

## ICL PUBLIC INQUIRY

### BEFORE

#### THE RIGHT HONOURABLE LORD GILL

#### FINDINGS IN FACT ON BEHALF OF ICL PLASTICS LTD & ICL TECH LTD

#### **The Corporate History of ICL Plastics Ltd & ICL Tech Ltd**

1. ICL Plastics Ltd was formed by Campbell Downie and Ronald Cunningham and was incorporated on 17<sup>th</sup> November 1961. As at 11<sup>th</sup> May 2004, Campbell Downie owned approximately 68% of the shares, Mr R A Ferguson held 28% and Stewart McColl 4%.

2. ICL Plastics Ltd is the holding company of ICL Tech Ltd, Stockline Plastics Ltd, Plastics W Graham Ltd, Easter Road Plastics Ltd, Brisbay Ltd and Norplast Ltd.

3. As at 11<sup>th</sup> May 2004 Campbell Downie was semi-retired and the non Executive Director and Chairman of Plastics Ltd. Mr McColl was the Chief Executive, Margaret Brownlie the Finance Director and Lorna Downie, Personnel Director.

4. When the company was formed, Campbell Downie spent approximately 30% of his time on the premises with visits becoming more irregular in the early to mid 1980's. From the 1990's onwards, irregular visits and generally once or twice a week in the evenings, Campbell Downie attended the offices at Grovepark Mills to review issues, primarily relating to financial and developmental matters.

5. Between 1973 and 1975 a more formal company structure was enacted with the formation of subsidiary companies; ICL Technical Plastics Ltd being responsible for plastics manufacturing and Stockline Plastics Ltd becoming responsible for plastics distribution.

6. ICL Technical Plastics Ltd was incorporated on 26<sup>th</sup> November 1973. On 19<sup>th</sup> August 1999 the name ICL Technical Plastics Ltd was changed to ICL Tech Ltd.

7. As at 11<sup>th</sup> May 2004 Stewart McColl was the Managing Director of ICL Tech Ltd and had been since 1<sup>st</sup> October 2001. Mr Frank Stott had been the Managing Director from 1973 to October 1998 and thereafter was a Director until 22<sup>nd</sup> January 2004. Peter Marshall had been the Managing Director from 31<sup>st</sup> October 1998 to 1<sup>st</sup> October 2001. Lorna Downie was the Company Secretary.

8. ICL Tech Ltd carries on a business as a plastics manufacturer producing plastic mouldings and fabrications from bank ATM displays to components for aircraft interiors and medical products. It was involved up to 2004 in applying plastic coatings to non plastic components.

9. The running of the operating subsidiary companies was the responsibility of individual directors who had autonomy. Campbell Downie's activities within ICL Plastics Ltd were conducted principally as Chairman active in market research, finance and R & D away from Grovepark Mills.

10. Both ICL Plastics Ltd and ICL Tech Ltd carried on their business at Grovepark Mills.

11. Campbell Downie was not involved with the day to day running of the subsidiary companies.

#### Production References

011001 – 011012  
011013 – 012015  
011016 – 011020  
011021-011024  
011167-011170  
011171-011174  
11196-11198  
11199-11204  
11341-11344  
11345-11348  
11349-11352  
11353-11355  
11506-11509  
12093-12096  
12097-12100  
12104-12107  
12164-12166

### Witness Evidence

Campbell Downie (Day 9 : page 13, page 14.1-20. Page 16.1-23 Page 17.17. Page 19.16. Page 23.17).

Peter Marshall (Day 10 : page 103.7-8 & 21-23. Page 104.15-17)

Colin Foard (Day 11 : page 3.15-20. Page 4.20-25. Page 5.13-19. Page 6.2-11).

### The Premises

12. The premises at Grovemark Mills was owned by ICL Plastics Ltd.

13. The premises was a four storey Victorian mill building built in 1878 on an L shaped plot of land. The external walls were brick and the first, second and third floors to the building were made of timbers supported internally on a grid of cast iron columns. Access to the upper floors and basement at the west end of the building was obtained via a stair tower which had been added on in 1907. The original plot was added to and altered. On the south of the former building was a triangular shaped yard with a gateway in the perimeter wall which opened on to Grovemark Place.

14. The third floor of the building was used for light storage, the second floor for office accommodation occupied by employees of ICL Plastics Ltd, ICL Tech Ltd and Stockline Plastics Ltd. The first floor was used for light storage and some prototyping operations, the ground floor was used for manufacturing and as at 2004 the basement area was used for storage by a self-employed contractor Mr Andrew Galloway.

15. As at 11<sup>th</sup> May 2004 there were six ovens on the ground floor of the premises which was wholly occupied by ICL Tech Ltd. There were four electric ovens, one natural gas oven and one Burlec LPG oven.

16. The bulk storage tank for LPG was located in the yard at the apex of the triangle furthest from the building at a distance of about 15<sup>1/2</sup> metres.

17. The despatch area and coating shop were housed in the original building.

18. The basement beneath the despatch area at the west end of the building had originally been an open well area formed in the original building. In or about 1980 the well area was covered with a structure consisting of steel chequered plate flooring supported on structural steel beams in turn supported on steel columns footed on concrete plinths. The purpose was to cover over the well area and create a complete floor at ground level but the affect was to create a basement level. Access to the basement was via the west stair tower and through an opening in the south basement perimeter wall.

19. The steel chequered plate flooring was installed by GJN Reid Bros. Ltd.

20. The original yard area was shared by three proprietors, Gael Paints Ltd, Milne Builders and ICL Plastics Ltd. The common yard had a propensity for flooding. Milne & Gael Paints proposed raising the yard to deal with the problem and ICL Plastics Ltd proposed raising their triangle area. The area was raised by 18 inches at the rear east end of the yard and 32 inches at the front of the yard.

21. The raising of the yard took place in 1973 and the work was carried out by Milne Builders. At that time the LPG tank and associated pipework had already been installed.

22. The result of the raising of the level of the yard involved the covering over completely of the LPG pipework which raised vertically out of the ground and then turned horizontally into the building.

#### Production References

11356  
11357-11358  
11359  
11175-11178

#### Witness Evidence

Campbell Downie (Day 9, page 20.3-18. Pages 31-36, page 39, pages 45-47, page 55.9. Page 57.15. Pages 58-61).

### **The LPG Installation**

23. ICL Plastics Ltd contracted with Calor Gas Ltd (hereinafter referred to as "Calor") in 1969 to purchase bulk supplies of LPG and to hire a bulk storage tank from them. Calor's offer to hire expressly stated that the installation of the pipework beyond the regulator was the responsibility of the customer i.e. ICL Plastics Ltd.

24. The pipework beyond the regulator was installed by a firm of engineers whose name is not known. Their work was supervised by Grieben Plant Ltd.

25. The original Calor tank was of 2 tonnes 4000 litres capacity.

26. On 10<sup>th</sup> February 1998 ICL Plastics Ltd changed their LPG gas suppliers from Calor to Johnston Oils Ltd (hereinafter referred to as J Gas). Accordingly, Calor supplied LPG to ICL Plastics Ltd from 1969 to 1998.

27. Although the original contract was between ICL Plastics Ltd and Calor, invoices for supply of the LPG were rendered to and paid by the subsidiary operating company ICL Technical Plastics Ltd .

28. Neither Calor nor J Gas carried out any examination of the underground pipework.

29. J Gas carried out no enquiries as to the condition, route, nor age of the underground pipework prior to connecting their tank to it.

30. On 20<sup>th</sup> April 1998 the Calor tank was removed and a J Gas single 2 tonne tank was substituted therefor. The tank was installed by David Inglis who was at that time was employed by IB Contracts Ltd. A pressure/tightness/soundness test would have been carried out at that time.

31. Between 1975 and 1978 there was periodic contact by the Health & Safety Executive (hereinafter referred to as the "HSE") in relation to the LPG installation. The focus of the HSE during this period was on the size and

siting of the bulk storage tank, fire hazards in the vicinity of the bulk storage and the absence of an automatic drench system.

32. On 9<sup>th</sup> August 1988 the Health & Safety Executive inspected Grovepark Mills. The inspection was carried out by HM Inspector Mr John K Ives and Specialist Inspector, Mr Alan Tyldesley.

33. On 8<sup>th</sup> September 1988 Mr Ives wrote to ICL Technical Plastics Ltd with twelve recommendations concerning the storage and installation of the LPG tank and associated pipework at Grovepark Mills. In light of standards current as at 1988, the majority of the recommendations address the LPG storage tank, in particular, siting issues. The pipework was addressed in only one of the twelve recommendations.

34. Recommendation 11 proposed that part of the underground pipework should be excavated in order to determine its condition and that pressure testing of the pipework should be carried out.

35. Mr Frank Stott sought advice from Calor's technical specialists. As a consequence, on 19<sup>th</sup> December 1988 Maurice Coville, Group Safety Inspector of Calor attended the premises at Grovepark Mills.

36. On 4<sup>th</sup> January 1989 Mr Coville wrote, "on behalf of ICL Technical Plastics Ltd" to the HSE in relation to recommendation 11 and proposed that *"the condition of the attendant vapour offtake pipe would be ascertained during vessel exchange by examination of the riser pipe at the vessel and by a pressure test on the pipeline."*

37. Mr Ives sought technical advice from Mr Tyldesley in relation to Calor's proposals. On the 23<sup>rd</sup> January 1989 Mr Tyldesley wrote to Mr Coville in response to Calor's proposals confirming that they were acceptable. Mr Stott responded by letter dated 25<sup>th</sup> January 1989.

38. ICL Tech Ltd acted reasonably and responsibly in seeking advice from Calor as to how to respond to the issues raised by the HSE.

39. At the time of Mr Coville's visit to ICL Tech Ltd, one of his duties was to advise ICL (as a customer of Calor) on the set up of storage and siting of LPG tanks.

40. Mr Tyldesley made an inaccurate assumption that the underground pipe would be excavated. However, he held no further discussion with Mr Ives regarding this matter and he carried out no further checks with ICL Tech Ltd to follow this through.

41. In relation to recommendation 11 the proposal for pressure testing the pipeline accorded with normal and prescribed practice current at the time. Reference is made to HS (G) 34 and LPG ITA Code of Practice 1.

42. In the 1980's the HSE's priorities regarding LPG installations through training courses and other events focused primarily on the siting of tanks. At that time underground pipes were not seen as necessarily creating an undue risk; the pipework was not viewed as presenting the same level of risk in comparison with the siting of tanks.

43. Between 1969 and 1998, when Calor were the LPG suppliers to ICL, pipework would be subject to a soundness test every 10 years at vessel exchange .

44. On 17<sup>th</sup> June 1991 Calor exchanged the one 2 tonne tank for two 1 tonne tanks . Records do not show who installed the tanks but a pressure/soundness/tightness test would have been carried out on the pipework at that time.

45. A pressure/tightness/soundness test was carried out on the LPG pipework on 20<sup>th</sup> April 1998 when David Inglis installed the J Gas tank in replacement for the Calor tank.

46. A pressure/soundness/tightness test was carried out on the pipework on 29<sup>th</sup> November 1998 when J Gas replaced the tank which works carried out on their behalf by David Inglis.

47. A further pressure/soundness/tightness test was carried out on 8<sup>th</sup> April 2002 when David Inglis changed the regulator.

48. On all occasions, when pressure/soundness/tightness tests were carried out, there was no evidence of loss of integrity (leaks) to the pipework.

49. Investigations following the explosion have revealed that the underground pipework was not adequately protected against corrosion and the pipe was not sealed

at the point where it entered the building at Grovemark Mills.

50. It appears that, with regards to the underground pipework, apart from the HSE's observations in 1988/89, on no other occasion was it considered by the LPG suppliers (Calor and J Gas), the HSE, nor ICL personnel – it appears to have been literally out of sight and out of mind.

51. Since the incident on 11<sup>th</sup> May 2004, the HSE have issued leaflets to commercial LPG gas suppliers "Checking LPG Pipework". J Gas have changed their practices in the aftermath of the tragedy which changes include issuing these leaflets to their commercial customers.

#### Production References

11032-11034  
11399-  
11487[11444,11445,11409,11446,11448,11449,11481,11485,11427]  
11633  
11630  
11562  
11563  
12054  
12055-12058  
12179-12180  
12076-12077  
12108-12109  
12388  
113765  
12770-12781  
01272-12312  
11633  
11630  
01215  
8861-9162  
12829

#### Witness Evidence

Maurice Coville (Day 2, page 58 lines 1-17, page 64 lines 14-17, page 70 lines 9-16, page 74 line 24 to page 75 line 3, page 74 lines 18-20, page 82 lines 14-83 line 3, page 84 lines 11-15, page 108 line 25 to page 117 line 7).

Henry Betts (Day 2, page 142 lines 2-5, page 149 lines 5-151 line 2).

William Delaney (Day 3, page 14, page 16 line 8-19, page 20 line 15, page 22 lines 25 to page 23 line 3).

Alan Elliot (Day 3, page 91 lines 24-27, page 94 line 21 to page 96 line 12, page 96 line 17 to page 97 line 4, page 104 line 11 to page 105 line 1, page 107 lines 4-9, page 108 lines 16-20, page 129 lines 6-18, page 151 lines 6-14).

David Inglis (Day 4, page 18 lines 11-19, page 19 line 23 to page 27 line 15, page 43 line 23 to page 45 line 15).

John Ives (Day 5, page 13 line 24 to page 14 line 13, page 19 line 25 to page 21 line 17, page 36 lines 3-25, page 37 lines 11-19, page 46 lines 11-15, page 48 line 22 to page 50 line 20, page 53 lines 23-25, page 55 to page 56 line 19, page 61 lines 5-11, page 67 lines 1-68 line 23).

Alan Tyldesley (Day 5, page 107 lines 7-12, page 113 lines 3-4, page 121 line 2 to page 126 line 11, page 133 line 10 to page 134 line 15, page 139 line 17 to page 145 line 20, page 155 lines 13-14).  
(Day 6, pages 1-9, page 34 lines 11 to page 37 line 19, page 40 line 12 to page 41 line 6).

Campbell Downie (Day 9, page 87 line 19 to page 92).

Dr Stuart Hawksworth (Day 12, page 40 line 10 – page 91).

**Health & Safety Matters and Risk Assessments by ICL Plastics Ltd & ICL Tech Ltd**

51. On 17<sup>th</sup> August 2007 at the High Court in Glasgow, ICL Plastics Ltd and ICL Tech Ltd tendered pleas of guilty to four charges relating to contraventions of the Health & Safety at Work Act 1974. Some of these charges recorded a failure to carry out proper risk assessments.

52. Neither ICL Plastics Ltd nor ICL Tech Ltd carried out any risk assessment in relation to the buried LPG pipework.

53. From 1997 onwards ICL Tech Ltd carried out health and safety reviews including risk assessments. The individual directors of the operating companies were responsible for carrying out and ensuring that risk assessments were carried out and their implementation. The individual responsible for the risk assessments at ICL Tech Ltd were Frank Stott up to 1998, between 1998 and 2001, Peter Marshall, and thereafter to the date of the accident, Stewart McColl. Regrettably, Frank Stott and Stewart McColl are both deceased.

54. A number of risk assessments were carried out from 1997 onwards by ICL Tech Ltd. The principal risk assessment is entitled ICL Tech Ltd Health & Safety Programme – Risk Assessment. The document contains 32 pages of tabulated work assessment for work related activities. The work activities addressed are:-

- Degreasing
- Shot and bead blasting
- Powder coating dip process
- Powder coating electrostatic
- Wet spray coating
- Gas appliances
- Compressed air systems
- Electrical appliances
- Fork lift operation
- General lifting
- Access and egress
- General maintenance
- Cementing
- Plastic welding
- General saw work
- Vacuum forming
- CNC machining
- Routing
- Use of electric hand tools
- Chemical storage
- Use of office equipment
- Flame polisher
- General movement in factory

55. While the assessments related to the coating shop pipework, they did not include the pipework going into the basement nor the pipework running underground from basement to the LPG tank. Gas inside the factory was identified as a hazard but the possibility of leak of gas from the exterior pipe was not.

56. The various Risk Assessments produced and the methodology employed by ICL employees demonstrates that ICL had regard to the health and safety of their employees and were conscious of their duties in terms of the Health & Safety at Work Act. The matrix system for assessing risks employed by ICL employees was not dissimilar to that which would have been employed by an outside Health & Safety Consultant, Alistair McCourt. Had Mr McCourt been employed by ICL, he would not necessarily have assessed the risk of the underground pipework.

57. Campbell Downie was not consulted about these risk assessments. They were left to the autonomous managing directors of the operating companies.

58. Campbell Downie's knowledge of details such as those pertaining to risk assessments comes from documents and information provided to him in the aftermath of the accident by various investigating authorities

59. A revised version of the Risk Assessment "ICL Tech Ltd – Health & Safety Programme – Risk Assessment" was sent to ICL's insurance brokers, Marsh Limited on 28.6.2002. This letter was signed by Margaret Brownlie and not shown to Campbell Downie. It is not known who revised the Risk Assessment.

#### Production References

11907-11965 [11907,11910,11931,11939,11961]  
12322-12387  
11893-11965  
12209-12292[12261]  
11235  
13314-013415[13319,13336]

#### Witness Evidence

Alistair McCourt (Day 8, page 13.8-19, page 18.14 – page 20.25, page 24.6-9, page 24.17-21).

Bill Masterton (Day 8, statement paragraphs 63-75 and 88-131).

Campbell Downie (Day 10, page 45.20 – page 54.6)

Peter Marshall (Day 10, page 110.25 to page 111.6, page 112.13 – 112.21).

Colin Foard (Day 11, page 6.25 – page 7.5, page 8.4 – 16).

Andrew Stott (Day 12, page 9.22 – 12.17, page 14.4 – page 17.18, page 2.23 – page 34.16, page 37.17 – 38.2).

### **The Explosion**

60. On 11<sup>th</sup> May 2004 there was an explosion caused by leakage of LPG from a corroded underground metal pipe which accumulated in the unventilated basement at Grovepark Mills. It formed a flammable atmosphere which was ignited. The source of ignition has been undetermined. The explosion caused the collapse of the building resulting in the deaths of 9 people, injuries to 33 others and exposing 12 others to the risk of injury.

61. The accident was caused by a combination of essential causes, unrelated circumstances and missed opportunities coming together over a period of 35 years as follows:-

(a) The underground pipe corroded and finally leaked at a point where it was not properly protected from corrosion as it should have been. The responsibility for that appears to lie with those who originally laid the pipe (unknown gas/plumbing contractor) and those who supervised the work, Grieben Plant Ltd.

(b) The leak could not escape to atmosphere as a result of the concreting of the yard in 1973.

(c) The pipe was not sealed to the brickwork at the point of entry to the building when it was installed. That provided escaping gas with a route to the interior of the building where it could accumulate.

(d) The leak was of a sudden onset and had the leak developed gradually it is likely that the escaping gas would be detected by smell as an odorant is added to LPG.

(e) No inspection (involving excavation) of the underground pipework was carried out between 1969 and

2004. Excavation was not prescribed by the relevant Codes of Practice, guidance documents nor industry standards throughout that period. While pressure/soundness/tightness tests were carried out on the pipework over the years, the last being in April 2002, the tests would only show the integrity of the pipework at that time.

62. Installation of permanent gas detection equipment would have been of no use in relation to the underground LPG pipework outwith the building.

#### Production references

01272-12312  
001215-001245  
8861-9162

#### Witness Evidence

Alan Elliot (References as above)  
David Inglis (References as above)  
John Ives (References as above)  
Alan Tyldesley (References as above)  
Dr Hawksworth (References as above)

#### **Disaster Recovery Plan**

63. Document 12719 purports to be a Disaster Recovery Plan which is unsigned, undated and unauthenticated.

64. Campbell Downie, as chairman, never discussed any Disaster Recovery Plan with anyone in the company and from events subsequent to the tragedy it is clear that this document's contents have not been followed since the incident on 11<sup>th</sup> May 2004.

65. Document 12719 contains an ICL Logo on the right hand side of the page which contrasts with a legitimate ICL letter document 12059 with the logo located on the left hand side of the page.

66. A note of a meeting between Tracey Downie and Linda Mullen dated 2<sup>nd</sup> October 2003 speaks of a Disaster Recovery Plan for ICL Plastics relating to existing insurance renewals.

67. The disaster recovery plan is fake.

### Production References

12719  
12059  
13336  
13319  
13417-13421

### Witness Evidence

Tracey Downie (Statement read day 9, paragraphs 6,7,8 and 9).

Campbell Downie (Day 10, page 62.1-25, page 64.8, page 65.15-24, page 152.16 to page 153.13).

### **Lessons to be Learned**

Although the Inquiry may hold that there were a unique combination of circumstances that caused the explosion it may well be that there are some lessons that can be learned and applied to similar installations of this type in the future. When considering what lessons might be learned, ICL would respectfully suggest the following:-

(1) Between 1969 and 11<sup>th</sup> May 2004 although the responsibility for the maintenance and inspection of the underground LPG pipework was ICL's, the relationship and responsibilities between ICL, as industrial customer and their suppliers (Calor and J Gas), who were the experts in the industry, were not clear. As a consequence neither gave consideration to the underground pipework. It is clear that the gas suppliers (Calor and J Gas) at the time considered that the pipework from the tank was not their direct responsibility, for whatever reason, and the Inquiry may wish to consider that one lesson to take from these facts is that a clearer delineation of responsibility should be set out for these circumstances in the future. The Inquiry may also consider the extension of the provisions of the Gas (Safety Installation and Use) Regulations 1998 whereby the duties imposed on LPG Gas Suppliers relating to premises should be extended to include industrial premises.

(2) The prescribed method of testing the integrity of underground pipework, in terms of the evolving Codes of Practice, guidance documents and industry practice throughout the period 1969 to 11<sup>th</sup> May 2004 was inadequate in that it only shows the integrity of the pipework at the time the pressure test is carried out.

(3) It is clear that LPG suppliers should not connect to pipework unless satisfied that the system they are connecting to conforms to prescribed standards at that time.

(4) Notwithstanding the fact that ICL failed to risk assess the underground LPG pipework, had they done so and followed the prescribed guidance throughout the period in question, this would not necessarily have resulted in excavation of the pipework. They may, logically, have assumed that a pressure/soundness/tightness test would suffice.

(5) It is clear from the evidence at the Inquiry that, apart from the issues raised in 1988/89 resulting in the "Calor compromise", for the individuals involved, whether experts from the LPG industry, the Health & Safety Executive or employees at ICL, the underground pipework was literally "out of sight and out of mind". Lessons have already been learned in that regard as evidenced by the HSE issuing a leaflet "Checking LPG Pipework" (12892) to LPG suppliers who are in turn issuing these to industrial/commercial customers.

IN RESPECT WHEREOF

**Paul McBride, Q.C.**