Our Response to the Great East Japan Earthquake
—Aiming for the Quickest Complete Recovery in Product Supply

Chaotic Conditions Immediately after the Earthquake
The Great East Japan Earthquake on March 11, 2011 caused significant damage to the eight factories Renesas Electronics operates in the Kanto and Tohoku regions (see the map below). The Company was forced to suspend operations at these factories, effectively halving its production (pre-processing) capacity. The Naka Factory—our flagship factory located in Hitachinaka City, Ibaraki Prefecture—could not even make contact with the Company’s headquarters in Tokyo for a period following the earthquake.

The day following the quake, managerial staff, volunteer firefighters and employees responsible for utilities gathered at the Naka Factory to conduct an inspection of factory damage. However, due to the scarcity of electricity and water, simply confirming the current status presented significant difficulty. Transformer breakage and fallen high-voltage power cables within the premise added to the difficulty, increasing the risk of shorts and electrocution.

We identified certain problems in the aftermath of the disaster. It took about 15 days for Naka Factory employees to confirm the status of their own houses and the safety of their family members. Also, we could not access the list of our employees, which was saved on the Company’s common server, due to interrupted intranet connection. We have learned lessons from these problems. We will rework our general safety measures based on these experiences, including the safe management of employee lists and other information.

Recovery, Health and Safety Activities Promoted through Cooperation
Mitsuo Imamoto Assistant Manager, Human Resources Section, Naka General Affairs Department, Renesas Electronics

At the time of the earthquake, the Naka Factory was operating at full capacity. After the primary jolt subsided, all employees were ordered to evacuate the building. Once outside, safety confirmation was conducted. Only two employees suffered injuries. With this good fortune, we realized the importance of the evacuation training that we had performed regularly. We prioritized safety over anything else while working to launch recovery activities. At the Naka Factory, we all shared the same understanding: “We will not allow any accident to occur. If something does happen, our recovery activities will have to stop immediately.” Based on this understanding, we established a temporary 24-hour medical office through support provided by the factory safety council, industrial physicians and nurses to ensure that everybody could engage in recovery activities with a sense of security.

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Products That Stopped Production due to the Great East Japan Earthquake

Blue indicates factories that stopped production (8 factories)
● Suspension of pre-processing/water processing (5 factories)
▲ Suspension of post-processing/assembly & test processing (3 factories)

Activities of the Emergency Response Taskforce
Immediately after the earthquake, an emergency response taskforce was established, led by the president. This taskforce consisted of 10 teams, each led by the general manager of a division or office responsible for each risk category. Once established, all recovery and restoration efforts were controlled by this taskforce. At taskforce meetings, consecutive reports flew in regarding damage status, recovery measures and external communication. Specific response measures were formulated and implemented efficiently by each team through the involvement of related divisions, offices and working groups.

Prioritizing the Safety of Employees and Their Families
Nobuo Okamoto Section Manager, Welfare & Safety Section, Employee Relations Department, Human Resources & General Affairs Division, Renesas Electronics
Isao Takagi Manager, Safety and Health Section, General Affairs Department, Human Resources & General Affairs Division, Renesas Electronics

The Human Resources & General Affairs Division at the Company’s headquarters confirmed the safety of all employees, including new recruits scheduled to join the Company on April 1, 2011, as well as their family members. The confirmation results, along with working conditions at each business site and the schedule for rolling blackouts, were reported at emergency response taskforce meetings held every day after the disaster. However, due to blackouts and communication network failures, it was really difficult to communicate with the business sites affected by the disaster. Ultimately, it took us until March 24 to confirm the safety of all employees and until April 5 for their family members.

We received assistance from local community members in finding accommodation for those who were dispatched to support our recovery activities at the Naka Factory. We also received a significant amount of relief supplies from the Japan Automobile Manufacturers Association, Inc., major shareholders of Renesas Electronics, the Renesas Electronics Labor Union, local governments and customers. In addition, domestic and overseas Group companies, as well as former Renesas Electronics employees, sent substantial monetary donations. We cannot begin to express our appreciation for such invaluable assistance.

Based on the lessons we learned from this disaster, we will secure several ways to maintain communication with our business sites. Also, as we experienced difficulties in confirming safety due to differences in the systems used by our business sites. Going forward, we plan to standardize our safety confirmation system and expand the implementation of this system.
24-Hour Recovery Efforts Made Possible by Support from Many Sectors

Ten days after the earthquake, on March 21, Renesas Electronics launched a recovery plan aimed at resuming production on September 1. At the time of the plan’s launch, we had not completely grasped the status of damage to our production facilities. Still, we prioritized the recovery of power and water supply facilities, drainage facilities, exhaust facilities, cleanrooms and other facilities that underpin our production infrastructure. A total of 9,500 people were involved in restoring the infrastructure at the Naka Factory. United through the goal of achieving the quickest possible infrastructure recovery, a maximum of 250 people a day—including employees at other Renesas Electronics factories and Group companies—worked in shifts. To promote recovery activities round the clock, we paid extra attention to the health management of everybody involved. Industrial physicians, occupational health staff and nurses from other Renesas Electronics factories and external organization also worked in rotation, providing round-the-clock support.

Overall, we managed to achieve earlier-than-expected recovery of our facilities. This was thanks not only to all-out efforts made by our employees, but also to contributions made by personnel dispatched from construction and facilities companies and automobile makers who are our customers. In addition, the Japan Automobile Manufacturers Association, Inc. and many electric and electronic manufacturers provided support by sending engineers. At the peak of our recovery activities around the beginning of April, a support team consisting of more than 2,500 of these engineers was formed. With such an extensive workforce, recovery activities took place at an incredible pace, and the recovery of our infrastructure, which was expected to take two months, was completed in just 12 days.

Similarly, in recovery activities for our manufacturing facilities, a total of roughly 700 engineers—sent from 70 facility manufacturers in Japan and overseas—were there to support us. These engineers worked in shifts to promote recovery activities 24 hours a day. Also, the Ministry of Economy, Trade and Industry, which concluded that quick recovery of the Naka Factory was a key to the resurgence of the Japanese economy, provided assistance. Thanks to the Ministry’s assistance, we were able to start test runs for 200-mm manufacturing lines on April 23 and for 300-mm manufacturing lines on April 25. As explained above, we managed to complete recovery activities two months ahead of the original plan. This was made possible by the support provided by many stakeholders. We are truly grateful for their support.

Meanwhile, throughout our recovery activities, we continued to implement accident prevention measures on the assumption that magnitude five aftershocks would persist. These measures included the adoption of suspended cable connections to prevent cable from falling. Also, we implemented measures to prevent walls from falling and to firmly fix manufacturing systems. Simultaneously, as part of local contribution activities, we donated 300 bottles of water to a local community association while running a water supply program for local residents.

To facilitate information sharing among different recovery activity teams, we promoted “conference room activities.” Through these activities, leaders of these teams gathered daily in a large room to confirm recovery plan status and issues identified; these were tabulated and posted all over the walls. When they found out that a certain recovery activity was behind schedule, they would allocate more resources to the activity to quicken the progress. We learned that this method—known as “visualization” in the automobile industry where it is often utilized—is really effective in the semiconductor industry. We plan to spread similar visualization methods to other Renesas Electronics factories.

In the end, a total of approximately 80,000 people participated in the Company’s recovery activities. Owing to the strong support from their support, Renesas Electronics completed test runs and quality assessment much earlier than it expected and resumed the operation of its 200-mm lines on June 1 and 300-mm lines on June 6.

Strong Ties beyond Divisions and Companies

Kazuo Oe Senior Manager, Strategic Production Planning Division, Strategic Production Planning Division, Production and Technology Unit, Renesas Electronics

The Production Planning Department formed three teams to promote recovery activities. The information collection team was tasked with accurately assessing and disseminating the status of damage and recovery at each factory. The support team was responsible for formulating recovery support plans and promoting the implementation of these plans. And the production team was in charge of establishing and implementing plans for alternate production and priority product production launches in cooperation with related divisions.

In promoting recovery activities, our top priority was to resume the supply of our products to customers as quickly as possible. Accordingly, we adhered to the policy of maintaining the stable operation of factories not affected by the disaster and starting recovery activities for the processes that are closely linked with our customers’ operations.

I was stationed at the Naka Factory for about a month from April 6. I witnessed the strong will of Renesas Electronics employees as they set about achieving the quickest possible recovery and restoration, as well as the passion of third parties who were providing assistance to our recovery efforts. Thanks to their commitment, our recovery activities advanced well ahead of schedule, and we were able to resume manufacturing operations earlier than expected.

I realize this has all been possible only because everybody involved was united with the same goal and by strong ties transcending the boundaries of divisions and companies.

Recovery Activities Promoted in Cooperation with Many Supporters

Kazunori Horita Supervisor, Manufacturing, 1st Naka Manufacturing Department, Naka Factory, Production and Technology Unit, Renesas Electronics

From March 24, I was involved with clearing rubble and debris from the cleanrooms. It was a mess everywhere. After identifying breakage and water leakage, we created a hazard map by constantly conducting safety confirmation. From March 28, we started collecting reticles, also known as photomasks, quartz plates used in steppers. Due to the earthquake, reticles fell from storage racks and were buried in rubble and debris. So, we picked them up after finding them in the rubble and debris and conducted visual inspections of approximately 1,400 reticles in cooperation with engineers. In April, we all worked together to clean the inside of cleanrooms. Thanks to the support provided by Japan Automobile Manufacturers Association, Inc. and many manufacturers in various fields, we launched test runs for the first lot after the disaster, which was named “Kizuna” (literally translated as “bonds among people”) on April 23. Soon after, we began trial production and, on June 1, we were able to start mass production.

Applying Lessons Learned for Future Initiatives

Hideki Shoji Senior Engineer, Facility Engineering Section, 2nd Naka Wafer Process Manufacturing Technology Department, Naka Factory, Production and Technology Unit, Renesas Electronics

I was involved with the repair of buildings and cleanrooms, as well as activities to restore the infrastructure required to operate manufacturing facilities. Electricity, water, phones, computers, and so on—nothing was available. In such an environment, we entered damaged buildings and started status checking from the morning after the earthquake, using flashlights, oxygen meters and other tools. The status of damage was beyond imagination. We did not know where to begin. However, by forming teams consisting of people from different divisions as well as from other companies and industries, we set about recovery and restoration activities. This provided us with invaluable experience while enabling quicker-than-expected recovery and restoration. Immediately after the earthquake, we could not secure the generators and heavy machinery required for recovery activities. We will use this experience to promote our operations and establish more robust emergency measures for the future.
Recovery from Disaster: Completion of Naka Factory Recovery

Thanks to the substantial support provided by many parties, Renesas Electronics has been able to resume production three months ahead of its original schedule.

Toward Establishing More Effective Business Continuity Plans

Long before the Great East Japan Earthquake, Renesas Electronics has worked proactively to establish business continuity plans (BCPs) and enhance the effectiveness of these BCPs. More specifically, on the assumption that a large-scale earthquake would occur in Japan, the Company has encouraged individual business units to formulate BCPs, which are centered on measures for general safety, emergency responses, damage minimization, business continuity and quick recovery. The focus of these BCPs was placed on: (1) securing the safety of employees; (2) fulfilling its responsibility of continuously supplying products and services; and (3) safeguarding its management resources. Based on these BCPs, we have prepared related manuals.

However, this disaster, which struck such a vast region, revealed our BCPs were not thorough enough. In other words; due to the significant scale of the disaster, the assumptions that we used to establish our BCPs failed to include ancillary factors that might prevent stable production, such as the possible impact of disasters on our suppliers, the widening of nuclear evacuation zones, and the possibility of rolling blackouts and electricity shortage. And owing to the shortcomings of our BCPs, we caused significant impact on the production plans of our customers. We take this matter very seriously.

One of the most important lessons we learned through the disaster was that we must establish a flexible structure to enable efficient information sharing and alternate procurement and production, not only for the Renesas Electronics Group, but also for the entire supply chain. And such a structure must be realized through the synchronization of BCPs of all parties involved in the Renesas Electronics Group’s supply chain. In preparation for large-scale disasters like the Great East Japan Earthquake, we will promte the comprehensive review and revision of our BCPs. And through enhanced BCPs, we aim to establish a structure and frameworks to minimize the Group’s and related parties’ exposure to a variety of risks and enable stable production or quickest possible production resumption.

One promising direction the Group can take to establish such a structure and framework is the building of a formidable “alternate production network.” Since the merger of Renesas Technology Corp. and NEC Electronics Corporation, the Renesas Electronics Group has promoted the establishment of such an alternate production network. By further strengthening its fab network and accelerating the development of products based on this network, the Group will bolster its capabilities to adjust to changes in the external environment, such as demand fluctuations and unexpected events. At the same time, by continuing to value the sound relationships we have nurtured with our business partners, we will do our utmost to formulate measures to avoid risks and minimize the impact of risks.

The value of the Renesas Electronics Group is underpinned by its capabilities to steadily provide high-quality semiconductors to the market, supporting the advance of Japanese industry. These are the missions that the Renesas Electronics Group must continue to fulfill, and through the fulfillment of these missions we will contribute to nationwide efforts to realize recovery and restoration from the disaster.

Further Enhancing Our BCPs

Hisayuki Kato  Manager, CSR & Risk Management Section, CSR & Compliance Department, Legal & Compliance Division, Renesas Electronics

Immediately after the earthquake, an emergency response taskforce was formed, led by President Yasushi Akao. The CSR & Risk Management Section served as the secretariat of this taskforce, and its members, totaling about 50 staff, gathered everyday to hold emergency response taskforce meetings. (Later, these meetings were reestablished as the meetings of a recovery and restoration taskforce.) At these taskforce meetings, attendants reported on the status of damage, recovery activities and external communication. Each team under the taskforce communicated results and instructions of these meetings to related divisions, offices and working groups to facilitate efficient and effective cross-divisional response activities.

Certain aspects of our BCPs proved effective in promoting response measures. However, we must admit that many shortcomings in our BCPs were revealed through the aftermath of the disaster, largely attributable to the onset of various unexpected events and factors. Due to these shortcomings, we had difficulties in responding appropriately in certain situations. Based on our experience through the disaster, we are currently conducting a comprehensive review of our BCPs and related manuals. We will support individual business units in enhancing their BCPs and related manuals. Through the dissemination of enhanced BCPs and manuals, we aim to make Groupwide BCPs more effective and reliable.