SUBMISSION
&
PUBLIC INTEREST DISCLOSURE

TO

SENATE INQUIRY
THE SHORTAGE OF ENGINEERS & OTHER RELATED MATTERS

by

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TERMS OF REFERENCE

The nexus between the demand for infrastructure delivery and the shortage of appropriate engineering and related employment skills in Australia, with particular reference to:

(a) the implications of the shortage for infrastructure delivery in terms of economic development, cost, efficiency, safety and disputation;

(b) the impact of the long-term outsourcing of engineering activities by government on skills development and retention in both the private and public sectors;

(c) options to address the skill shortage for engineers and related trades, and the effectiveness and efficiency of relevant policies, both past and present;

(d) options for infrastructure delivery using alternative procurement models which aim to foster collaboration and achieve effective community outcomes, including skills development and retention;

(e) effective strategies to develop and retain engineering talent in the private and public sectors through industry training and development, at enterprise, project and whole-of sector levels;

(f) opportunities to provide incentives to the private sector through the procurement process to undertake skills development;

(g) consequences of skills shortage in the construction sector to the public sector's capacity to effectively procure and manage infrastructure projects;

(h) the impact of delayed and stalled infrastructure projects on economic development, workplace productivity and employment; and

(i) other related matters.

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ABBREVIATIONS

SUBMISSION TO THE SENATE INQUIRY INTO
SHORTAGE OF ENGINEERS & RELATED MATTERS

1. BACKGROUND

1.1. I seek to provide information and advice on the state of engineering within the public sector, and the impact that problems in the public sector are having upon the sufficiency of engineers and engineering expertise within that sector of our economy.

1.2. This submission is provided in the public interest and may be made a public exhibit.

1.3. It is submitted that the state of engineering within the public sector is being affected by at least three factors:

A. **'De-engineering'** of the engineering and scientific agencies within the public sector;

B. Mismanagement of engineering and scientific functions within the sector, giving rise to important **public interest issues** affecting public safety and economic development, and to community disputation that is tending to undermine the reputation of engineers and engineering itself; and

C. **Impediments upon** the ability of engineers and scientists to engage in **associations** to benefit the profession, with the same level of protection that is afforded to members of other organizations.

1.4. These factors explain principal causes for ***the shortage of appropriate engineering and related employment*** (scientific) ***skills*** in the public sector ***in Australia,*** relevant to the topic sentence of the Inquiry's Terms of Reference [TORs], and provide

insight into specific aspects of matters referred to in the sub-paragraphs of the TORs, including:

(a) ***Implications of the shortage for infrastructure delivery in terms of economic development, … safety and disputation,*** as per part of TOR(a);

(b) ***Impacts on … skills development … in the public sector***, as per part of TOR(b);

(c) ***Options to address the skill shortage for engineers and*** scientists in the public sector, as per part of TOR(c);

(d) ***Effective strategies to develop and retain engineering and*** scientific ***talent … in the public sector,*** as per part of TOR(e); and

(e) Other related matters, including reasons why strategies for outsourcing engineering activities by governments are failing to address the above impacts and implications, as per TOR(i).

2. SITUATION

2.1. My experience and expertise from over 30 years is offered to the Senate in good faith and in the public interest.

2.2. My engineering experience in the delivery of infrastructure has been in the Commonwealth Public Service and the Queensland Public Service.

2.3. In the Queensland Public Service, I held positions as Chief Engineer investigating and reviewing proposals for water supply, sewerage, roads and airfields, and drainage works throughout that State. I managed the responsibilities for administering the *Flood Mitigation Works Approval Act* and associated floodplain development proposals. I was also the Senior Engineer for Planning dams and irrigation works, and for evaluating the environmental impacts of dams and other works established by mining operations.

2.4. In the Queensland Public Service I managed the research science program into the sustainability of natural resources. This program and the scientists within it developed the tools for forecasting drought and heavy rainfall seasons – the *el nino* science and Southern Oscillation Index ["**SOI**"] methods still reported to governments, to the public and to commerce today. This body of 100 plus scientists also studied the impacts of agricultural development on water environments and methods to diminish dangers to the environment from mining operations, among many other natural resource issues.

2.5. With engineering associations, I have been on the national governance body of the **Association of Professional Engineers Scientists and Managers Australia** ["**APESMA**"] for most years since 1990. I have participated in the science group at workshops by that national governance body for a decade. I was President of the **Association of Professional Engineers Queensland** for three years. I have also served on the water panels of the **Institution of Engineers Australia**, now **Engineers Australia.** I chaired its Task Force into Corporatisation, and served on writing teams and/or review teams producing Position Papers on technical issues such as on 'Flooding'. As National Secretary of the Institute of Management Consultants, I have sat on consultative committees dealing with public service functions. I have carried out consultancies in public sector bodies

3.0 DE-ENGINEERING

3.1. The phenomenon of '*de-engineering*" has gone through a number of stages to its current state of development in the public service.

3.2. **In the 1980s**, the concern regarding *de-engineering* was that the duties of the higher offices in engineering organisations were essentially managerial in nature, suited to engineers with skill sets for management. There were few, if any, positions being provided for engineering experts in fields of primary technical importance to the role of the organization.

3.3. For organisations with five levels of responsibility, [graduates at Level 1, Executive at Level 5], while management positions were aplenty up to and including level 5, positions with duties and responsibilities requiring technical expertise were seldom higher than level 2.

3.4. Persons, it was argued, with engineering expertise needed to find positions **outside** of the public service if they were to follow a career in their area of specialist engineering knowledge. Loss of this expertise was a loss to the service, it was argued

3.5. The argument found much sympathy when engineering organisations were headed by engineers. There was a counter argument, namely that public service organisations could hire technical expertise that they needed (outsource it). In the Queensland Public Service, however, Level 3 positions were secured in permanent restructuring of the system of positions. When Level 4 and 5 positions became contract positions, some level 4 contract positions were established, including a Chief Scientist position in one agency.

3.6. **In the 1990s**, however, wider changes in government greatly accelerated the processes of *de-engineering*. In the Queensland Public Service, two academics voicing criticisms of engineers as heads of government agencies, were put in charge of the public service. 'Non-Engineers', probably reflecting the views of those academics who had appointed them, were put at the top of major engineering agencies. The two academics also introduced two further management notions that undermined the influence of engineers throughout all levels of engineering agencies.

3.6. Firstly, the academics advocated the reasoning that heads of government agencies should be able to appoint as their principal executives persons who worked well with those agency heads. This was explained to be in the interests of better efficiencies and effectiveness as a management team. This notion was a flow on from the same

argument used for the appointment of an agency head who was able to work well with their government Minister. This change opened the public service up to be politicized beyond the appointment of permanent heads down at least to Level 3

3.7. Secondly, selection criteria for positions could no longer require that qualifications be compulsory for applicants to be eligible for the positions. This opened technical positions to be filled by persons unqualified for the disciplines applicable to technical duties.

3.8. In combination with the possibilities for the politicization of agencies, a strong pattern of non-engineers filling engineer positions has emerged

3.9. The decision to actually appoint non-engineers to head engineering agencies caused engineers within some agencies to react as a group. I was personally briefed by one level 4 engineer who later became the head of the agency as to the plan by engineers in that agency to regain the position for an engineer to be appointed. That plan involved controlling selection procedures and selections throughout the agency so as to serve that aim. In this way, disputation was occurring between, on one hand, the academics and their appointees, and, on the other hand, engineers within principal engineering agencies as a group. For the academics to obtain their 'happy' management team situation, they needed to replace large numbers of engineers. The best engineers in the agency, and the natural leaders of the engineering fraternity within that agency, were often the first to leave or be pushed out. This left opportunities for lesser leaders within engineering agencies to gain position by accepting the tenets of the new order for engineering organisations advocated by the academics.

3.10. The battlefield became the selection procedures within the public service. The academics removed any ability to appeal appointments to contracted positions in levels 4 and 5. Media gave most coverage to the same battlefield occurring in the Health agencies. Overall, the policies and disputation led to the diminution of both

sides, principal public servants voting with their feet and the rest of the public service voting in block in elections to oust (the masters of) the two academics.

3.11. The engineering structures were, however, fractured, as was the public service in any case. The dynamic that lasted was the *politicization* dynamic, which reached from Level 5 down to and including Level 3. This dynamic was largely mobilized by the activities of positions called **Ministerial Advisors** which were now allowed to reach from the Ministerial Offices down into the management structures of all agencies and the offices of officers at Level 3. They sat on selection boards, and then they applied for Level 4 jobs in those agencies, in some cases.

3.12. **In the 2000s**, the predictions of concerns, arising from the phenomenon of de-engineering, came into measurable existence;

3.13. Persons without degrees in science or relevant science were filling scientific positions, and persons without degrees in engineering or degrees in relevant engineering were filling engineering positions within engineering agencies, from Level 5 down to and including Level 3. The effects upon the agencies included:

(a) Major omissions in planning the infrastructure needs of Queensland;
(b) Major problems in the conduct of engineering infrastructure works;
(c) Major embarrassments in the management and operation of existing infrastructure;
(d) Major deficiencies in the supervision of engineering projects outsourced to private consultancies; and
(e) Major efforts to cover-up these losses of effectiveness in the management of public infrastructure.

3.14. There was also a significant drop in the morale of the engineers and scientists in the public service. Not only were they being engaged in substandard engineering practices, but:

(a) They were no longer receiving development in their engineering specialities;

(b) The infrastructure decisions being made were involving them in activities that eroded public safety, gave financial advantages to persons they believed to be political appointees, involved a waste of public resources and were ruinous of the environment;

(c) They were being engaged in what is termed ‘purple’ engineering, including:

1) Processes that are reactive mainly to media presentations of problems with infrastructure, a primary characteristic of political environments, and that are without forward planning for all aspects of infrastructure management;

2) Processes that prevent the operation of the Freedom of Information legislation in bringing accountability to the management of public infrastructure;

3) Processes where they are expected to sign-off on misleading reports and bad decisions made by their superiors; and

4) Processes to advance the political advantages of their Ministers or to prevent political disadvantages being imposed upon their Ministers, with respect to claims about public infrastructure.

3.15. The task of the Senate Inquiry is to identify ways of reversing this process from its current parlous state, wherein the public has lost confidence in its engineering and scientific agencies, through events such as:

(a) The actions of engineers to flood Brisbane during the January 2011 flood;

(b) The advice of scientists that they do not know what is causing all the sores on fish in Gladstone Harbour, but that they do know that, whatever it is, it does not pose a threat to consumers of fish from that location;

(c) The approval of harmful chemicals to release gases from underground strata, the infrastructure for which intersect water supply aquifers;

(d) The spread of fire ants in the Brisbane Valley, despite government scientists claiming that they were close to terminating the last one;

(e) The ‘death’ or near death of the Murray Darling system from over-allocations, to agriculturist corporations, of water that was not there to be allocated;

(f) The growing pollution rates in coastal rivers downstream of active and abandoned mining operations used; and

(g) The leakage rates from water supply reticulation and release rates from Dam systems during the recent drought.

Technical control

3.15. It is proposed that a concept for addressing this state of relationships between the public sector and the engineering & science professionals who desire to work for the public benefit is the management concept of technical control.

3.16. This concept is defined by its separation from general management in Figure 1

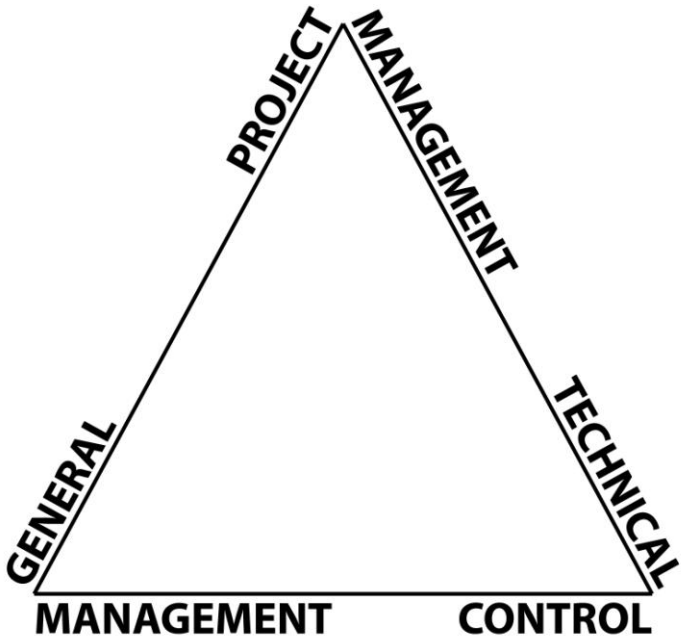

Figure 1: The Three Forms of Management

3.17. Technical control is a responsibility for decision-making or advice that can only be made by a professional engineer or scientist (or other discipline) with demonstrated qualifications and experience sufficient to establish the professional as an expert or technical specialist, depending upon the scale of specialist knowledge required.

3.18. The concept is well understood with respect to the management of multi-disciplinary projects. In such projects, the Project Manager is unlikely to have a technical background in all disciplines. The authorities and discretions of the Project Manager are therefore exercised with appropriate respect for the opinion of technical experts assigned to the Project Management Team.

3.19. The notion of technical control is so entrenched in the best practices of project management that, even if the Project Management is from the relevant discipline of any technical control issue, the Project Manager will defer to the opinion of the specialist in that Project Team who formally holds the responsibility for technical control in that discipline.

3.20. Quality Management regimes also have no difficulty in working to the absolutes predicted or established by technical specialists.

3.21. It is the class of general managers in the public service environment delivering government programs, particularly where the public service has been politicized, that appears to be especially vulnerable to using muddled logic and wishful thinking to dismiss the technical controls advised by experts and technical specialists. When a Minister, having received a three months rainfall forecast from a scientific drought management team, blames the scientists for causing the drought – you have to have been there to believe that this could happen!

3.22. It is herein argued that ***technical control*** is a better concept for resolving this relationship between the leadership of the public service and the engineering/ science professionals who desire to work for the public benefit. I submit that the

concept of technical control is a better concept than some past concepts associated with the *de-engineering* debate for focusing upon a solution to the issue of purple engineering and science. Those past concepts include

(a) **The engineer vs non engineer concept**. Whether an engineer or a non-engineer is head of the agency – this may not matter if the organization establishes and respects appropriate protocols for the exercise of technical control;

(b) **The concept of engineering positions**. When selection criteria need to have particular engineering or scientific qualifications stipulated as compulsory for a candidate to be eligible for a position – perhaps the need for specialist knowledge associated with duties exercising technical control may be used to decide whether and which qualifications are compulsorily required

(c) **The concept of engineering governance**. When positions for engineering experts and scientific experts or expertise is needed to be part of the governance body of a government agency – the establishment of a technical control system could lead to a determination of this issue;

3.23. **Educated managers understand that technical control is not their role, and they appreciate the need to develop a structure for those who can exercise relevant technical control and to build working relationships with those same experts or technical specialists.**

3.24. While is it common for managers to set directions, goals, and plans, and to monitor and adjust implementation of those plans (exercising management prerogatives and discretion for the control of the organization), absolutes can exist that set boundaries to the exercise of that management discretion: that is, to that organisational control.

3.25. These absolutes often require expertise to define and interpret. Educated, competent managers will set organisational controls in order to ensure that technical controls are exercised by professionals with the appropriate expertise.

3.26. Examples of these absolutes for a variety of organisation types within the public sector other than engineering agencies may include:

1. The medical needs of patients – within hospitals. There is no discretion for the manager to disagree with the treatment set by the qualified doctor;
2. The environmental compliance of run-off from mining leases – within mining agencies. There is no discretion for the manager to change the test results completed by the qualified scientist, or to reset the environmental criteria; and
3. The compliance with the law – within all agencies. There is no discretion for the manager to ignore arbitrarily the requirements of a statute, regulation or legal precedent advised by the qualified lawyer,

providing, of course, that the particular technical control of medicine, science or law is properly stated and applied.

3.27. The conflict that can arise in these boundary issues has led organisations to establish separate technical control positions in order to ensure conflict of interest situations are minimized. The typical conflict of interest situation can occur, for example, where the manager is also a qualified doctor, scientist or lawyer.

3.28. The loss of this separation is termed the '*Shuttle Syndrome'*, in memory of the explosion of the space shuttle on take-off from Cape Canaveral almost three decades ago.

3.29. The *Shuttle Syndrome* embodies several of the important elements of the de-engineering phenomenon:

(a) The greatest technological project of all times had a peak decision-making group that did not include one engineer;

(b) A number of those at the table when the decision was made to launch, probably three of them, had received recommendations from engineering experts against launching or against launching when the temperatures were below a danger

level (the o-rings performance was greatly affected when the temperatures were low, it has been reported);

(c) The decision-makers did not understand the concept of technical control – their response to the recommendations from the engineering specialists was similar to one response where the subordinate engineer was asked to take off their engineering hat and put their management hat on and give the decision-makers a favourable recommendation; and

(d) Muddled logic and wishful thinking, namely that the performance of o-rings would be different if the engineering specialists took off their expertise hats and put on their management hats.

3.30. The separation of organisational control and technical control, as with the Space Program, can be lost where:

(a) The positions of technical control are not established, leaving persons exercising both organisational and technical controls in situations of competing or conflicting interests;

(b) The professionals exercising technical control are compromised by, say, threat or inducements, or by perceived threat of reprisal (or opportunity for advancement), if technical controls interfere with management directions, goals or plans; and

(c) The positions exercising technical control are filled by unqualified persons or qualified but non-specialised professionals.

3.31. The exercise of organisational controls without regard to boundaries set by relevant technical absolutes give rise to large numbers of observations of wrongdoing within public sector agencies. Surgery practices at Bundaberg Hospital, and legal opinion from Crown Law about destroying the '*Heiner Affair'* documents, appear to be examples where technical control may have been violated in other professions within the public service.

3.32. The surgeon at Bundaberg, now in prison for manslaughter, is a case of:

(a) a technical specialist operating in areas outside of his specialization;

(b) a general management regime which rewarded the surgeon for good post surgery bed occupancy rates (a management control) when the beds were being vacated by his dead and dying patients; and

(c) a technical control system reduced to medical staff hiding patients from the surgeon, and urging patients to go for treatment elsewhere.

3.33. My submission has incorporated examples from other technical disciplines in order to demonstrate that the *de-engineering* problem, in its nature not its name, **is a phenomenon experienced by other technical professions in their dealings with the general management regime of a politicized public service**.

Systemic Loss of Technical Control

3.34. I submit that one characteristic indicator of long-term politicization of a public service agency is the systemic loss of technical control.

3.35. Where the loss of technical control has become systemic within a public service agency, technical outcomes for the affected agency are likely to demonstrate:

- Presence of failures or deficiencies of a technical nature across a wide set of technical areas, rather than just one technical area;
- Lack of development of technical capabilities; and
- Loss of currency in technical expertise.

3.36. The **Floods Commission of Inquiry** into the January 2011 floods in Queensland has already reported a large number of insufficiencies with respect to the flood engineering infrastructure and operations of that infrastructure to mitigate flooding in the Brisbane River.

3.37. In this one area, the failures and deficiencies reported in the Interim Report of that Inquiry appear to be:

- The non-compliance with respect to use of the best rainfall forecast information which, it has been submitted, caused a doubling of the peak flow of releases from Wivenhoe Dam;
- Error also in the interpretation or the rules for Strategy W4 regarding the flexibility allowed in setting gate openings;
- The failure of Wivenhoe Dam to comply with ANCOLD guidelines, being unable to withstand a probable maximum flood;
- The lapse in the agreement between SEQWater and Sunwater for the provision of flood management services;
- During 2001 to 2010, failures to review the Manual and failures in the reviews of the Manual Operating Wivenhoe Dam;
- Failures to include practical ability of the flood engineers to do their duties in SEQWater's flood preparedness activities;
- Failure to establish a clear understanding of responsibilities amongst the water agencies, the apparent incapability of the agencies to agree their respective roles, and the failure of the Minister to resolve the confusion;
- Deficiencies in record keeping necessary for handovers during the flood event and for review of performance after the flood event; and
- The failure to conduct annual training and to conduct any training within Strategy W4 flood control regime.

3.38. I submit that lack of development in technical capabilities and lack of currency in expertise include:

- The absence of a hydrodynamic model for predicting flows and flood heights downstream of Wivenhoe Dam, reported in the Commission of Inquiry Interim Report;
- Shortages in coverage and integrity of rainfall monitoring and streamflow monitoring in the Wivenhoe catchments but also in the

Bremer and Lockyer catchments, reported in the Commission of Inquiry Interim Report; and

- Estimates provided by SEQWater that the January 2011 flood event had an annual exceedance probability as high as 1in1000 – the matter of flood probabilities is not canvassed in the Interim Report, but reports to the Commission have estimated the flood at about 1in100 AEP.

3.39. If, however, the proposition of an endemic or systemic loss of technical control is to gain full credibility, it would not affect just flood related matters. The effects should be visible in all technical functions within the responsibilities of water authorities. That is to say, the symptoms should also be visible in the water supply operations of Wivenhoe Dam and in the operation of any water distribution function contributed to by SEQWater.

3.40. The Commission, presumably, would not be seeking such information if it were not within its terms of reference. This is, however, the first inquiry that Queensland has had in modern times into any aspect of the water industry.

3.41. In submissions, I made disclosures about the loss of technical controls in water supply yields and economic benefit cost analysis decision-making.

3.42. In the course of the Floods Inquiry, from the documents that the Commission secured and from the witnesses that were interviewed, I understand that it has received disclosures from others about the mismanagement of dams including Wivenhoe Dam in the water supply operations as well as in flood control operations.

3.43. If these other disclosures are investigated and shown to be accurate, that would be information tending to show that the lack of effective technical controls, in proper balance with organisational controls, may not be issue-based but may be systemic.

3.44. It is submitted that a survey of other relevant Inquiries, such as others held in Queensland as well as others into natural disasters in other States, does give rise to disturbing patterns of conduct and similarities.

3.45. The Flood Inquiry, for instance, has already found little development, since the mid 1990s, in the flood forecasting software used in SEQWater's 'Real Time Flood Model'. Media reports describe a similar situation for Victorian bushfires. In that instance, the development of software for modeling the likely direction and speed of movement of bushfires was discontinued about the same time. The pattern concerning the loss of priority given to developmental work in natural disasters might cause, for example, interest in what development has occurred in the last 15 years with the Bureau of Meteorology's radar based rainfall prediction techniques, or with modeling for the timing and size prediction of storm surges.

3.46. The forces calling for this Senate Inquiry from engineers, scientists and other professional groups, all seeking to use their skills in the service of the public, are largely a conviction that **the general management regime within the public services within Australia have divested themselves of the technical controls that have served Australia more effectively when its public service experts could speak truth without fear to their agencies**.

4. DISCLOSURES IN THE PUBLIC INTEREST

4.1. The failure of general management regime to heed technical controls advised by experts and technical specialists has placed many engineers and scientists in a crisis of conscience as to what they should do. The decisions at issue were acting to harm the public and the communities which the engineers and scientists were motivated to serve, or to disadvantage them in other ways. This unacceptable state of things inexorably leads to the potentiality of resorting to whistleblowing.

4.2. A spate of disclosures was made during the 1990s. A Senate Select Committee into whistleblowing was held in 1994, and the Senate revisited six cases from Queensland in 1995. Fewer public servants have made disclosures in the 2000s even though the instances of maladministration of technical and administrative matters has greatly increased. This has been a reaction to the terminations and other alleged reprisals against the public servants who made disclosures in the 1990s and since.

4.3. **By 2012**, however, the long term deleterious impacts of matters disclosed by engineers and scientists have come to notice and, in important cases, have been quantified:

(a) The cost to the public purse of rehabilitating abandoned mines and mining operations so as to control the increasing volumes of acid sulphates into Queensland's coastal rivers and into the Great Barrier Reef is estimated at $3 billion. The disclosures of this contamination and of the refusal by the agency to enforce conditions of leases that would address this contamination were made by a mining inspector in the early 1990s;

(b) The amount of $100 million has been put aside to buy back water allocations made in the Queensland region of the Murray Darling system. The disclosures of inappropriate unsustainable allocations of water in this region were made in the mid 1990s by a water engineering manager; and

(c) A sum of $250 million has been earmarked to address the wide spread of fire ants in SE Queensland. Disclosures that the responsible agency was reporting success in the eradication program when the fire ants were in fact spreading uncontrollably were made by a scientist in that agency in the early to mid 2000s

4.4. **Significantly, all three professionals, trying to alert authorities to relevant technical controls that were being ignored to the detriment of the communities and the public, were moved to lower level positions with less or little to do, allegedly forcing their resignation**. This process was completed with the knowledge of the Ombudsman's Office ["**OmbO**"] and/or the Crime & Misconduct Commission ["**CMC**"] who did little to prevent the alleged reprisals. A $3.35 billion

acknowledgement that these three professionals were justified in their efforts to serve the public interests with their disclosures has not led to any effort to reimbursed them for their losses nor to reassure the public by their reinstatement.

4.5. These cases have been given strong national coverage in the media, two of them featuring in national television public affairs programs. The profession at large knows the service that these and other engineers and scientists provided, but they also know their ultimate fate. Professionals in their former agencies also know of the standing that they had as eminent in their particular fields. Their stories are retold in their former organizations because the technical issues and the harm to the public continue; for example, the claims that the sores and illnesses on fish in Gladstone Harbour are related to pollutants from mining operations leads to the memory of and story telling about that (earlier-referred-to) mining inspector.

4.6. The strongest warnings have been given by the CMC and the OmbO to engineers and scientists **not to disclose** to the public any breaches of proper technical controls by the general management regime of a politicized public service. The warnings have taken two forms:

(a) Failures to act to protect these professionals from alleged reprisals; and

(b) Actions to refer their claims of reprisals back to the agencies against whom the allegations of reprisal were made in the first place.

4.7. The CMC and the OmbO have a reputation founded on their failures to act upon the destruction of the Heiner Inquiry documents. This destruction was ordered by the Queensland Cabinet on 5 March 1990 to prevent their known use as evidence in foreshadowed judicial proceedings.

4.8. The CMC and the OmbO have a reputation founded on their failures to act upon the forced termination of Inspector Colin Dillon, the policeman whose disclosures and encouragements to other honest police to come forward delivered success to the 1987/89 Fitzgerald Inquiry. The alleged current treatment of Toni Hoffman, the

nursing manager who exposed the acts of manslaughter by Dr Jayant Patel, continue the pattern of alleged corruption in place with respect to the Heiner documents shredding and the treatment of Inspector Dillon. The three cases from the stories of engineers and scientists previously described have served the outcome of convincing these professions that the failures and alleged corruptions within the operations of these watchdog authorities also may occur to them if they make disclosures in the public interest.

4.9. **Case Study I: the Distortion of Science**. The CMC and the OmbO have tried to regain some credibility, by commissioning (with the Commonwealth OmbO) research into whistleblowing. The research is more like propaganda in important aspects, and was of little use as a study of whistleblowing. This is because the performances of the CMC and the two OmbOs in the treatment of public interest disclosures, and in the treatment of whistleblowers such as Lindeberg, Dillon and our three engineering/scientific professionals, **were not allowed** to be included in the research that they commissioned.

4.10. The assertion that the CMC and the OmbOs were performing their task well was a given to be adopted by the university researchers. The universities involved appear to have accepted this contention, as no survey results from the research refer to the rating by those surveyed of the performance and methods of these watchdog authorities.

4.11. The inaction and questionable conduct of these watchdog bodies is a principal cause of the enduring systemic corruption. If they were functioning as the Parliament and the electorate hoped for, systemic corruption could not exist. Interestingly, the CMC/OmbO/University study did, however, produce some telling statistics about the levels of corruption in the agencies whose actions have been left uninterrupted by the CMC and the OmbOs.

4.12. These figures describe the environment in which engineers and scientists need to work within the public sector within Australia

4.13. For instance, the surveys of agencies showed that:

A. 71% of respondents have witnessed or have direct evidence of wrongdoing in the last 2 years;

B. 61 % of public servants who observed wrongdoing did not report the wrongdoing. This is the *Whistleblower Silence Situation*;

C. 80% of public servants who did not report wrongdoing that they saw decided to remain silent because they expected that nothing would be done about the disclosure or about protecting them from reprisals; and

D. 91% of public servants, who gave fear of reprisal as their reason for not reporting, were referring to a fear of reprisals from senior managers.

4.14. These are only average results for the agencies surveyed. Many other statistics given in the case study at the end of this submission reinforce the predicament faced by engineers and scientists and others in today's public sector workplace. The worst agencies have figures above these average figures – the worst must be well above these average figures if we judge that some agencies are well run and would have significantly better results than these average results.

4.15. The ability of the CMC and OmbOs to involve universities in bringing credit to this largely pre-determined research about the performances of the CMC and the two OmbOs is a strong example, I submit, as to the reach of the *general manager regime* of a politicized public service in distorting science towards its own ends.

4.16. The scientific method has suffered significant breaches in this research.

4.17. A principal example is that the research survey was not extended to survey members of agencies who had been terminated or transferred out of the agency. That is, it **did not include,** in the survey, whistleblowers who had suffered termination or transfers as a reprisal for making their disclosures. The university researchers, steered

by a committee chaired by the CMC, then concluded from the results that ***sackings were unlikely to occur***. A case study on this scientific research is provided at the end of this submission, to demonstrate how the public sector in Queensland, including a university, may have distorted scientific research to achieve an aim of a politicised general management regime that the technical controls of the scientific method would never permit.

4.18. **Case Study II: The Suppression of Engineering Expertise**. The equivalent case study for engineering is the current Queensland Floods Inquiry. At the time of writing, this Inquiry is beginning a resumption of hearings because of allegations made in ***The Australian*** newspaper that the water agency has misled the Commission about its operation of Wivenhoe Dam during the flood, and that the Commission has been ignoring documents that show this. **If this is the case, then the flood engineers in that water agency have become a part of the system that is acting without technical control.** Any alleged lack of competence shown during those flood control operations or in the reporting of the conduct of those flood control operations may have been a deliberate lack of competence, used to serve another purpose such as confusing the Inquiry about what happened - as appears to have been suggested in the media.

4.19. What **has not been reported** are the actions of the Commission of Inquiry itself, and the CMC, in responding to a submission from a flood engineering specialist and former Chief Engineer in that role. This person had tried to warn the Commission at its beginning of the possibility that such actions by the water agency may occur, by reciting past and current actions by the ancestor organisations of the current water agencies. The submitter also tried to warn the Commission that the advice that it was receiving from the engineers in the water agencies was confusing the Inquiry on technical issues.

4.20. The Commission published these submissions on its website for several months, but then redacted whole sections from those submissions, claiming that the warnings

were irrelevant and that (unspecified) parts were allegedly defamatory. The Commission also stated that the previously published parts, (by its own decision) now redacted, had no protection or privilege.

4.21. The Commission further warned the submitter that a heading in the submission, 'Perception of Bias', constituted an insult to the Commission, and that insulting the Commission was a breach of the *Commission of Inquiry Act 1950*. The letter stated that no action would be taken.

4.22. Journalist Hedley Thomas from ***The Australian*** had referred to the Commission's "…***timid no-blame approach***." Journalist Des Houghton from ***The Courier Mail*** referred to the "…***ineptitude"*** of the Commissioners. I am assuming that these media representatives did not get a letter alleging insult to the Commission or defamation, otherwise it would have been repeated in the media. I am assured that Hedley Thomas did not get such a letter despite his negative imputations.

4.23. One of the technical experts from outside of the water agency, an engineer serving on the Floods Commission's panel of experts, had knowledge of the credentials of the submitter. This expert requested a copy of a further submission to the Commission made by the flood engineering specialist, a submission that was not placed upon the Commission's website. **The Commission refused to send a copy of this submission to its own expert**.

4.24. While the Commission is engaged in hearings about allegations that engineers may have covered up certain failures in controlling the floods in compliance with the Manual, and may have fabricated information, the Commission itself is not allowing the public and other witnesses knowledge:

- that the Commission received warnings and disclosures that this had happened in the past and that it may happen in this Inquiry;
- that the Commission has redacted these warnings (arguably in its own cause);
- that it has denied protections to the submitter for the time that these warnings and disclosures were unredacted and available to the general public; and

- that it has accused the submitter of a breach of the Commissions of Inquiry Act whose prime purpose is to permit "unfettered" truth-seeking, the very matter to which the specialist submitter was trying to contribute.

4.25. Further, the Floods Inquiry is not informing the public that it referred these warnings and disclosures of past and current cover-up and fabrication of information to the CMC (presumably because at law they gave rise to a "*suspicion of official misconduct*" which meant they had to be referred). The Floods Inquiry did this without telling the submitter that they had done so. Further, the Floods Inquiry is not informing the public that the CMC had dismissed the warnings and disclosures without contacting the submitter to obtain further and better particulars.

4.26. It appears to have been only the amateur hydrologist, journalist Thomas, who has caused the Inquiry to look again at some technical and operational issues. The Inquiry may be covering-up that it and the CMC were given warnings and examples and current instances from an engineering specialist, and these bodies had previously ignored these warnings and disclosures.

4.27. This all returns to the essential impediment, namely, the systemic nature of the organizational controls within the public sector tending to suppress the exercise of engineering and scientific expertise towards the benefit of the public. This time it may be happening within an Inquiry

4.28. This tendency can appear to develop, whether as part of the initial undertaking or by providing fearless advice, wherever technical controls need to be presented to undertakings that are set on ignoring or avoiding and then covering up these breaches of responsible technical constraints.

4.29. Engineering infrastructure attracts very large contracts, a very positive voter response, and can pose significant environmental harm and social displacement. Observing improper transactions and maladministration is a real risk for engineers,

which risk can eventuate when they report these observations to appropriate authorities

4.30. Engineers and scientists, and engineering and science, in the public sector, would be greatly facilitated towards greater achievement if they were supported by watchdog authorities whom they could trust to act effectively when technical controls are being breached and covered up by their politicized agencies