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September 30, 2015

Regional Administrator
ATT: Ms. Mary Setnicar
United States Environmental Protection Agency
77 West Jackson Blvd.
Chicago, IL 60604

RE: TSCA Demonstration Plan for
Safety-Kleen Systems, Inc.
East Chicago, IN

Dear Ms. Setnicar:

This is to request approval for a Demonstration Run utilizing our Alternative PCB Disposal Approval. This Demonstration Run is necessary to show sustained feed rates to the hydrotreater. The ultimate purpose of this Demonstration Run will be to support Safety-Kleen's June 13, 2009 request to modify the Approval issued by your office.

The past Demonstration Runs did not achieve the objectives of feeding the target concentration at the desired hydrotreater feed rate. As your office noted, the low concentration of the 2009 Run could not be used to validate maintaining the current concentration of the feed (200 ppm). The 2012 Demonstration Run proved unsuccessful from an operational aspect. The hydrotreating of the VFS fuel stream (not done during normal used oil processing) caused an excessive pressure drop in the initial guard bed reactors, resulting in the need to reduce feed rates to the hydrotreater. The problems however, did not affect the hydrotreaters ability to destroy the PCBs. Enclosed with this letter is a CD containing the data associated with the 2009 and 2012 Demonstration Runs.

Safety-Kleen has evaluated the past Runs and has concluded that it is not necessary to maintain the 200 ppm PCB limit contained in Condition No. 21 in order to effectively utilize this Approval. Based on the PCB contaminated used oil that is normally available for processing, the concentration is not likely to be near 200 ppm. This was evident in the last two Demonstration Runs, where we actually spiked the feed for the 2012 event to increase concentration to 200 ppm.

As designed, the processing of small volumes is not economically feasible. Safety-Kleen does however realize the value of recovering the base lube oil from the larger volumes of contaminated used oil as opposed to its disposal. Therefore we have decided to use a lower PCB concentration feed for this Demonstration Run.

Additionally, after reviewing the 2012 Demonstration Run, we have determined that the operational issues associated were caused by the method of feeding the VFS fuel to the hydrotreater. In all of the past PCB processing events, VFS has been allowed to run-down uncontrolled to the Vacuum Oil storage tank, which feeds the hydrotreater. This approach allowed for slugs of VFS to be fed into the hydrotreater causing the abnormal pressure drops in

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the Guard Reactors. At lower feed rates, the hydrotreater was able to accommodate the higher VFS concentration but this is an issue at high feed rates. We believe that slip-streaming the VFS into the feed going to the Guard Reactors will prevent the pressure drops. The plan is to tie the VFS feed line into the piping between the Vacuum Oil storage tank and the V-401 Feed Surge Drum and utilize a pump that will allow us to control the VFS feed rate into this piping. (See enclosed Attachment 1 Hydrotreater Process Flow Diagram w/PCB points from the Approval.) Though we feel that this will resolve the pressure issue, if it is not successful, we would then decide to dispose of the contaminated VFS off-site.

The plan is to process at a minimum, a batch quantity (376,600 gallons) of PCB contaminated used oil at a concentration of 34 ppm. In addition, Safety-Kleen is requesting approval (per Condition No. 23) to process an additional volume of up to 423,400 gallons (total volume 800,000 gallons).

The Demonstration Plan details the changes S-K would like to have made to the Approval To Store and Dispose of PCB Contaminated Waste Oil By Re-Refining Process, and the rationale for those changes.
If you have any questions, please contact Dennis Zawodni at 219/391-6127.

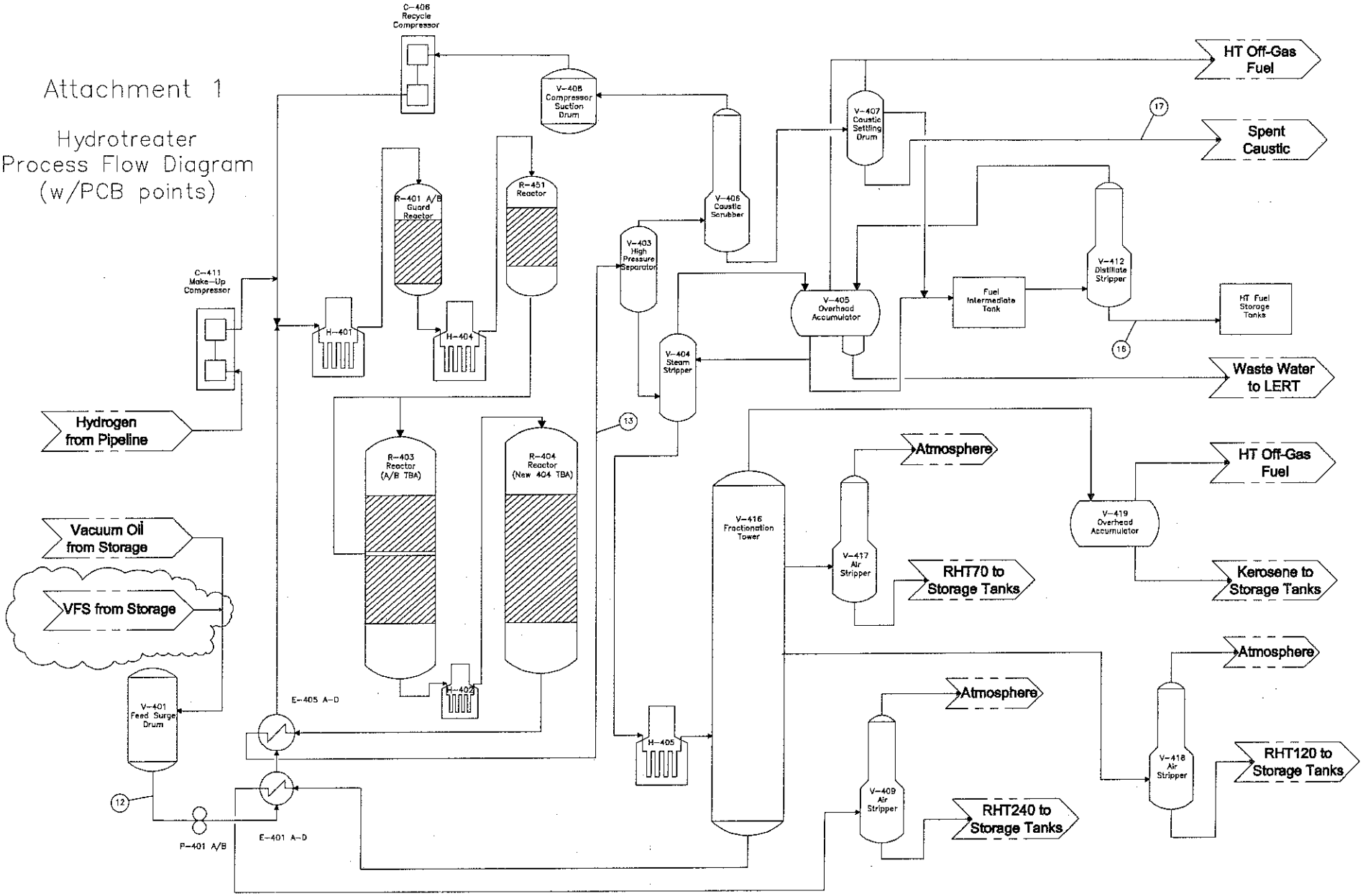
Respectfully,

Jason R. Shoff
Refinery Manager

cc: George Ritchotte, IDEM
Mary Setnicar, EPA
Peter Ramanauskas, EPA

Attachment 1

Hydrotreater Process Flow Diagram (w/PCB points)



2015 DEMONSTRATION PLAN
PCB DISPOSAL RUN
SAFETY-KLEEN SYSTEMS, INC.
EAST CHICAGO, IN

1.0 INTRODUCTION

Safety-Kleen Systems, Inc. (S-K) operates a used oil re-refinery in East Chicago, IN. This facility receives more than 100 million gallons of used oil annually. It is considered the largest re-refinery in the world. From this used oil, S-K produces more than 70 million gallons of base lube oil. This base lube oil is exactly the same as base lube oil produced by crude oil refineries. In addition to the lube oil, the re-refining process produces asphaltine bottoms and fuel that are sold as products, and an ethylene glycol by-product that is recycled for use in antifreeze.

EPA issued an Approval to Store and Dispose of PCB Contaminated Waste Oil By Re-Refining Process (Approval) to S-K. Additionally, the Indiana Department of Environmental Management (IDEM) issued a PCB Alternative Disposal Permit that mirrors EPA's Approval.

PCB processing is defined as a batch process in EPA's Approval, additional to the normal used oil re-refinery operations. However, the PCB process is conducted exactly the same as the day-to-day used oil re-refining activities. The only differences are the operating ranges of key process variables (eg, temperatures, pressures and flow rates) and increased sampling requirements for in-process streams.

The operating ranges of key process variables were established during the demonstration run in December 1994. These key operating conditions are identified in Item No. 29 of the Approval. Unfortunately, when the Approval was issued 4 years later in 1998, these values were not the same as what the, then current numbers were. The values set in the Approval were significantly slower and more cumbersome than the normal production rate. As a result, processing PCBs is not considered a financially viable option for the facility. The significant volume loss of final product (base lube oil) makes the Approval of minimal value to S-K. However, S-K believes that the hydrodechlorination process for PCB destruction, is an extremely effective and environmentally beneficial method for this activity. In order to better utilize this Approval, it is necessary to demonstrate the effectiveness of the hydrodechlorination process at the current operating conditions.

2.0 PROCESS DESCRIPTION

The re-refining/PCB destruction process consists of two primary operations, distillation and hydrotreatment. There are 4 primary differences between normal and PCB

processing: 1) Operating process variables are set to the 1994 conditions; 2) Fuel (VFS) is also hydrotreated; 3) Water is stored in tanks and tested before being transferred to the onsite wastewater treatment plant; and 4) In-stream sampling and analysis while processing PCBs is at an increased rate over normal operations.

The first stage, distillation is a process that, by temperature and pressure, physically decontaminates the used oil. During distillation, water, ethylene glycol, fuel, asphaltine products and vacuum oil are separated from the used oil. The ethylene glycol (LERT Bottoms) and asphaltine products (LUWA Bottoms) are sold as finished products. The fuel (VFS) and vacuum oil is forwarded in the process for hydrotreatment. Water, is collected in tanks, tested and then forwarded to the on-site wastewater treatment plant. If LERT Bottoms, LUWA Bottoms or water is tested and fails to meet the acceptable limit, it is re-processed through distillation.

The second stage in the process is hydrotreatment. Hydrotreatment, also common in crude oil refineries, removes chemical impurities in the oil. The hydrotreater utilizes catalyst and hydrogen, to remove sulfur, chlorine, oxygen and other impurities. The end result of this process, is the production of a base lube oil, suitable for end use and sale. Base lube oil production is the key element of the financial viability for the S-K facility.

3.0 PROPOSED OPERATING CONDITIONS

The demonstration run will be conducted per the current Approval with the exception of certain parameters in the key operating conditions. These parameters are found in Item No. 29 of the Approval.

The proposed changes to the Operating Range of several Key Process Variables (See Attachment A. - Modified Item No. 29) reflect the normal operating conditions of the used oil re-refining process. The conditions would allow S-K to process PCBs and continue normal operations.

4.0 RATIONALE FOR TEST PROTOCOL

The distillation phase of the re-refining process is a physical decontamination. All products, by-products and wastewater are either tested for decontamination (LUWA Bottoms, LERT Bottoms and wastewater) or forwarded to the hydrotreater (vacuum oil and VFS fuel). The actual operating conditions within the distillation phase are critical to the decontamination of the non-hydrotreated products. Those products are however, subject to testing that would indicate < 2 ppm PCBs. Failure to meet that level would require re-processing.

In the hydrotreater, the only difference between normal used oil operations and PCB conditions is the reduced feed rate to the hydrotreater. The feed rate set in the 1994 demonstration and then as a condition in the Approval is $\leq$ 120 gpm. When the Approval

was issued in Dec. 1998, the average feed rate was 120 gpm. Since then, the current average feed rate has been increased to $\leq$ 175 gpm.

The lower feed rate in the Approval, results in approximately 60,000 fewer gallons of base lube per day. Over a 4 to 7 day run, as is being proposed in this demonstration, we would be looking at a 240,000 gal. to 420,000 gal. loss in production, This would result in a significant financial loss.

Under the current permit, S-K is allowed to process non-TSCA PCB contaminated used oil. This material is processed through normal used oil operations at the re-refinery, including the hydrotreater. These low level PCBs are destroyed in the hydrotreater, while being fed at the feed rates of normal processing.

5.0 Test Overview

Ultimately, the purpose of this demonstration is to achieve the following modifications to the Approval:

1) Deletion of the key operating conditions specific to the distillation process.

   Conducting the demonstration run at the proposed Operating Ranges will show the effectiveness of the distillation (decontamination) process. The products (not being hydrotreated), are subject to the testing criteria within the Approval. These conditions do relate to the effectiveness of the hydrotreater, where the PCB destruction process occurs. See Attachment A in the June 13, 2009 Request for Modification.

2) Increase the hydrotreater feed rate to $\leq$ 175 gpm.

   Feeding PCBs at the current normal operating rates is well within the hydrodechlorination capabilities of the hydrotreater.

   S-K believes that this PCB destruction technology is preferable to incineration. Not only does the process have less threat to the environment (with no possibility of creating harmful dioxins and other toxic by-products), but a valuable resource is recycled and reused. S-K has not been able to utilize the benefits of this Approval. Even when the Approval was issued in 1998, the lost production played a key role in S-K opting not to process PCBs. At current process rates, the PCB Approval can only be utilized for emergency situations. S-K believes that it is possible to modify this Approval as we propose and still meet the required destruction efficiencies.

3) Eliminate some of the sampling requirements of in-stream samples.

Items No. 7, 8, 9 and 10 in Attachment II of the Approval/Permit are all forwarded to the hydrotreater. All of these streams are combined prior to being fed to the hydrotreater. The sample results have little significance in the process. See Attachment B.

ATTACHMENT A

29. S-K must maintain the following key operating conditions during the processing of PCB contaminated waste oil.

Key Process Variable	Operating Range	Time Limit for Correcting excursion (Before waste oil feed cut-off)	Deviation that would require waste oil feed cut-off (1 minute)
Feed to Pre-treat/dehydration (FI201)	**≤240 gpm** ~~100-190 gpm~~	5 minutes	---
Feed to Distillation (FI208)	**≤220 gpm** ~~100-180 gpm~~	5 minutes	---
Feed Concentration to Distillation (FI208)	≤ 200 ppm	---	---
Feed Rate to Evaporator#1 (FI 330)	**≤100 gpm** ~~50-80 gpm~~	5 minutes	---
Light Vacuum Oil Heater Outlet Temp. (TI 3018)	**@ or above by 5%** 530-550 °F	5 minutes	---
Light vacuum Tower Pressure (PIC 306)	**≤30 mm Hg** ~~10-14 mm Hg~~	15 minutes	4 mm Hg
Medium Vacuum Oil Temp (TI391)	620-640 °F	15 minutes	15 °F
Medium Vacuum Oil Evapo-rator Pressure (PIC 304)	8-12 mm Hg	15 minutes	4 mm Hg
Heavy Vacuum Oil Heater Outlet Temp (TI 392)	~~>670 °F~~	5 minutes	10 °F

Heavy Vacuum Oil Evaporator Pressure (PIC 305)	**3-9 mm Hg** ~~6-9 mm Hg~~	15 minutes	2 mm Hg
Hydrotreater System Pressure	>800 psi	20 minutes	25 psi
Hydrotreater Feed Rate (FI 404)	~~≤120 gpm~~ **≤175 gpm**	5 minutes	15 gpm
Reactor ~~R402~~ **R-451**/R-403/**R-404** Temperature	>565 °F	5 minutes	10 °F
Reactor **R-405** ~~R404~~ Temperature	>570 °F	5 minutes	10 °F