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Press release

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Interim Report on Wakayama Refinery Fires Issued by Incident Investigation Committee

We extend our deepest apologies to the members of the local community and others concerned for the inconvenience and concern caused by the tank fire that occurred on January 18 and the fire that occurred in the lubricant oil processing facilities on January 22 (“the fires” herein) at the Wakayama refinery of TonenGeneral Sekiyu K.K. (“the Company”).

As previously announced, as a response measure the Company established an incident investigation committee, which includes external specialists. After conducting a site investigation and several meetings, the committee members have submitted an interim report to the relevant authorities.

The interim report contains statements concerning the probable causes of the fires. Please refer to the attachment for more information.

The committee will take additional measures such as conducting further factor analysis, establishing measures to prevent reoccurrence, and checking the safety management system and information disclosure framework before issuing a final report, planned for May of this year.

Attachments:

1. Report on Investigation Regarding Causes of the Fires at the Wakayama Refinery (Interim Report Summary)
2. Supplementary Diagrams

[The official language for TonenGeneral Sekiyu's filings with the Tokyo Stock Exchange and Japanese authorities, and for communications with our shareholders, is Japanese. We have posted English versions of some of this information on this website. While these English versions have been prepared in good faith, TonenGeneral Sekiyu does not accept responsibility for the accuracy of the translations, and reference should be made to the original Japanese language materials.]

Report on Investigation Regarding Causes of the Fires at the Wakayama Refinery

(Interim Report Summary)

February 28, 2017
TonenGeneral Sekiyu K.K.

Summary

● Incidents

- Incident A: Fire in lubricant oil processing facilities (occurred around 3:40 p.m. on January 22, 2017)
- Incident B: Fire in tank open for cleaning (occurred around 6:45 a.m. on January 18, 2017)

● **Incident investigation committee** Committee established on February 10 with Tokyo University professor emeritus Masamitsu Murata as chairman

- First meeting Feb. 13, site investigation Feb. 17-18 (final report to be issued in May (plan))

● **Investigation overview/remarks**

Both incidents

- No injuries, currently checking damage to facilities
- Identification of direct causes completed, investigation method determined, other: see following pages

Incident A: Fire in lubricant oil processing facilities

- The evacuation of persons in the surrounding community will be reviewed by the incident investigation committee from a standpoint of having been a preemptive preventive measure.

Overview of investigation results – Incident A

(Fire in lubricant oil processing facilities)

● **Direct causes and investigation process hereafter**

- Results of site verification and investigation of operation records (operation data, alarm records, testimony of persons concerned, etc.) indicate possibility that a gas leak from the high-pressure purge gas system of the No. 2 lubricant oil extraction hydrogenation unit ignited the fire.
- Comprehensive identification and verification of assumed factors in malfunction of facilities in the affected area have begun. Twelve apertures and one flange malfunction, indicated by thickness of walls of facilities confirmed through X-rays, examination of surfaces of sections of pipes removed, and analysis of components of internal sediment in the pipes, have been identified as possible sites of the initial gas leak.
- A metallurgical and chemical trace investigation will be conducted to identify the location of the gas leak that started the fire and distinguish it from the location where the fire started and secondary areas where fire damage occurred, and determine the causes of the apertures and ignition mechanism.

● **Indirect causes and investigation process hereafter**

- After identifying the location of the gas leak that started the fire, indirect factors will be determined from a standpoint of operations management, facilities management and design management, after which measures for prevention of reoccurrence will be drafted, the safety management system will be checked and a final report will be issued.

● **Review of information disclosure framework and evacuation of local community**

- To be implemented along with the above investigation.

Overview of investigation results – Incident B

(Fire in tank open for cleaning)

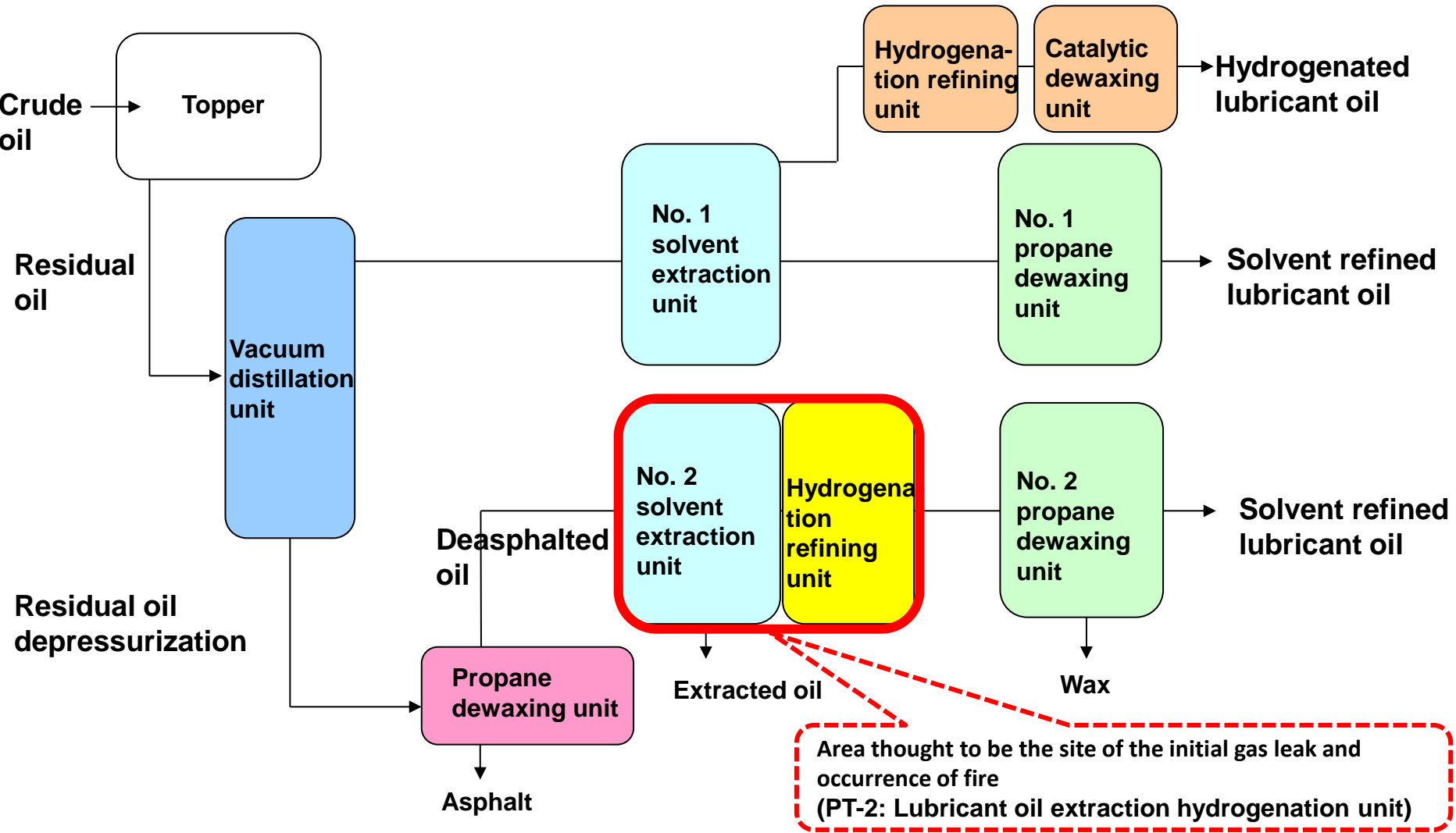
● Direct/indirect causes

- As this was an internal tank fire that occurred in the absence of flames in the early morning during an interruption in sludge cleaning operations when no workers were around, possible flammable substances remaining in the tank (sludge, diesel used for dissolution, equipment, etc.) and sources of ignition (iron sulfide or other self-igniting substances, static electricity, lightning, heat from oxidation of oil soaked into rags, electric tools, arson, etc.) were investigated. In addition, results of analysis of sludge discharged from the tank indicate that when the sludge dries, it contains significant amounts of iron sulfide, a self-igniting substance. An ignition test of this sludge indicated that spontaneous combustion is possible.
- Checked content of refinery regulations regarding safety management of sludge (measures regarding ignition of iron sulfide), content of contractor company written procedures, awareness on the part of the refinery and the contractor company of risk of self-ignition of iron sulfide, and degree of understanding of specific procedures for countermeasures for ignition of iron sulfide, and identified improvements needed to prevent reoccurrence.
- Judging from operation records and lists of materials used, the possibility of ignition factors other than iron sulfide is thought to be low, but final confirmation will be made at the time of on-site verification of tank interior.

● Process hereafter

- Final confirmation of ignition factors other than iron sulfide through the above on-site verification is incomplete, but specific procedures for countermeasures for ignition of iron sulfide will be incorporated into refinery regulations regarding countermeasures for ignition of iron sulfide in tank cleaning.
- In addition, awareness of risk of self-ignition of iron sulfide among employees and contractor company employees involved in tank cleaning will be raised, and training will be implemented to ensure compliance with specific procedures for countermeasures for ignition of iron sulfide.

Supplemental diagram: Wakayama refinery lubricant oil refining process and area where fire occurred



Supplemental diagram: Residual sludge in tank (before fire)

