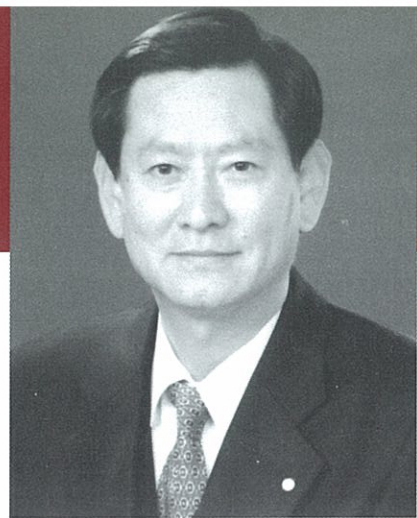


한국Responsible Care협의회  
Korea Responsible Care Council  
회 장 Chairman  
노 기 호 No Ki-ho



## New Year's Greetings

With the help of a number of supporters, Korea Responsible Care Council was able to establish the Code of Management Practices for Responsible Care. This is the first year in which Management Practices were implemented in our businesses. Also, we held the Asia Pacific Responsible Care Conference (APRCC) in Korea. This was an opportunity to increase awareness of activities concerning Responsible Care.

I would like to thank all who supported and advised our chemical industries to improve our environment, safety and health conditions.

Specifically this year, the WSSD (World Summit on Sustainable Development) will be held to review the results of our efforts during the past decade since the Rio Declaration on Environment and Development in 1992. The Responsible Care program of Agenda 21 was selected as the concrete platform to resolve environmental issues and support sustainable development. It is now emerging as a voluntary environmental improvement movement of the world's chemical industry, in which 46 countries over the world participate and implement.

For this, Korea Responsible Care Council has chosen the year 2002 as the Settling and Strengthening RC Year to promote the implementation of Responsible Care. Following is our plans for this year.

First, we will advance the settlement of Responsible Care through implementing the Management Practices of RC and evaluating such implementations. Following the 4 codes of Management Practices of Korea Responsible Care Council; Employee Health & Safety, Process Safety, Pollution Prevention and Emergency Response, each industry will implement and review these Code of Management Practices and develop the RC Standards, self-evaluation and checklists in order to promote stable implementation of RC. Also, we will issue Annual Reports for the results of implementing RC by our members.

Second, we will hold a number of Peer Reviews to share experiences and information between businesses and Workshops, for coordinator field training. Coordinators are the core of the RC implement, and are in the position that lead the common objective of member companies through the close collaboration with Council. The support for training and activities of coordinators is the core business of the Council. Also, the Peer Review will cross review the contents of implementations by other companies and allow agents concerned to share experiences and strengthen ties.



Third, we will do our best for the APRCC 2003. APRCC has been held every year since 1995, on a great scale. This is the 8th conference, and all agents of RC in the Asian Pacific area wish that this 8th conference be the turning point for RC. To meet their hopes, and promote international awareness of RC in Korea, we will establish the organizational committee and look for ways to invite the participation of NGO and media.

Forth, we will uplift the image of Responsible Care and strengthen public relations for RC. We will specialize the newsletter and homepage, publish RC public relations books, and develop a variety of effective projects including the Out Reach program development.

I hereby ask our members, and agents concerned, for full support in the settlement and development of RC. I also ask our government and society to help industry improve their environmental, safety and health conditions, and help us to support them. Finally, I ask our people to support us and make the most of our efforts.

Thank you



## Brian R. Wastle

1967      토론토대학 화학공학과 졸업  
1967~91    다우케미칼 엔지니어, 안전보건 관리이사  
1991      ICCA/RCLG 초대회장  
1991~現    CCPA RC Vice President



1967      Graduation from the University of Toronto with a degree in Chemical Engineering

1967~91 Process Engineer, Manager of Safety, Health and Loss Prevention, and Commercial Director in Dow Chemical.

1991      the first chairman of the International Council of Chemical Associations' Responsible Care Leadership Group

We in the Canadian Chemical Producers' Association (CCPA) greatly appreciate this opportunity to share with our friends in the Korea Responsible Care Council our experiences with Responsible Care - our common journey towards a more sustainable future.

The Canadian pioneers who first drafted the Responsible Care Guiding Principles in 1980 believed that a major change was needed in the philosophy, or ethic, that guided decision making in our industry. Public concerns were growing about the effects of chemicals on the people's health and the health of the ecosystem, as well as the role chemical companies played in their communities. Something fundamental needed to change if we were to keep our publicly granted right to operate our plants and to sell our products - something beyond just improved technologies and management systems.

This led to the development, with the input of activists and other critics, of the Responsible Care codes of management practice, signed by every company chief executive in 1989. A brief description of the codes is included at the end of this article.

Unlike other approaches to environmental and safety improvement such as ISO 14001, ILCI 5-Star or Process Safety Management regulations, the principles and codes of Responsible Care required a fundamental change in corporate culture - a shift in the ethic of the industry. It called for going beyond regulations and standards to "do the right thing". It called for openness rather than secrecy. It called for continuous improvement rather than meeting a pre-set standard. It called for seeking input from all stakeholders rather than doing what the company felt was appropriate. It called for companies to work collectively with other companies rather than on its own.

Some companies in Canada have equated this ethical shift to what took place several years ago in their attitude and approach to product quality. They had to change from simply negotiating a product specification and then working to meet that standard, to working to understand their customers' real needs and expectations and continually striving to meet and exceed them. Rather than relying on just the sales force to work with customers, all employees had to become customer-focused. Responsible Care required the same culture change, only this time with all stakeholders such as plant neighbours, activists, media, government, consumers and other who were, or felt they were, affected by the company's operations or products.

Others had previously seen this kind of philosophical shift in their approach to employee safety. The most successful companies in reducing employee injuries have usually been those who established a "safety culture"



rather than those who just installed rigorous safety management systems. In a culture of safety, all employees are constantly looking for ways in which accidents might happen and taking personal action to correct them. In a "compliance" culture, employees only do what the system requires of them. In Responsible Care, companies are seeking to create a climate that encourages all employees to work for the betterment of their operations and their communities.

And there are paybacks to making this ethical change. Some twenty years after its inception, our member companies all believe all the effort in developing and implementing Responsible Care has brought real benefits. I'd like to describe some of these.

### **1. Insurance**

With the chemical plant fire and explosion track record, especially on the US Gulf Coast, the insurance industry had begun looking unfavourably on the chemical industry as a risk. Several insurance companies had refused coverage, and for others the premiums demanded reflected their growing concern. Recently a few CCPA member companies have described how, after reviewing their Responsible Care commitment and systems with their insurers, not only was coverage continued but rates were reduced from what they would have otherwise been. One major risk insurer has agreed they will reduce premiums by 30% for verified Responsible Care companies. Another manifestation of this benefit may be companies' willingness to increase deductibles (and hence lower premiums) because of growing confidence in their risk management systems under Responsible Care.

### **2. Financing rates**

In the late 1980s the Canadian banking industry stated that potential environmental liability bumped their third world debt from the top of the list of things that kept them awake at night. They saw the cost of being saddled with chemical contamination clean-up caused by a defaulting company conceivably exceeding many-fold the value of the loan to that company. Capital for companies manufacturing or using chemicals could well become unavailable, or at least very expensive. It has been very satisfying to companies such as NOVA Chemicals to discover that explaining to financiers how the chance of such misadventure was greatly reduced under Responsible Care resulted in "several points" off their project financing rates. As well, they have found banks often willing to forego the usual time and money consuming pre-approval step of on-site environmental assessments. During a one company's refinancing, their banking consortium's knowledge of Responsible Care made it far easier to address environmental concerns.

### **3. Legal liabilities**

Responsible Care reduces the potential for legal claims against member companies. Compliance with Responsible Care means that fewer health, safety or environmental incidents will occur. Fewer incidents should mean fewer legal actions. In the regulatory context, Responsible Care compliance contributes to a defence of due diligence - that is, that all reasonable steps were taken to avoid the particular infraction. One component of due diligence requires companies to establish prevention systems which are sufficient according to the standards of their particular industry. For the chemical industry, it is highly probable that courts will look to Responsible Care as a standard for both CCPA members and other chemical companies. The American Chemistry Council (ACC) calls Responsible Care "preventative law" - it looks beyond current legal requirements to where those requirements may head in the future.



#### **4. Pollution prevention**

CCPA's annual Reducing Emissions reports cite increasing examples of how companies have translated the Responsible Care requirements to be aware of and minimize waste and emissions into opportunities for cost savings. Inefficiency arises from inconsistency, and the documentation, training, reviewing and performance assessment aspects of Responsible Care reduce inconsistency. They provide the solid foundation for fulfilling the continuous improvement in energy and raw material efficiency being realized by member companies.

#### **5. Voluntary approaches**

Through the following examples of the proactive approach to meeting public expectations, rather than waiting for prescriptive regulations to reduce their degrees of freedom, member companies have realized significant savings in their costs of environmental and safety management:

##### **NERM**

CCPA's National Emissions Reduction Masterplan (NERM) for identifying, reporting, forecasting and reducing emissions and wastes became the template for Environment Canada's National Pollutants Release Inventory (NPRI). Company representatives responsible for the development of NERM believe that this initiative has saved CCPA member companies well over a million dollars in needless data collection costs.

##### **ARET**

CCPA member companies spearheaded the Accelerated Reduction and Elimination of Toxics, a national multi-stakeholder initiative that recently elicited the following comment from professor William Leiss of Queens University - "It is arguably the case that ARET has achieved a greater amount of actual environmental and health protection than all of the Part II activities under CEPA during the same period".

Under ARET, criteria for environmental persistence, bio-accumulation and toxicity were established, targets set for 117 substances and industry challenged to meet them. With 100% participation, CCPA member companies have gone well beyond these targets. This performance, and the increasing participation by other sectors, has allowed the Canadian government, internationally and domestically, to cite ARET's risk-based voluntary approach as a viable alternative to less effective and more expensive regulation - one worthy of wider utilization.

##### **CAER & Partnerships Towards Safer Communities**

Following the Bhopal tragedy of 1984 many countries, such as the US under Superfund legislation, enacted regulations that mandated structured actions by companies and communities for emergency prevention and preparedness. The Canadian government chose instead to form, under the chairmanship of CCPA, the Major Industrial Accidents Council of Canada (MIACC) to create and implement voluntary "best practices" approaches consistent with the provisions of the Community Awareness/Emergency Response (CAER) Code of Responsible Care which created the multistakeholder Partnerships Towards Safer Communities now overseen by the Canadian Association of Fire Chiefs. Flexibility to utilize the most cost effective and cooperative, rather than a "one size fits all", approach for varying community situations has been the result.

##### **Process Safety Under the Partnerships Towards Safer Communities**

This same approach has so far made unnecessary prescriptive types of regulation, such as the recent US OSHA ruling, for process safety management, permitting instead the latitude to find the most reasonable and effective tools consistent with the Responsible Care Manufacturing Code requirements. Also, the self-auditing and the external



accountability processes of Responsible Care are much lower in cost and less intrusive alternatives to government inspections. In the case of the US, such inspections can involve visits by several inspectors for months, writing up citations. Anecdotal evidence suggests the Responsible Care route can be at least equally effective in preventing process accidents.

#### “challenges” vs. regulations (e.g. benzene, VOCs)

The growing trust by governments in companies’ commitments to environmental improvement has resulted in challenges to CCPA members to set their own targets and the best means for achieving them. This was most recently utilized in the case of benzene and VOC emission reductions where the federal environment minister chose not to use a regulatory approach as was used with the petroleum industry. This allowed CCPA member companies to review each other’s situations, reduction targets and technologies and reach combined five-year projections for significant reductions that made sense to the company sites and their communities.

#### innovation vs. compliance

Under a variety of Responsible Care agreements with governments, members are being rewarded with the chance to set their own environmental priorities. The creative energy of employees is thereby unleashed to find the most cost effective solution to meet the community’s and other stakeholders’ expectations.

### 6. Faster permitting

Several CCPA member companies recently advised their peers that they credit Responsible Care with contributing to their success in obtaining from provincial governments needed certificates of approval for their plant expansions in greatly reduced times. They attributed this unexpectedly short approval time line to the excellent community relationships, effluent and waste characterization and environmental contamination mitigation efforts called for by Responsible Care. Other member companies who have joined in the various Responsible Care memoranda of understanding with provincial governments have done so foreseeing greater ease of permitting and a lessening of bureaucratic delay and cost in their projects.

### 7. Crisis management

With the risk assessment, management and communication systems called for in Responsible Care, companies are reporting fewer incidents that consume energy, time and money. A subtler benefit is knowing that when something does arise, turmoil and the resultant deflection of management attention is less likely to be the result. Communicating the risks in advance to those likely to be affected goes a long way to reducing the outrage when things go wrong.

### 8. Marketing advantage

Product stewardship, initially viewed by some companies as an onerous burden on their sales people, is now seen as bringing extra value to their customers. Training of salespeople in this new aspect of selling has given several member companies a new approach to meeting customer needs. As well as expanding the marketing toolbox, product stewardship also helps to internally focus a company on managing risk in a more holistic way. It pays dividends in terms of reinforcing commercial relationships with suppliers, contract manufacturers, distributors, brokers and others touched by the company’s Responsible Care ethic up and down the supply chain.

Responsible Care has also proven a real advantage to companies that market their technology around the world.



Environment, health and safety attributes built into the technology and included in the training, start-up, post-commissioning and auditing services offered, are an important part of the marketing package of companies like NOVA.

## **9. Management systems improvements**

Several CCPA member companies have stated that before they started on their Responsible Care journey they had no formalized management system. It provided them with a structure around which they could build a truly professional management approach. The brushfire fighting and waste inherent in their previously ad hoc style were replaced with one much more cost effective and people-friendly.

Companies that have meshed quality management processes such as ISO 9000 with Responsible Care have found synergy in doing so, and are well positioned for meeting the requirements of ISO 14001 should they choose or be requested to do so by customers, insurance companies, bankers or others. Responsible Care calls for sound systems for documentation, managing change, auditing, etc, and ISO 9001,2,3 and 14001 registration requirements lay out a detailed approach for doing so. Savings accrue from establishing integrated management systems proactively and doing it once for quality, environment, safety, health and community outreach management rather than on a piecemeal and reactive basis.

Even companies with pre-existing management systems and not choosing to seek ISO registration have found benefit from Responsible Care's integration of the previous functional silos of environment, health, safety, regulatory affairs, risk management and/or loss prevention. This also provides a comprehensive approach to the management oversight of the organization, and even its partially owned enterprises.

## **10. Product development**

Some companies have credited the R&D Code elements of Responsible Care with providing them a logical, coordinated, thorough and proactive approach to product development and commercialization. The discipline involved in setting up a stepwise and "fail-safe" route to introducing new products has been shown to reduce expensive false starts.

## **11. Information exchange**

Under Responsible Care, the old chemical industry ethos of "every company for itself" has given way to a culture of sharing and mutual aid. With the reputation of the industry only as strong as the weakest member, companies have a vested interest in ensuring best practices are broadly shared. Companies who have developed a better way of managing health, safety or environmental aspects have gone out of their way to pass it on to their peers. Conversely, companies who are wrestling with implementing code requirements are never denied the experience of those who have gone before. Responsible Care workshops, implementation guides, CEO leadership groups and the verification process have been key vehicles for this sharing. The cost and time savings of avoided wheel-reinventing are significant.

## **12. Supporting company growth**

Bayer Rubber has credited their outstanding community involvement and support efforts under Responsible Care as one of the several reasons their Sarnia site was chosen by global management above many others for the construction of two new plants. Nexen Chemicals and Sterling Pulp Chemicals also cite community support as key



to the efficient establishment of new plant sites. Responsible Care provides a blueprint for building bridges to the community.

Another bonus cited is the integration of Responsible Care considerations into strategic business decisions. Capital allocations, acquisitions, new market opportunities, etc. have been found to benefit from the more balanced decision making required when companies break down the "green wall" that in the past often isolated environmental considerations from the mainstream businesses.

### **13. Making better informed decisions**

Through their processes for listening to ideas from their communities, companies are able to incorporate these thoughts at an early stage in the development of projects. Retrofitting is usually more expensive than original design. Indeed, many of these outside ideas are proving to be more effective, and more cost effective, approaches to meeting the needs of the community than those originally developed by the company.

### **14. Opening channels of communication**

It used to be that people with a complaint about a chemical company would call the media or government, demanding that "something be done". Where community advisory processes are in place and working, people with complaints or concerns know how to get a response from the company, perhaps directly from the plant manager or staff, or through an advisory panel.

This new responsiveness has cut out, in many cases, the political and media negatives and has made it possible for a natural conversation to take place between the company and the concerned resident. This has positive benefits for staff time and the company's reputation in the community.

In summary...

Does Responsible Care pay? A growing number of CCPA member companies are beginning to see that their leap of faith in investing in the Responsible Care way of life does indeed have a payback beyond ultimate survival. To judge for yourselves how we're doing and to offer input, please visit us at <http://www.ccpa.ca>.



## ► New Vice Chairman Park Hoon

After vice chairman Kim Jin-mo of the Korea Petrochemical Industry Association resigned, Park Hoon assumed office according to the supplementary provision of the articles of the Korea Responsible Care Council. According to the second clause (General Affairs) of the supplementary provision of the articles of Korea Responsible Care Council, the standing officer of the Korea Petrochemical Industry Association shall concurrently serve as the standing vice chairman of this council.

## ► The 8th APRCC (Asia Pacific Responsible Care Conference) in Korea

Korea was select as the next country to hold the APRCC at the 7th APRCC held in Bali, Indonesia. APRCC Leader Meeting agreed that there is a trend formalized by the large scale conference held every year, and decided to hold the next conference in year 2003 in order for APRCC' s Steering Committee and each RC council to undergo enough discussion for establishing conference themes and have enough preparation process. They selected Korea as the next conference location, and KRCC will be in charge of the communication channel for each country' s council.

## ► The 4th Director' s Meeting in 2001

The Year 2001' s 4th Director' s Meeting of KRCC was held on December 27th 2001 at the meeting room of the Korea Petrochemical Industry Association, with 13 staff members, including chairman No Ki-ho, participating in the meeting. At the meeting, the business performance, business planning, and budget planning were reviewed and concluded. Also agreed on was the membership of 3 companies which applied to join KRCC; Ashland ACT Korea Ltd., Connell Bros. Co.(Korea) Ltd., KR Copolymer Co., Ltd.

## ► RC Report At American Chamber of Commerce in Korea

In response to the request of the American Chamber of Commerce in Korea on November 29th, 2001, Jeong Jong-koo International Relations Committee chairman(Dongbu Hannong Chemical) participated in the chemical council meeting to explain the completion of RC Management Practices, RC training, holding APRCC in Korea in 2003, and asked members of American Chamber of Commerce in Korea to join the RC movement. Currently 10 chemical companies from the American Chamber of Commerce in Korea have joined KRCC.

## ► Seoul Japan Club Chemical Association' s RC Public Relations

On December 14th, KRCC participated in Seoul Japan Club Chemical sector to ask Japanese chemical companies in Korea to join the RC movement. The participation and speech at the meeting is attributed to the invitation from director Yano Masahide of Seoul Japan Club and Enyo Hiroji Chemical Sector Head.



After the KRCC's code guidelines were completed, members are preparing their organization and establishing action plans to promote RC implementation in 2002. Here is some news from plants that are working hard to settle RC in their work places.

### **Daelim Industrial's RC Training Seminar**

Daelim Industrial Co., Ltd. (CEO: Chang Jin-yang) held the first training seminar of RC for all workers and staff members, including the CEO, on Thursday, December 22, 2001 to prepare for the RC implementation. On November 30th, they held the second training seminar for staff members and workers in the Yecheon Plant. CEO Chang Jin-yang asked participants to enhance environmental and safety conditions through RC and the speaker, Kim Bum, director of BAYER Korea emphasized that RC implementation needs active participation of all workers, including management support divisions such as accounting, general affairs, and planning divisions.



### **LG Petrochemical RC Kick-Off Meeting**

LG Petrochem (CEO: Kim Ban-suk) held an RC Kick-Off Meeting for the Responsible Care Promotion at the Yongseong-gwan auditorium in the Yosu Plant on December 11th 2001 with all staff and employees. Plant manager Yoo Jun-hee asked all employees to promote RC. The guests included Kang Soon-jung (Head of Yeosu Branch, Korea Occupational Safety and Health Agency), Gwon Hyeok-jin (Head of East Jeollanam-do Branch, Korea Gas Safety Co.), Dr. Chris Van Lint (Head of Asian Pacific SHE-Q, BAYER), and Kim Bum (Director of BAYER Korea). LG Petrochemical will increase the RC awareness of all employees and receive promotion signatures through individual RC training for all employees as of February next year.



### **LG Chem RC Workshop**

LG Chem (CEO: No Ki-ho) held a workshop from December 19 to 20 at the Osan Training Center with the environment safety managers of each plant, as well as RC promoters. The workshop also involved the Enterprise Environment Safety Association Meeting and emphasized enterprise RC promotion and basic action planning. LG Chem's Enterprise Environment Safety Manager, vice president Yoo Cheol-ho asked participants to do their best to settle RC in LG Chem and consider themselves as the leaders of RC promotion. It was followed by a lecture on Odor Management and VOC Control Policy Direction by Dept. of Air Control of the Ministry of Environment, Shin Dong-yeong, as well as the RC Implementation Report by Kim kyung-ok of BASF. LG Chem is planning to implement their RC training to all the employees through a monthly assembly and digital board. They will also establish detailed action plans and evaluation guidelines for the active implementation of RC.





# Overseas RC : Asian Pacific Area

The following is a summary of the ACN-Careline Responsible Care Handbook October 2001.

## **New Zealand - New Zealand Chemical Industry Council**

New Zealand will expand their own RC evaluation standard, PRINCE (Premises Inspection and Certification), to transportation drivers, and also they will develop the national safety database (Chemfind) on their web site to provide information about the responsibility regulations at the time of sale and purchase. They are also running the 24-hour emergency service, Chemcall system.

## **Taiwan - Taiwan Responsible Care Association**

Yet the awareness of RC among members is low, they are building the RC foundation through constant workshops and academic seminars, the promotion of self-evaluation and performance reports, and the establishment of verification systems. Specifically, the Buddy System has been assisting the mutual cooperation between companies with RC experience as well as companies without, since October, 2000.

## **Malaysia - Chemical Industries Council of Malaysia**

After RC was introduced in 1994, they completed 6 codes as of 1999, and organized the 4 Cells covering north, south, east, and central areas. Each Cell will support members in the area and effectively promote RC. Also, they organized, and are running the Get-Together program for coordinators to share ideas and information.

## **Singapore - Singapore Chemical Industry Council**

Singapore established the Asia Chemical Transportation Emergency Center (Asctec) for the promotion of the Guiding Principles of RC in order to develop emergency preparation in the Singapore and Asian Pacific Area. In addition, they are sharing information and ideas about chemical danger through a number of seminars, forums, and exhibitions. As a part of education service programs, they visit schools to increase the public awareness of Responsible Care, including safe handling of chemical goods.

## **India - Indian Chemical Manufacturers Association**

As the RCCG (Responsible Care Coordinators Group) was established in the beginning of 1990, 4 out of 6 codes; Employee Health and Safety, Process Safety, Pollution Prevention and Emergency Response were adopted and 78 companies have been implementing them. Currently they hold joint seminars, workshops, and training programs to promote Responsible Care initiative, not only in the chemical industry, but also in other sectors. They are also promoting the remaining 2 codes of Distribution and Product Stewardship to members.

## **Indonesia - Komite Nasional Responsible Care Indonesia**

The Indonesian RC Council was established by ICIC (Indonesian Chemical Industries Club) in 1997. They are emphasizing Community Awareness and Emergency Response. Taking account the situation of the local community; lack of basic health and education system, their RC includes hospital related activities and scholarship activities. They also have been thoroughly implementing self-evaluation. The result of self-evaluation has been reviewed by other companies in cross-audit, in order to increase its trustworthiness.





## Overseas RC : Asian Pacific Area

### **Japan - Japan Responsible Care Council**

JRCC had its 5th anniversary in 2000. Every year, they gather performance and improvements report from the 109 members and publish them in an annual report. Also, they organized local community RC meetings in petrochemical complexes, and open discussions with representatives of consumer organizations. They will increase the transparency of activities through the publishing of environmental reports by all members, establishment of verification systems, and implementation of RC programs with overseas associates in Asia to expand the RC movement in the Asian Pacific region.

### **China/Hong Kong - Association of International Chemical Manufacturers**

After Hong Kong was returned to China, AICM, located in Hong Kong, has kept close cooperation with the Chinese government regarding the RC movement. In China, due to large geographic factors, it is important to keep the storage and transportation of chemical goods safe. Therefore, AICM's emergency committee is cooperating with NRCC (National Registration Center for Chemicals) to cope with emergency situations in chemical goods transportation. Also, to give technological support, they are promoting safety drills with members and government agents, and holding a series of seminars about transportation safety.

### **Thailand - Chemical Industry Club of Thailand**

Thailand started RC at the end of 2000 and CICT, one of 27 industrial clubs under FTI (Federation of Thai Industries) has been organized, and is managing RC organization. Now 65% of CICT members, and 83 companies are participating. They have completed 6 code guidelines in 2001, and recommended members to use the logo. They also collect data including the frequency of accidents, nitrogen oxides, carbon dioxides, energy levels and have sent them to their members in newsletters.

### **Philippines - Chemical Industries Association of the Philippines**

After beginning with only with 19 members, 5 years ago, the Philippines has increased the number of members to 78 companies. According to the active campaigns by the Chemical Industries Association of the Philippines(Spik) RC Council(SRCC), the awareness about RC has been strengthened. According to recent self-evaluation by SRCC, 55% of members are implementing action plans relating to the 6 codes. 45% of have already implemented their existing management practices to the RC program and are now evaluating the results. SRCC is currently developing a RC manual called, The Green Book.

### **Australia - Australia's Plastics and Chemicals Industries Association**

The randomly selected 10% is audited to increase the trustworthiness of self-evaluation. From November 2001, only the companies that showed more than 80% of implementation level in each code will be allowed to use the RC logo, and from October 2003, only the companies which agreed to undergo verification for compliance with all applicable codes will be allowed to use the RC logo.





This column will randomly select a company from members and they will explain how they implemented RC, in order to share information and increase the understanding of RC through the examples of companies of Korea that have implemented it.

## Dow Chemical Korea LTD.



황무영 Hwang Moo-young  
한국환경 · 안전 · 보건 이사  
Korea EH&S Leader, Hwang Moo-young

### I. Introduction of Dow

The Dow Chemical Company's dedication to being the best at applying chemistry to benefit customers, employees, shareholders and society began after founded in 1897 by Herbert H. Dow in Midland, Michigan USA. By focusing on this vision, Dow has become the largest chemical company in the world with annual sales of \$30 billion. Currently, the company provides more than 2,500 products and services including chemicals, plastics, energy, agricultural products, consumer goods and associated services to customers in 167 countries around the world. Dow operates 171 manufacturing sites in 35 countries and employs about 50,000 people. In Korea, Dow has a business office in Seoul, Latex plant in Ulsan, MDI plant in Yosu, Epoxy plant in Gumi and Dow and LG built the largest Poly-Carbonate plant as a single unit in the world in Yosu and successfully runs after start-up operation on Sept. 2001.

### II. Responsible Care in Dow

1. We pledge to operate our business according to the following Guiding Principles.

Our industry creates products and services that make life better for people around the world - both today and tomorrow. The benefits of our industry are accompanied by enduring commitments to Responsible Care in the management of chemicals worldwide. We will make continuous progress toward the vision of no accidents, injuries or harm to the environment and will publicly report our global health, safety and

environmental performance. We will lead our companies in ethical ways that increasingly benefit society, the economy and the environment while adhering to the following principles:

- To seek and incorporate public input regarding our products and operations.
- To provide chemicals that can be manufactured, transported, used and disposed of safely.
- To make health, safety, the environment and resource conservation critical considerations for all new and existing products and processes.
- To provide information on health or environmental risks and pursue protective measures for employees, the public and other key stakeholders.
- To work with customers, carriers, suppliers, distributors and contractors to foster the safe use, transport and disposal of chemicals.
- To operate our facilities in a manner that protects the environment and the health and safety of our employees and the public.
- To support education and research on the health, safety and environmental effects of our products and processes.
- To work with others to resolve problems associated with past handling and disposal practices.
- To lead in the development of responsible laws, regulations and standards those safeguard the community, workplace and environment.
- To practice Responsible Care by encouraging and assisting others to adhere to these principles and practices



## 2. Environment,

### Health & Safety Policy and 2005 Goals

#### 1) Dow's EH&S policy

At Dow, protecting the people and the environment will be part of everything we do and every decision we make. Each employee has a responsibility in ensuring that our products and operations meet applicable government or Dow standards, whichever is more stringent.

Our goal is to eliminate all injuries, prevent adverse environmental and health impacts, reduce wastes and emissions and promote resource conservation at every stage of the life cycle of our products. We will report our progress and be responsive to the public.

#### 2) EH&S Goals for year 2005

In 1996, Dow publicly announced these aggressive, voluntary, global Environment, Health & Safety Goals for the Year 2005. So far, we are making great strides. The numbers are going in the right direction - down. You can track our performance annually and quarterly in Reports at [www.Dow.com](http://www.Dow.com).

- Aggressively promote the Responsible Care ethic:

- Fully implement Codes of Management Practices globally by 1997
- Promote Responsible Care ethic among major associations, customers, suppliers and policy makers to advocate global regulatory harmonization
- Incorporate principles of sustainable development and eco-efficiency into business strategies

- Prevent Environment, Health & Safety Incidents

: Significantly improve Dow's EH&S performance by reducing:

- Injuries and illness per 200,000 work-hours by 90 percent
- Loss of primary containment incidents (leaks, breaks and spills) by 90 percent
- Transportation incidents per 10,000 shipments by 90

percent

- Process safety incidents (fires, explosions and significant chemical releases) by 90 percent
- Motor vehicle incidents per 1 million miles by 50 percent
- Incidents with Dow product at customer facilities (setting goal)

- Increase Resource Productivity

: Further reduce air and water emissions for global operations:

- Priority compounds by 75 percent
- Chemical emissions by 50 percent
- Priority compounds include persistent, toxic and bio-accumulative (PTB) compounds, known human carcinogens, selected ozone depleting substances, and high-volume toxic compounds.
- Related Goal: Reduce dioxin emissions by 90 percent by 2005
- Reduce the amount of waste and waste water generated per pound of production by 50 percent
- Reduce energy use per pound of production by 20 percent

## III. Responsible Care in Dow Chemical Korea

: As an example of Yochon MDI plant

### 1. Overview of Responsible Care Implementation

Plant has implemented Responsible Care Codes based on US. ACC Codes since 1994 according to the Dow Pacific RC guidelines with a same guiding principle of global Dow. The Dow Pacific guidelines require that plant should implement five codes, such as Community Awareness & Emergency Response, Employee Health and Safety, Process Safety, Pollution Prevention, Distribution while the Product Stewardship code should be implemented by businesses as PS code is much related to the sales, technical service & development and other customer interface functions.



Yochon plant got reach Practice in Place stage for most of Management Practices in respective codes except distribution code in 1997. In 2000, distribution code could finally arrive at PP stage after having continuous efforts and a great dedication of supply chain people.

## 2. Environment, Health and Safety Goals

Plant has had aggressive goals aligning to Dow global and business goals and strategic directions to environment, health and safety. The major goal is to achieve Zero injury & illness in the working places including motor vehicles. Actually plant has recorded an excellent safety performance as no accident for 8 years operation and keep going this zero performance at present.

## 3. Optimization of RC implementation organization

In early stage of RC implementation, plant realized that single function or department could never achieve our goals nor implement RC codes properly. We decided to change the line management organization to teams so that every employee was able to proactively participate in his/her EH&S working team as a part of employ. It means all plant employees should commit on our goals and dedicate their efforts and time to the implementation of RC codes like total soccer players. <Figure 1> is the example organization of Yochon MDI plant for the implementation of RC.

### 1) EH&S Steering Team

- Leader: production leader or delegate
- Members: department leaders including logistics & representatives of operators & technicians.
- Role and Responsibilities:
  - Implement Community Awareness & Emergency Response and distribution Codes
  - Steer & Coordinate working teams.
  - Final review & approval of annual plant' s plan and key work process change.
  - Review plant' s EH&S performance and activities
- Meeting frequency: quarterly and as call of leader.

### 2) Environmental Working Team

- Leader: day operators or maintenance technicians or other operators qualified for the leadership
- Coach: production engineer or maintenance engineer or other engineer or EH&S specialist
- Members: production operators, maintenance technicians, T&SD, logistics.  
(If possible, at least one person from each department should be joined)
- Role and Responsibility
  - Implement Pollution Prevention Code
  - Update plant' s Environment Management System
  - Implement Waste Reduction Program
  - Self-audit as to Environment
  - Training environmental matters to other team' s members
- Meeting Frequency: monthly and as call of leader

### 3) Industrial Hygiene Working Team

- Leader: day operators or maintenance technicians or other operators qualified for the leadership
- Coach: production engineer or maintenance engineer or other engineer or EH&S specialist
- Members: production operators, maintenance technicians, T&SD, logistics.  
(If possible, at least one person from each department should be joined)
- Role and Responsibility
  - Implement Employee Health & Safety Code
  - Update plant' s Industrial Hygiene Management System
  - Implement chemical exposure & monitoring program
  - Self-audit as to Industrial Hygiene
  - Training Industrial Hygiene matters to other team' s members
- Meeting Frequency: monthly and as call of leader

### 4) Safety Working Team

- Leader: day operators or maintenance technicians or other operators qualified for the leadership
- Coach: production engineer or maintenance engineer or other engineer or EH&S specialist



- Members: production operators, maintenance technicians, T&SD, logistics.  
(If possible, at least one person from each department should be joined)
- Role and Responsibility
  - Implement Process safety Code
  - Update plant' s Safety Management System
  - Implement safety Behavior Based Program
  - Self-audit as to safety
  - Training safety matters to other team' s members
- Meeting Frequency: monthly and as call of leader

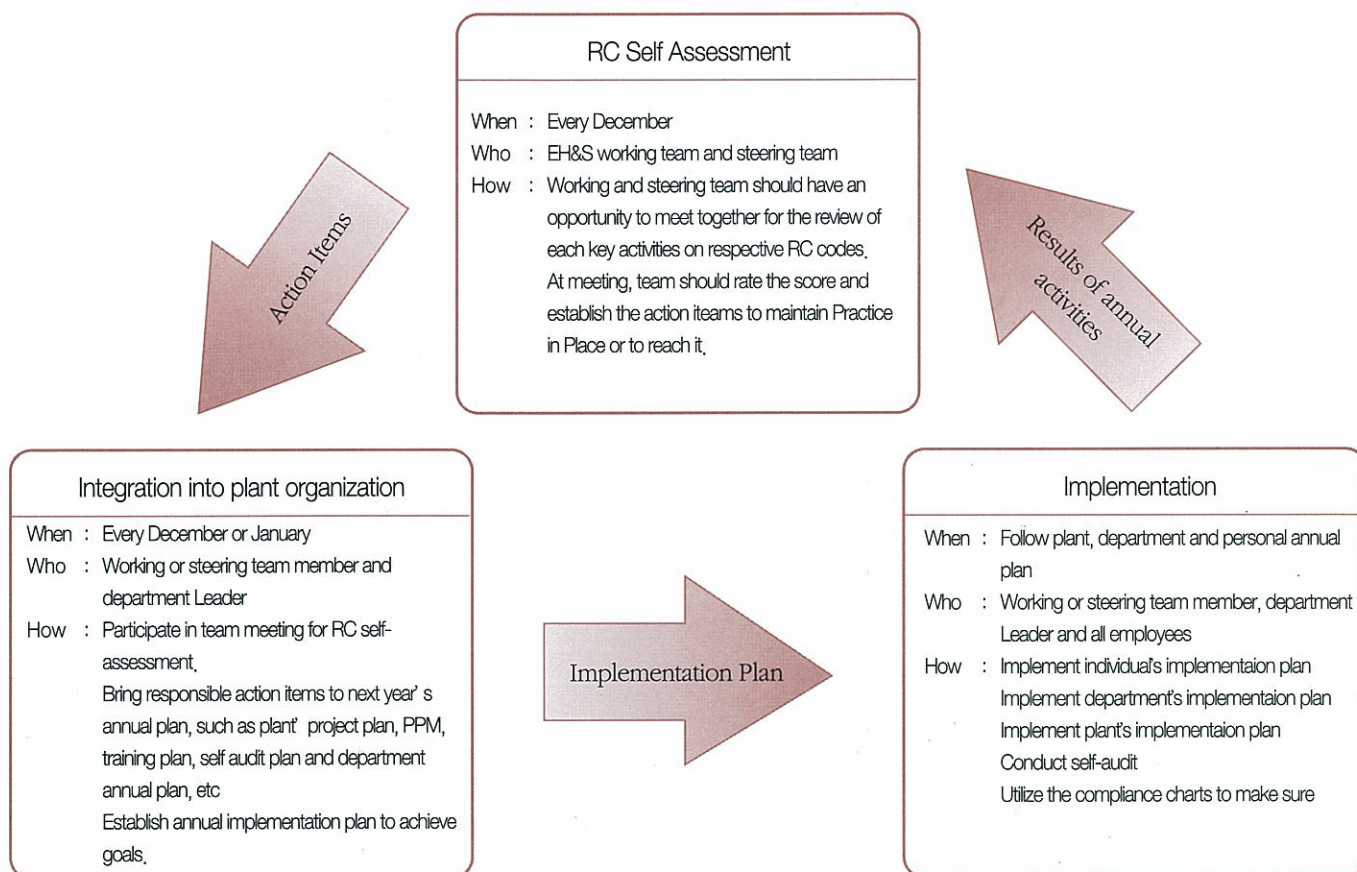
#### 4. Optimization of work process to implement RC codes

In order to integrate RC implementation activities into existing EH&S organization, the thing we have done is to establish the right work process such as who should do self- assessment, when we do it and how the action items are integrated existing plant' s plan & implemented by responsible persons. <Figure 2> is the example of the RC implementation work process used in Yochon MDI plant.

#### 5. Future Plan

In the early of 2000, Dow has stepped in the "articulate and endorse a set of Sustainable Development Principles building off the current Responsible Care Guiding

< Figure 2>





Principles” as the first tasks of it. Fundamental to our success are the values we believe in and practice. Our vision is to achieve financial and environmental and social excellence in all parts of the world where we do business. We will make continuous progress toward our vision by adhering to the following set of Sustainable Development Guiding Principles

#### 1) Product Stewardship

We will endorse, fulfill and promote the Responsible Care Guiding Principles and Codes of Management Practices worldwide. We will promote their application by sharing experiences and supporting the efforts of our suppliers and customers to continuously improve the full lifecycle impacts of our products and services.

#### 2) Stakeholder Partnerships and Dialogue

We will seek input and promote partnerships between industry, government, non-government organizations, communities and other key stakeholders to focus on responsible solutions to common problems and concerns.

#### 3) Eco-Efficiency

We will create shareholder value by designing our products and operating facilities to reduce material content, natural resource use, and energy requirements, while maximizing their service life through sound reuse and recycling activities.

#### 4) Eco-System Integrity

We will understand and respect the regenerative capacity of eco-systems and protect valued areas of recognized ecological and cultural significance.

#### 5) Local versus Dow Standards

Our products and operations will meet applicable government or Dow environment, health and safety standards, whichever are more stringent.

#### 6) Equity and Quality of Life

We will create shareholder value through environmentally sustainable economic development, social equity and ethical behavior.

#### 7) Employee and Public Outreach

We will enhance the human potential of our employees through education and training. We will contribute to the development of public policy and to business, governmental and non-governmental initiatives that lead to progress in sustainable development.

#### 8) Transparency

We will report our progress in an open and transparent manner.