Looking ahead to the next 100 years by looking back on the commitment to trust upon which NGK was founded

NGK has discovered that there were instances where insulators and related products of the Power Business Group shipped by NGK did not undergo tests required by customers in accordance with the agreements between customers and NGK (“Non-Conformity Issue”). To deal with this issue, the NGK Group has spent the past year implementing a variety of initiatives aimed at preventing a recurrence and improving quality compliance. Director and Senior Vice President Chiaki Niwa, who serves as the chair of the NGK Quality Committee, talks about the current state and future direction of quality compliance within the NGK Group.

We retained outside counsel and asked them to investigate a transparent and fair analysis of the causes of this issue. The pressure was found to be a desire to make the testing operations more efficient. If NGK was going to revise the inspection items stipulated in the agreement, it should have explained why this was appropriate to the customer and applied to change the inspection agreement. The opportunity that allowed the issue to arise was an integration of the inspection and manufacturing departments, such as the incorporation of automated inspection processes into the production line. This obscured the distinction of the position that led to confusion about which department would be responsible for ensuring the testing specification as prescribed by the customers. As for the rationalization used to excuse the issue, those involved felt confidence that the quality of our insulators manufacturing process and the sufficient margin to the specified values. They also had the belief that stringent in-house inspections would have already found and removed defective units and that there had been no market complaints in the past. It is believed that the confluence of these three factors led to this issue.

Strengthening the system: Stronger recurrence prevention measures by the Head Office and Business Groups

As soon as NGK learned of this issue, it became the Group’s top priority, with President Oshima spearheading efforts to address the issue and prevent it from reoccurring. The president now participates in and directly

Three factors that led to the compliance violation

Pressure
Opportunity
Rationalization

Key points of the Quality Compliance Program for preventing recurrence

- Clear statements by management
- Thorough dissemination of rules
- Education and training
- Auditing
- Improvement in quality of business
- Email monitoring (*1)
- Review of the implementation status of the Program by a third-party expert

*1: Begun in fiscal 2019
supervise the Quality Committee, and the frequency of Committee meetings has been increased to four times per year. In addition, whereas product quality has traditionally been the Committee’s central focus, in-house rules have been revised to extend business quality, specifically whether operations comply with customer agreements and whether the processes used, as well as their quality, are appropriate.

At the Head Office, we have strengthened the authority of the Quality Management Department to audit quality control for the entire Group. In addition to the conventional ISO 9001 auditing framework, systemic changes have been implemented to enable auditors to better assess the actual situation. In conjunction with this, detailed rules governing what measures should be taken when a violation is discovered are being codified. Email monitoring is also being developed.

Within the Power Business Group, the Inspection Department has been split from the Insulator Division and moved to the Quality Assurance Department directly under the authority of the Power Business Group. Operational processes have been changed, and the number of inspection team members has been doubled to augment the inspection system.

### Improving corporate culture:
**Getting back to basics, listening to employees, and providing compliance training**

It is not enough to only strengthen quality compliance system. We are also focusing on improving our corporate culture. President Oshima has conveyed his message to company-wide and the Group Executives and General Managers have communicated numerous times. Because unless it reaches those who are actually performing the work of the NGK Group, it has no value.

Within the Power Business Group in particular, a concerted effort to talk with and listen to each employee has been made. In these interviews, a variety of questions, issues, and other work-related topics were discussed. It appears that employees came away with a deeper understanding of the importance of quality and contracts.

At the same time, corporate executives and managers were given lectures on quality management. Quality compliance training was also provided to general employees.

### Results and future outlook:
**Strengthening check systems and automating inspections**

In fiscal 2018, quality compliance measures were developed, operational discrepancies were improved, and business quality was reviewed.

With regard to auditing, adding a member from the Quality Assurance Department of a different Business Group that being audited was found to be extremely effective. This is due to the completely different business focuses of the four Business Groups. For example, a member of the Ceramic Products Business Group handling automotive parts would be dispatched to the Power Business Group to perform an audit. This interaction of different perspectives allows the good points from each to be utilized.

In addition to all of this, starting this year NGK contracts a third-party expert to review the effectiveness of the NGK Group’s Quality Compliance Program. A three-tier system is put in place to check quality compliance, with the first tier being internal auditing by each Business Group, the second being auditing by the Head Office, and the third being a fully objective review by an outside organization.

We are also looking into changing the inspection process itself. Steps are being taken company-wide that data related to product quality such as test data will be automatically collected and processed as electronic data so as not to involve employees discretion. Active capital investment and technological development are being undertaken towards this end.

In cases where inspection methods are outdated and the latest technologies should be incorporated, we need to deliberate with customers and revise contracts as appropriate.

As our newly enacted Group Philosophy, social trust is the foundation of everything. As we look ahead to the next 100 years, we go back on the founding principles that motivate us to provide new value to society with our unique technology, contribute to improving quality of life, foster the development of industry, and conserve the global environment.