undertaken at different times).

Discharge Quality

2.5 The Proponent shall not permit the disposal to the ocean of lime sludge and backwash solids.

2.6 Notwithstanding condition 2.5, the Proponent may seek the Director-General's approval to discharge backwash (whether solid or in solution) to the ocean. In seeking approval under this condition, the Proponent shall consider the relevant findings from the Marine Water Quality and Ecosystem Monitoring Program required under condition 3.1 of this approval and shall prepare, and have subject to an independent and internationally-recognised peer review, a report that assesses and demonstrates as acceptable the impacts of backwash discharge to the ocean. The report shall be submitted to the satisfaction of the Director-General and the DEC, and shall include, but not necessarily be limited to, consideration of:

a) water quality impacts of the backwash discharge, assessed against water quality criteria (including, as relevant, physico-chemical properties, odour and colour), guidelines and policies in force and applicable at the time of assessment;
b) aquatic ecological impacts, including ecotoxicity, bioaccumulation, physical interference (for example, physical disruption of gill function) and the potential for smothering of benthic organisms; and
c) amenity impacts, including the potential for re-entrainment and spread of any solid component of backwash discharges, effects on water colour and appearance and the potential for solids to be washed to shore or into recreational or commercial fishing areas.

The Proponent shall not permit the discharge of any backwash under this condition without the prior approval of the Director-General, after having consulted with the DEC.

Discharge Design Requirements

2.7 The Proponent shall design and construct the project so that seawater concentrate meets water quality criteria for relevant physico-chemical parameters (in particular, salinity and treatment chemicals) at the edge of the near field mixing zone, consistent with *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC, 2000) and consistent with the objectives in *Marine Water Quality Objectives for NSW Ocean Waters*

(DEC, 2006). In undertaking the design of the project to achieve these outcomes, the Proponent shall:

a) consult with the DEC and DPI during the design of the project with respect to achievement of the outcomes specified under this condition;
b) develop a strategy for the desalination plant design and operation to verify the targeted 30-times dilution of the seawater concentrate at the edge of the near field mixing zone, including where necessary, further water quality sampling of receiving waters and a program of toxicity testing on simulated seawater concentrate in association with pilot testing;
c) develop measures to minimise the potential for seawater concentrate to cause acute toxicity within the near field mixing zone, including measures such as modification of the design of the outlets to increase the rate of dispersion or modification of the treatment process and chemicals to reduce the toxicity of the discharge;
d) refine the location and design of the discharge point to minimise impacts on water quality and ecology as far as practicable, including as necessary, further surveys of current movements, physical modelling of near field dilution and habitat surveys.

The Proponent shall submit details of the final design of the seawater concentrate discharge point to the Director-General prior to the commencement of its construction, or within such period as otherwise agreed by the Director-General, demonstrating how the Proponent has complied with the requirements of this condition.

2.8 Prior to the commencement of construction of the project, the Proponent shall consult with the DPI in relation to the need for establishment of exclusion zones for commercial and recreational fishers (including spearfishers).

Ecological Impacts

Construction Impacts

2.9 Prior to the commencement of construction of the project, the Proponent shall undertake targeted surveys of intake and discharge locations for the weedy sea dragon. In the event that these targeted surveys identify the presence of the weedy sea dragon, the Proponent shall consult with the DPI with respect to the development of management measures to be implemented to minimise potential impacts on the weedy sea dragon. The Proponent shall notify the Director-General of any specific management measures that will be applied during construction of the project.

Intake Design Requirements

2.10 The Proponent shall design and construct the seawater intake to minimise the potential for marine biota, including larval species, to be drawn into or to become impinged on the seawater intake. In undertaking the design of the intake, the Proponent shall consult with the DPI and shall address the following issues:

a) development of a design that reduces the velocity of seawater intake to below ocean currents for the majority of the time, taking into consideration the reference design velocity of less than 0.1 ms^{-1};
b) refinement of the location of the intake point to minimise as far as practicable the number of aquatic biota (including fish and invertebrate larvae and juveniles) that become impinged on the intake screens or entrained in the seawater intake, including consideration of screen designs and intake elevation above the seabed;
c) assessment of chemicals to clean the seawater intake system, with the aim of minimising acute toxicity impacts on marine biota outside the intake structures;
d) identification of management measures for marine debris that may become caught on the screens and on and within the seawater intake system.

The Proponent shall submit details of the final design of the seawater intake point to the Director-General prior to the commencement of its construction, or within such period as otherwise agreed by the Director-General, demonstrating how the Proponent has complied with the requirements of this condition.

2.11 Prior to the commencement of its construction, the Proponent shall refine the location and design of the seawater intake point to ensure that intake water quality is of an acceptable standard, having regard to the potential impacts of discharges from the desalination plant, sewage treatment plants and other discharges in the vicinity of the seawater intake. In refining the location and design of the intake, the Proponent shall undertake, as necessary, further seawater quality sampling, pilot testing and a survey of current water movements to refine numerical models. The Proponent shall notify the Director-General of the refined location of the seawater intake prior to the commencement of its construction, or within such period as otherwise agreed by the Director-General.

3. ENVIRONMENTAL MONITORING AND AUDITING

Marine Water Quality and Ecosystem Monitoring Program

3.1 Prior to the commencement of commissioning of the project, the Proponent shall prepare and implement a **Marine Water Quality and Ecosystem Monitoring Program** to monitor the impacts of the project on water quality and marine ecosystems, to validate and calibrate modelling presented in the documents referred to under condition 1.1, and to monitor impacts associated with discharge of seawater concentrate from the project. Implementation of the Program shall start prior to the commencement of commissioning of the project so that the pre- and post-commissioning states of the receiving environment can be compared. The Program shall continue until at least three years after the commencement of operation of the project, after which the Program shall be reviewed to establish on-going monitoring requirements. The Program shall be developed in consultation with the DPI and DEC and shall include, but not necessarily be limited to:

a) deployment of instrumentation necessary to gain an understanding of the ambient oceanographic conditions (eg spatial and temporal variation in currents and density structure (temperature and salinity), winds, waves) in an area encompassing the inlet and outlet structures as well as other significant regional features, for example flows from Botany Bay and Potter Point sewage treatment plant discharge;

b) baseline monitoring of ecological health during at least two seasons (summer and winter) and at least twice in each season, with monitoring locations to include the Boat Harbour Aquatic Reserve, representative locations around the intake and discharge points, and representative locations predicted to be in and outside the near field mixing zone;

c) a mechanism for the supply of data and results from the Program, both on request and at agreed milestones, to the DEC, DPI and the Director-General.

Water Quality

d) combination of the data obtained from the pre-commissioning component of the program with best estimates of discharge quality and quantity in a near field numerical model to calculate and optimise the dilution achieved by the diffuser. A physical model may also be used in addition to the numerical model for this purpose;

e) consideration of variables in the performance optimisation of the diffuser including, but not necessarily limited to: number of ports, orientation of ports, configuration of ports, length of diffuser, discharge exit velocity and the depth and location of the diffuser;

f) based on the modelling undertaken under d), refinement, during design, of the outlet location and design to ensure effective plume dispersion;

g) based on the understanding of oceanographic conditions derived from a) and the modelling undertaken under d), refinement of the location and design of the discharge point to minimise impacts on water quality and ecology as far as practicable;

h) reconciliation of the discharge performance envelope against the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC, 2000) to provide a clear understanding and description of the mixing zone. Results are to be presented using a statistical approach that defines best, typical and worst case scenarios and the relative likely occurrence of each;

i) post-commissioning, the use of tracers in the discharge stream, in combination with the instrumentation deployed under a) for a range of oceanographic and discharge conditions to calibrate and validate the near field numerical model described in d) so

that it is capable of making ongoing and robust diagnostic and prognostic predictions of plume geometry and dilutions. The tracing experiments should also determine the fate of the plume in the far field. The range of oceanographic conditions should encompass, but not necessarily be limited to, a matrix of features including receiving water currents flowing north and south, flood and ebb tides at Botany Bay, onshore and offshore winds, and calm and elevated significant wave heights;

Ecosystems

j) a sampling, data collection and assessment regime to monitor ecological impacts resulting from the project, with specific reference to reef assemblages, larvae, juvenile fish and invertebrates;

k) identification and establishment of an ecological monitoring network with specific provision for monitoring in and around the rocky reef, and taking into account spatial variability in species types and distribution; and

l) water quality monitoring, particularly in relation to salinity and temperature.

The Proponent shall submit a copy of the Program to the Director-General, the DEC and the DPI prior to implementation.

4. ENVIRONMENTAL MANAGEMENT

Construction Environmental Management

4.1 The Proponent shall apply the **Construction Environmental Management System** developed under the concept approval for the Kurnell Desalination Project during construction of the seawater intake and discharge system project.

4.2 In addition to the general requirements of the Construction Environmental Management System, the Proponent shall prepare and implement the following project-specific Construction Environmental Management Plans during the construction of the seawater intake and discharge system project:

a) where soil testing prior to the commencement of construction identifies the presence of acid sulfate soils, an **Acid Sulfate Soil Management Plan** prepared in accordance with guidance provided in *Acid Sulfate Soil Manual* (Acid Sulfate Soil Management Advisory Committee, 1998);

b) a **Construction Noise Management Plan** to detail how construction noise and vibration impacts would be minimised and managed, including, but not necessarily limited to:

   i) details of construction activities and a schedule for construction works;

   ii) identification of construction activities that have the potential to generate noise and/ or vibration impacts on surrounding land uses, particularly residential areas;

   iii) a detailed description of what actions and measures would be implemented to ensure that these works would comply with the relevant noise and vibration criteria/ guidelines;

   iv) procedures for notifying residents of construction activities that are likely to effect their noise and vibration amenity, as well as procedures for dealing with and responding to noise complaints;

   v) a description of how the effectiveness of these actions and measures would be monitored during the proposed works, clearly indicating how often this monitoring would be conducted, how the results of this monitoring would be recorded; and, if any non-compliance is detected;

   vi) measures to minimise disturbance to marine mammals during construction of the project, with specific consideration of impacts on whales, whale watching and the Cape Solander Whale Migration Study;

c) a **Spoil Management Plan**, consistent with the Spoil Management and Disposal Strategy required under the concept plan approval for the Kurnell Desalination Project.

4.3 The Plans referred to under condition 4.2 shall be submitted for the approval of the Director-General prior to the commencement of construction.

4.4 Nothing in this approval precludes the Proponent from developing the Plans referred to under condition 4.2 as separate plans, or as a single plan.

Operation Environmental Management

4.5 The Proponent shall apply the **Operation Environmental Management System** developed under the concept approval for the Kurnell Desalination Project during operation of the seawater intake and discharge system project.

4.6 In addition to the general requirements of the Operation Environmental Management System, the Proponent shall prepare and implement the following project-specific Operation Environmental Management Plans during the operation of the seawater intake and discharge system project:

a) a **Marine Water Quality and Ecosystem Management Plan** to provide a framework for the analysis of monitoring data collected under condition 3.1 of this approval, comparison of monitoring results with environmental outcomes stipulated under this approval, decision-making processes where environmental outcomes are not being met, and identification of any additional measures that may need to be applied where environmental outcomes are not being met.

4.7 The Plans referred to under condition 4.6 shall be submitted for the approval of the Director-General prior to the commencement of operation.

5. ENVIRONMENTAL REPORTING

Incident Reporting

5.1 The Proponent shall notify the Director-General of any incident with actual or potential significant off-site impacts on people or the biophysical environment as soon as practicable and within 24 hours after the occurrence of the incident. The Proponent shall provide full written details of the incident to the Director-General within seven days of the date on which the incident occurred.

5.2 The Proponent shall meet the requirements of the Director-General to address the cause or impact of any incident, as it relates to this approval, reported in accordance with condition 5.1 of this approval, within such period as the Director-General may require.
