LEGISLATIVE COUNCIL SELECT COMMITTEE

ON THE KOORAGANG ISLAND ORICA CHEMICAL LEAK RESPONSES TO

QUESTIONS ON NOTICE ON THURSDAY, 17 NOVEMBER 2011

sponses to questions on notice below reflect Orica's understanding of the question it has , asked to address on notice. The reference following the question is to the relevant page of uncorrected transcript (T[page]).

1. **What is the status of Orica's consultations with stakeholders regarding the installation of additional air monitoring (particulates and nitrogen oxides) equipment at Stockton? (T4)**

   Orica has indicated to the Kooragang Island Community Reference Group and the Stockton Community Action Group that it wishes to work with the community to develop additional air monitoring in Stockton. Orica received a proposal for air monitoring in Stockton from the Stockton Community Action Group on 2 December 2011. Orica has agreed to consider funding additional air monitoring in Stockton provided it is scientifically valid and useful in monitoring the possible emissions from the Kooragang Island plant.

   More recently, the NSW government has announced its intention to develop an industry-funded air quality monitoring network in the Lower Hunter. Orica understands the Newcastle Consultative Committee on the Environment to be working with the Environment Protection Authority and an expert from the University of Newcastle on what air monitoring equipment should be installed and where. The extent of this network will also be a factor in Orica's decision on what additional air monitoring should be installed in Stockton.

   Orica has undertaken continuous nitrogen oxide monitoring in Roxburgh Street, Stockton and total suspended particulates and particulate matter less than 10um in diameter at a substation at Fullerton Street, Stockton for many years.

2. **In the JMC report it says that the de-aerated temperature was much lower than it had been on previous start ups and that contributed to the increase in condensate. It is not described, as I read it, as a design error, it just says it was operated at a lower temperature; the implication being, as I read it, that that was done manually in terms of the operations not from a design error. Is Orica able to explain whether the incident was caused by a design error or a manual error? (T5)**

   Orica supports the findings of the Johnson Matthey Catalyst report which states that the immediate cause was a design error in the ammonia plant. Orica notes that the Johnson Matthey Catalyst report also states that this was exacerbated by operation at low temperature. Therefore, both factors contributed to the incident.

3. **In relation to the start-up procedure, can you tell us what the appropriate timing should have been for the start-up operations, why they were deviated from, if they were, and why those decisions were made and who made them? (T5)**

   The following table extracts sections 2.23 and 2.24 of the KIW Ammonia Plant Procedure: Ammonia Plant start-up critical path, indicates whether the step was taken by Orica personnel and, if known, states the date and/or time at which the step occurred:

Step in Ammonia Plant start-up critical path	Step taken	Date/Time
Note: - 101B is pre-warmed with burners firing at low pressure and using the 'tunnels' as the 'box' temperature guide. 115J will be circulating N2 during this period, which will carry forward some heat into 103D and the HT Shift. If 103D / HTS bed temperatures are < 100C, a HTS 'back-warm' will be required. The HT shift catalyst is 'back-warmed' with MS steam injection into the main outlet pipe, eventually venting via the HTS inlet vent (MOV24). The idea is to heat the HTS catalyst to > 100C while MOV24 is wide open. Though superheat temps are desired, the amount of condensate being generated in the bed makes it unlikely superheated conditions can be achieved even at near atmospheric pressure. When the top of the HT Shift is approaching 100C, steam will be then put through 101B, from FIC4, again venting from MOV24. The 2 streams of steam should continue, both venting at MOV24, until TI25-62 and the HTS bed temps indicate superheated conditions are reached or, if it is not possible to achieve superheated conditions then, at least, TI25-62 should be > 100C (as well as the HTS bed) before venting is transferred to PIC8 from MOV24.	This is a note providing an overview of the procedure, not a step in the procedure. The procedure presents two options – the second option was followed – to input steam when the HT Shift was greater than 100C, but prior to achieving superheat conditions (see JMC report, page 17).	
NOTE:- Some Hexavalent chrome effluent will be vented during reduction stage through SP8 Connect SP8 drain with a hose to pump the effluent in to the new pipe line downstream of LV24 . A new nozzle has been installed near DPIC82 (1" kamlock). This way all the chromate effluent will be transformed to the old clarifier.	✓	7/8 night shift
<u>Plant status</u>: • Front end N2 purged and either circulating N2 with 115J or small N2 flow into downstream of 101D (from 115J discharge). • 101B burners alight at low fuel pressure to maintain the tunnels at approx 350 - 400C. • MS main >3500 kpa and superheated.	✓ ✓ ✓	7/8 night shift
Preparation: • Drain / warm up the MS pipe work:	✓	7/8 night shift

Step in Ammonia Plant start-up critical path	Step taken	Date/Time
• HTS back-warm supply	✓	
• FV4	✓	
• V12	✓	
• Set up DCS monitoring:		
• All temperature points around system: - 103D bed, risers, HTS bed, DP's 56, 53 & 64 (DPI64 set on HTS only)	✓	
• Check drains clear at:	✓	7/8 night shift
• 101B bottom headers		
• 101B main top inlet header (valves located at peephole level of reformer)	✓	
• 101B individual row inlet headers (valves located at peephole level of reformer)	✓	
• 101C (report if water is found)	✓ no water found	
• 102C (" " " " ")	✓ no water found	
• TV3 (see note below)	✓	
• Check the stack system is drained with the trap system commissioned	✓	
Check MOV24 block valve is open. **Note**: - the HT Shift catalyst is still in the pyrophoric state. Beware of allowing air to pass through the bed, eg, having TV3 drain open at the same time as having MOV24 open before steam back warming commences.	✓	7/8 night shift
Shutdown 115J (and shut suction valves at 102F and at 172C)	✓	7/8 night shift
Shut:		
• MOV2 (MOV1 & 7 already shut)	✓	7/8 night shift
• TV3	✓	
Depressure 101B / 103D / HTS via PIC8	✓	7/8 night shift
When de-pressured open MOV24 fully and reclose PIC8	✓	7/8 night shift - 3:31am

Step in Ammonia Plant start-up critical path	Step taken	Date/Time
Stop N2 injection from 115J discharge local injection point.	✓	7/8 night shift
Start steam injection into the HTS outlet pipe	✓	7/8 night shift – 4:24am
Periodically drain out condensate from TV3 drain and drains around 103C / 104C / TV3. Do not allow a level of condensate to build up.	✓	7/8 night shift
Observe the temperature profile moving up the HTS catalyst bed	✓	7/8 night shift Temperature profile moved through HTS catalyst bed as expected.
When the top of the bed is approaching 100C, prepare to inject steam into 101B via FIC4	Please see Part 2.24 for a breakdown of this step.	7/8 night shift
2.24 Steam into 101B/103D from FIC4 & V12 Warm up steam mains around FV4 and V12. (Start well before due to put steam in). Drain the pipe work downstream of FV4 at the local drain point.	✓	7/8 night shift
Check: - • 101B tunnel temps approx 400C • Top of HTS bed temperature approaching 100C (and back-warm still on) • Drains clear at 101B bottom headers • 101C bottom drain clear • 102C bottom drain clear • HTS inlet vent, MOV24, full open and front-end pressure almost zero • Front stack system drained • Drains around 104C / 103C tube sides clear of condensate build-up	✓ ✓ ✓ ✓ drain clear ✓ drain clear ✓ ✓ ✓	8/8 day shift
Open HV11373 (101D bypass) ensure condensate is drained from local drain point before opening bypass valve	✓	7/8 night shift
Open 101C and 102C bottom drains. (Leave open until steam flows established).	✗	It is not clear whether these drains were open based on

Step in Ammonia Plant start-up critical path	Step taken	Date/Time
		checks during the 8/8 night shift.
Open 101B inlet header drain (Leave open until steam flow established).	✓	
Open 101B individual row inlet drain (leave open until steam flow established)	✓	
Ensure N2 shut off into 101B mixed feed coil (and shut 115J discharge valves to the Reformer)	✓	
Unblock FV4 and PIC8 (both in manual and shut)	✓	
Crack open FIC 4 and observe small steam flow.	✗	FIC4 was fully opened not cracked on 8/8 day shift – 5:23pm.
Work the steam flow up to 15 t/hr while observing 103D (and the rest of the front end) temperatures profile. Gag back 101C / 102C drains when steam starts to replace condensate.	✗	The steam flow was input at 30 tonne/hour, not 15 tonne/hour.
Observe TIC2, TI-25-62 and HT shift temperatures rising to > 100C with steam issuing from the front stack.	✓	8/8 day shift The HT shift temperature was above 100C and steam was coming from the front stack.
Continue steam injection from both ways until superheated conditions are reached on the above temperatures (or continue both ways steam flow until temperatures stabilise at whatever can be achieved).	✓ See JMC report, pages 17-20 in relation to why superheated conditions were not achievable due to modifications in the plant.	8/8 day shift As outlined above, there were alternative options at this point of the procedure. The option of proceeding when temperatures had stabilised at greater than 100C was followed.
Shut off the HTS back-warm steam. Double block.	✓	8/8 day shift
Open PIC8 fully	✓	8/8 day shift – 5:23pm

Step in Ammonia Plant start-up critical path	Step taken	Date/Time
	See JMC report, pages 18-19 in relation to the implications of opening PIC8 in non-superheated conditions.	
Shut MOV24. Observe a heat front passes through the HTS and the temps stabilise.	✘	The incident occurred prior to this step occurring. No more steps were taken in the procedure – all focus was then on dealing with the chromium contaminated condensate to prevent an effluent licence breach. This valve was shut at 6:36pm on 8/8 as part of the shut down of the NH3 plant.
Shut 101C / 102C drains	✘	It is not clear whether these drains were open based on checks during the 8/8 night shift.
Raise FIC4 steam flow to 30 t/hr	✓ See JMC report, page 19 in relation to the implications of opening FIC4.	8/8 day shift – 5:23pm

Orica notes that the Ammonia Plant start-up critical path does not prescribe the time at which each step must occur.

The Orica personnel who issued instructions in relation to the start-up procedure on the:

(a) night shift on 7 August (from 6pm on 7 August to 6 am on 8 August) were Daniel Allen, Commissioning Engineer, Warren Ashbourne, Night Shift Supervisor and Greg Cross, Night Shift Supervisor.

(b) day shift on 8 August (from 6 am on 8 August to 6pm on 8 August) were Peter McGrath, Ammonia Plant Manager, Ajay Joshi, Commissioning Manager, David Williams, Day Shift Supervisor and David Fulmer, Day Shift Supervisor.

(c) night shift of 8 August (from 6pm on 8 August to 6am on 9 August) were Ajay Joshi, Commissioning Manager, Daniel Allen, Commissioning Engineer, and Warren Ashbourne, Night Shift Supervisor.

It is not clear why PIC8 and FIC4 were opened at the same time. The new start-up procedure for the ammonia plant is clearer as to the timings for opening these valves.

It is not clear why steam was input at 30 tonne/hour instead of 15 tonne/hour, however steam input at a lower flow (of 15 tonne/hour) has potential to cause heat exchanger problems elsewhere in the ammonia plant. The new procedure for the ammonia plant start-up provides for steam to be input at 30 tonne/hour.

4. **Who are the members of the crisis management team (CMT) and who appointed these members? (T6)**

Please see the response to question 6 of the 15 November 2011 questions on notice.

5. **Who had operational control of the CMT? (T6)**

Please see the response to question 6 of the 15 November 2011 questions on notice.

6. **What criteria did the CMT use to select houses to door knock in Stockton? (T6)**

There were three criteria used by the CMT to select houses to door knock in Stockton.

First, the Orica personnel who visited Stockton on Tuesday, 9 August reported on the observations they made during this visit at a meeting of the crisis management team at 2pm on Tuesday, 9 August. It was reported that potential chromium fallout had been identified at Fullerton Street, Flint Street and Dunbar Street in Stockton.

Secondly, on the afternoon of Tuesday, 9 August, Orica collected data from its on-site weather station in order to determine the wind direction at the time of the incident.

Thirdly, also that afternoon, the KI Sustainability Manager received a call from the OEH confirming that swabs taken in Fullerton Street, Stone Street and Ballast Park in Stockton had tested positive for chromium VI.

Based on observations made by Orica personnel of signs of residue in Stockton, the wind direction on the night of the incident, and the results of the OEH swab tests in Stockton, the streets selected in Stockton for door knocking were Fullerton Street, Stone Street, Flint Street, Dunbar Street, Booth Street and Griffith Avenue. The door knocking team on Wednesday, 10 August identified nine additional locations of potential chromium residue for further testing. This caused the crisis management team to broaden the door knocking area by one further block south and one further block east.

7. **Which employees of Orica did the door knocking on 10 August 2011? How were they selected? (T6)**

The Orica employees who did door knocking on Wednesday 10 August 2011 and 11 August 2011 were Sean Winstone, Sustainability Manager, Australia/Asia and his Safety, Health and Environment (**SH&E**) team based at Kurri Kurri consisting of:

Senior Sustainability Manager, Australia Pacific
Senior Sustainability Advisor, Supply Chain and Security
Sustainability Advisor, South East Region
Process Risk Advisor
SH&E Training Advisor

Sean Winstone was selected to lead the door knocking team because he is the most senior SH&E manager in Australia. This team of people were selected as they could work closely together as a team and could appreciate the significance of the situation from a safety, health and environment perspective.

8. **What are the qualifications of these employees? What particular training, if any, did these people have in dealing with people in the community about a potential toxic exposure? (T7)**

The personnel referred to in question 7 above are employed by Orica in the safety, health and environment field and have a range of qualifications, experience and training appropriate to their position. The team attended a briefing and training session at the KI site on the morning of Wednesday, 10 August 2011 about communicating with the community in relation the incident and the information in the script and Q&A document. The team was instructed that any questions they were unable to answer should be directed to the KI site hotline which was manned with technical, toxicology and medical professionals able to provide advice on specific queries or health concerns.

9. **Why does the script for employees (for door knock) refer to sodium chromate rather than chromium VI? (T7)**

The script for the door knock should be read in conjunction with the accompanying Q&A document. The script refers to sodium chromate because this was the actual chemical compound identified by Orica as having been emitted from the SP8 vent stack in the Ammonia Plant. Chromium VI does not exist by itself, it can only exist as part of a compound with another chemical. The toxicology of chromium depends on the compound it forms. Orica determined using spectrometry testing on Tuesday, 9 August that the compound in which chromium VI was present on-site was sodium chromate. The accompanying Q&A document prepared by Orica explains how chromium VI is related to sodium chromate in the following terms: "Chromium VI is one of the forms of the element that makes up sodium chromate. It is a known carcinogen in humans when exposed over repeated and prolonged periods of time. This incident was neither repeated nor prolonged exposure....".

10. **The door knocking script states: "We have consulted with our internal medical and occupational hygiene professionals and they have advised there is little to no risk from this substance." Are you able to say on what basis that assertion was being made? (T7)**

In relation to this advice, at the point in time when the door knocking was done (afternoon of 10 August), was there an occupational hygiene professional on site who had firsthand knowledge of what had happened or was it merely someone in Sydney or Melbourne getting a verbal report over the phone and getting advice on that basis? (T7)

Orica first consulted with its internal occupational hygienist, Garry Gately, at 9.00am on Tuesday, 9 August.

Mr Gately made initial contact with Dr Bruce Niven, an external consultant occupational physician at around the middle of the day on Tuesday, 9 August. At 6:45am on Wednesday, 10 August, Orica formally engaged Dr Bruce Niven to provide medical advice in relation to any potential health effects arising from exposure to chromium VI on-site and off-site. At about midday on Wednesday, 10 August, Mr Gately and Dr Niven provided input and advice by telephone to members of the crisis management team on the draft script and question and answer document to be used by the Orica personnel being deployed to door knock in Stockton. In relation to the health impact statement in the script and Q&A document, Dr Niven advised it was accurate to refer to any potential health risk for residents of Stockton as being low based on the following:

(a) that Orica personnel who had direct contact with the chromium VI emission on the night of the incident had not reported any adverse skin, respiratory or intestinal reactions;

(b) that the information published in relation to workplace safety indicated that the health risk associated with chromium VI is connected with long term exposure;

(c) that the maximum period of exposure to the chromium VI emission was between 20 and 30 minutes; and

(d) that the observations made at Stockton of visual evidence of the chromium emission was that it was scattered and light (mist like very small drops as compared to the wider spread exposure on site).

At about midday on 10 August, the occupational hygienist and consultant occupational physician, who were very familiar with the KI site and had been briefed on the details of the incident that occurred on 8 August, provided advice to the crisis management team on the accuracy of the toxicology and health information in the Q&A document. In the interests of time, the occupational hygienist and occupational physician provided this advice by telephone from Sydney.

During the afternoon of Wednesday, 10 August, Orica management spoke to officers of NSW Health about the incident and in relation to the question and answer document being prepared for the door knock. The NSW Health officers did not propose any changes to the question and answer document.

The door knocking commenced in Stockton at 2.30pm on Wednesday, 10 August.

An independent expert toxicologist, John Frangos of Toxikos, was engaged by Orica at about 5pm on Wednesday, 10 August.

At 5:08pm on Wednesday, 10 August, Orica sent a copy of the door knocking script to the OEH.

On the morning of Thursday, 11 August, Mr Gately, Dr Niven and Mr Frangos arrived on-site at KI. Mr Gately's role during the site visit was to assist with preparing the job safety environment and risk analysis for re-entering the ammonia plant and assisting Hazmat Services Pty Ltd with their methodology for site clean-up. Dr Niven's and Mr Frangos' role during the site visit included assisting with the preparation of a report requested by the NSW Ministry of Health which included information about potential health impacts. During the afternoon and evening of 11 August, Dr Niven was available to take any calls from residents of Stockton to the KI hotline with inquiries about health related matters.

A copy of the report Orica provided to NSW Health at 2:58pm on Thursday, 11 August has been provided to the Select Committee. This report encapsulated the advice provided to Orica up to that date/time. The advice in this report has proved to be accurate.

On the evening of Thursday, 11 August, NSW Health distributed a flyer to the residents of Stockton. From this point in time, Orica considered it appropriate for on-going communication with residents about public health matters to be dealt with by NSW Health.

11. What toxicological advice was available to the CMT at the time it prepared the script and the Q&A document? When was the advice provided to Orica? What was the advice? If the advice was in documentary form, please provide a copy. (T7)

Please see the response to question 10 above.

12. Was the turnaround and uprate projects dealt with as a single project, albeit one in stages? (T8)

The uprate project was initiated in 2006 as a project to expand the capacity and improve the design of the Ammonia Plant. The turnaround project was initiated in 2009 as a project to carry out maintenance of the Ammonia Plant whilst it was offline in 2011. Each project had separate teams which varied in numbers depending on the stage in the project. Between 80% and 90% of the uprate project was completed prior to the Ammonia Plant going offline on 18 June 2011 and before the start of the Ammonia Plant turnaround. There were some aspects of the uprate project that could only be completed when the Ammonia Plant was offline.

In order to complete the remaining 10% to 20% of the uprate project during the turnaround, members of the uprate project team joined the turnaround project team and the turnaround and uprate projects were dealt with as a single project. The turnaround Project Leader had overall responsibility for carrying out the remaining uprate work and the uprate Project Leader reported to the turnaround Project Leader.

13. **Please provide a copy of the Hazard Study carried out by Orica in relation to the start-up of the ammonia plant. (T8)**

Please see the response to question 3 of the questions on notice on 15 November 2011 (see CD1: Hazard Studies (pre-incident)).

14. **OEH advised Orica to contact NSW Health at 12:30pm on Tuesday, 9 August. Orica contacted NSW Health at 11:15am on Wednesday, 10 August. What was the reason for the 22 hour delay by Orica in notifying the Ministry of Health? (T12)**

Orica did not delay in acting on any OEH advice or direction for 22 hours or at all to contact Health.

Orica did contact Health at approximately 11:15am on 10 August, but the premise on which the question is framed – namely, that Orica received advice or a direction from OEH given at 12:30pm on 9 August to contact Health – is incorrect. Orica's further investigations, since the question was taken on notice reveal that no advice or direction was given by OEH on 9 August to Orica.

Specifically, as Mr Bonnor testified:

(a) Orica is not aware of any written direction by email or otherwise from OEH on 9 August to contact Health.

(b) Insofar as oral communications are concerned, Orica has checked with its staff who were engaging with OEH that day. The closest it has been able to find is a conversation that took place between two OEH officers and two Orica staff members in the reception of the administration building at the KI site at about 12:30pm. During this conversation, one of the OEH officers asked whether Orica had contacted Health. One of the Orica staff members replied "I don't know". The question was not understood by the Orica staff member to be a direction to the company to contact Health and there was no follow-up or subsequent communication on 9 August by OEH to Orica on this issue.

(c) A Crisis Management Team was established by Orica to respond to the incident. Mr Bonnor headed that Team until 12 August. The conversation just described was not reported to the Crisis Management Team;

(d) If Orica had been directed by OEH to contact Health – whether OEH had power to do so or not – Mr Bonnor would have ensured without hesitation that this happened promptly. Orica was at all times seeking to co-operate with regulators;

The circumstances in which Health came to be notified on Wednesday, 10 August, are as follows:

(a) On the evening of 9 August, after having gathered preliminary information about toxicological and potential health impacts during the day, Orica's Crisis Management Team determined that the most effective form of communication for those who might be affected by the incident in Stockton was likely to be via a door knocking campaign (which would be conducted by Orica's Safety, Health and Environment Team the next day). A related decision, also taken that evening, was that Orica should pro-actively contact Health to inform them of Orica's intended communication strategy about the incident and potential health impacts. This action was assigned to the Sustainability Manager, Australia/Asia, to carry out prior to the commencement of the door knocking.

(e) Before he made contact with Health on Wednesday morning, the Sustainability Manager participated in a meeting with an officer of the OEH who, during that meeting, asked whether Orica had contacted Health. The Sustainability Manager, responded that this had not yet occurred. He asked the OEH office for the name of a relevant contact to call at Health. The OEH officer was unable to immediately provide this information but said he would look into the matter and get back to Orica with the details. To move things forward more rapidly, at the conclusion of the meeting, the Sustainability Manager obtained the Health telephone details for its Sydney office from the telephone book. He called the Sydney office who recommended he contact the Newcastle offices of Health (which he did).

Orica understands it is common ground that Orica was not under a legal obligation to notify Health of the incident and that the OEH does not have legislative power to issue such a direction (see Transcript of evidence given on 21 November 2011, pg 71-72 per Greg Sullivan).

15. Why did Orica select the 35 houses it did to door knock on 10 August? (T15)

Please see the response to question 6 above.

16. Please provide a copy of the Hazard Study being undertaken as part of the work to re-start the ammonia plant (due to be completed mid November 2011). (T15)

Orica's Hazard Studies undertaken post-incident as part of the work to re-start the Ammonia Plant are provided on **CD2**.

17. When did Orica receive legal advice in relation to Clause 344 of OH&S Regulations? (T16)

The circumstances and content of legal advice received by Orica in relation to Clause 344 of the OH&S Regulations is the subject of legal professional privilege.

18. What is the job title of the person to whom the Site Manager reports? (T18)

The Site Manager reports to Carol Triebel, Global Nitrates Operation and Sustainability Manager, Australia/Asia.

19. Please provide a copy of the Site Procedure for notification of authorities. Does Orica have a documented process as to which officer notifies which government department? If it does, please provide a copy of the procedure. (T20)

A copy of the procedure in relation to notification of the OEH titled "Environmental Incident Management" is **Annexure A**. This procedure nominates the "Department Manager" as being responsible for notifying OEH as soon as practicable. The Department Manager is the manager of the plant relevant to the incident. The practice at the KI site since 2004 has been for the KI Sustainability Manager, Sherree Woodroffe or an Environmental Advisor to notify the OEH.

A copy of the procedure in relation to notification of WorkCover titled "Injury Management" is **Annexure B**. The procedure nominates the "Department Manager" as being responsible for notifying WorkCover. In this case, notification of the incident to WorkCover was delegated by the Site Manager, Stuart Newman to the KI Compliance Manager, Peter Smith.

Prior to the incident, it was recognised that the notification procedures for KI were in need of updating and this process was underway. As mentioned in Orica's submission dated 4 November 2011, this process has been completed and Orica has prepared a new notification procedure. The new procedure requires notification of authorities including the OEH, NSW Ministry for Health and WorkCover. The new procedure identifies the Orica personnel responsible for notifying the authorities (depending on who is first available), in the order KI Sustainability Manager, Environmental Advisor, Compliance Manager, Plant

Manager, or Site Manager. Further changes to Orica's notification procedures will be made to incorporate upcoming changes to notification requirements under environment and OH&S legislation (including when changes prescribed by the *Protection of the Environment Legislation Amendment Act 2011* (NSW) are proclaimed).

20. Are Orica employees provided with training about how to detect whether there has been any off-site impact? (T21)

The Kooragang Island Emergency Response Plan includes a process called SIZEUP for the evaluation of an event. Orica personnel are trained in this process. The SIZEUP process includes a step involving ascertaining the probabilities, including as to the probability of anyone onsite or offsite potentially being impacted by the incident. During the evening of 8 August 2011, the Plant Manager and Sustainability Manager made inquiries with operators as to their observations of the extent of the chromium emission (for instance, whether it had reached the car park) and walked around the Ammonia Plant to assess the extent themselves. They observed that there were no signs of chromium emission having reached the perimeter of the KI site. Extensive work was also carried out throughout the evening and early hours of 8 August to ensure that solution containing chromium did not enter the KI effluent system and go offsite into the Hunter River. On these bases, it was concluded that it was improbable that the chromium emission had left the site.

21. What is the expertise of the employee, who Orica requested to respond to the resident complaint about spots on her car, in detecting Chromium VI? (T22)

Two Orica personnel responded to the resident complaint made at approximately 9.50am on 9 August in relation to spots on her car. The personnel were Peter Smith, KI Compliance Manager and Richard Sheehan, KI Environmental Advisor. Mr Smith holds a Chemistry Certificate, a Degree in Environmental Assessment and Management and an Advanced Certificate in Occupational Health & Safety Management. Mr Smith has 38 years of experience in the chemical industry and has been deployed to inspect and assess fallout during the course of his employment at a previous employer. Mr Sheehan holds a Bachelor of Environmental Science and has eight years industry experience in environmental management and monitoring.

Mr Sheehan and another KI Environmental Advisor report to the KI Sustainability Manager, Sherree Woodroffe. Mr Sheehan was onsite at KI at the time he received a call from Ms Woodroffe at about 10.00am asking him to respond to the Stockton resident's call. At the time of the call, Mr Sheehan was on his way to attend a site meeting about the incident. As the KI Sustainability Manager was not onsite at the time and the other Environmental Advisor was attending an audit offsite in North Queensland, it was important for Mr Sheehan to attend the site meeting as the KI site safety, health and environment representative. Mr Smith also attended this onsite meeting and was then asked by the KI Site Manager to report the incident to WorkCover. Mr Smith first telephoned the Newcastle office of WorkCover at 10:40am on Tuesday, 9 August. On the first attempt the call was not answered. On the second attempt, the call was answered by a receptionist who suggested he call the Sydney office. Mr Smith then rang the Sydney office of WorkCover and reported the incident to a call centre operator at 11:05am. Mr Sheehan rang the Stockton resident before he left site to check the resident's address. Mr Sheehan and Mr Smith left the KI site to respond to the resident's call at approximately 11:25am and arrived in Stockton at approximately 11:40am.

22. Who were the members of the CMT? What were their roles and responsibilities in the management of the crisis? Who was on site 'directing traffic' and when? (T22)

Please see the response to question 6 to the questions on notice taken on 15 November 2011.

23. **In relation to the incident itself, we have been told that once they saw the steam coming out of the SP-8 stack the flow was redirected to another vent but that because of its inadequate containment it has backed up and then continued to rise and rose to the point where there had been a temporary repair done to the silo and it started to leak out of that onto the workforce who were there present trying to deal with the situation. Are you able to inform us how it was that that temporary repair was so deficient? (T24)**

Orica has investigated why there was a leak close to this point in the SP8 vent stack and found that there was a corrosion hole close to the repair. The section of the stack that had been temporarily repaired was watertight and did not leak. All corrosion holes have now been repaired with a replacement piece of pipe welded into place on the SP8 vent stack.

24. **Was Orica fined following the 2006 Cr VI incident? (T24)**

At the time of the 2006 Cr VI incident, Orica submitted an incident report to the NSW Department of Environment and Conservation (**DEC**) in relation to the incident and included this licence non-compliance in its Annual Return. No action was initiated by the DEC in relation to this incident. Orica was not fined in relation to the 2006 Cr VI incident.

25. **You mentioned that there are strong project management processes at Orica. Would you provide us with the management matrix in relation to those strong project management processes as they relate to that project on upgrading the existing plant and the modifications as well as the maintenance program? (T27)**

An extract of the relevant parts from Orica's Project Process, as used on the KI Ammonia Plant Expansion Project, is **Annexure C**. Orica's Project Process is a proprietary process and this document is subject to copyright.

26. **In your opinion as CEO of Orica over that time, say if we just think about the Kooragang Island facility, considering all of those breaches, do you think one fine over that 10 years of $10,500, which is, as I understand it, what the company has been fined, is much of an incentive for you to ensure you do not continue to breach your licence? I would not say that fines are the incentive to cause us not to breach our licence. I need to say to you that our organisation does not find licence non-compliances acceptable in any sense. Why do they keep occurring then if your company does find it unacceptable? Perhaps I can just give you a sense of my view at least of how the licensing system works in New South Wales by reference to an example might be the best way. Please provide the balance of this answer. (T29-30)**

Mr Liebelt's answer began:

> "Perhaps I can give you a sense of my view at least of how the licensing system works in New South Wales by reference to an example might be the best way.
>
> If you go back to 2005/6, we had a licence condition for the emission of nitrogen, which is nutrient in our effluent. The licence limit at that time on my understanding was in the order of 400 tonnes per annum. We had met that licence partly by supplying weak nitrogen solution to our neighbour, Incitec. For whatever reason they chose not to take that product any longer and the outcome of that was that we had nitrogen load of 600 tonnes plus for a year there. We then"

When Incitec Pivot Limited decided not to take a weak nitrogen solution from Orica's KI process for use in their processing operations on Kooragang Island, Orica's nitrogen load in effluent increased to over 650 tonnes in 2005/6, which was in excess of the then licence limit of 400 tonnes per annum. From 2007 to 2010, Orica spent about $11 million in capital to reduce the nitrogen load and it is now down to around 200 tonnes per annum. Meanwhile, the licence condition has also been reduced to 200 tonnes per annum.

The point is that licence non-compliance could still occur in circumstances where a site has significantly improved its performance. The kind of improvement described in this example is what I believe the community would wish to occur through the licensing system.

27. **The independent engineer's report says that you anticipated an increase in condensation but the amount of condensation was not quantified by your company and hence effective safeguards were not implemented. Do you think there is a role for the OEH in terms of working with your company or other companies in trying to come up with a correct or a more accountable process for coming up with the correct answer to this type of problem?**

[Clarification: Mr Liebelt: so your question is about the role of OEH in the design of the upgrade? Chair: That's right, in assessing this risk.]

Should the OEH have had a role in assessing in more detail the upgrade of the plant and then therefore the potential for the creation of more condensate than you thought or maybe anticipated? (T32-33)

There are several authorities presently involved in the assessment and approval of major projects. The KI expansion project has been considered by the Department of Planning, Environment Protection Authority, Newcastle City Council, NSW Ministry of Health, Fire and Rescue NSW, Roads & Traffic Authority, NSW Police and the Department of Water and Energy. I think it would be difficult for OEH to develop the kind of expertise and the resources required to get into a high level of detail at the design stage of a project.

CLARIFICATIONS TO THE REPORT OF PROCEEDINGS – 17 NOVEMBER 2011

Mr Liebelt wishes to clarify the following matters reported in the transcript:

On page 21:

The Hon. Adam SEARLE: In relation to the emissions going off site and we have heard some evidence from the shift supervisor about the steps that were taken to ascertain whether or not there had been off site leakage, including sending people out to inspect their vehicles. This was at about 7.30 at night, it was dark. It was said that the car park area was lit but it seems to me to be a fairly imprecise measure of whether there were leakages off site to inspect a car in the dark.

What particular processes or mechanisms did your company have in place so that it knew when and where there were off site leakages from the Kooragang Island facility or were there no such mechanisms or procedures?

Mr LIEBELT: There will be around the site various point of measurement designed to measure particular chemicals, for example, nitrogen oxides or ammonia and so on. Those will be indicators of whether there are products in the air moving off site but we did not have any particular probe or measurement system which would have detected sodium chromate containing Chromium VI.

Clarification:

Orica currently undertakes the following monitoring on and around the Kooragang Island site:

- continuous ambient monitoring of nitrogen oxides in Stockton;
- ambient monitoring of dust (total suspended particulates and PM10 (particulate matter less than 10 microns in diameter) in Stockton (for 24 hours, every six days);
- continuous ammonia fugitive emission monitoring on site at key locations in the Ammonia Plant, Ammonia Storage and pipework systems;
- daily sampling of effluent for pH, temperature, suspended solids, arsenic, chromium VI, zinc and total nitrogen; and

- periodic sampling of stormwater for pH, suspended solids, arsenic, chromium VI, total nitrogen and phosphate.

There are laboratory personnel on site seven days per week and available on call after hours if required.

On page 29:

The Hon. Cate FAEHRMANN: Some of those breaches however do include unlawful releases of toxic chemicals, do they not?

Mr LIEBELT: Every one of the breaches that I have described is outside of our licence compliance. I think we have been prosecuted in relation to - putting aside the two legal actions I should add pending now - I think we have twice previously been prosecuted.

Clarification:

Mr Liebelt wishes to clarify that Orica has previously been prosecuted once, not twice, in relation to the Kooragang Island site. The prosecution was in 2005 in relation to a breach of pH limits in wastewater on 15 July 2004. Orica was fined $10,500. Orica has been issued with a penalty infringement notice of $1500 in relation to an exceedence of oil and grease limits in effluent discharge on 27 August 2004.