



TECHNICAL SUPPORT DOCUMENT

**DOWNTOWN CLEANERS
SWCAA Identification: 396**

Air Discharge Permit 10-2933

ADP Application CO-894

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Abbreviations

ADP	Air Discharge Permit (Same as Order of Approval)
AP-42	<u>Compilation of Emission Factors, AP-42, Fifth Edition, Volume 1, Stationary Point and Area Sources</u> – published by the US Environmental Protection Agency
BACT	Best Available Control Technology
BART	Best Available Retrofit Technology
CFR	Code of Federal Regulations
CO	Carbon monoxide
EPA	U.S. Environmental Protection Agency
HAP	Hazardous Air Pollutant listed in Section 112 of 1990 Clean Air Act amendments
LAER	Lowest Achievable Emission Rate
lb/hr	Pounds per hour
lb/yr	Pounds per year
MSDS	Material Safety Data Sheet
NO _x	Nitrogen oxides
PM	Particulate matter with an aerodynamic diameter less than or equal to 100 micrometers (includes both filterable particulate matter measured by EPA Method 5 that is less than 100 micrometers and condensable particulate matter measured by EPA Method 202)
PM ₁₀	Particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (includes both filterable particulate matter measured by EPA Method 201 or 201A and condensable particulate matter measured by EPA Method 202)
PM _{2.5}	Particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers (includes both filterable particulate matter measured by EPA Method 201 or 201A and condensable particulate matter measured by EPA Method 202)
RACT	Reasonably Available Control Technology
SO ₂	Sulfur dioxide
SWCAA	Southwest Clean Air Agency
RCW	Revised Code of Washington
TAP	Toxic Air Pollutant listed in WAC 173-460
tpy	Tons per year
VOC	Volatile Organic Compound
WAC	Washington Administrative Code

1. FACILITY IDENTIFICATION

Applicant Name: Downtown Cleaners
Applicant Address: 1241 14th Avenue, Longview, WA 98632

Facility Name: Downtown Cleaners
Facility Address: 1241 14th Avenue, Longview, WA 98632
SWCAA Identification: 396
Contact Person: Suni Aberle (owner)

Primary Process: Hydrocarbon solvent based dry cleaning
SIC / NAICS: 7216 / 81232
Facility Classification: BACT / Minor Source

2. FACILITY DESCRIPTION

This facility is a dry cleaning store that replaced their perchloroethylene dry cleaning machine with a hydrocarbon solvent dry cleaning machine in November 2008.

3. CURRENT PERMITTING ACTION

The current permitting action is in response to Air Discharge Permit Application CO-894 received March 15, 2010. Air Discharge Permit Application CO-894 requests belated approval to replace a perchloroethylene dry cleaning machine with a hydrocarbon solvent dry cleaning machine utilizing ImpressTM or a similar cleaning fluid.

4. PROCESS DESCRIPTION

The facility consists of a single dry-to-dry hydrocarbon dry cleaning machine. In a dry-to-dry machine both the washing and drying cycle take place in the same machine. After the operator loads garments into the machine, the machine begins an automated cycle of washing with a hydrocarbon solvent (ImpressTM cleaning fluid in this case), followed by a drying cycle. Clothes are spun to eliminate excess solvent, then a heated air stream is passed through the drum to evaporate the remaining solvent. Solvent is recovered from the air stream with a chilled condenser, and the air is re-heated and returned to the drum in a closed loop. For safety reasons, the machine cannot be opened until the drying cycle is complete and essentially all residual solvent has been removed from the clothes.

5. EQUIPMENT/ACTIVITY DESCRIPTION

5.a Dry Cleaning Machine. The following dry cleaning machine details were available.

Make / Model: Rinex / Pro 40 L2118
Manufactured: 2008
Installed: 2008
Serial Number: 072 18 0028
Max Load: 40 dry pounds (18 kilograms)
Solvent: Hydrocarbon solvent IIIA (e.g. ImpressTM Solvent) – machine holds 140 gallons
Emission Control: Refrigerated condenser
Cycle Time: Depends on cleaning needs, average approximately 50 minutes

The proposed dry cleaning machine will utilize ImpressTM or a similar fluid as a cleaning solvent. ImpressTM cleaning fluid is a mixture of naphtha and aliphatic propylene glycol ethers. None of the components are identified as Toxic Air Pollutants subject to regulation by Washington Administrative Code (WAC) 173-460. None of the

components are federally listed Hazardous Air Pollutants (HAPs). Glycol ethers derived from propylene glycol are specifically exempted from the "glycol ethers" category of HAPs.

The dry cleaning machine utilizes steam from a Thermo-Steam Boiler, model FG 15, serial number 0727 rated at 0.63 MMBtu/hr. No date of manufacture could be found during a visit to the facility on April 14, 2010.

5.b Equipment Summary:

ID No.	Generating Equipment/Activity	# of Units	Control Measure/Equipment	# of Units
1	Petroleum Dry Cleaning Machine	1	Refrigerated Condenser	1

6. EMISSIONS DETERMINATION

Emissions from this facility consist of volatile organic compounds (e.g. Impress™ fluid) from evaporation.

6.a Dry Cleaning Machine. Emissions of VOCs from the dry cleaning machine and process occur from evaporation of residual liquid from garments, leaks, and volatilization during maintenance activities. The amount of VOCs released must be calculated using a material balance methodology assuming that the quantity of VOCs released to the air is the difference between the amount of cleaning fluid purchased, and the amount of cleaning fluid disposed offsite as waste.

Impress™ fluid has a specific gravity of 0.83, therefore it takes approximately 289 gallons of Impress™ fluid evaporation to equate to 1 ton of VOC emissions. It is estimated that annual emissions will be much less than 1 ton. To account for an up-turn in business and/or a lower solvent mileage in actual practice, SWCAA estimated that potential VOC emissions could be approximately 0.5 tons per year. An emission rate of 0.50 tons of VOC emission per year is equivalent to 115,000 pounds of clothing cleaned with a solvent mileage of ~800 pounds of clothing per gallon of Impress™ fluid. This level of cleaning would require over 2,400 hours of full-load (40 lbs/load) operation per year.

6.b Facilitywide Potential Emissions (PTE) Summary.

Pollutant	Potential Annual Emissions
Nitrogen oxides	0.00 tons
Carbon monoxide	0.00 tons
Volatile organic compounds	0.50 tons (permit limit)
Sulfur oxides as sulfur dioxide	0.00 tons
Particulate matter	0.00 tons
PM ₁₀	0.00 tons
PM _{2.5}	0.00 tons
Toxic Air Pollutants	0.00 tons
Hazardous Air Pollutants	0.00 tons

7. REGULATIONS AND EMISSION STANDARDS

Regulations that have been used to evaluate the acceptability of the proposed facility and establish emission limits and control requirements include, but are not limited to, the regulations, codes, or requirements listed below.

7.a Title 40 Code of Federal Regulations (CFR) Part 60 Subpart JJJ "Standards of Performance for Petroleum Dry Cleaners" establishes operational and initial testing requirements for petroleum dry cleaning facilities with a total

manufacturer's rated dryer capacity equal to or greater than 84 pounds. This facility utilizes a single dry-to-dry machine with a maximum capacity of 40 pounds, therefore this regulation is not applicable to this facility.

- 7.b Revised Code of Washington (RCW) 70.94.141 empowers any activated air pollution control authority to prepare and develop a comprehensive plan or plans for the prevention, abatement and control of air pollution within its jurisdiction. An air pollution control authority may issue such orders as may be necessary to effectuate the purposes of the Washington Clean Air Act [RCW 70.94] and enforce the same by all appropriate administrative and judicial proceedings subject to the rights of appeal as provided in Chapter 62, Laws of 1970 ex. sess.
- 7.c RCW 70.94.152 provides for the inclusion of conditions of operation as are reasonably necessary to assure the maintenance of compliance with the applicable ordinances, resolutions, rules and regulations when issuing an Air Discharge Permit for installation and establishment of an air contaminant source.
- 7.d Washington Administrative Code (WAC) 173-460-060(2) "Controls for New Sources of Toxic Air Pollutants - Petroleum Dry Cleaning Solvent Systems" establishes minimum requirements for petroleum solvent dry cleaning systems. The permittee's equipment is a petroleum solvent dry cleaning system and is subject to this regulation. The rule requires the following:
- (1) All cleaned articles are dried in a solvent recovery dryer or the entire dryer exhaust is vented through a properly functioning control device which will reduce emissions to no more than 3.5 kg of VOC per 100 kg dry weight of cleaned articles;
 - (2) All cartridge filtration systems are drained in their sealed housing or other enclosed container before discarding the cartridges; and
 - (3) All leaking components shall be repaired immediately.
- 7.e SWCAA 400-040 "General Standards for Maximum Emissions" requires all new and existing sources and emission units to meet certain performance standards with respect to Reasonably Available Control Technology (RACT), visible emissions, fallout, fugitive emissions, odors, emissions detrimental to persons or property, sulfur dioxide, concealment and masking, and fugitive dust.
- 7.f SWCAA 400-040(3) "Fugitive Emissions" requires that reasonable precautions be taken to prevent the fugitive release of air contaminants to the atmosphere.
- 7.g SWCAA 400-040(4) "Odors" requires that any person who shall cause or allow the generation of any odor from any source, which may unreasonably interfere with any other property owner's use and enjoyment of their property must use recognized good practices and procedures to reduce these odors to a reasonable minimum.
- 7.h SWCAA 400-060 "Emission Standards for General Process Units" requires that all new and existing general process units not emit particulate matter in excess of 0.1 grains per dry standard cubic foot of exhaust gas.
- 7.i SWCAA 400-110 "New Source Review" requires that an Air Discharge Permit Application be filed with SWCAA, and an Air Discharge Permit be issued by SWCAA, prior to establishment of the new source, emission unit, or modification. The new flare is a new source of air pollution subject to New Source Review.
- 7.j SWCAA 400-113 "Requirements for New Sources in Attainment or Nonclassifiable Areas" requires that no approval to construct or alter an air contaminant source be granted unless it is evidenced that:
- (1) The equipment or technology is designed and will be installed to operate without causing a violation of the applicable emission standards;
 - (2) Best Available Control Technology will be employed for all air contaminants to be emitted by the proposed equipment;
 - (3) The proposed equipment will not cause any ambient air quality standard to be exceeded; and

- (4) If the proposed equipment or facility will emit any toxic air pollutant regulated under WAC 173-460, the proposed equipment and control measures will meet all the requirements of that Chapter.

8. RACT/BACT/BART/LAER/PSD/CAM DETERMINATIONS

The proposed equipment and control systems have been evaluated to determine if they meet the requirements of Best Available Control Technology (BACT) and Best Available Control Technology for toxics (T-BACT) for the types and amounts of air contaminants emitted by the processes and equipment as described below:

- 8.a VOC Emissions from Dry Cleaning Machine. The permittee's dry cleaning machine utilizes a closed-loop dry-to-dry system with a refrigerated condenser to remove solvent from the garment drum. The use of this technology and the Impress™ (or similar) solvent with a low vapor pressure meets the requirements of BACT.
- 8.b Prevention of Significant Deterioration (PSD) Applicability. This permitting action will not result in a potential increase in emissions equal to or greater than the PSD thresholds. Therefore, PSD review is not applicable to this action.
- 8.c Compliance Assurance Monitoring (CAM) Applicability Determination. CAM is not applicable to any emission unit at this facility because it is not a major source and is not required to obtain a Part 70 permit.

9. AMBIENT IMPACT ANALYSIS

- 9.a This facility will emit no significant quantity of toxic air pollutants, and no more than 1,000 pounds of VOC per year. At this VOC emission rate, this facility is not expected to have any significant impact on ambient air quality.

Conclusions

- 9.b Installation and operation of the hydrocarbon dry cleaning machine as proposed in Air Discharge Permit Application CO-894 will not cause the ambient air quality requirements of Title 40 Code of Federal Regulations (CFR) Part 50 "National Primary and Secondary Ambient Air Quality Standards" to be violated.
- 9.c Installation and operation of the hydrocarbon dry cleaning machine as proposed in Air Discharge Permit Application CO-894 will not cause the requirements of WAC 173-460 "Controls for New Sources of Toxic Air Pollutants," and WAC 173-470 "Ambient Air Quality Standards for Particulate Matter," WAC 173-474 "Ambient Air Quality Standards for Sulfur Oxides," and WAC 173-475 "Ambient Air Quality Standards for Carbon Monoxide, Ozone, and Nitrogen Dioxide" to be violated.
- 9.d The hydrocarbon dry cleaning machine proposed in Air Discharge Permit Application CO-894, if properly installed and maintained, can be operated without causing a violation of emission standards for sources as established under SWCAA General Regulations Sections 400-040 "General Standards for Maximum Emissions," 400-050 "Emission Standards for Combustion and Incineration Units," and 400-060 "Emission Standards for General Process Units."

10. DISCUSSION OF APPROVAL CONDITIONS

SWCAA has made a determination to issue Air Discharge Permit SWCAA 10-2933 in response to Air Discharge Permit Application CO-894. Air Discharge Permit SWCAA 10-2933 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards as discussed below.

- 10.a General Basis. Approval conditions for equipment affected by this permitting action incorporate the operating schemes proposed by the permittee in the Air Discharge Permit application.
- 10.b Emission Limits. VOC emissions were limited to 0.50 tons per year, which is considerably greater than the level of anticipated emissions. The additional margin was included because both the solvent mileage and the amount of actual business that will be conducted are only estimates. At this maximum level of emissions, no adverse air quality impacts are anticipated.
- 10.c Operating Limits and Requirements. ImpressTM, DF-2000 and PureDry were the only cleaning fluids reviewed for use in the dry cleaning machine, however there may be other acceptable cleaning fluids available now or in the future. To accommodate this, the permittee will be allowed to use ImpressTM, DF-2000, PureDry, or another cleaning fluid pre-approved by SWCAA. To minimize fugitive VOC emissions, all solvent must be stored in closed containers, cartridge filters must be drained in their housings or a closed container, and all leaks must be repaired as soon as possible.
- 10.d Monitoring and Recordkeeping Requirements. Leak detection monitoring is required weekly to detect and prevent leaks. This is a relatively quick and simple measure that can prevent most unnecessary fugitive emissions.
- The amount of cleaning fluid purchased, used, and disposed of is required to be recorded in order to calculate annual emissions.
- 10.e Emission Monitoring and Testing Requirements. No emissions monitoring or testing was deemed necessary to assure compliance with the permitted emission limit, so none was required.
- 10.f Reporting. The information necessary to calculate annual emissions, and the annual emissions inventory reported by the permittee, must be submitted to SWCAA each year by March 15th. This information will be used to assess the compliance status of the source and develop a general emission inventory.

11. STARTUP AND SHUTDOWN/ALTERNATIVE OPERATING SCENARIOS/POLLUTION PREVENTION

- 11.a Startup and Shutdown. Pursuant to SWCAA 400-081 "Start-up and Shutdown," technology based emission standards and control technology determinations shall take into consideration the physical and operational ability of a source to comply with the applicable standards during startup or shutdown. Where it is determined that a source is not capable of achieving continuous compliance with an emission standard during startup or shutdown, SWCAA shall include appropriate emission limitations, operating parameters, or other criteria to regulate performance of the source during startup or shutdown.
- To SWCAA's knowledge, this facility can comply with all applicable standards during startup and shutdown.
- 11.b Alternative Operating Scenarios. SWCAA conducted a review of alternative operating scenarios applicable to this permitting action. This facility could use alternative dry cleaning fluids. For example, PureDry or DF-2000. The permit allows the use of ImpressTM, DF-2000, PureDry, or another cleaning fluid pre-approved by SWCAA.

- 11.c Pollution Prevention Measures. SWCAA conducted a review of possible pollution prevention measures for the facility. No pollution prevention measures other than the control measures identified in this permit were identified by either the permittee or SWCAA. Therefore, none were included in the permit conditions.

12. EMISSION MONITORING AND TESTING

No emissions monitoring or testing requirements were deemed necessary to assure compliance with the permitted emission limit, so none was required.

13. HISTORY

- 13.a Permitting History. No permits have been issued for this facility.

14. PUBLIC INVOLVEMENT

- 14.a Public Notice for Air Discharge Permit Application CO-894. Public notice for Air Discharge Permit Application CO-894 was published on the SWCAA internet website from March 23, 2010 through May 6, 2010.
- 14.b Public/Applicant Comment for Air Discharge Permit Application CO-894. SWCAA did not receive formal comments, a comment period request, or any other inquiry from the public or the applicant regarding this Air Discharge Permit application. Therefore no public comment period was provided for this permitting action.
- 14.c State Environmental Policy Act. A Determination of Nonsignificance (DNS) was issued for this permitting action by SWCAA on May 6, 2010.