

Report on the National Survey of the New Zealand Petrochemical Industry



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Index	Page Number
Executive Summary	Executive Summary 1
The Report	
1. Introduction	1
2. Methodology	3
3. Results of the Survey	4
3.1 Operators' & Contractors' Demographic and General Data	4
3.1.1 Age Distribution	4
3.1.2 Gender	5
3.1.3 Ethnicity	5
3.1.4 Average Hours of Work per Week	6
3.1.5 Job Choice	6
3.1.6 Relevant Experience/Qualifications Before Entering Industry	7
3.1.7 Number of Petrochemical Companies Worked In	9
3.1.8 Time Spent in Industry	10
3.1.9 Proportion of Respondents Encouraged to take on Supervisory Roles	10
3.1.10 Intention to Continue Working in the Industry	10
3.1.11 Age of Retirement	10
3.1.12 Intentions Regarding Retirement	11
3.1.13 Wages	13
3.2 Operators' & Contractors' Views: Training and Training Delivery	14
3.2.1 Provision of Training	14
3.2.2 Reasons Understood for Provision of Training	15
3.2.3 Interest in Undertaking Further Training	15
3.2.4 Expected Benefits of Training	16
3.2.5 Skills or Knowledge Gaps	17
3.2.6 Registered for EXITO Training	18
3.2.7 Access to Record of Learning	18
3.2.8 Consulted Regarding Training Needs	18
3.2.9 Training Needs Match	18
3.2.10 Organising Training to fit in with Work	19
3.2.11 Contractors' Training	20
3.2.12 Preferred Type of Training Delivery	20
3.2.13 Mix Between Theory and Practice	20
3.2.14 Expected Support from Manager Upon Completion of Training	21
3.2.15 Important Qualities in a Trainer	22

3.2.16 Ideas for Improving the Way Training is Delivered	24
3.2.17 Training on New Equipment	24
3.2.18 Length of Time Between Training and Workplace Usage	25
3.2.19 Reviews of Training Effectiveness	26
3.2.20 Refresher Courses	26
3.2.21 Management of Refresher Courses	27
4. Managers	28
4.1 Managers Demographic & General Data	28
4.1.1 Age Distribution	28
4.1.2 Gender	28
4.1.3 Ethnicity	28
4.1.4 Average Hours of Work per Week	29
4.1.5 Job Choice	29
4.1.6 Relevant Experience/Qualifications Before Entering the Industry	30
4.1.7 Number of Petrochemical Companies Worked In	32
4.1.8 Time Spent in Industry	33
4.1.9 Intention to Continue Working in the Industry	33
4.1.10 Age of Retirement	33
4.1.11 Intentions Regarding Retirement	35
4.1.12 Salary Range	36
4.2 Managers' Views: Professional Development	37
4.2.1 Match in Professional Development Needs	37
4.2.2 Structure and Support for Professional Development	37
4.2.3 Sufficient Professional Development	37
4.2.4 Reasons for Insufficient Professional Development	38
4.2.5 Initiating Professional Development	38
4.2.6 Appropriate Development for Future Career Plans	38
4.2.7 Current Deficiencies in Professional Development	38
4.2.8 Possible Future Deficiencies in Professional Development	39
4.2.9 Contractors Becoming More Involved in Training	39
4.3 Managers' Views: Recruitment and Retention	40
4.3.1 Roles Currently Difficult to Fill	40
4.3.2 Managerial Roles Currently Difficult to Fill	40
4.3.3 Professional Roles Currently Difficult to Fill	40
4.3.4 Technician Roles Currently Difficult to Fill	41
4.3.5 Operator Roles Currently Difficult to Fill	41
4.3.6 Reasons for Difficulty in Filling Positions	41
4.3.7 Reasons for Declined Offers of Vacant Positions	42
4.3.8 Impact of Positions Remaining Unfilled	43
4.3.9 Future Under-Supplied Roles	44
4.3.10 Future Over-Supplied Roles	44
4.3.11 Filling Skill Shortages	45
4.3.12 Remediating Skill Shortages	46

4.3.13 Ideas for Attracting People into the Industry	47
4.3.14 Attracting Women to be Operators	48
4.3.15 Career Paths for Operators	48
4.3.16 Apprenticeship System	49
4.3.17 Improving Staff Retention	50
4.3.18 Succession Planning	50
4.3.19 Industry Growth	51
4.3.20 Technological Advances	52
4.3.21 Training for Future Technological Advances	52
4.4 Managers' Views: Training Issues for Companies	54
4.4.1 Adequate Operator Training	54
4.4.2 Operator Training Results	54
4.4.3 Areas of Job Showing Most Benefit from Training	55
4.4.4 Adequate Provision of Professional Development	56
4.4.5 Barriers to Adequate Provision of Professional Development	56
4.4.6 Industry Ability to Recruit Good Trainers	57
4.4.7 Teaching Trainers to Motivate Trainees	58
4.4.8 Catering for Unique Workplace Work Processes	58
4.4.9 Ensuring External Trainers Up-to-Date with Industry Standards	59
4.4.10 Recommended Length of Training Modules	59
4.4.11 Required Supervisory and Management Skills	60
4.4.12 Work-Site Organisation to Maximise Productivity	60
4.4.13 Proportion of EXITO and Non-EXITO Training	61
4.4.14 Environmental Management Training for the Future	61
4.4.15 Health and Safety Training for the Future	62
4.4.16 Literacy	62
4.5 Managers' Views: Industry Predictions	63
4.5.1 EXITO's Role by 2012	63
5. Future Considerations and Issues	66
5.1 Questions Arising from Demographic and General Data Results	66
5.1.1 Age and Gender	66
5.1.2 Wages and Salaries	66
5.1.3 Entering the Industry and Career Opportunities	67
5.1.4 Retirement Plans	68
5.2 Questions Arising from Views on Training and Training Delivery	68
5.2.1 The Training Environment	68
5.2.2 Training and Training Effectiveness	69

5.3 Questions Arising from Views on Professional Development	70
5.4 Questions Arising from Views on Recruitment and Retention	70
5.5 Questions Arising from Views on Industry Predictions	71
5.6 EXITO's Role in the Future	71
6. Appendices	72
1. Questionnaire for Operators, Technicians, Leading Hands, Foremen and Contractors	72
2. Questionnaire for Managers/Professionals/Supervisors/Team Leaders	76

Executive Summary

Introduction

During October, November and December 2007 the Extractive Industries Training Organisation (EXITO) national survey of the Petrochemical industry was conducted throughout New Zealand. The purpose of the survey was to obtain data and information to facilitate future EXITO policy decision-making and enable accurate planning for the training needs of those people entering or involved in the New Zealand Petrochemical industry.

Methodology

Firstly two draft questionnaires were designed and circulated to the EXITO personnel and industry experts for their comment – one questionnaire for Operators, Technicians/Leading Hands/Foremen/Contractors and one for Managers Professionals/Supervisors/Team Leaders. Amendments were made based on their feedback. Next a pilot test was conducted. The questionnaires were modified slightly as a result of feedback. Rather than getting the company to participate again, the results from the pilot site are included in this report.

The Survey Results

Survey results cover demographic and general data about respondents; Operators'/Contractors' responses to questions about training and training delivery; Managers'/Professionals' responses to questions about their professional development, recruitment and retention, training issues, predictions for the industry, and additional comments from site visits.

Demographic and General Data

- The age range of operator is concentrated in the 40-49 and 50-59 age brackets.
- The average age of operators is 44 years and contractors 48 years.
- A much lower percentage of operators are 39 years and under – this category may be of concern to the industry regarding its recruiting needs and succession planning.
- In the contractor category the age range is more evenly spread, with almost 90% of respondents in the 30-59 year bracket.
- The average age of managers is 49.
- Over three quarters of managers are between the ages of 40 and 59, with only 13% below this age bracket – Consideration needs to be given to how companies are recruiting younger employees and developing replacements for managers retiring in the next 10-15 years.
- 7% of women work as operators.
- 8% of women are managers.
- 88% of operators are NZ European/Pakeha, 8% Maori with small percentages from other ethnic groups.
- Maori are significantly underrepresented as managers as are other ethnic groups. Maori make up 5% of Petrochemical managers.
- Average hours of work per week for operators is 44 and for contractors 45.

- The average number of hours worked per week by managers is 45. Results from the questionnaires partly contradict what individuals said – in face-to-face discussions as they report they worked considerably longer than 45 hours per week.
- Operators and contractors listed money and the lifestyle provided by shift-work as the two primary reasons for working in the Petrochemical industry.
- Contractors were far more likely than operators to have entered the industry through an interest in the work itself and its particular vocational challenges.
- For managers, as with operators and contractors, remuneration is a strong motivating factor for those working in the industry - this appears to be both an asset and a problem, as many stated New Zealand cannot compete with the money offered overseas, meaning some employees move offshore.
- Interest in the job and the challenge it provides was shown to be just as important as money in attracting managers into the industry, as were the career opportunities and professional development the industry provides.
- 51% of operators and 56% of contractors had relevant experience or qualifications before entering the industry.
- The most commonly cited experience/previous industries among operators were, in order: Mechanical/Engineering work, Dairy Industry, Mining Industry, Electrical work.
- Almost two thirds of managers enter the industry with relevant experience or qualifications.
- Over two thirds of operators had worked in just one petrochemical company
- 51% of manager respondents have worked in only one petrochemical company
- 24% of operators have been in the industry for five years or less, while 39% have been in the industry for 20 years or more with the average length of time 14 years.
- Manager's average time spent in the industry was 21.6 years.
- 94% of operator respondents want to continue working in the industry.
- 100% of manager respondents want to continue working in the industry.
- 37% of operator respondents plan to retire by the age of 59, 31% between 60 and 64. Note that by the age of *exactly* 60, a full 71% of the current workforce will retire.
- The intended retirement year graph for managers shows the risk period for the industry as between 2011 – 2020. This is when a significant exodus of highly skilled personnel occurs – some 50% of respondents intend retiring during this period.
- The planned age of retirement for managers is later than that of operators/contractors, with 71% planning to retire from 60 onwards.
- The intended retirement year graph shows that the industry risk period is 2010 – 2020. This is when a significant exodus of highly skilled managerial personnel will occur – some 64% of respondents intend retiring during this period.
- Operators reaching their 50s find the work has taken a heavy toll on their body, producing ill health, injuries and disrupted sleep patterns. These reasons contribute to the large number of respondents who intend to leave the industry during their 50s.
- Most participants intend to relax and have fun when they retire but others intend to reduce their hours, work on projects, work as trainers or assessors or consult or go into academia.
- By New Zealand standards, wages and salaries are relatively high in this industry
- 99% of operator respondents say their company provides them with training.

Operator Views: Training and Delivery

- 16% of respondents said there are no areas where they need further training.
- 84% of respondents listed skill areas where they want further training .
- The major reasons listed as to why operators understand their company provides training were in order; increasing safety, operational/process understanding and technical skills development.
- Operators were almost uniformly interested in undertaking further training, (96%) and had a very positive reaction to being encouraged by their company to undertake training
- A safer workplace and better skills to increase productivity were the primary expected benefits of training cited by both operators and contractors.
- 84% of operators say they want further training. The most commonly cited areas where training is required were the following: Computer training, Equipment/Operations/Process training, Management/Supervisor training, including staff management and business management, leadership and training on upgrades and refreshers.
- Contractors want further training in Equipment/Operations/Process training, Computer training, Safety, Management/Supervisor training, Project Management.
- 85% of operators are registered for EXITO training.
- 76% of operators have access to their ‘Record of Learning.’
- It is cause for concern that 28% of respondents are not consulted about their training needs while 72% are consulted.
- 72% of operators say there is a match between training received and their training needs – this leaves over a quarter of all operators and almost half of contractors unsatisfied with the direction/focus of their training.
- 75% of operators and an even larger proportion of contractors want training to be organised during work hours.
- On average 77% of contractors’ report their work is Petrochemical industry related.
- 78% of operators and 89% of contractors prefer presentations/group work as the most preferred methods of training followed closely by on site supervised practice.
- 82% of operators and 93% of contractors feel that training contains the right mix of theory and practice. However, there are still almost one fifth of operators who report they do not receive enough practical training.
- The most important elements of managerial support expected by respondents upon completing training are, in order: Practice and the opportunity to use new skills; Follow-ups to check training has been understood and was relevant for job; Encouragement, including feedback on training effectiveness; Refreshers/updates.
- Knowledge and experience were the most wanted qualities in a trainer by both operators and contractors. Also essential was the trainer teaching at a pace suitable to the group and being supportive of learners.
- Operators had a wide variety of suggestions for improving the way training is delivered The most common suggestion for improving training was to increase the amount of practical ‘hands-on’ training. This is somewhat different to answers about preferred methods of training. (see above)
- 51% of operators receive training on new equipment when it is installed.
- 18% of respondents said they receive training on equipment only when it breaks, and over 10% receive no training on new equipment.
- The most common period of time between training and workplace usage for all operators was 1 to 5 days.
- 46% of operators said there were follow-ups on the effectiveness of training.

- 89% of operators and 94% of contractors say refresher courses are given at appropriate intervals.

Managers' Views: Professional Development

- 92% of managers believe there is a match between their own professional development needs and what the company believes they need.
- A high proportion of respondents (94%) believe that their company offers structure and support suitable for their participation in professional development.
- Nearly three quarters of respondents believe they participate in enough professional development. This is clearly a high percentage, but it also leaves over one quarter of all managers feeling they do not receive enough. This is a cause for concern, as one of the primary reasons for getting into the industry is the career development/opportunities it offers.
- Time/job commitments and training budget constraints were the predominant reasons managers gave for insufficient professional development.
- 84% of managers chose to do professional development, with only 16% doing it because they were told. This suggests managers overwhelmingly see professional development as an integral part of their career and their job.
- With 100% of managers stating their intention to remain within the industry it is positive that 85% see their professional development as appropriate for their future career plans.
- 28% of respondents report there are no current knowledge and skill deficiencies in their professional development. The gaps Managers report in professional development are; Business skills, including gaining MBAs or similar degrees/diplomas, skills in recruiting, benchmarking, auditing, new employment legislation, budgeting; Technical skills and knowledge, including root cause analysis, plant reliability, understanding the practicalities of how individual sites operate; Health and safety legislation; Environmental management training.
- Many managers report they include their full-time contractors in any company training and also use contractors to provide training for their own employees.
- The managerial roles difficult to fill include frontline managers, senior operational and engineering managers, exploration managers, development managers, production managers, training managers, maintenance and technical managers.
- Professional roles difficult to fill are process engineers, geologists and geophysicists, chemical engineers, mechanical engineers and electrical engineers.
- 78% of managers listed instrument technicians as being the most difficult role to fill. Electrical technicians were the next most difficult role to fill, cited by just over 50% of managers. 35% of respondents cited mechanical technicians as problematic roles to fill.
- Managers reported that highly skilled operations staff and trades people are the most difficult operator roles to fill. The trades people categories most difficult to fill include fitters, welders, and electricians. The operating roles listed as difficult to fill include control room operators, field operators, plant operators, operator and supervisors.
- Only 5% of respondents report they are not having difficulty filling positions.
- The primary reasons given for the difficulty in filling positions are, in order: Remuneration, Lack of Training/Training Facilities/Apprentices

(40% of managers cited insufficient training as a problem) plus Rapid Growth/Small Workforce.

- The most frequent reason given as to why positions were declined was that salary packages were insufficient. The next most common reason for declining an offer was the lack of job security and the perception the company may not be around for the long-term.
- The most commonly mentioned way to compensate for staffing shortages was to increase the workload of existing staff. This is a stop-gap measure which places added strain onto employees and could result in them leaving the industry or heading overseas.
- Future under-supplied roles were reported in order as: Instrument/electrical technicians, Engineers, Trade skills (welders, fitters, mechanical, boilermakers), Control/panel operators, Geologists/geophysicists.
- Under one-third of managers believe shortages can be filled by recruiting from under-represented groups (gender, ethnicity etc).
- 68% of managers believe recruiting employees from other industries will help in filling skill shortages.
- 60% of managers commented that various forms of training were the ideal way to remedy skill shortages.
- By far the most common suggestion for attracting people into the industry was through better remuneration. Other suggestions include in order; Promotion of the Industry, Promotion of the New Zealand lifestyle, Training Facilities and Career Pathways.
- A considerable number of male employees have shifted their perceptions about women taking up more non-traditional roles within the industry. They acknowledge they now feel more comfortable about women taking on operator roles.
- Respondents are largely unified over the necessity for clear career paths, (97%) though over a third say they are currently limited or that there are no clear career paths in existence.
- 88% of respondents agree that an apprenticeship system is an essential part of the industry and a central aspect of some employees' training and development.
- Managers report that the modern apprenticeship system does not match the quality of learning provided by the old apprenticeship system.
- Manager ideas for improving staff retention include in order: Higher Remuneration/Career Paths/Valuing Employees.
- Only 53% of managers report that succession planning is done adequately in their company. This is a real cause for concern given the unpredictable nature of the industry. The lack of such a system could also be contributing to employees moving off-shore in order to get greater experience and career development.
- 55% of respondents predict steady to high growth throughout the industry over the next 5 to 10 years, with growth predictions ranging between 20 and 80%. Many managers cite the unpredictable nature of the industry – the uncertainty over new field discoveries – as making growth rates difficult to predict.
- 93% of respondents believe there will be technological advances which will impact the industry over the next five years. The most common answers were, in order: Increased automation, improved technology, bio-fuels, need for energy conservation and environmental controls.
- Many respondents mentioned the need to plan for future technological advances now to avoid any reduction in required skills.

Managers' Views: Training Issues

- 81% of managers report there is adequate operator training being done in their own company. This contradicts the survey results from operators themselves, where 84% listed skill areas where they want further training.
- 64% of managers say they are getting the results they want from operators being trained. However, 36% feel that there are areas of concern caused primarily by insufficient training time and variable training standards, and some are predicting this situation to get worse as current trainers retire.
- The very substantial benefits managers' report they obtain from training can be broken into three major groups; improved productivity and operator competence, improved safety, and increased employee initiative/knowledge.
- 66% of managers believe they are currently receiving enough professional development. This still leaves a large proportion – 34% who believe they are not receiving enough.
- There were many barriers to the adequate provision of professional development/training with reasons categorised into three main groups. They were, in order: Insufficient funding, lack of trainers/lack of adequate training, time, industry ability to recruit good trainers.
- 71% of managers' report there is insufficient recruitment of trainers.
- 94% of managers indicated it is essential for trainers to receive training in how to motivate and interest trainees.
- 63% of respondents stated that in-house, site-specific training is best for catering to unique workplace processes, which means that either companies develop/maintain in-house training facilities or trainers must be trained to the differences in site operations.
- 81% of managers believe that 1 to 2 day training modules are preferable to longer modules.
- Skills required by managers are as follows: Supervisory skills/Employee Management (including problem-solving, people skills, delegation, goal-setting, moderator skills, monitoring employee progress, conflict management, prioritisation, change management, and organisational skills.) Leadership skills (including decisiveness, motivation skills, empowering people, confidence building skills, gaining trust of employees, and development of teams and individuals.) Communication skills (including the ability to listen attentively and to communicate so employees can understand and relate to them) and lastly Time Management.
- 63% of managers thought it would be valuable to receive training in how to organise a work-site so that jobs hold the interest of their employees.
- Managers report the proportion of EXITO training is 24% - the proportion of Non-EXITO internally run training is 48% and the proportion of Non-EXITO externally run training is 28%.
- Managers cited a need to stay abreast with Environmental Management Training and Health and Safety Training requirements by focusing on changing legislation and ensuring both management and operators/contractors are kept up-to-date as such changes take effect.
- Managers report only 1% of employees as having literacy problems.

Managers' Views: Industry Predictions

- There is concern that the EXITO administration and paperwork is difficult to understand, time-consuming and frustrating.
- Respondents report some confusion about the training packages offered by EXITO. There is concern about the relevance of some of the training provided. Gaps are reported in the training module topics which are not currently offered.
- Managers report significant concerns about the current apprenticeship system.
- There is confusion about whether an apprenticeship system exists.
- Many believe apprenticeships do not have a robust practical component.
- Respondents emphasised the importance of having quality trainers and see this as part of EXITOs responsibility.
- The cost of EXITO training is not a significant issue.
- Managers gave a wide variety of comments about EXITO and their training provisions. Some were very favourable, others more critical.

Future Considerations and Issues

As with most surveys the results raise more questions, and some of these are included for EXITO's consideration at the end of the survey results. It is expected that these questions will stimulate and direct the Board and the industry in their thinking, decision-making and future planning. Importantly, most participants in this exercise were clear that training has a substantial contribution to make and have provided a large amount of information which will assist in making improvements in the industry.

Report on the National Survey of the New Zealand Petrochemical Industry

1. Introduction

During October, November and December 2007 the Extractive Industries Training Organisation (EXITO) national survey of the Petrochemical industry was conducted throughout New Zealand. The purpose of the survey was to obtain data and information to facilitate future EXITO policy decision-making and enable accurate planning for the training needs of those people entering or involved in the New Zealand Petrochemical industry. In particular, the expected outcome of the research is to:

- Identify industry skill needs for the future
- Identify areas of skill shortage / skill gaps
- Identify how to enable equity of access to all learners
- Extend industry training to more people
- Gather accurate information to be able to establish a system of training which responds to current and future skill needs for the industry.

Survey sites were provided by the Board of EXITO and PEPANZ. A total of 9 companies were surveyed, and a further 6 training companies who deliver work in this industry. The 15 companies surveyed were in the regions of Taranaki and Wellington.

The survey was conducted in conjunction with other research work commissioned by the Petroleum Exploration and Production Association of New Zealand (PEPANZ). At site visits conducted by Performance Matters Limited, the PEPANZ survey material was used in addition to the EXITO surveys. This enabled minimising survey fatigue in the industry.

Where possible, surveys were completed and discussions were held with personnel directly, either at scheduled break times or by arrangement during the working day. Most managerial input, though, was through discussion and completion of the survey form with the surveyor. Generally managers offered additional information and comments about training within their company and the industry. These comments are included throughout the report. Additional managerial questionnaires were given to colleagues to participate, and arrangements were made to pick up or mail back the completed surveys at a later date. Some operator questionnaires were also completed via this method. This overall approach meant that timeframes for completing the questionnaire and attending to work productivity expectations were managed as the companies themselves perceived to be appropriate.

In total, 162 operators/contractors and 70 managers/professionals/team-leaders/supervisors participated in this survey. The total number of respondents was 232. We were asked to include contractors in the survey – contractors make up 10% of the operators/contractors group. Of the 15 companies who took part in the survey, 9 were solely Petrochemical industry companies and included large corporate, mid-sized and smaller companies. The other 6 companies were made up of training provider companies who work closely with the industry.

Most respondents were interested in the purpose of the exercise and were pleased to have their views sought. People were individually thanked for taking the time to assist with this project and (future) training for the industry.

Grateful thanks and appreciation is extended to all those involved, especially those managers and supervisors who generously gave their time and prepared their staff for the survey visit, and the respondents, who willingly participated. All participating companies will receive a copy of the final project report.

2. Methodology

The EXITO Chief Executive and Board directed Performance Matters to research specific information required for the future planning needs of the industry to enable them to achieve the expected outcomes of the research noted in the Introduction. Firstly two draft questionnaires were designed and circulated to the EXITO personnel and industry experts for their comment – one questionnaire for Operators, and one for Managers/Professionals/Technicians. Amendments were made based on their feedback. In particular, due to the contractor-rich nature of the industry, some specific questions were added to the Operators questionnaire for contractors to complete.

In addition a pilot test was conducted. The questionnaires were modified slightly as a result of feedback. Rather than getting the company to participate again, the results from the pilot test are included in this report.

As with other surveys completed for EXITO, we decided to conduct the surveys on site, on-the-spot and collect questionnaires immediately after completion. Doing this achieves a 100% yield of those available to complete the questionnaires at the time of the visit. In most instances, though, additional surveys were taken for colleagues to complete, and these were picked up or returned at a later date. All of the businesses asked to participate in the surveys, except one, agreed to do so.

The surveys were conducted anonymously. Respondents were informed of the purpose of collecting the information (i.e. the questionnaire) and that the use and disclosure of the information would be limited to what is necessary to fulfil the survey purpose. We did not ask for people's names. Survey responses cannot be used to identify an individual because no personal information has been used that would enable identification of the survey respondent.

One of the difficulties experienced in recruiting participants was that some companies were laying off staff during the survey period. Others were in shut down mode and busy conducting extensive plant maintenance.

It has been impossible to establish accurate numbers of those employed in the Petrochemical industry. When senior managers were asked this question they replied “thousands” and were unable to give even an approximate number. The Department of Labour statistics have combined the numbers for Petroleum and Coal Manufacturing and these 2 categories are unable to be split. This means we are not able to say what percentage of the industry has been surveyed. This has been most frustrating from the surveyor's perspective.

However we are confident we have surveyed and interviewed a reliable cross-section of the industry. As well as gathering the questionnaire information we have conducted many one-on-one interviews with managers and obtained a very large amount of data on which the report is based.

3. Results of the Survey

This part of the report is divided into seven sections.

- Section 1: Operators' and Contractors' Demographic and General Data
- Section 2: Operators and Contractors' Views: Training and Training Delivery
- Section 3: Managers' General and Demographic Data
- Section 4: Managers' Views: Professional Development
- Section 5: Managers' Views: Recruitment and Retention
- Section 6: Managers' Views: Training Issues for Companies
- Section 7: Managers' View: Industry Predictions

Respondents that answered the Operator questionnaire included operators, technicians, leading hands, foremen and contractors. To keep groups distinct, operators' comments are in black while contractors' comments are in blue.

Report tables give separate measures for operators and for contractors. All operators, technicians, leading hands and foremen are referred to collectively as operators.

Respondents who completed the Managers/Professionals/ Supervisors/Team Leaders questionnaire are referred to collectively as 'managers.'

The response rate to questions was consistently high so we have not provided data response rate for each question.

3.1 Operators' & Contractors' Demographic and General Data

Operators willingly gave their time and ideas and many were willing to speak with the surveyor after completing their questionnaires. As far as possible we have incorporated these additional comments into the report.

3.1.1 Age Distribution

The age range of operator respondents is concentrated in the 40-49 and 50-59 brackets, suggesting respondents have a reasonable amount of experience in the industry (see table 3.1.9). However, the much lower percentage of respondents in the 39 years and under categories may be of concern to the industry regarding its recruiting needs and succession planning. In the contractor category the range is more evenly spread, with almost 90% of respondents in the 30-59 year bracket. As contractors are recruited for their experience and previously developed skills this age spread is understandable.

Age	Operators	Contractors
15 – 19 years	0%	0%
20 – 29 years	12.8%	5.6%
30 – 39 years	16.3%	22.2%
40 – 49 years	37.2%	33.3%
50 – 59 years	30.2%	33.3%
60 – 69 years	3.5%	5.6%
70 plus years	0%	0%
Average Age	44.3	46.7

3.1.2 Gender

Within the Petrochemical industry there are very few women working as operators. In an industry which is experiencing a staffing shortage, one respondents are predicting to worsen, the ability to recruit from the total population would appear to be advantageous. In interviews and discussions with managers there appeared to be little resistance to the idea of women working as operators. The question therefore needs to be asked (and answered) why there are not more women working in the industry. Given that there appears to be marginal resistance to the idea of women operators, what are the current factors causing women to not be attracted into the industry?

- Are recruiting methods targeting women?
- Do women know about jobs available in the industry?
- Does the image of the industry put women off?

Gender	Operators	Contractors
Male	93%	100%
Female	7%	0%

3.1.3 Ethnicity

A large proportion of the Petrochemical industry workforce is NZ European/Pakeha. As stated above, the low recruitment from within other ethnic groups would appear to offer a potential workforce. With the ethnic make-up of respondents not reflecting that of New Zealand, questions need to be asked as to why more ethnic groups are not being targeted. In the last ten years both Maori and Pacific Islanders' skill and qualification levels have increased - therefore why is this not reflected within the industry?

Ethnicity	Operators	Contractors
NZ European/Pakeha	88%	94%
NZ Maori	8%	0%
Indian	1%	0%
Other European	3%	6%

3.1.4 Average Hours of Work per Week

The following table outlines the averages and ranges for weekly hours of work for full time employees.

Weekly Hours of Work	Operators	Contractors
Average	43.5	44.5

The hours operators work per week varies widely between different companies ranging from under 40 to over 70. However, nearly three quarters of respondents fall within the parameters of a 40-44 hour working week. Contractors' answers indicate a tendency towards slightly longer working weeks with over 40% working 45 hours per week or more – though as seen in the table above, the average hours worked per week are very similar. The following table specifies the breakdown in weekly work hours for operators and contractors.

Weekly Hours of Work	Operators	Contractors
Under 40 hours per week	2%	5%
40 – 44 hours per week	74%	50%
45 – 49 hours per week	17%	23%
50 – 59 hours per week	3%	11%
60 – 69 hours per week	1%	5.5%
70 plus hours per week	3%	5.5%

3.1.5 Job Choice

Both operators and contractors listed money and the lifestyle provided by shift-work as the two primary reasons for working in the Petrochemical industry. However, contractors were far more likely than operators to have entered the industry through an interest in the work itself and its particular vocational challenges. Interestingly, a low percentage of respondents listed the development of career opportunities and skill development as a contributing reason for their entering the industry.

The contributing factor of remuneration appears to be both an asset and a problem, as many stated New Zealand cannot compete with the money offered overseas. Some respondents report they intend to spend a portion of their working life overseas. As well they say the money paid is not sufficient to attract foreign workers into the New Zealand industry. However, respondents also listed some benefits of working in New Zealand, such as the lifestyle and shift work providing time off. If companies can augment the positive factors surrounding their employment opportunities this is likely to contribute to preventing/remedying employee shortfalls.

Responses fitted into the categories summarised in the following table:

- Note – Most respondents listed more than one contributing factor, thus each figure below represents the proportion of total respondents which emphasised each different aspect. Hence the total percentages shown correspond to each different reason given, and therefore are not designed to add up to 100% over the whole table.

Reason	Operators	Contractors
Money	43%	40%
Shift Work/Lifestyle	41%	40%
Interesting Job/Challenge	23%	39%
Career Opportunities/Skill Development	10%	17%
Change of Lifestyle	8%	-
Previous Work Experience	5%	-

Other reasons respondents gave for making job choices were to obtain permanent work, gain residency in NZ and receiving additional benefits such as training, medical and superannuation schemes.

3.1.6 Relevant Experience/Qualifications Before Entering the Industry

Respondents were asked if they had relevant experience or qualifications before working in the petrochemical industry. As the table below shows, both operators and contractors were relatively evenly split between those that had experience /qualifications and those that did not. Lack of experience or qualifications does not appear to be a barrier to entering the industry. This is positive for the industry as it means unqualified people within under-represented groups provide a large recruitment resource.

Relevant Experience or Qualifications	Operators	Contractors
Yes	51%	56%
No	49%	44%

The most commonly cited experience/previous industries among operators were, in order:

1. Mechanical/Engineering work
2. Dairy Industry
3. Mining Industry
4. Electrical work

The most commonly cited experience/previous industries among contractors were, in order:

1. Mechanical/Engineering work
2. Electrical work
3. Dairy Industry

Other cited previous industries were:

- Chemical
- Machine shop manufacturing
- Commercial, industrial
- Maintenance meat works, fitter-welder
- NZ Railways
- Glass cutter, pipe fitting, driver
- Glass manufacturer
- Lab technician, brick works
- Construction
- Shipping, Cement
- Telecommunications
- Titanium dioxide manufacture, alumina refinery, nickel refinery
- Telecommunications/radio
- Media, exporting, importing, service industry
- Education, hospitality
- Oil exploration
- Banking
- Rigs, drilling, scaffolding, processing gas
- Plumbing
- Tool-making
- IT
- Marine, construction, contracting, drilling\
- Instrumentation Technician
- Navy
- Fitting and turning
- 17 years at another petrochemical site
- Steam
- Air
- Lab/Plant Supervisor Petrochem Industry - Australia
- Got experience by working somewhere - worked on rigs. Drilling – land-based and overseas
- [Gas Transmission and Metering](#)
- [Fitting and welding](#)
- [Worked in industry since leaving school](#)
- [Instrumentation](#)
- [Farming, car assembly](#)

Respondents also listed having the following qualifications prior to entering the industry:

- NZCS in science
- NZED - fitter
- Science qualifications
- Administration in manufacturing and business
- NZCS - Chemistry
- Heavy fabrication Level 4 Certification
- Trade certificate

- Some trade certification
- City & Guilds mechanical engineering
- National Certificate Level 4 - maintenance and diagnostics
- 1st Class steam ticket
- Apprenticeship with ICI in relevant trade
- Advance Trade
- 1st year Bach App. Sciences
- Trade qualification
- Steam ticket, worked in similar industry
- Instrument technician dual trade electrician
- Dip in Dairy Tech. They thought if didn't do this I couldn't learn the job
- Instrument and Electrical Trade Certificates
- Craftsman Plumber, Gasfitter, Drainlayer
- Advanced Trade qualified Fitter/Turner/Machinist
- Stage 3 NZCE
- Higher National Cert in Process Control and SVQ levels 2 & 3 in Hydrocarbon ops (UK qualifications)
- Electrical Trade Certificate
- Trade Certificate
- Core Engineering qualifications
- NGC Urea Plant, Kaurex, Ballance, Agri-nutrients.
- M.E.3
- Trade Cert/Adv Trade Industrial Instrumentation, Electrical Registration
- 20 years experience. Electrical Inspector, Diploma in energy management
- Electrical Apprenticeship
- Fitter Welder
- Electrical registration
- Certified mechanic, 2 time served maintenance fitter
- Registered electrician – inspection

3.1.7 Number of Petrochemical Companies Worked In

Respondents were asked the number of petrochemical companies they had worked in. Over two thirds of operators had worked in just one company, though the answers given by contractors were more evenly spread. The low average number of companies worked in suggests operator loyalty to companies. This is an advantage in terms of training efficiency and succession planning.

Number of Industry Companies	Operators	Contractors
1	70%	38%
2	16%	17%
3	6%	17%
4	6%	11%
5 or more	2%	17%
Average companies:	1.6	2.9

3.1.8 Time Spent in Industry

There is a wide spread in the number of years respondents have been working in the industry. 24% have been in the industry for five years or less, while 39% have been in the industry for 20 years or more. The following table shows respondents' average time in the industry. These numbers suggest a wealth of experience amongst respondents working within the industry.

Time Spent in Industry	Operators	Contractors
Average time	14.4	19.1

3.1.9 Proportion of Respondents Encouraged to take on Supervisory Roles

A large proportion of contractors and operators – almost two thirds and three quarters respectively – have been encouraged to take on supervisory roles. Nearly all respondents wish to continue working within the industry (see 3.1.11), suggesting this inclusion within leadership roles must continue. The promotion of operators into supervisory roles is likely to have a positive effect on their commitment to the company and this suggests succession planning is critical to this outcome.

Encouraged to take supervisory roles?	Operators	Contractors
Yes	61%	72%
No	39%	28%

3.1.10 Intention to Continue Working in the Industry

An overwhelming majority of respondents want to continue working in the industry. This suggests if appropriate internal training and succession planning is in place, the industry should be able to promote more from within its own ranks to fill future predicted job shortages – both of operators and of trainers.

Desire to Continue Working in the Industry	Operators	Contractors
Yes	94%	100%
No	5%	
Maybe / Don't know	1%	

3.1.11 Age of Retirement

37% of respondents plan to retire by the age of 59 and 31% between 60 and 64. This means a large proportion of the petrochemical industry's workforce plans to retire before the traditional age of 65 – taking with them their skills and experience. The industry needs to ensure that planning to replace those skills gaps is in place. It should be noted that by the age of *exactly* 60, a full 71% of the workforce intend to retire.

Planned Ages for Retirement	Operators
Under 50	11%
50 - 59	26%
60 – 64	31%
65	16%
Uncertain	16%

Analysis of the respondents who provided both current age and intended retirement age data indicates there is a mean average of 13 years until operators retire. The following graph shows the intended retirement year pattern, and helps determine that the industry risk period is 2011 – 2020. This is when a significant exodus of highly skilled personnel occurs – some 50% of respondents intend retiring during this period. By 2030 almost 85% of participants in this survey intend retiring.



3.1.12 Intentions Regarding Retirement

An important theme emerged regarding the ability to retire, namely that a large proportion of respondents see their job as a means to save a substantial amount for their retirement. This is an important reason for them working in the industry. In conversations with respondents it was noted that many employees reaching their 50s find the work has taken a heavy toll on their body, producing ill health, injuries and disrupted sleep patterns, which takes a toll both on the employee and their family. These reasons contribute to the large number of respondents who intend to get out of the industry during their 50s. Some examples were:

- Once financially secure I'm out of here
- Retire as soon as I can afford to
- Have a super scheme but if I change jobs will take up Kiwi Saver. From then go on plan to pump money into personal super
- Continue in this industry overseas, make money and retire early
- To enjoy it and be financially comfortable
- Whenever I can financially
- Go to Australia soon, for 10 years and double my wage
- Retire with financial security
- To be secure and comfortable with life
- Saving in company super. Also another policy

A large number of respondents see retirement as an opportunity to give up paid work entirely, instead focusing on pastimes and activities they enjoy. Some examples were:

- Overseas travel, sports, family
- Playing golf
- Spend more time enjoying children, grandchildren and woodturning
- To have quality retirement (go fishing)
- Keep surfing
- Travel, be happy, spend time with grandkids
- Travel, gardening, spending time with partner
- Mortgage free and have a boat. A hot missus would be a bonus!
- Cash in pension and live comfortably. Travelling and holidays

A smaller percentage of respondents indicated they intend to start their own businesses to ensure they are not bored in retirement. Others indicated they intend to take on part-time work, outside the Petrochemical industry. Some examples were:

- A Mon-Fri job, no overtime or nights (when retired from industry). Full retirement - try and enjoy life
- Change direction, continue working part time
- Undecided - maybe mineral part time to keep busy
- Do something part time
- Property market
- At some time perhaps work part time
- To retire with enough money to set up a small business or hobby type activity so I don't go crazy
- Don't intend to sit around and do nothing, would like some sort of work from home
- No shift work, set up own venture

Others intend to continue working in the industry but in a part-time capacity. Of that group a small number of operators say they wish to be trained as assessors to take on that role within the industry.

- To spend some years job-sharing, i.e. working 21 hours per week on average
- For retirement – good idea to have job share. Is an attractive idea to work half time e.g. 4 shifts on 12 off – job sharing is going to happen in our company – it's normal overseas.

3.1.13 Wages

When the Pilot survey was conducted all of the respondents asked to have the wages section removed from the questionnaire. Because most operators are on individual contracts they felt it would be risky to include their actual earnings. We agreed and instead asked companies to provide base wage rates for operators and administration and support roles/functions. We were provided with this information but most companies did not agree to supply the shift component which is in addition to the base wage rate. The shift component varies according to different companies, but can include such items as free shares, superannuation schemes, travel allowances, free medical schemes etc.

Wage data was difficult to ascertain accurately, as most data was given as either averages or maximum/minimum figures. However, money earned within the industry is clearly well above the average New Zealand wage. The industry's ability to pay its employees was listed both as a primary reason in people getting into the industry, and for attracting more people in the future.

- Average wage for Operators: \$84,000 (this does not include operators who are team leaders or supervisors. They are listed in the Managers section of the report.)
- Average wage for Administration / Support Functions: \$50,000

3.2 Operators' & Contractors' Views: Training and Training Delivery

3.2.1 Provision of Training

Nearly all respondents said their company does provide them with training, though as shown later (see 3.2.5) there is still considerable room for increasing the amount of training and for targeting specific areas.

Provision of Training	Operators	Contractors
Yes	99%	100%
No	1%	

Only 16% of respondents said there are no areas where they need further training. In some companies there is considerable dissatisfaction with the amount of training provided – 84% of respondents listed skill areas where they want further training.

The following are comments from operators about the lack of training:

- We do internal audits which make up the majority of our training. The company sends me on a course every year – and we do all the internal audits as required. I myself am auditing systems and procedures that I don't fully understand – this is awkward – you are supposedly meant to know what you are asking and this is a problem. As well there seem to be very few assessors to call on and see what we have done. They are good guys, but they are often not accessible. There are just not enough assessors
- Company training is minimal - we do the things we have to do. The heavy workload means training is difficult to do. Would like our company to find out what we need so I could finish Enchem 4. We would like them to put on some 1-day courses. EXITO could canvas the company about what training they would like conducted
- We need more training. We don't build on our knowledge base, because not sure of our future – this is an ongoing problem. We need relevant, quality training in a good environment (not in our work environment while we are doing our jobs)

It is of concern that such a large number of respondents are dissatisfied with the amount of training being provided. The skills required in the industry are diverse, and must be developed to a high level. There appears to be a mismatch between the amount of training provided and the skill level both operators and managers say is required for the industry. This disparity needs to be addressed.

Comments from respondents about the lack of assessors is a repeating theme and one that needs following up. For EXITO training to be successful it requires an adequate number of well-trained assessors. Both the industry and EXITO need to address this situation.

Some respondents' comments were as follows:

- Assessors for future is a problem - they are getting older/retired. People would be happy to do part time work – EXITO could chase this up – get a list of potential

assessors – they would need a path of where they could go. This area is a real shortfall

- Without trainers and assessors, you are lost – it’s an area of exposure for the industry
- People will go “it’s too hard to train, so why bother?” – as a result there will be of lack of trainers and assessors

A small number of respondents also report satisfaction with training provision; ‘I’m signed up for Enchem. On-the-job training is fantastic in this company – even on night shift at 4a.m. I can ask questions and it’s fantastic.’

3.2.2 Reasons Understood for Provision of Training

Respondents listed the reasons they understood their company provided training. Increasing safety was the primary reason for training listed by both Operators and Contractors, with nearly 100% agreeing that their training serves this purpose. Operational/process understanding and technical skills development were also strongly recognised by respondents.

Reasons understood for company provision of training	Operators: % that agree	Contractors: % that agree
Safety	97%	95%
Operational/process understanding	83%	61%
Technical skills development	84%	78%
Computer skills development	61%	34%
Cultural understanding	13%	11%

In addition, some respondents made the following comments regarding training:

- Support degree study
- ITO Training, Enchem standards
- Driving HT, Chemical handling, dangerous goods, permits, Health Management, Spill, Control Systems DCS, Delta V
- Self development
- Occasionally team building
- Management training
- Take on more responsible roles
- You name it, we have probably done it or are going to
- Personal development
- Supervision/Internal Audits

3.2.3 Interest in Undertaking Further Training

Respondents were almost uniformly interested in undertaking further training, and had a very positive reaction to being encouraged by their company to undertake training. In discussions with respondents it was clear training was of great importance as it contributed to working in a safer environment, working more productively, pay rates would increase

with higher skill-levels and increase the satisfaction derived from the workplace. They felt training acknowledges them as important to the company.

One respondent made the following comment: ‘It is crucial to keep up your training and for everyone to get it. On this plant it could be 5 years before you do a particular process – it’s years before you are hands-on and competent. Have to combine practical and theory. Being out in the plant and an upset happens, we have to know what to do – it’s like spaghetti out there and all sorts of dangerous things can happen.’

Interest in Training	Operators	Contractors
Interested in training	96%	94%
Not interested in training	4%	6%
Required to do it	52%	57%
Encouraged to do it	48%	43%

In addition, several respondents made the following comments:

- Interested in meaningful training. Generic modules are useless in this industry - plant/equipment specific more useful
- Interested if it is the right type - processor, plant, operations (not graphs etc engineers want to know that and those with shares)
- Will always do the training if it is there
- Paid to do 8 days p.a. Some training is a waste of time - when don't explain it as you go. Get to learn when using the plant
- Stay on topic or enquire of trainees about what they would like to learn
- Only interested if training is done in my rostered time at work and not in my time off

3.2.4 Expected Benefits of Training

Respondents were asked what personal development they expected to receive from training. A safer workplace and better skills to increase productivity were the primary expected benefits by both Operators and Contractors. A large proportion of Operators also listed the opportunity of advancement as one of the expected benefits of training.

Expected Benefits	Operators: % that agree	Contractors: % that agree
Safer workplace	90%	89%
Better skills	94%	94%
Opportunity for advancement	67%	33%

In addition, several respondents made the following comments:

- Job satisfaction, most training applicable in one's private life
- The training I've received to date hasn't really advanced my career path
- To progress and seek further employment outside the company

- Self-satisfaction and improvement
- Better understanding
- More insight, better operations etc
- I seem to have advanced as far as the company will let me which is Senior Operator and fill in Team Leader
- Benefits at home
- Personal development
- Gain knowledge and remuneration benefits
- Ability to assist colleagues in training via assessment process
- More money
- Job satisfaction increased
- Statutory requirement for Electrical Registration

3.2.5 Skills or Knowledge Gaps

84% respondents answered that they want further training. The most commonly cited areas where training is required were the following:

Operators

- Computer training, including up-skilling,
- Equipment/Operations/Process training
- Management/Supervisor training, including staff management and business management, leadership,
- Training on upgrades and refreshers

Contractors

- Equipment/Operations/Process training
- Computer training
- Safety
- Management/Supervisor training
- Project Management

A small number of Operators and Contractors (both 16%) said that training was currently sufficient and is not leaving skills gaps.

Some additional areas listed for further training were:

- It's hard to know what you don't know. Would like to understand at some stage why we do things - maybe something to do with the money side
- Support in a degree course would be nice
- Compressor - engines
- More DCS training on the appropriate DCS on site
- Distillation, columnning
- Further training on gas chromatographs
- Enchem training
- Steam Tickets - Enchem 4 (time to do it)
- Training Officer, so I don't have to train others at my own sacrifice
- In my current role - increased knowledge of design and legislation for instrumentation codes

- Sub surface - classroom and practical training
- Now Management Base - Financial
- Specialist training for DelfaV, ROC etc

3.2.6 Registered for EXITO Training

The high number of respondents who are registered for EXITO training is positive. It demonstrates that companies are highly aware of what external training resources are available to them.

Registered for Training	Operators	Contractors
Yes	85%	61%
No	15%	39%

3.2.7 Access to Record of Learning

Respondents report high levels of access to their 'Record of Learning.' This too is positive as employees can track and keep up-to-date with their progress. However almost one quarter of respondents do not have this access. This should be addressed so that all trainees in the EXITO system can track their training progress.

Access	Operators
Yes	76%
No	24%

3.2.8 Consulted Regarding Training Needs

It is cause for concern that just over a quarter of respondents are not consulted about their training needs. Employee information about what training is needed to improve is valuable information for anyone organising training. Consultation ensures a more accurate picture of training requirements, therefore the training budget is put to better use, and better outcomes from the training are highly likely. This situation needs rectifying.

Consulted	Operators	Contractors
Yes	72%	67%
No	28%	33%

3.2.9 Training Needs Match

Respondents were asked whether there was a match between their training needs and what the company thought were their training needs. Just over half of contractors said there was, whereas nearly three quarters of operators (72%) agreed on a match

between training and their training needs. Though 72% of operators is a large proportion, it still leaves over a quarter of all operators and almost half of contractors unsatisfied with the direction/focus of their training. A dialogue between managers and operators/contractors regarding the skills required for their particular roles will assist in a more comprehensive understanding of training requirements.

Training Needs Match	Operators	Contractors
Yes	72%	54%
No	16%	38%
Uncertain / Occasionally	12%	8%

Those respondents who report a lack of training needs match felt negatively about this situation. ‘Training does not match my skills. I’m being pigeon-holed into training what the training governing body dictate what is required not what I need and its not helpful.’ Another said ‘as long as we are registered and company can pick up a subsidy, they appear happy to let us do what we like. This does not help my skill building.’

It is wasteful not ensuring a match in training requirements and is something that can be easily addressed.

3.2.10 Organising Training to fit in with Work

Three quarters of operators and an even larger proportion of contractors want training to be organised during work hours. A physically demanding job such as petrochemicals may leave little energy for training after work or on weekends. Furthermore, with one of the two primary reasons for people wanting to work in the industry being the shift work/time off, if training is regularly scheduled into such time it may diminish the job’s attractiveness. Although training does of course contribute to personal development, many respondents will also view their training as being of primary benefit for the company, so consideration should be given to addressing this issue.

One respondent commented that ‘this company is open to suggestions re training but staffing requirements are an issue. With a 12 hour shift it’s difficult to do training. We get resentful when we are told we have to do training on our days off. No one in corporate office does training on their days off. Most of our training is very basic and that is frustrating too.’

Training Times	Operators	Contractors
During work hours	75%	85%
Evenings	3%	5%
Weekends	3%	0%
Rostered days off	19%	10%

3.2.11 Contractors' Training

77% of contractors' report their work is Petrochemical industry related. Contractors had much less interest in answering the section of the questionnaire devoted to contractors only. None of the (contractor only) respondents answered the question of who pays for their training or whether they receive enough training. However they did put forward a number of ideas about how they could be more involved in training. These ideas are as follows:

- Do more site emergency training on client sites
- Attend with employees (i.e. client provided training).
- The cost and cost of lost income is a major stumbling block for smaller contracting firms. Perhaps the larger operating companies could contribute.
- Actually go on some of the site courses with my clients. Electrical training is always sorted. Minimum site requirements are always met.
- By being included in site staff training i.e. with clients

3.2.12 Preferred Type of Training Delivery

Respondents were asked the type of training delivery that works best for them. Classroom presentations/group work and on-site supervised practice were by far the most popular methods of training. Since both methods were often selected by respondents, this suggests the two training methods would work well together. The table below shows the percentage of respondents supporting each different type of training method.

Effective training should always incorporate a range of training methods to ensure different learning styles and needs are taken into account. It is essential that training involve practical hands-on learning. In this industry skill acquisition is essential to high levels. This does mean practical training needs to take a high priority. It is important to remember theory is learned to support the understanding of the practice.

Training Delivery Method	Operators	Contractors
Classroom presentations and group work	78%	89%
On-site supervised practice	78%	72%
Videos	40%	44%
Distance learning (learning by correspondence/internet)	23%	17%

3.2.13 Mix Between Theory and Practice

A majority of both operators and contractors feel that training contains the right mix of theory and practice. This is positive, as the previous chart (3.2.11) suggests respondents prefer this mixture of classroom and practical work. Those unhappy with

the theory/practice mixture often suggest there is too great an emphasis on theory and not enough on supervised practical work (see additional comments below graph).

However, there is still almost one fifth of respondents who report they do not receive enough practical training. Their concern is that this leaves them with inadequate knowledge and skill to be able to do the job safely and to the required standard. One respondent commented that ‘the practical training has to be 1 on 1 with someone experienced. The company provides all the theory modules and written procedures but the problem remains that getting time for practical training modules is very limited. This means the standard of my work is compromised.’

One manager made a suggestion to provide a practical training facility for the industry along the lines of what the Australian industry provides for their employees; ‘Perhaps a generic training facility, like the Australian Centre for Energy and Process Training should be instigated. Could we set one up in NZ through EXITO? We need very hands-on practical training – we don’t have this practical training anymore – there is nowhere to go to do that. That’s what is missing.’

Appropriate Mix	Operators	Contractors
Yes	82%	93%
No	18%	7%

Following are some comments about the mix between theoretical and practical training:

- Certainly get more theory than practice
- More practical experience would improve the learning curve of the courses
- More practice in the field I think is needed instead of racing ahead with bookwork
- Not enough hands on, sitting in a room isn't the best way to learn
- Sometimes there is not the right equipment to practice on
- More hands on needed
- Too many modules
- We often need plant ‘upsets’ to learn
- Too expensive to upset plant to get practical experience
- Don't do a lot of theory - shown on screen etc - seems to work
- Too much theory
- We sit too long in the class, I would prefer a more hands on approach
- Not always - too much theory
- **Never enough practical**

3.2.14 Expected Support from Manager Upon Completion of Training

The most important elements of managerial support expected by operators upon completing training were, in order:

1. Practice, and the opportunity to use new skills
2. Follow-ups to check training has been understood and was relevant for job
3. Encouragement, including feedback on training effectiveness
4. Refreshers/updates

These desires were the same for both operators and contractors, however some operators also listed 'support for further training' as an expectation. The results suggest respondents want the opportunity to ensure they have understood the new training, and to be consulted as to its relevance/effectiveness. Training in irrelevant/semi-relevant areas is likely to turn respondents away from further training.

Respondents' provided a large amount of information about the importance of managers supporting and following-up on completion of training. They want their managers to show an interest in their knowledge/skill development, they want to ensure they get the opportunity to use their new learning and they want encouragement on-the-job and for on-going development. This is a very positive situation and one that should be utilised for the benefit of company productivity and as an employee retention strategy.

Some additional respondent comments are listed below:

- Time to complete follow up. It can also be difficult to schedule in training with roster - Team leaders should do this for you as they are in control of roster and can balance manning requirement against shift training requirements. Some do, some don't
- Experience to answer questions related to the training
- Acknowledgement!
- Don't expect a too much when we have a lot on the go
- Manager shares knowledge and happy to be asked things
- Time to complete bookwork afterwards
- Review of expectations / potential arising from course
- Follow-up support, praise for good ideas/initiatives, correction on things that need improvement
- Time to use the training I haven't learnt in the workplace
- Group interaction and feedback
- To allow only improvements to be implemented
- Ability/opportunity to apply knowledge in a safe work environment to build practical skills
- Financial recognition
- Sign off practical assessments and have suitable work for assessments
- Not to pressure during training
- Part of salary review

3.2.15 Important Qualities in a Trainer

As shown in the table below, trainers need to have a wide range of skills – both in their area of expertise and in communicating that knowledge to training participants. Knowledge and experience were the most wanted aspects in a trainer by both operators and contractors. Also essential was the trainer teaching at a pace suitable to the group and being supportive of learners.

The way training is delivered has a strong impact on how that knowledge is received and whether or not it is absorbed. Trainers need more than just knowledge of the skills they are teaching, they also need inter-personal and teaching skills for ensuring that knowledge is absorbed and retained.

How do companies assess whether trainers have appropriate inter-personal and teaching skills? Without these qualities training can be a waste of time and money and turn employees off learning.

Trainer Qualities	Operators: % that agree	Contractors: % that agree
Knowledgeable	100%	100%
Experienced	90%	100%
Goes at the right pace	83%	72%
Supportive	78%	56%
Patient	73%	50%

The trainer's communication ability was also an important factor for trainees.

Following are some comments relating to this:

- Be able to keep trainees attention throughout
- Able to communicate at all levels and ability to change teaching style to suit trainees
- Good communicator
- Don't get too side-tracked
- Able to explain in real world terms/has practical experience
- Listens, communicative, practical
- Able to communicate
- Way they come across - not monotone
- Legible and coherent
- Give feedback, good communicator - get information across
- Light-hearted - not same tone for 8 hours

Respondents also want to learn from trainers who are respectful and fun. Following are some comments relating to this:

- One that does not presume to know what you do - everywhere is different
- Nice personality
- A person who treats the trainees as people - not idiots
- Fun doing it!
- Culturally respectful
- Punctuality - lots of waiting for trainers or the training as no one is booked or they've left training behind - don't know numbers for handouts etc
- Personality
- Meets the needs of their trainees
- Comfortable relationship with trainees
- Friendly and able to interact positively with all manner of people
- Cultural and candidate awareness, does get to know candidate and does their homework up front. Is prepared
- On the same wavelength as the trainees
- Friendly personality

3.2.16 Ideas for Improving the Way Training is Delivered

Respondents had a wide variety of suggestions for improving the way training is delivered. The most common suggestion for improving training was to increase the amount of practical ‘hands-on’ training. The most commonly mentioned areas were, in order:

1. Practical Training

Increase employees’ amount of practical hands-on training, and to make sure it is relevant to their site and not generic. Many respondents also mentioned the importance of a balance in the variety of training, from a balanced theory/practical course, to computer-based simulations, to one-on-one sessions.

2. Develop Trainer Competence

Increase the competence of trainers both in knowledge and training delivery – many respondents emphasised wanting someone that knows what they’re talking about and knows how to talk about it. Several operators also mentioned a trainer that gives people time to prepare for training is important for training readiness.

3. Scheduling

Not scheduling training for rostered days off

4. Training Focus

Focus of training – many respondents said that training could often be more focused on its subject. They do not want training strung out to fill a certain time quota.

5. Training Frequency

Regularity of training; several respondents mentioned how valuable a permanent trainer would be, one that could both run and schedule training before it is needed. The relevance of training was also stressed – i.e. having up-to-date material and modules that give trainees new information.

Respondents also offered these suggestions for improving training delivery:

- To actually train. The industry as a whole is guilty of not training enough apprentices and poaching staff from others to fill the gap. As a result of this and increased activity we are finding we have a skills shortage. Lack of supervision is also a problem. Trainees need good supervision and direction
- Training is delivered good, but within the Petrochemical industry the units required to reach standards keep changing
- [Plan training as a part of the work week rather than a ‘fill in’ activity during slow periods](#)

3.2.17 Training on New Equipment

The format for training on new equipment does not appear to be uniform, as many respondents said they received training at different times on different equipment. Just

over half of both operators and contractors said they received training on new equipment when it is first installed, however many of those same respondents also claim to have sometimes received training either before something is delivered or after something breaks.

The ideal appears to be that all operators are trained on equipment before it is delivered, and then to receive supervised practical training once the equipment is in place. Logistically of course this may not always be possible, meaning respondents will often be trained once equipment is installed - such time taken away from production no doubt affecting productivity. 18% of respondents said they receive training on equipment only when it breaks, and over 10% receive no training on new equipment whatsoever.

Clearly there is room for improvement in this area and if done is likely to have a positive cost benefit.

New Equipment Training	Operators	Contractors
Before it is delivered	13%	14%
When first installed	51%	62%
When it breaks	18%	0%
Not trained on new equipment	11%	14%
Not applicable	7%	10%

3.2.18 Length of Time Between Training and Workplace Usage

The most common period of time between training and workplace usage for all respondents was 1 to 5 days. A short turn-around between training and practical use is essential in ensuring what was learnt in training is cemented as part of workers' knowledge.

Time Between Training and Workplace Usage	Operators	Contractors
1-5 Days	39%	42%
Two Weeks	12%	5%
One month	1%	16%
More than a month	11%	5%
Not applicable/variable	37%	32%

A great many respondents, both operators and contractors, report that it depends on the type of training as to whether they use the new skills at a later date. This is cause for concern as trainees will quickly forget the new skills if they do not use them soon after completing training. Just over one third of respondents reported the time between training and workplace usage was variable depending on the equipment, trainer availability, time to train etc. This is a cause for concern and needs addressing to ensure training budgets are not wasted.

As well respondents mention that some skills they receive training in are only used intermittently. In this case refresher courses will be essential to ensure retention of the learning.

3.2.19 Reviews of Training Effectiveness

Operators and contractors were fairly evenly split as to whether there was follow-up on the effectiveness of training. This would seem to be an area the industry could focus on, as reviews of training will make employees feel more a part of the company and contribute to the effectiveness of training. There is no point in continuing training methods that do not work well.

Managers need to seek out feedback on training effectiveness and whether or not the skills have been successfully transferred to the work environment. By doing this they will obtain information on:

- whether the training matched the specific skills required for the job
- whether the trainer has been able to teach the skills effectively
- whether the training has warmed up participants to do more training or has turned them off the idea
- whether the training was a cost effective option
- whether further support is needed to hone the skills learnt
- Whether further refresher courses should be organised

All of these factors will assist managers and trainers to ascertain the most useful and cost effective training initiatives. Training follow-up should be done routinely as such an exercise can reveal improvements that can be made over time to increase company knowledge and skills and ensure training budgets are used effectively.

Reviews of Effectiveness	Operators	Contractors
Yes	46%	53%
No	54%	47%

3.2.20 Refresher Courses

The level of refresher courses given at appropriate intervals is high for both operators and contractors. This is positive but the question must be asked as to whether the refresher courses serve their purpose. As with any training run these courses need to be assessed for relevance and appropriateness.

Refresher Courses	Operators	Contractors
Yes	89%	94%
No	7%	6%
Sometimes	4%	

3.2.21 Management of Refresher Courses

Refresher courses are largely managed by employers. This is positive as it is an essential element to maintaining high work and productivity standards.

One respondent reported ‘people who have a trade need trade refresher courses. We pay for this – so we can use them when we have turnarounds. We keep them qualified and current only for electrical trade. But other trades in our company are on their own.’

Managed by Employer	Operators	Contractors
Yes	98%	88%
No	2%	12%

4. Managers

Please note:

Respondents that answered the questionnaire for managers include managers, supervisors, team leaders, and professionals such as engineers. For ease of description **all** respondents in this section will be referred to as managers.

4.1 Managers' Demographic & General Data

4.1.1 Age Distribution

Over three quarters of managers are between the ages of 40 and 59, with only 13% below this age bracket. Companies need to consider how well they are recruiting younger employees and developing replacements for managers retiring in the next 10-15 years.

Age	Managers
20 – 29 years	2%
30 – 39 years	11%
40 – 49 years	38%
50 – 59 years	38%
60 – 69 years	11%
Average Age	48.8

4.1.2 Gender

As with operators and contractors, women are highly under-represented as managers. With such a large potential part of the workforce being under-utilised, companies need to ask themselves why this is taking place and how it could be overcome. Putting strategies in place to enlarge the recruiting area for managers could significantly contribute to avoiding future managerial shortages.

Gender	Managers
Male	92%
Female	8%

4.1.3 Ethnicity

As with operators/contractors, Maori are significantly underrepresented within manager respondents, as are other ethnic groups. Maori make up 16% of the New Zealand population but only 5% of Petrochemical management positions. Companies need to examine what strategies could make greater use of this part of the workforce – and of others such as Pacific Islanders, who comprise 0% of managers. Are some groups not targeted by companies? Is there a perception by some groups that the

work is not suitable for them? The Petrochemical industry is a highly attractive one for many, and with appropriate employment and training strategies any future shortfall in employees could be partly remedied by taking these actions.

Ethnicity	Managers
NZ European/Pakeha	87.5%
NZ Maori	5%
Asian	2.5%
American	2.5%
Other European	2.5%

4.1.4 Average Hours of Work per Week

The average number of hours worked per week by managers is 45. The results were surprising given that, during one-on-one interviews, many managers talked about the long hours they are working – results of the survey forms partly contradict what individuals were reporting.

The following table specifies the breakdown in weekly hours of work for Managers.

Weekly Hours of Work	Managers
Under 40 hours per week	10%
40 – 44 hours per week	38%
45 – 49 hours per week	28%
50 – 59 hours per week	18%
60 – 69 hours per week	3%
70 plus hours per week	3%
Average	45

4.1.5 Job Choice – What Attracted People into the Industry

For managers, as with operators and contractors, remuneration is a strong motivating factor for those working in the industry. As previously stated, this appears to be both an asset and a problem, as many stated New Zealand cannot compete with the money offered overseas, meaning some workers move offshore. Emphasising and enhancing positive elements of the New Zealand lifestyle may help to develop the attractiveness of the job.

However, interest in the job and the challenge it provides was shown to be just as important as money in attracting managers into the industry, as were the career opportunities and professional development the industry provides, shown in comments such as ‘interesting industry, good career opportunities nationally and internationally,’ and ‘provided me with leadership opportunities.’

Companies should examine what elements within their part of the industry could maintain and enhance both the challenge and career possibilities/personal development of their employees – promoting the overall attractiveness of the industry will be essential to recruitment and succession planning.

Responses regarding job choice were, in order of importance, as follows:

1. Money
2. Interesting job/challenge (both money and interesting job/challenge ranked of equal importance)
3. Career opportunities/skill development
4. Shift work/lifestyle
5. Previous work experience
6. Change of lifestyle

In addition, some managers made the following comments:

- Chemical engineer - development in petrochemical industry, enjoy maximising potential of myself and assets of company
- Wanted career change - no previous experience
- Technical complexity and scope for advancement
- Challenges, well paid, international travel
- Location was a factor, high paid process industry primary factor
- Combination of practical operations work and tech work, relevant and challenging
- Exciting industry in which to contribute to NZ's economy
- An interesting time for this company with 3 developments about to commence
- Love of geology, travel and good salary
- Opportunity for advancement
- Employer's reputation and reputed earnings
- Natural progression from construction and maintenance of Petrochemical sites
- Secure job

4.1.6 Relevant Experience/Qualifications Before Entering the Industry

Almost two thirds of managers entered the industry with relevant experience or qualifications. This shows that experience and qualifications are of a higher importance for careers as managers than for operators/contractors (both responses were approximately 50%). However this does leave just over a third of managers that entered the industry without previous experience, a reasonably large percentage. Companies may wish to examine how much previous experience/qualifications provides managers with a better base for career development than those starting without similar experience. The industry is clearly still accessible to those without qualifications, but do these people progress as far/fast or stay in the industry as long?

Respondents were asked if they had relevant experience or qualifications before working in the petrochemical industry. The table below summarises responses.

Relevant Experience or Qualifications	Managers
Yes	63%
No	37%

Qualifications listed included:

Graduates

- Engineering degree
- Chemical engineer, work experience pulp and paper, chloralkali, chlorine dioxide manufacture
- Dip Dairy Science and Technology
- Science and engineering degrees
- Tertiary qualifications
- Engineering qualifications. Petroleum engineering major
- Economics/Law qualifications. Legal experience with industry issues
- Graduate of the Inst. Fire Engineers
- Quality Management/HR/Administration
- Agricultural diploma
- Science degree
- Mining industry graduate
- Business degree

Trades/Technicians

- Second Class Steam qualification
- Trade Certificate
- Boiler operational experience
- NZQA Industrial instrumentation course at Taranaki Polytechnic 25 years ago
- Fitter/Welder
- Trades qualification
- 2nd Class Stationary Ticket
- Fitter/Welder trade
- Marine engineering, Power Station work
- Off-shore oil industry, especially off-shore helicopter operations
- Steam ticket / boiler attendant
- Mechanical fitter
- First-class engine drivers' certificate

92% of respondents had worked in industries prior to working in the Petrochemical industry. Respondents listed the following relevant experience. They were, in order:

1. Mechanical/Engineering Work
2. Dairy Industry
3. Electrical Work
4. Mining Industry

Other previous industries included:

- Office administration
- Railway car assembly
- Building
- Manufacturing industry
- Telecommunications
- Flat glass industry
- Farming, contracting
- Electronics
- Chemical
- Electricity sector, gas sector, pharmaceuticals, consumer goods
- Media, Dairy/FMCG, FMCG, Aviation
- Legal, Chartered Accountant
- Carpenter and Insurance Investigator
- Fire Brigade
- Fitter/Welder trade
- Marine engineering at sea, Power Station work
- Timber Industry
- Gas transmission, wholesale, distribution

4.1.7 Number of Petrochemical Companies Worked In

Respondents were asked the number of Petrochemical companies they had worked in. The following table shows that just over half of respondents have worked in only one Petrochemical company. The industry is likely to be content with these figures, as the average length of time most New Zealanders stay in a job is currently 2 years.

Respondents showed a wide range of previous experience and qualifications before entering the Petrochemical industry. The industry clearly has strong loyalty and an ability to attract/retain employees (see following tables). The fact that over half of respondents have worked for one company only is likely to mean those employees are satisfied with many aspects of their working life. Succession planning for these employees is likely to be an important factor in job retention.

Number of Industry Companies	Managers
1	51%
2	14%
3	10%
4	15%
5 or more	10%
Average companies:	2.3

4.1.8 Time Spent in Industry

Respondents' average time in the industry was 21.6 years. This longevity provides a large, stable workforce currently keeping their skills (and potential to pass those skills on) within the industry. Such stability will aid training and succession planning, showing that money spent on training within the industry is money well spent as it usually stays within the industry. This experience/intellectual capital within the industry provides a solid, stable base for its future human resources needs. The following table shows respondents average time in the industry.

Time Spent in Industry	Managers
4 years and under	14%
5 to 14 years	5%
15 to 24 years	43%
25 to 34 years	30%
35 years and over	8%
Average time	21.6

4.1.9 Intention to Continue Working in the Industry

All respondents said they wanted to continue working in the industry, showing that money invested by the industry in training and personal development is highly likely to continue benefiting the industry. This speaks strongly about the attractiveness of the industry for employees, and suggests that augmenting such elements employees see as positive may help to prevent future staff shortages.

Desire to Continue Working in the Industry	Managers
Yes	100%
No	0%
Maybe / Don't know	0%

4.1.10 Age of Retirement

The planned age of retirement for managers is later than that of operators/contractors, with 71% planning to retire from 60 onwards. While this is positive in terms of experience staying within the industry for years to come, it does also highlight the necessity of succession planning within management. With the average age of managers at just under 50, a very large proportion of current management will be planning on retiring in approximately the next 10 to 15 years. Such a timeframe does of course give opportunity for companies to plan for this loss.

It should also be noted that almost a quarter of managers plan to retire by the age of 59. Planning to utilise and pass on the knowledge and experience of this age bracket is therefore essential for companies, and should be addressed now.

During individual interviews a number of respondents commented that shift work becomes more difficult once employees reach their fifties, and that they themselves were considering leaving during this time for jobs where shift work was not required.

One manager commented: ‘It’s a problem for staff workers – once we have worked 10-15 years or reach 50 sleeping in the daytime becomes more difficult, so many of us decide to leave the industry. Also chemicals are hazardous to our health and when employees get busy they cut corners. These chemicals kill people everyday.’

Planned Ages for Retirement	Managers
Under 50	3%
50 - 59	20%
60 – 64	34%
65+	37%
Uncertain	6%

Analysis of the respondents who provided both current age and intended retirement age data indicates there is a mean average of 10.5 years until managers retire. The following graph shows the intended retirement year pattern, and helps determine the industry risk period is 2010 – 2020. This is when a significant exodus of highly skilled managerial personnel occurs – some 64% of respondents intend retiring during this period. By 2030, 97% of participants in this survey intend retiring.



4.1.11 Intentions Regarding Retirement

During interviews some managers commented they would like the ability to predict when employees planned to retire. Currently they have no mechanisms to do this. Survey results give a good indication across the industry when people plan to retire. However, it would be beneficial for companies to establish a profile of when their own employees plan to retire. For example, one manager made the following comment; 'Our aging work profile is problematic - our average age is late 40's, early 50's. Not having a nominated retirement date makes planning very difficult. I want to get out at 55 - we haven't got a predictable average age of when staff plan to retire.'

As with operators/contractors, a large proportion of respondents see their job as a means to save a substantial amount for their retirement - several mentioned saving enough to retire before 60. However, a majority of managers stated their intentions of working on after their retirement, often part-time or as consultants. Some of respondents' answers regarding this were:

- Keep working, probably shorter hours
- Consultant part time
- Semi retire, have supplement income e.g. super/rental property
- Go onto part time work before finally retiring
- Own business (in the industry). Aim big!
- Continue to work, but off shift work
- Maybe part time consultancy within industry globally, travel, cycle and stay fit
- Consultant and sit on a few Boards
- Consulting
- Maybe reduce my hours
- Ideally have the opportunity to try a different work environment, help my children in their businesses, or a small business of our own
- Maybe a training role in the industry
- May do additional casual work of a technical basis
- Do part-time work in this industry in project work

Other respondents plan to retire fully and enjoy the benefits from their working life:

- Enjoy life, live each day, good health
- Time for me
- Enjoy what is left of my life
- Concentrate on family life
- Pursue interests of gardening, fishing and travel
- A lot more fishing
- Have no specific plans at this time
- To be independent from the government system - have personal investments
- Early retirement at age 58
- Active retirement with contribution to charitable causes
- When I have too much money or God doesn't want me here causing anymore trouble
- Pending sufficient assets retire at or before 60
- Have already semi-retired and will finish work at age 60

4.1.12 Salary Range (Managers, Professionals, Supervisors & Team Leaders)

Salary ranges vary considerably according to the size of the operation, as illustrated in the table below. In larger companies, most supervisors/team leaders' average base salary is \$85,000, and the shift component is in addition to this. The shift component varies according to different companies, but can include such items as free shares, superannuation schemes, travel allowances, free medical schemes, and car allowances. Professionals' (this category was made up mostly of engineers) base salaries ranged from \$85,000 to \$130,000, and was dependent upon the size of the operation.

The average salary range for managers was difficult to ascertain accurately. Some managers are hired in as consultants and are therefore on higher rates than employee managers. Therefore the base salary range for managers varied enormously.

Salary was also dependent upon the size of the operation, the amount of responsibility held, experience, and the length of time in the position. Salary ranges for managers ranged from \$85,000 up to \$300,000.

Salary range	Managers
\$40,000 - \$49,999	3%
\$50,000 - \$59,999	3%
\$60,000 - \$69,999	3%
\$70,000 - \$79,999	12%
\$80,000 - \$89,999	12%
\$90,000 - \$99,999	12%
\$100,000 and above	55%

4.2 Managers' Views: Professional Development

4.2.1 Match in Professional Development Needs

An overwhelming majority of respondents (92%) believed that there is a match between their own professional development needs and what the company believes they are. With 100% of respondents stating their intention to remain within the industry it is essential for there to be a match between what professional development the company wants and what managers want.

Match in Professional Development	Managers
Yes	92%
No	8%

Those who felt there was not a match made these comments:

- Unsure as to what to study for. Large part of own training on the job and Adult Learning Certificate
- Company does not make use of my current qualifications
- Responsible for own training plan
- Do Adult Education with EXITO - am in process of finding myself a business mentor
- Training and development has been somewhat deficient in the past re professional development. This however has been rectified recently with an abundance of training on the softer issues of leadership being undertaken

4.2.2 Structure and Support for Professional Development

A high proportion of respondents (94%) believe that their company offers structure and support suitable for their participation in professional development.

4.2.3 Sufficient Professional Development

Nearly three quarters of respondents believe that they participate in enough professional development. This is clearly a high percentage, but it also leaves over one quarter of all managers feeling they do not receive enough. This is a cause for concern, as one of the primary reasons for getting into the industry is the career development/opportunities it offers (see section 3.1.6).

Sufficient Professional Development	Managers
Yes	74%
No	26%

4.2.4 Reasons for Insufficient Professional Development

Time/job commitments and training budget constraints were the predominant reasons respondents gave for insufficient professional development. Given that professional development is an important factor for both managers and operators/contractors, what can companies do to ensure all employees are satisfied with the amount of professional development they receive?

4.2.5 Initiating Professional Development

84% of respondents chose to do professional development, with only 16% doing it because they were told. This suggests managers overwhelmingly see professional development as an integral part of their career and their job productivity.

Initiating Professional Development	Managers
Chose	84%
Told	16%

4.2.6 Appropriate Development for Future Career Plans

With 100% of respondents stating their intention to remain within the industry it is positive that 85% see their professional development as appropriate for their future career plans. Most of the professional development of managers will develop skills that will remain within the industry. This is a good use of training investment for current and future productivity and company capability and competence.

Appropriate Professional Development	Managers
Yes	85%
No	15%

4.2.7 Current Deficiencies in Professional Development

28% of respondents reported there are no current knowledge and skills deficiencies in their professional development. The following are the current gaps Managers cite in professional development – areas where skill development is not being addressed:

1. Business skills, including gaining MBAs or similar degrees/diplomas, skills in recruiting, benchmarking, auditing, new employment legislation, budgeting
2. Technical skills and knowledge, including root cause analysis, plant reliability, understanding the practicalities of how individual sites operate
3. Health and safety legislation
4. Environmental management training

4.2.8 Possible Future Deficiencies in Professional Development for the Industry

One third of managers stated they could not foresee future professional development deficiencies, however the following areas were seen as deficiencies which could arise in the future:

1. Change management (how to implement successful change)
2. Management skills, including quality management systems, negotiation skills
3. Business skills, including strategic thinking, accounting, directorship skills, participating on Boards, forecasting
4. Technical skills, including plant reliability, gas forecasting, overseas best practice in refining

4.2.9 Contractors Becoming More Involved in Training

Currently many respondents report they include their full-time contractors in any company training and also use contractors to provide training for their own employees. Managers were asked for their suggestions on how contractors could become more involved in training. These fall into the following categories:

1. Revalidation reminders
2. Provision of external training for contractors. For example, one respondent commented that 'outside expertise would ensure our skills are maintained/increased.' Another respondent commented that 'Greymouth's Taranaki Drilling School is great idea. There is no technical training in NZ in geology and engineering specifically related to this industry. Have to go to Australia. Industry is too small to supply in meaningful way, could sponsor scholarships or closer relationships with Australia'
3. Company contracts which include mandatory training for contractors

4.3 Managers' Views: Recruitment and Retention

4.3.1 Roles Currently Difficult to Fill

Managers were asked which positions in the industry are difficult to fill. The following table summarises their views.

Position	Difficult to Fill	
	Yes	No
Managers	46%	54%
Professionals	85%	15%
Technicians	88%	12%
Operators	64%	36%
Support Staff	25%	75%

Respondents report a variety of success in their recruitment. Some managers are very positive about how their company succeeds in this area while others are not. For example; 'Our company offers a fantastic package. We have no trouble recruiting. Staff realise we may not be here for long term – that is realised. But they appreciate how they are looked after – this is to our advantage.'

4.3.2 Managerial Roles Currently Difficult to Fill

The managerial roles difficult to fill included frontline managers, senior operational and engineering managers, exploration managers, development managers, production managers, training managers, maintenance and technical managers.

Part of the problem is that there are not enough skilled people for companies to draw on. The industry needs to find ways to make use of the skills already existing within the industry and ensure those skills are transferred to sufficient numbers of employees within specific time frames. This requires robust and deliberate succession planning. It also requires professional development and training be planned so that specific skill gaps are addressed.

4.3.3 Professional Roles Currently Difficult to Fill

The majority of respondents listed engineers as the primary role difficult to fill. Much of this information was non-specific as to the type of engineer. However, the table below shows percentages of managers detailing specific concerns over skill shortages:

Position	% of Managers Finding Role Difficult to Fill
Process Engineers	45%
Geologists & Geophysicists	32%
Chemical Engineers	32%
Mechanical Engineers	26%
Electrical Engineers	26%

Other specific roles listed as difficult to fill were:

- Tech Service Chemists with wood glue experience
- Civil engineers
- Instrument engineers
- Reservoir engineering
- Petroleum engineers
- Project managers
- Drilling engineers
- Commercial analysts
- Planning Engineers

4.3.4 Technician Roles Currently Difficult to Fill

An overwhelming 78% of respondents listed instrument technicians as being the most difficult role to fill. Electrical technicians were the next most difficult role to fill, cited by just over 50% of managers. 35% of respondents cited mechanical technicians as problematic roles to fill.

4.3.5 Operator Roles Currently Difficult to Fill

Respondents reported that highly skilled operations staff and trades people are the most difficult operator roles to fill. The trades people categories listed include fitters, welders, and electricians. All operator roles are listed as being difficult to fill by most respondents, and include control room operators, field operators, plant operators, operator supervisor and wireliners.

One respondent made the following comment:

‘The current worldwide demand for highly skilled operations staff and tradesman technicians is placing stress on the industry’s ability to recruit and retain high quality personnel. Additionally developments in exploration and development within New Zealand and indeed the immediate Taranaki area have accentuated this issue. Our company is currently facing stiff competition in this regard. Several staff have recently been lost to other opportunities. On top of this we have an aging work force with a vast amount of knowledge and experience poised to walk out the door in the very near future. The company’s assets in New Zealand are also in their twilight years, this can lead to a degree of uncertainty re job retention.’

Respondents also emphasised the continuing problem of finding experienced employees in both the operators and trades people categories.

4.3.6 Reasons for Difficulty in Filling Positions

Only 5% of respondents report they are not having difficulty filling positions.

The primary reasons given for the difficulty in filling positions are, in order:

1. Remuneration

Remuneration levels and companies inability to compete with overseas wages/salaries is a significant issue. Almost one half of respondents listed this as a major contributing factor to the difficulty of filling positions. Several noted how younger employees go on their O.E. and do not come back unless they want to work towards becoming a C.E.O.

2. Lack of Training/Training Facilities/Apprentices

40% of managers cited insufficient training as a problem – particularly when combined with an aging workforce. In particular, respondents mentioned ‘inadequate recruitment/training over past 20 years,’ ‘insufficient structured training as occurred with the demise of the previous apprenticeship system’ and ‘ten years of few apprenticeships combining with significant growth over the last 3 years.’

3. Rapid Growth/Small Workforce

Almost one quarter of respondents believe the rapid growth of the industry is affecting their ability to fill positions. Several also stated that there is a perception the industry is ‘dying out.’

Several respondents also made the following comments:

- The core maintenance roles are uninteresting and have become very boring due to contractors doing the large and specialised work. There are also not enough experienced individuals coming through the ranks to allow more experienced staff to take up support positions
- Our company assets are in a declining phase
- Employees are getting older and they get sick of shift work and leave. Others leave early because of the stress of the job
- Location can mean long travel time and higher travel costs

4.3.7 Reasons for Declined Offers of Vacant Positions

The most frequent reason given as to why positions were declined was that salary packages were insufficient. The next most common reason for declining an offer was the lack of job security and the perception that the company may not be around for the long-term. Does the industry need to emphasise that gas/oil is still going to be around for many years to come? I.e. long enough for a career for those entering/already in the industry.

Some respondent comments re insufficient salary packages:

- Salary, remuneration often not sufficient to attract individual
- Dollars and unwilling to start at the bottom again
- Salary package offered not accepted
- Salary and scale of opportunity in NZ
- Underpaid compared to world market salaries
- Salaries compared to cost of living in NZ
- Money and existing retention payments
- Better money or conditions; we are too slow in the interview/assessment/offer process

In the situation where the recruitment staff declined a candidate the reason given was low candidate skill level to do the job adequately. For example: ‘we have difficulty in getting experienced people and ‘the candidate was not up to the mark to work in this industry.’

4.3.8 Impact of Positions Remaining Unfilled & How Companies Compensate

There are a variety of ways companies compensate for staffing shortages. The most commonly mentioned way was to simply increase the workload of existing staff. This is a stop-gap measure which places added strain onto employees and could result in them leaving the industry or heading overseas. There is a concern amongst respondents that if existing employees work to fill the gaps and do not have the opportunities to move into more responsible positions companies may end up with a disproportionate number of inexperienced staff. This could result as one respondent put it ‘in the strain becoming too much for the experienced employees that remain.’

Some respondents’ comments were as follows:

- We fill in by everyone working harder
- Extra workload for present workers who get stressed, then leave
- Stress related cases may increase in frequency of people leaving - Quality of work drops as continuously fire fighting.
- Harder on the present staff trying to fill/cover the gaps
- Covering with current staff, but they burn out if not supported well
- Leave restrictions for shift worker - start to work your own leave, swapping to cover ones leave for your own
- Overtime cover
- Shortfall in key technical skills

Another way companies compensate for staffing shortages is to use secondments and rotations to ensure skill gaps are covered throughout the company. Respondents say this causes some key activities to be put on hold, slowing their industrial growth opportunities.

Contractors are also often used, as well as recruiting new people on short-term contracts. Respondents say this is a stop-gap solution as often contractors cost more and are not as familiar with the specifics of individual sites, one manager commenting that the ‘expensive contractors were not as good as we required.’ Several managers also stated that their companies recruit from overseas, using the New Zealand lifestyle as an attraction for potential employees – though they report this can be difficult.

Just over 15% of respondents listed succession planning and mapping of required skill sets as their method for compensating for unfilled positions, one stating that ‘money isn’t always the answer – we are doing an employee value proposition review (EVP).’

Other responses were as follows:

- There is no petrochemical engineering degree in NZ so have to employ mechanical, civil, process engineers and train them into the role
- Shift roster has 3.5 extra positioning above sickness and leave requirements. All positions filled

- We will have people to supervise and complete work but no-one to prepare the work for these people to carry out. This is not compensated for at the moment, TL's and some Techs prepare work but this takes time away from other duties

4.3.9 Future Under-Supplied Roles

Managers were asked to list the types of skills or occupations likely to be most significantly under-supplied in the future, and why they believed that. The areas, in order of concern, were:

1. Instrument/electrical technicians
2. Engineers
3. Trade skills (welders, fitters, mechanical, boilermakers)
4. Control/panel operators
5. Geologists/geophysicists

50% of managers predict that future staffing shortages will arise through employees being lured overseas by larger salaries. Several respondents answered that future undersupply of instrument/electrical technicians will occur because very few are being trained.

The industry needs to examine how to create attractive overall long-term packages for employees in New Zealand – if salaries cannot be as high as overseas then other attraction factors must be used. If employees continue to leave for higher paid opportunities overseas staffing shortages will worsen, putting more stress on those that stay and possibly driving them out of the industry.

Other future under-supplied roles listed include:

- Engineering, Panel Operators
- Accountants, CA qualified with more than 2 years experience
- Wire liners, petroleum engineers, OIM's
- Experience in off-shore industry with desire to teach/instruct
- Senior Instrument Engineering Staff, Planning Engineers, Production/Process Ops, Planning and Support staff
- Shift operators - all levels
- Ammonia plant operators
- Managers
- Technically skilled supervisors

4.3.10 Future Over-Supplied Roles

The majority of respondents stated there will be no over-supply of skills or occupations in the future. A small number of respondents believed the following positions may be over-supplied:

- Managers
- Unskilled workers
- Labourers

- Lawyers
- Low, semi skilled
- Manual labour, roustabouts, roughnecks, catering

4.3.11 Filling Skill Shortages

Respondents were asked whether it would be feasible to fill staffing gaps in non-traditional ways. Under one-third believe shortages can be filled by recruiting from under-represented groups (women, maori etc). The potential workforce these groups offer is large. The industry needs to address why so many managers believe these groups are unsuitable for the industry, and whether or not strategies can be put in place to deal with these reasons so new recruitment pools of possible employees are found.

68% of managers believe recruiting employees from other industries will help in filling skill shortages. With respondents – managers, operators and contractors – having a wide range of previous experience, but nearly all now intending to stay within the industry, it does suggest this may be a potentially successful strategy.

Almost two thirds of managers believe staffing shortages cannot be filled by people out of the workforce. With New Zealand currently enjoying record employment levels this is a restricted area for finding sufficient new employees. However, the attractiveness of the industry’s remuneration and shift-work is likely to be a strong incentive for people to enter the industry provided companies offer sufficient training.

A very high 88% of managers state that recruiting staff from overseas will help to fill skill shortages. Many respondents (managers, operators and contractors) state they want to work overseas at some point for the higher rates of pay. This suggests attracting employees to New Zealand is a challenge. Unless remuneration along with the attractive elements of the lifestyle in New Zealand can come close to the attractions of overseas jobs then those employees are likely to stay where they are.

Method of Filling Shortages	Yes	No
Recruit staff from under-represented groups (e.g. gender, ethnicity, age)	29%	71%
Recruit staff from other industries	68%	32%
Recruit staff from people out of the labour force	35%	65%
Recruit staff from overseas	88%	12%

In addition, some respondents commented further upon filling shortages:

- Time to train is the issue. Huge companies can absorb and train - small companies like us need to buy experience

- Although sometimes difficult to hang onto the younger single person that has been recruited from overseas. Our company has recently had experienced with regards to this. The family man is easier to hang onto (recent personal experience)
- People off the street from a different industry can develop into very competent operations staff (recent personal experience). A number of apprentices have also recently been recruited

4.3.12 Remediating Skill Shortages

60% of managers commented that various forms of training were the ideal way to remedy skill shortages. Respondents asserted that the industry and individual companies need to take responsibility for adequate training, and that the apprenticeship system needs to be re-developed. Several managers mentioned finding additional staff through contractors or recruitment companies, but say this can be problematic as recruiting companies do not always understand the skills and experience required.

The following comments were offered regarding what can be done by the industry to remedy the expected skill shortages through improved/further training:

- Internal organisation progression planning or shared work experience
- Industry needs to realise they have an issue and support training/organisations and get behind them
- Start recruiting and training people now. Implement a development plan and career for them and commit to it for long-term periods with reviews on sustainability
- Continue to actively recruit. Prepare comprehensive training plans so as to maximise learning potential of new employees as soon as possible. Plan for the future
- Operate a training department to provide replacements when required - cut down lag time from hiring to competency

There is clearly some dissatisfaction with the way the current apprenticeship system is working – many respondents say the old system worked better. Increasing the amount of apprenticeships and developing long-term plans for the skills they need to develop were common themes.

Some comments specifically about apprenticeships were:

- Go back to old apprenticeship system and recruit from trades areas - don't take straight from school
- Increase the apprentice intake, develop a long term vision for the staff employment (be it with the existing 'owner' or another) i.e. the owners may change, however the core staff numbers/skills are unlikely to
- Start an operator apprenticeship scheme
- Industry provide suitable training and qualification system for trainees/apprentices
- Establishing an Oil/Gas/Petrochemical apprenticeship system
- Schools to get people into industry - visibility and induction.

Respondents also noted that the industry must work harder to show itself as an attractive career option; through higher remuneration, by promoting the industry positively in schools/universities, and by providing recruiting/training sufficiently early to allow skills to be passed on successfully. 10% of managers also mentioned the possibility of tapping overseas markets to recruit immigrants and of how welcome a simplification of visa requirements would be.

4.3.13 Ideas for Attracting People into the Industry

Suggestions for attracting people into the industry were varied - one respondent suggested promoting the place of thermal energy 'as part of a balanced energy policy for the country' while another specifically mentioned needing a better CV screening process, saying that good people are already attracted to the job but sometimes fail to get an interview.

By far the most common suggestion for attracting people into the industry was through better remuneration. This may be difficult for, as noted by many managers, New Zealand struggles to compete with pay rates internationally. The most common ideas for attracting people into the industry were, in order:

1. Better Remuneration

Several respondents stressed the need for their company to be competitive with other companies, while others commented on the importance of promoting the pay rates as greater than in other industries.

2. Promotion of the Industry

Advertising the industry (for example, as the army does), raising the industry profile in schools, and making people in other industries aware of the different professions within the industry were all common suggestions. One manager suggested companies should promote 'the possibility of university degrees after trade training – it is better all round for industry and people' while another suggested enrolling students in scholarships 'with the expectation that they will work for the company for a prescribed period.'

3. Lifestyle Package

Promotion of the New Zealand lifestyle and the 'overall' package that comes with the job here was often suggested as worthwhile. A third of respondents mentioned that since remuneration in New Zealand can often not compete internationally an 'overall' package needs to be promoted. Suggested elements of such a package included the New Zealand lifestyle, the specific challenges here, work rotation, benefits such as pension plans, and a mapped career path.

4. Training Facilities and Pathways

Several respondents mentioned the importance of training and qualification systems for trainees/apprentices, in-house training departments for NZQA and unit standards training, and a Petrochemical industry training centre.

4.3.14 Attracting Women to be Operators

With only 7% of female operators and 8% of female managers, the industry has the opportunity to fill potential skill shortages by attracting more women into the industry. From respondent interviews it was clear that a considerable number of male employees had shifted their perceptions about women taking up more non-traditional roles within the industry. They acknowledged they now felt more comfortable about women taking on operator roles. Promotion of that shift, e.g. recruitment videos targeting women for specific operator work could aid the transition to a more gender-balanced workforce. However, this will not be a quick and easy solution but one that needs to be managed on several fronts over time.

14% of managers said they did not know of any way promotion specifically for women would be successful, while several others claimed that female operators had been tried before and had not worked out. One respondent questioned why any sex or race should be specifically targeted, and several mentioned that equal opportunity is currently applied but women simply do not want to work in the industry.

Some managers noted the physical difficulties some women may have with parts of the job and suggested they be targeted for specific areas not requiring as much physical strength. The primary areas respondents suggested for attracting women into the industry were, in order:

- 1. Promote the industry to women**

Suggestions included ‘having more women in trades/apprenticeships,’ promotion in schools and universities, promoting a changing image of the industry, advertising positions most suitable and promoting role models.

- 2. Promote attractive and suitable work conditions**

Solutions mentioned included changing the nature of the shift work model for women, providing proper facilities, and targeting women into the specific work areas most suitable (several commented that women make good technicians).

- 3. Support a changing ideology and environment within the industry**

One respondent commented that some managers need to ‘get over the belief that women will be too much of a distraction on nightshift.’ The industry has clearly been predominantly male for a long time and for any such changes in employee proportions to successfully occur the industry itself will need to support such a change, not just individual managers.

4.3.15 Career Paths for Operators

Respondents are largely unified over the necessity for clear career paths, though over a third say there are currently limited or no clear career paths in existence. They maintain that a career path helps prospective employees have a picture of how they can progress and develop within the industry. Once people are employed those with particular aptitudes can be identified and fast-tracked. Also if there are clear career paths then the training required to maximise productivity within specific areas is predictable and therefore easier to plan.

Career Path – Exists?	Managers
Yes	65%
No	24%
Limited	11%
Career Path – Necessary?	Managers
Yes	97%
No	3%

4.3.16 Apprenticeship System

88% of respondents agree that an apprenticeship system is an essential part of the industry and a central aspect of some employees’ training and development. However, it was a repeating theme from respondents, both operators and managers that the modern apprenticeship system does not match the quality of learning provided by the old apprenticeship system. The main reason given for this was that the old system provided enough theory and practical learning to produce skilled tradespeople.

It was rare that respondents reported they received enough practical training. In fact it was reported frequently that it takes between 5 – 7 years to train an operator to the skill level the company requires and is confident in.

There is also frequent dissatisfaction with the amount of paper work required and the delays experienced in receiving the paperwork from EXITO when they administer modern apprenticeships; ‘I did a modern apprenticeship – mine was good, but now they have turned to custard as the paper work required has reached huge levels. The guys who work with me got their Year 1 stuff and then have had to wait 4 months to get the paperwork. This affects their pay rises. It causes a lot of dissatisfaction with the system.’

One respondent commented that ‘we would like to go back to old apprenticeship system where people were trained working alongside journeymen. The results of this system of training were excellent and throughout the industry I hear people say this frequently. The modern apprenticeship system does not have the thoroughness and skill development that the old system had. It is a great pity for the industry and the country as a whole.’

From respondent comments it is clear they would like the modern apprenticeship system to incorporate aspects of what was valued in the old apprenticeship system so that the current system maximises skill development. Surprisingly there is confusion within the industry about whether an apprenticeship system exists. The modern apprenticeship system needs publicising so that all companies know what is available and can make the decision as to whether to take on apprentices. Respondents made these comments:

- EXITO would come up with an apprenticeship programme but they need companies to support it
- We would like to see an apprenticeship system – company need to commit to people to come on board and be supported in an apprenticeship

Some companies use contractors to provide trained tradespeople, relying on contractors training their staff through taking on apprentices; ‘we rely on contractors to organise their staff to go through an apprenticeship. If they come to us first they wouldn’t be as well trained. We would work with contractors to help them develop their people. But our company can’t give them the complete training they require to do the job.’

4.3.17 Improving Staff Retention

Respondents were asked for their ideas on improving staff retention. Their answers can be categorised into three groups:

1. Higher Remuneration

The comparison with remuneration rates in Australia was made several times, though respondents also mentioned the positive fact that the industry in New Zealand is ‘not out in the backblocks like Australia.’ One respondent commented that salaries have slipped relative to day workers and that ‘restoring shift-work remuneration relativity’ is necessary to improving staff retention.

2. Career Paths

Provide a clear career path; ‘if there are clear career development programmes in place with specific goals and targets, coupled with the appropriate remuneration you will keep the majority of your employees.’

3. Value Employees

If the New Zealand industry cannot compete financially with overseas companies then the positive nature of working in the industry here must be emphasised. Getting employees more involved in their company may help this. Suggestions included ‘better training,’ ‘encouraging involvement in company planning and day-to-day projects,’ ‘providing better work hours/conditions,’ ‘treating people like adults,’ ‘better benefits and work rotation,’ ‘recognition of achievement,’ ‘communication from managers re development,’ ‘recognising specialist skills’ and ‘individual performance-based recognition.’

4.3.18 Succession Planning

Only 53% of managers report that succession planning is done adequately in their company. This is a real cause for concern given the unpredictable nature of the industry. The lack of such a system could also be contributing to employees moving off-shore in order to get greater experience and further career development. The identification of potential and how best to utilise that potential is essential.

Why is this happening? Is succession planning not seen as important? Whatever the answers are, for companies where this is an issue there is a need to establish adequate succession planning systems.

Some respondents are extremely satisfied with the succession planning done where they work. One manager commented that ‘in our company we have a ‘Talent Management Programme’ which is about succession planning. It is a very good system. We look at succession planning, who we have and who has potential. We identify them early and then give them intensive training and new levels of work to develop them further.’ Interestingly the manager who made this comment comes from a company where they do not have trouble recruiting or retaining their staff. At the time he was interviewed there were no company vacancies and the average length of time employees were with the company was 15 years.

Respondents gave the following suggestions on improving succession planning within the industry:

- Set up clearly defined paths. More emphasis needs to be placed on this. Best to develop those internally who show aptitude and ability rather than having to recruit externally. Individuals rewarded for good performance - this will help retain staff long term
- Provision for backup staff outside of ops work in the factory
- Better leadership training/leadership from management
- Any succession planning would be good
- Need more formal processes
- Increase staffing levels to allow succession training
- Identification and development of people to move to senior roles

4.3.19 Industry Growth

55% of respondents predicted steady to high growth throughout the industry over the next 5 to 10 years, with growth predictions ranging between 20 and 80%. Many managers did cite the unpredictable nature of the industry – the uncertainty over new field discoveries – as making growth rates difficult to predict. One respondent stated ‘even though there is much exploration and development currently going on a lot of it is relatively short-term.’

Factors aiding industry growth were listed as:

- Reasonably steady demand for product, requiring investment to maintain production
- Discovery of new fields
- Increasing with the opening up of gas fields

Factors limiting industry growth were listed as:

- Limited due to gas restrictions
- There is already a shortage of skilled professionals, believe this will only increase over this period
- Unpredictable nature of new field discoveries

15% of managers predicted that the industry or their company will see little or no growth over the next 5 to 10 years.

4.3.20 Technological Advances

93% of respondents believe there will be technological advances which will impact the industry over the next five years. The most common answers were, in order:

1. Increased Automation

Increase in automation with such things as unmanned platforms, remotely operated plants, and better computer-controlled interfaces. Several managers commented that a move towards automation of new plants will mean ‘fewer operators, however those operators will need to be more multi-skilled.’ Another respondent believes this will create ‘more need for computer/technical/process skills combined.’

2. Improved Technology

Improved technology including well-completion technology, exploration technology, oil/gas recovery technology, deeper drilling, deeper exploration, advanced directional drilling, and well-injection/pressurisation technology. The improvement in technology was cited as something that will be a ‘diverse product range’ and, as mentioned above, will require multi-skilled employees trained for ‘the specifics of different technology.’

3. New Efficiencies

New efficiencies with the use of such things as Bio-fuels, a focus on energy conservation and greater environmental controls. Several respondents report there will be a greater focus on increased efficiency in such areas as power generation and emissions.

Several other respondents made the following comments:

- New gas sources (coal)
- Blending instrumentation online, quality estimates
- Geophysics
- As technology increases, marginal developments become a reality to produce

4.3.21 Training for Future Technological Advances

Many respondents mentioned the need to plan for future technological advances now to avoid any reduction in required skills – also mentioning this requires managers to be kept up-to-date with the technological developments taking place. Their answers can be grouped into the following categories:

1. Proactive About Training

Companies and industry organisations need to be pro-active about training and planning for future training requirements. Managers commented on the importance of planned training so employees are ready with new skill sets by the time those skill sets are required. Planning must incorporate all major decisions on plant and process change, and how this will affect support and non-operational staff. Several managers commented on the difficulty of keeping up with advances unless they are already occurring within their own company - some respondents suggests the industry provide in-house trainers

and provide access to international expertise and development.

2. Comprehensive Training

Managers mentioned the need to ensure technological advances are included in apprenticeship training, to ensure skilled trainers with practical experience are adequately rewarded to keep them in the industry, and that new hands are given training for future technology, not just experienced workers.

Other suggestions included:

- Training within sites
- Ensure people have computer skills
- Select people that already have a relevant trade and upskill them in operations
- In-house training departments or some central industry training scheme/polytechnics etc.
- In-house initial and intense refreshers and reviews – detailed testing for competence

4.4 Managers' Views: Training Issues for Companies

4.4.1 Adequate Operator Training

A large proportion of respondents report there is adequate operator training being done in their own company (see table below). This contradicts the survey results from operators themselves, where 84% listed skill areas where they want further training.

In discussions with managers a considerable number reported the difficulty in providing operator training which adequately prepares employees for work across the plant. Their concern is that because there is such a lot of difference between their own sites let alone other companies, it is extremely difficult to train so that employees learn about all different systems, equipment, and procedures. This is in part why it takes many years before they produce skilled operators – and perhaps why many operators feel they need more skills. Managers pointed out that the non-generic nature of operations can impact productivity and safety.

Several pertinent comments were as follows:

- We are doing a huge amount of internal training for operators. In order to get fully paid in job you need a number of core skills then a rolling 3 years re-validation (in all core skill procedures etc), then get assessed and signed off. It is exhaustive and difficult to do – we do this for process and fire and safety/emergency response, and then we have all the Unit Standards and water treatment training for some staff. We don't seem to catch up and get to where we would like to be
- Training is an issue as the industry is so damn specific, because in operations it is all different even between our own plants – there are so many things to catch them out. That is the nature of this industry. Often when they go to a new site, they have to start at the bottom again
- We have to do this training on site with live equipment. 26,000 horse power turbines are dangerous – The potential is huge for an accident. In our industry we have to be very careful cutting loose new employees. It's a dilemma
- The problem is competing with the mining industry which is booming and poaching people at operator level

Adequate Operator Training	Managers
Yes	81%
No	19%

4.4.2 Operator Training Results

Just under two thirds of managers feel they are getting the results they want from operators being trained. However, 36% feel that there are areas of concern caused primarily by insufficient training time and variable training standards, and some are

predicting this situation to get worse as current trainers retire. The industry needs to ensure that the knowledge and experience of those currently training employees is sufficiently passed on to those who will continue to train others.

Successful Results	Managers
Yes	64%
No	36%

Respondents gave the following reasons for training not meeting requirements:

1. Time

- No time – no dedicated training department. You very much train yourself. We never meet our training targets – dedicated training would have to be on days off
- Time constraints, varying business needs/conditions. Personal enthusiasm needs to be improved
- Not sufficient time before being put in the front line
- Some are put through training areas too fast
- Management too busy to organise training
- Long steady process to gain medium to high competency

2. Training Quality

- In some cases I don't believe that the NZQA system provides the in-depth knowledge or the training quality required. E.g. at this point in time I would prefer to employ someone who had a First Class steam certificate in preference to Enchem
- As I see it, the weak link in the system is the variance seen in some of the training providers; their expectations/standards can be quite variable. For me the standards need to be more consistent between providers
- Don't think operators are getting the correct basic training
- The guys we are getting now, from overseas are lacking in qualifications but we are desperate
- We know the quality of tuition given is at best average, and the assessment/monitoring/follow-up is not always there.
- No dedicated training department leads to different standards

4.4.3 Areas of the Job Showing Most Benefit from Training

The very substantial benefits managers obtain from training can be broken into three major groups; improved productivity and operator competence, improved safety, and increased employee initiative/knowledge (see table below). Such benefits will affect the company through both plant productivity and positive employee relations.

Job Areas	Managers: % that agree
Improved Productivity/Operator Competence	90%
Improved Safety	55%
Using Initiative/Contributing Knowledge	42%

Other comments from managers regarding the benefits of training were:

- Confidence growth of staff
- Customer service improvements
- Plant reliability increases
- Increased understanding of the industry and the operating processes and practice
- Decrease in down time due to quick problem-solving. Proactive input into making projects work better
- Improved understanding of the technical process

4.4.4 Adequate Provision of Professional Development

Two thirds of managers believe they are currently receiving enough professional development. This still leaves a large proportion – 34% - who believe they are not receiving enough. Clearly there is room for a dialogue within companies about what skills managers feel they currently need to develop. To leave this situation as it is - is likely to have a negative impact on staff retention rates.

Adequate Provision?	Managers
Yes	66%
No	34%

4.4.5 Barriers to Adequate Provision of Professional Development

There are many barriers to adequate provision of professional development/training listed by respondents, with reasons categorised into three main groups. They were, in order:

1. Insufficient Funding

Several respondents said that companies largely pay lip service to professional development/training needs, as they do not address the true development required. Companies face the constant difficulty of spending enough resources on training and development to the skill levels they require whilst hoping employees will not take those skills elsewhere. However, the fact is that all companies need employees that feel they are valued, and respondents report that providing professional development is a primary means of achieving that. Relevant and quality training will raise the skill level and

commitment of employees and the productivity of the company. As one manager stated, 'finance for training is an investment in the company.'

2. Lack of Trainers/Lack of Adequate Training

Respondents have a concern about insufficient numbers of good quality industry training professionals, also stating that many are soon set to retire and have concerns that trainer expertise will disappear. Some suggestions to counteract this situation included permanent site trainers, and 'piggy-backing' of training for smaller companies with larger companies (as long as costs were shared). They are aware that some of their valued trainers are likely to retire within a relatively short time frame. Planning needs to be in place to ensure these training skills are passed on to future trainers.

3. Time

A third of respondents listed time as a barrier to adequate provision of training. If companies have 'lean staff numbers it is difficult to release people' meaning training is often shorter than necessary or not as frequent as required. One manager suggested training be targeted at individuals or small groups to lessen this problem. Several also mentioned the nature of shift work as a difficulty, especially when there are 'expectations to do external qualifications (NZQA) in work time.' A common suggestion was to have individuals dedicated to organising training and development, and ensuring sufficient work cover for those training.

Several other respondents listed the following problems:

- Uncertainty in the industry is a big barrier to the adequate provision of training and is an area that needs to be addressed across the industry
- Uncertainty in industry means young people leave and go overseas – we think why train?
- Standard of training is down to individual. The facilities are here in this company
- Those with professional 'know-how' are doing their own thing to progress up the ladder
- Policy to contract work out can mean that own staff miss out on development and training opportunities

4.4.6 Industry Ability to Recruit Good Trainers

With the expansion of the industry the recruitment of sufficient high skilled trainers is clearly a problem and one that many managers believe may get worse. Many respondents are concerned at the critical lack of external trainers for the Petrochemical industry. They speak highly of the external trainers available to companies in the Taranaki region, however with the ongoing need for more training, the number of external trainers available to companies is becoming increasingly insufficient.

Predominantly managers said that trainer numbers need to be increased, by ensuring there are sufficient incentives to stay in the industry, by developing selected current trainers to ensure their abilities match what is required, and by identifying those experienced staff with potential to become trainers and training them. Many

respondents mentioned the fact that ‘training will need to be done by skilled operators and there is a massive drop in pay when coming off shift’ – meaning appropriate incentives will be needed to bring those employees into training roles. Some employees may find the working hours for trainers preferable to that of being an operator – these choices need to be made clear and be supported by the industry. The table below summarises managers’ responses.

Sufficient Ongoing Recruitment of Trainers	Managers
Yes	29%
No	71%

Respondents also gave other suggestions on what needs to be done:

- Most trainers are independent providers, ex employees. Maybe some need to be employed by the ITO's so that more high quality trainers are available?
- Operator trainers are hard to get. Operators won't come off shift to take up training roles because of the large pay gap
- Incentive scheme to attract trainers
- Needs to be seen as a career path for some individuals who want to move from daily operations

4.4.7 Teaching Trainers to Motivate Trainees

The majority of respondents indicated it is essential for trainers to receive training in how to motivate and interest trainees. Trainers can have excellent knowledge without necessarily having the teaching skills to interest and motivate trainees. Without this skill, training is likely to fail. Currently, respondents report that the level of trainers’ communication and teaching abilities varies widely. However, there were many positive reports of trainers able to motivate – this included both internal and external trainers.

Necessity of Teaching Trainers	Managers
Yes	94%
No	6%

4.4.8 Catering for Unique Workplace Work Processes

Many respondents stated there is a large portion of ‘cross-over’ between most sites, meaning training can often be done broadly then tailored later to the specifics of individual sites; ‘our industry has the same base processes, therefore base knowledge training can be done with ease,’ and ‘there is a big percentage that is standard/common equipment which can then be followed up with site specific requirements.’ One respondent commented that ‘provided trainers have a practical knowledge of the industry involved it shouldn't take long to adjust.’ Trainers need to be aware of the differences between sites and know how to manage these differences in their training.

63% of respondents stated that in-house, site-specific training is best for catering to unique workplace processes, which means that either companies develop/maintain in-house training facilities or trainers must be trained to the differences in site operations. Several managers commented that this is what good trainers already do; those with good organisational skills and experience are able to identify specific site requirements and tailor their training for them. Dialogue between site personnel and trainers regarding training requirements will be beneficial.

A third of managers also stated they train their trainers from within their own employee ranks, meaning their trainers are already aware of the specifics of their site. Some suggested it is beneficial to do internal training for core skill training and then bring in experts for specified topics.

4.4.9 Ensuring External Trainers Up-to-Date with Industry Standards

Respondents report it is essential there is clear dialogue between personnel organising training with external trainers so those trainers are kept up-to-date with industry and company standards and requirements. Without this they are likely to compromise the quality of their training.

The following ideas were given to keep external trainers up-to-date with industry standards:

- Help them become more aware of new Unit Standards
- If they are pro-active with new information verify it by comparing to other information sources
- Discuss these issues with them
- Spend time at each site to check up to date with standards
- Receive magazines on latest hardware etc and put on good courses
- Usually use industry related consultants/trainers
- Networking with other sites to check out
- Sponsoring seminars and course instructors to come to NZ
- By regular visits off-shore and to on-shore installation and being aware of new companies
- Check their credentials and feedback from trainees
- Part of supplier review

4.4.10 Recommended Length of Training Modules

The ideal length of training modules depends on the purpose of training and the training objectives, however over 80% of managers believe that 1 to 2 day training modules are preferable to longer modules. Some respondents commented that sometimes training modules are 'padded out' just to make them seem more comprehensive. With time available for training at a premium, focused and skill-specific training is essential.

Length of Modules	Managers
1-2 days	81%
Longer than 2 days	19%

4.4.11 Required Supervisory and Management Skills

Skills required by managers are varied, requiring the ability to manage the development of both individuals and the site, and to communicate these needs successfully. The most common areas respondents listed were, in order:

1. Supervisory Skills/Employee Management

Suggested necessary elements were problem-solving, people skills, delegation, goal-setting, moderator skills, monitoring employee progress, conflict management, prioritisation, change management, and organisational skills.

2. Leadership Skills

Suggested elements included decisiveness, motivation skills, empowering people, confidence building skills, gaining trust of employees, and development of teams and individuals.

3. Communication Skills

This included the ability to listen attentively, and to explain themselves in a way employees can ‘understand and relate to.’

4. Time Management

Respondents also made the following comments:

- Any form of management training would be good
- NZIM courses
- Basic psychology course for all managers
- Business (MBA) skills
- Am currently engaged in “BUILD” course that has been valuable as far as developing leadership skills

4.4.12 Work-Site Organisation to Maximise Productivity

Respondents were asked whether training is required for supervisors/managers in how to organise a work-site so that jobs hold the interest of their employees. Almost two thirds of respondents thought this would be valuable.

Work-site Interest	Managers
Yes	63%
No	37%

4.4.13 Proportion of EXITO and Non-EXITO Training

Respondents were asked what proportion of their total training is EXITO training, non-EXITO internal training, and non-EXITO external training. The table below summarises their answers.

Training	Percentage
EXITO Training	24%
Non-EXITO Internal Training (training run by own staff)	48%
Non-EXITO External Training (run by consultants)	28%

4.4.14 Environmental Management Training for the Future

With the importance of environmental management increasing, respondents were asked about what is needed for future training in this area. Many managers cited a need to keep up with changing legislation and have regular training to ensure both management and operators/contractors are kept up-to-date as such changes take effect. Several also stated they would benefit personally from an increased understanding of legal requirements and how different positions are affected by these requirements.

Some of respondents' comments on this question are listed below:

- This and H&S need to be integrated into the process training so that it is seen to be part of every task, and not something special
- HSNO - side of training (Hazardous substances and their Management Emergency Management of Spills)
- Good understanding of RMA - 1S0 14001
- Having people trained on site in the requirements of the environment
- Own in-house department providing training and advice
- Employ specialist as HOD. Chemical handler training delivered by external trainers
- Recruit experienced personnel, so training not required at base level, only as regulations change
- Corporate office training. Site and operational training
- Help employees understand how (1) how it impacts on the viability of our plant to operate, (2) how it impacts directly on what operators do
- First awareness of roles and responsibilities then how they can make a difference
- Training on environmental intentions needs to be covered by work practice and procedures
- Understand company policies
- Up-to-date in-house and site-specific training. Must meet HSNO and regional consents etc

4.4.15 Health and Safety Training for the Future

Respondents were asked about what is needed for future health and safety training. They mentioned the need for site-specific training in this area, as well as management ensuring both they and operators are up-to-date with current legislation – and scheduling training to keep up with any such changes. A number of respondents also mentioned an increased emphasis on combining environmental management and health and safety with regular training, so they are seen as normal, everyday facets of the job.

Some suggestions respondents made were as follows:

- Confined spaces safe work practice/Hazard Management/Instant investigation - working heights, manual handling, extremes of temperature and safety rep training
- Management Level Legislative Training
- Ongoing refresher training in all areas
- Use a combination of NZQA qualifications as well as SENZ specific in house training to provide the required level of training for our staff
- Adequate number of people on plant, so all required training can be of quality
- Very important. Our external trainer puts on good courses covering these subjects
- Own in-house dept provide training and advice
- We use outside agencies to train existing HSE Steering Committee
- Recruit experienced personnel, so training not required at base level, only as regulations change
- Keep HS&E manager up to date and able to inform and train other staff in process or procedures
- A lot (people in NZ don't care about earthquakes, fire, or tsunami hazards!)
- This is reasonably ok at the moment - don't lose focus on it
- Understanding the legislation and actions to be taken pertinent to individual's position. And also how to engage a culture where people want the same as what the HSE training delivers
- Compliance, hazard ID and mitigation
- Legislation, legal implications, hazards of our own industry, codes of practice and safe work procedures
- Continued development of training done in last 20 years to keep up with COP or legislation changes. This area is well entrenched within the environmental issues
- In-house comprehensive programmes - do require updates at this time
- Integrated into the process training

4.4.16 Literacy

Managers were asked whether employee literacy is a problem. Figures show this is not a concern for the industry. Overall respondents report only 1% of employees as having literacy problems. This figure is low as most managers reported no problems with employee literacy. However, one company stated they have considerable difficulties with language barriers occurring as English is the second language of some employees. Another company also reported 10% of employees have difficulties with their writing skills/report writing.

4.5 Managers' Views: Industry Predictions

4.5.1 EXITO's Role by 2012

Respondents were asked what they believe EXITO industry training needs to be doing by 2012. The responses to the question about EXITO and its role varied enormously. One respondent commented 'EXITO are doing a hulluva good job' while another said 'they are doing extremely well. The industry must get on board with them i.e. to understand workplace assessors and what EXITO offers.' Responses have been categorised below.

1. Organisation of Training through EXITO

In some larger companies an administration person is sometimes given time to take on responsibility for organising employees into the EXITO training system. This is extremely useful as there is a large amount of paperwork that respondents report is required. Without someone in a company taking on this responsibility many prospective trainees say they have difficulty enrolling in EXITO training; 'When I shifted roles to company admin I got involved in EXITO. If people aren't motivated or confident and don't know how to follow through they won't get into EXITO training. It needs someone in the company to co-ordinate EXITO training. There is so much paperwork that it takes a lot for one person to understand what is required. There is just not enough time for operators to do this.'

Some pertinent comments were as follows:

- EXITO has been very good to work with, but if employees not confident or don't know the system, and that is often, this can fall over
- The EXITO portal is great but the operators don't know about it – having training information at my fingertips is really helpful and a good point of contact is essential. I'm involved in admin for EXITO as part of my job, I know the system but for the guys out there that is not the case so things can go pear shaped and they get frustrated
- Initiating things with EXITO and keeping in contact is needed to ensure EXITO training doesn't fall into a black hole if the trainee doesn't communicate with the company. Their feedback is essential to make EXITO training work – how to chart an employee's progress especially when they are shift workers is almost a losing battle. For example some operators have been off for a month due to shift patterns and leave – I can't keep them up to date with EXITO stuff and so they fall through the gaps and I haven't found a way to keep everyone informed when there are four shifts 24/7
- We do good training but it could be improved, people are left to their own devices with EXITO so the company should have a co-ordinator of training (we have 4 shifts). At the moment EXITO training information doesn't necessarily get shared with those on other shifts. They have to go looking for information themselves – they don't have time – its messy
- Too many bureaucratic problems - EXITO needs more flexibility.
- Needs clear structuring time frame management. Smart usage
- We must stay current with the trends and not get left behind. EXITO could do more site visits

- So much paperwork – reduce it
- Put together a strategy and business plan by the sounds of it!
- Continuation of the work already achieved and moving with the times. A greater presence at work places and an involvement with the people doing the training

2. Training and Unit Standards

Respondents report some confusion about the training packages offered by EXITO. There is concern about the relevance of some of the training provided. Gaps are reported in the training module topics which are not currently offered. It is clear that more dialogue is required to address these issues.

- Don't even know what EXITO is about apart from the meaning of the acronym and knowing of it's existence
- We need site-specific modules provided in unit standards
- Continue to develop and refine the qualifications to meet industry requirements
- EXITO need to have a training programme that is relevant to the industry, attainable and tradable
- EXITO need to provide training packages. We get information but it's confusing. Needs a consistent, simple approach instead of the complicated way it is done now by EXITO
- Improve the processes for National Qualification reviews time wise
- The Unit Standards fit our business really well – I would hate to change it. We need organisational support from the ITO and the industry must support the ITO.
- Industry training not quite there in terms of professionalism – the support is not robust – we need an encyclopaedia of knowledge
- EXITO only gives you categories and Unit Standards to work to
- EXITO does not have the tools to supply job specific training
- EXITO unclear still - mostly okay, some OTT, depending on how far want to go. Company - concentrate on basics to run the plant to best knowledge can. (Some EXITO training not directly relevant so some people can become negative and not interested)
- Be up to date with the practical side of the work sites
- Get the old guys involved in training somehow
- Provide more computer based training → non contact, but assessed moderated training
- Need to work with the industry/companies and promote and provide industry wide training i.e. process training
- Competency for OIM's/CRO's in dealing with emergencies off-shore

3. Apprenticeships

This is another area of significant concern to respondents as reported previously in the report.

- Apprenticeships need to have a robust practical component and right now that is not happening – and it cant in the way it is currently structured

- Apprenticeships/Cadets. Involve more industry groups
- I believe an Apprenticeship system should be well under way by 2012
- Apprentices need practical training in heaps – they are not getting this
- Apprenticeships or comparative arrangements with international schools ... Western Australia???
- Apprenticeship Scheme. Start now (yesterday). Get people trained to fill the gaps
- An operator apprentice system supported by employers. Get involved in more site-specific training
- Maybe an industry apprenticeship or cadetship (adult retraining for industry as people switch careers).
- Equipping new people for the industry at an indentured or trainee level, possibly pre-employment

4. Provision of Quality Trainers

Again respondents added further information about the provision of quality trainers and do see this as part of EXITO's responsibility.

- Need to encourage more quality trainers and improve the consistency between providers!
- Make sure quality trainers are in the industry
- Seem to have haphazard quality among trainers
- Gaining industry requirements and placing a suitable training programme around requirements – this includes indentifying good trainers
- Increase training providers for Petrochemical group. I think for our qualifications, we only have one provider
- Get more trainers in automation and business management systems/processes

5. Cost

Only one respondent reported that the cost of training through EXITO is problematic.

- EXITO contract rates are too fixed; need to quote for training first then assessment quote for later, once we have met trainees. That system encourages sign off on paperwork

5. Future Considerations and Issues

Respondents are committed to the idea that training has a substantial and important contribution to make in the industry. However, the results from the survey raise many issues the industry and EXITO need to address. The questions below outline those concerns for both EXITOs consideration and the industry in anticipation they will stimulate and direct their thinking, decision-making and future planning. We encourage the Board to do its own analysis to uncover further questions.

5.1 Questions Arising From Demographic and General Data Results

5.1.1 Age and Gender

Issues:

The average age of operators is 44.3 years

Three quarters of managers/professionals are between the ages of 40 and 59, with only 13% below this age bracket

Only 7% of operators are women

Questions:

1. How much will the aging workforce contribute to the skills shortage within the industry?
2. What can be done to lessen the impact of a large number of senior people who will leave the industry over the next decade?
3. What can be done to inform prospective female candidates about the work options and careers available in the industry?
4. How can this be done so that women who are under-represented in the industry and who have the capability and the interest in joining the industry be reached through a change in recruiting methods?
5. How can women be targeted to offset the impact of particular staff shortages?

5.1.2 Wages and Salaries

Issues:

- Remuneration rates are high in the Petrochemical industry by New Zealand standards, but for the industry are not seen as high enough when compared to international standards
- Wage/salary remuneration levels need to be addressed to ensure the industry maintains adequate recruitment and retention of highly skilled employees

Questions:

1. What further approaches can be taken to keep employees working within the industry in New Zealand so that less go off shore?
2. How can companies maximise quality of working life for their staff to encourage them to stay in NZ?
3. How can companies maximise quality of work-life balance for staff to encourage them to stay in NZ?
4. Should action be taken to redress perceived inequity in international pay relativities? If so, what?

5.1.3 Entering the Industry and Career Opportunities

Issues:

- Once people join the industry they appear keen to remain in it. Career paths are a critical future issue, yet finding time to train employees is problematic
- There are skill shortages and recruitment problems
- Succession planning is not working well in many companies
- Respondents want apprenticeships re-organised so they produce more highly-skilled operators

Questions:

1. Should specialist pre-employment programmes be instigated to give prospective industry employees greater understanding about the attractions of working in the Petrochemical industry?
2. How can the attractions of working within NZ be marketed so people are attracted into the industry and robust retention rates are maintained?
3. What can EXITO do to prioritise and actively assist with implementation of the ideas raised for attracting people into the industry?
4. How could EXITO support school students to learn more about the industry?
5. What skills could be learned/unit standards taught in high schools to support careers in the industry?
6. What needs to be done to publicise the benefits and attractions of working in the industry so a wider pool of prospective candidates is reached?
7. How can Maori and Polynesian people who are under-represented in this industry and who are a potential pool of people to recruit be reached through changed recruiting methods?
8. How can career planning be introduced at the operator level without undue disruption to productivity?
9. How can career paths be understood by prospective employees so they see the benefits and career opportunities of entering the industry?
10. What support would be necessary for redeveloped apprenticeship training – for the apprentice and the company?
11. Over what time period would an apprentice system be sustainable – for individual companies and for the industry?

5.1.4 Retirement Plans

Issues:

- The industry is at risk of significant skill loss from the period 2011 – 2020 with some 50% of operator respondents retiring during this period
- By 2030 almost 85% of operators will have retired
- For Managers the industry risk period is 2010 – 2020. Some 64% of respondents intend retiring during this period
- By 2030 97% of respondents in this survey will have retired

Questions:

1. Is manager/operator succession a significant issue?
2. How does the industry intend dealing with the significant numbers of people intending to exit the industry during defined periods?
3. What is EXITOs role?
4. What can be done by those experience managers to mentor younger less experienced employees, to develop their skills and take over senior roles in the coming years?
5. What can companies do to support a ‘phase down’ to retirement to minimise industry skill loss at the same time as promoting effective work-life balance for older employees?

5.2 Questions Arising from Views on Training and Training Delivery

5.2.1 The Training Environment

Issues:

- Companies face difficulties providing adequate training due to time constraints.
- If training is done in work hours, which is the overwhelming preference of operators, there is only limited time available during non-busy work periods.
- Managers’ report there is adequate operator training being done - this contradicts the survey results from operators themselves, where 84% listed skill areas where they want further training.
- Provision of operator training which adequately prepares employees for work across the plant.

Questions:

1. How can EXITO assist companies which appear to have limited training for employees? What can be done to develop cultures where training is valued more highly?
2. What can be done to ensure adequate training is provided within a time-constrained industry?
3. What can be done to support managers to work more closely with operators on identifying training needs?
4. What can be done to improve industry knowledge of the benefits and paybacks from training?
5. How can EXITO organise operator training which prepares employees for a range of different work across all company work sites?
6. How can EXITO meet the challenge of training in 1 – 2 day modules during less busy work periods in companies?

5.2.2 Training and Training Effectiveness

Issues:

- Approximately half of operators and contractors believe there is not adequate follow-up on training effectiveness. Industry-experienced people are the ones who are likely to have the most credibility as trainers – these people are not necessarily being developed or used as trainers
- Trainers need to be able to adapt to train in the processes used by particular workplaces and to provide training which takes into account the different training needs across same company work sites
- Some concerns were raised about inconsistent application of unit standard delivery, assessment and hence learning effectiveness in the industry.

Questions:

1. How can the most skilled and experienced people be used as trainers so that they can provide the industry with quality training?
2. How can the industry support the importance of assessing training effectiveness?
3. What can be done to assist companies to determine training effectiveness?
4. Given the on-site specific training requirements what can be done to assist with the provision of specific site training in companies and which takes into account the different training needs across same company work sites?
5. What can be done to attract more good quality trainers and assessors in this industry?
6. What action does the industry and EXITO need to take to minimise the inconsistent application of unit standard delivery and assessment?

5.3 Questions Arising from Views on Professional Development

Issue:

- One third of managers believe they do not do enough professional development
- Time/job commitments and training budget constraints are the predominant reasons for insufficient professional development.

Questions:

1. What can be done to assist those managers/companies who do not believe they receive enough professional development?
2. What can companies do to ensure all employees are satisfied with the amount of professional development they receive?

5.4 Questions Arising from Views on Recruitment and Retention

Issues:

- Managers believe many industry roles are difficult to fill
- Some companies have had no trouble attracting staff, others find it difficult
- Perceptions about the industry are a significant reason for recruitment difficulties. This means industry promotion is seen as important in overcoming recruitment issues
- Ideas for overcoming retention issues are costly, with far reaching impact across the industry

Questions:

1. What can be done to assist Managers with learning about recruitment, retention, and succession planning during periods of skill shortage?
2. What can be done to assist the industry to widen their perspectives on where possible employees could be recruited from e.g. from non-traditional recruitment areas?
3. What can be done to assist them with this process, and with successfully managing new (non-traditional) staff in the workplace?
4. As noted earlier what can be done to help implement the suggestions for attracting more women/maori into the industry?
5. How can businesses that find it easier to attract and retain employees pass on some of their methods to those having difficulty? – Or how can those having difficulty be encouraged to learn from those who find it easier?

5.5 Questions Arising from Views on Industry Predictions

Forecasting

Issues:

- 55% of respondents predicted steady to high growth throughout the industry over the next 5 to 10 years, with growth predictions ranging between 20 and 80%.
- The unpredictable nature of the industry means growth rates are difficult to predict.

Questions:

1. What can be done to assist managers/companies who have robust knowledge on industry growth to inform others of their predictions for the industry?
2. How can EXITO gather continuous information to enable more accurate industry forecasting? How will it share this information with industry stakeholders?

5.6 EXITO's Role in the Future

Issue:

- Broad and diverse roles are suggested for EXITO as the industry grows and moves into the future.
- The organisation and administration/paper work requirements for EXITO training can act as a barrier to employees enrolling/undertaking training.
- There is concern about the relevance of some of the training provided.
- There are concerns some trainers are conducting Unit Standard training within unrealistic timeframes (e.g. training in a unit standard over a 2 week period when it requires 220 hours of training to complete).
- Gaps are reported in training module topics.

Questions:

1. Are industry's expectations of EXITO reasonable and feasible?
2. How can the bureaucratic requirements of EXITO be minimised so these do not affect the uptake of training?
3. What can be done to rectify the reported gaps in training provision which currently exist?
4. What predictions does EXITO have for its own future in relation to this industry?
5. What can reasonably be delivered?
6. How can EXITO's business planning take these combined expectations into account?
7. How will plans be shared with the industry stakeholders?

6. Appendices

Appendix 1

Petrochemical Industry

Questionnaire for Operators, Technicians, Leading Hands, Foremen and Contractors

EXITO (The Extractive Industries Training Organisation) has developed this *confidential questionnaire* to gather information about the Petrochemical Industry. Your answers will help us understand how to provide the kind of training you think the industry needs to meet the demands placed on it in the future.

Thank you very much for taking part in this *confidential survey*. We really appreciate your help.

Part 1 - General Questions

1. Name of Company _____
 2. Job Title _____
 3. Contractor **Yes/No**
 4. Age _____
 5. Male Female
 6. Ethnicity: (Not Nationality) – Please tick relevant box
NZ European/Pakeha NZ Maori Samoan
Cook Island Maori Tongan Niuean
Tokelauan Fijian Other Pacific Island
Indian South East Asian Other Asian
Chinese American Other European
African Middle Eastern Latin America/Hispanic
 7. How many hours do you work per week? _____
 8. Why did you choose this job? _____
 9. Did you have relevant experience/qualifications before you started working in the Petrochemical industry? **Yes/No**
If yes – what? _____
 10. Did you work in other industries before working in the Petrochem industry? **Yes/No**
If yes – what? _____
 11. How many different Petrochemical companies have you worked in? _____
 12. How long have you have spent working in this industry? _____
 13. Have you been encouraged to take on supervisor roles? **Yes/No**
If yes – what? _____
 - 14a. Do you want to continue to work in this industry? **Yes/No**
 - 14b. At what age do you plan to retire from the industry? _____
 - 14c. What are your intentions regarding retirement? _____
-

Part 2 - Training Questions

- 1a. Does the company provide training for you? **Yes/No**
- 1b. If 'Yes' what are the reasons your company provides training? Tick box
 - Safety
 - Operational/process understanding
 - Technical skills development
 - Computer skills development
 - Cultural understanding

▪ Other
Please comment if you ticked Other _____

2. Are you? - Tick box

- Interested in training
- Not interested in training
- Required to do it
- Encouraged to do it
- Other

Please comment if you ticked Other _____

3. What benefits do you expect to get out of training? Tick box

- Safer workplace
- Better skills
- Opportunity for advancement
- Other

Please comment if you ticked Other _____

4. What are the skills or knowledge gaps where you would like further training? _____

5. Are you registered for EXITO training? **Yes/No**
6. Can you access your Record of Learning? **Yes/No**
7. Are you consulted about your training needs? **Yes/No**
8a. Is there a match between your training needs and what the company thinks are your training needs? **Yes/No**
8b. If not please comment. _____

9. How should training be organised to best fit in with your work? Tick box

- During work hours
- Evenings
- Weekends
- Rostered days off

10. **For contractors only** - What percentage of your work is Petrochem related? _____

11. **For contractors only** - Who pays for your training?
My Employer **The Contractor**

12. **For contractors only** - Do you receive enough training? **Yes/No**

Part 3 - Training Delivery Questions

1. What type of training delivery works best for you? Tick box

- Classroom presentations and group work
- On-site supervised practice
- Videos

2. In your training is there the right mix between practice and theory? **Yes/No**
If no, please comment. _____

3. When you do training what support do you expect from your manager afterwards? _____

4. What factors are important in a trainer? Tick box

- Knowledgeable
- Experienced
- Supportive
- Goes at the right pace
- Patient
- Other – say what _____

5. What are your ideas for improving the way training is delivered? _____

6. When new equipment is delivered when are you **trained to use** and **maintain** it?

Tick box

- Before it is delivered?
- As it is installed & used (commissioned) for the first time?
- When it breaks?
- Not trained on new equipment I am required to use
- Not applicable

7. After you complete training, what length of time is there between getting the training and using the new skill? Tick box

- 1-5 days
- A fortnight
- A month
- More than a month
- Other

If you ticked Other, please say how long _____

8. Is training followed up with reviews of its effectiveness? **Yes/No**

9. Do you get refresher courses at an appropriate interval? (E.g. first aid refreshers) **Yes/No**

10. Are refresher courses managed by your employer – (who reminds you or books you in for these?) **Yes/No**

Thank you for participating in this survey

Appendix 2

Petrochemical Industry

Questionnaire for Managers, Professionals, Supervisors, Team Leaders

EXITO (The Extractive Industries Training Organisation) has developed this confidential questionnaire to gather information about the Petrochemical Industry. Your answers will help us understand how to provide the kind of training you think the industry needs to meet the demands placed on it in the future.

Thank you very much for taking part in this confidential survey. We do appreciate your help.

Please Note: When the term 'Operator' is used it covers all those employees who work in a hands-on role as operators, technicians, leading hands or foremen.

Part 1 - General Questions

1. Name of Company _____

2. Job Title _____

3. Age: _____

4. Male Female

5. Ethnicity (not Nationality) Tick relevant box)

NZ European/Pakeha <input type="checkbox"/>	NZ Maori <input type="checkbox"/>	Samoan <input type="checkbox"/>
Cook Island Maori <input type="checkbox"/>	Tongan <input type="checkbox"/>	Niuean <input type="checkbox"/>
Tokelauan <input type="checkbox"/>	Fijian <input type="checkbox"/>	Other Pacific Island <input type="checkbox"/>
Indian <input type="checkbox"/>	South East Asian <input type="checkbox"/>	Other Asian <input type="checkbox"/>
Chinese <input type="checkbox"/>	American <input type="checkbox"/>	Other European <input type="checkbox"/>
African <input type="checkbox"/>	Middle Eastern <input type="checkbox"/>	Latin America/Hispanic <input type="checkbox"/>

6. How many hours do you work per week? _____

7. What attracted you into this industry? _____

8. Did you have relevant experience/qualifications before you started working in the Petrochemical industry? **Yes/No**

If yes – what? _____

9. Did you work in other industries before working in this industry? **Yes/No**

If yes – what? _____

10. How many different Petrochemical companies have you worked in? _____

11. How long have you have spent working in this industry? _____

12. What is your current salary range?

\$30,000 - \$39,999 \$40,000 - \$49,999 \$50,000 - \$59,999

\$60,000 - \$69,999 \$70,000 - \$79,999 \$80,000 - \$89,999

\$90,000 - \$99,999 \$100,000 or above

13a. Do you want to continue working in this industry? **Yes/No**

13b. At what age do you plan to retire from the industry? _____

13c. What are your intentions regarding retirement? _____

Part 2 – Your Professional Development

1. Is there a match between your professional/training development needs and what the company thinks you need? **Yes/No**

If no match, please comment _____

2a. Does the company offer structure and support for you to participate in professional development? Yes/No

2b. Do you do enough professional development? Yes/No

2c. If no what stops you from getting enough professional development? _____

3a. Did you choose to do it or because you were told to? Chose
Told

3b. Does it fit with where you want to go in your career? Yes/No

3c. What current gaps are there in your professional development – i.e. knowledge/skills needed now which are not being addressed? _____

3d. What future gaps will occur in your professional development given possible future changes in your work role? _____

4. How could contractors become more involved in participating in training? _____

Part 3 – Recruitment and Retention

1a. Currently what positions within the industry are difficult to fill? Yes/No
▪ **Managers**
Please define which positions _____

▪ **Professionals** (Geologists, Engineers etc.) Yes/No
Please define which positions _____

▪ **Technicians** Yes/No
Please define which positions _____

▪ **Operators** Yes/No
Please define which positions _____

▪ Support staff Yes/No

<ul style="list-style-type: none">▪ Other	Yes/No
---	---------------

Please provide brief detail of 'Other' _____

1b. What do you believe is the reason for this? _____

1c. If offers have been made for the vacant positions but declined were any reasons cited?

1d. If positions are not filled what impact will this have and how are they compensating for this at present? _____

2. What types of skills/occupations are likely to be most significantly under or over-supplied in the future and why? **a. Under-supplied** _____

b. Over-supplied _____

3a. Will it be feasible to fill staffing gaps by recruiting people to fill skill shortages from the following groups?

▪ Recruit staff from under-represented groups, (e.g. gender, ethnicity, age)	Yes/No
▪ Recruit staff from other industries	Yes/No
▪ Recruit staff from people out of the labour force	Yes/No
▪ Recruit staff from overseas	Yes/No

3b. What should be done to remedy any expected skill shortages? _____

4. What are your ideas for attracting people into the industry? _____

5. If there are not even numbers of men and women in your workplace how could more women be attracted into the operator side of the industry? _____

6. Is there a clear career path for operators in the industry?	Yes/No
Should there be?	Yes/No

7. Should an apprenticeship system be organised for the industry? **Yes/No**

8. What can be done to improve staff retention? _____

9a. Is succession planning done adequately in your company/organisation? **Yes/No**

9b. If not, what should be changed? _____

10. How is industry output expected to grow over the next 5 to 10 years? _____

11. What major technological advances do you think will impact upon the industry over the next 5 years? _____

12. What needs to be done to ensure training is up to date with these technological advances? _____

Part 4 - Training Issues for the Company

1a. In your company is there enough operator training being provided? **Yes/No**

1b. Are you getting the results you want from your operators being trained? **Yes/No**

If not, why not? _____

1c. Where are those training results shown most? (For example: increased productivity/taking initiative/customer service, improved safety) Please comment_ _____

1d. Is enough professional development being provided for those working in the industry? **Yes/No**

1e. What are the barriers to adequate *provision* of professional development? _____

2a. When training expands will industry be able to recruit enough good trainers? **Yes/No**

If no what will need to be done? _____

2b. Will trainers need training in how to interest & motivate trainees?

Yes/No

2c. Sites have different work processes unique to the individual companies. Please comment on how companies/trainers manage this. _____

2d. How do you ensure outside trainers/consultants keep up to date with new industry standards? _____

3a. Should training be delivered in 1 or 2 day modules or in longer modules?

1 or 2 days/Longer

3b. What skills related to managing people, work relationships and leadership are needed for those in supervisory and management positions? _____

3c. Is training needed for supervisors and managers in how to organise a site so that jobs hold the interest of operators? **Yes/No**

4. Of your total training what percentage is?

- EXITO training _____
- Non-EXITO training run by your own staff _____
- Non-EXITO training run by outside training consultants _____

5. The importance of environmental management and health and safety is increasing. What is needed for future training in these 2 areas? Please comment.

a. Environmental Management training

b. Health and Safety training

6. For what % of staff is literacy a problem? _____

7. By 2012 what does EXITO industry training need to be doing? Please comment

Thank you for participating in this survey