

**ENGINEERING EVALUATION  
PICK-N-PULL AUTO DISMANTLERS; PLANT #20290  
APPLICATION #22225**

**1.0 BACKGROUND**

Pick-n-Pull Auto Dismantlers (Pick-n-Pull) submitted this application for an Authority to Construct and/or Permit to Operate the following equipment:

**S1 Gasoline Storage Tank, Fixed Roof, 1000 gallon capacity; abated by A1, Carbon Canister System, Carbtrol, G-1P, two 200-lb carbon canisters in series**

S1 will be used to store recovered gasoline from salvage automobiles. No gasoline will be dispensed at this location. A1, Carbon System, will consist of two 200-lb carbon canisters operating in series. If breakthrough begins to occur, the primary carbon canister will be replaced and the secondary unit will become the primary control device. Appurtenant equipment consisting of a flame arrestor and a back flow valve will be installed for safety purposes. The flame arrestor will be mounted between the tank vent and the primary carbon canister. The back flow valve will be on the outlet of the carbon canisters to prevent ambient air from getting into the system. Organics control efficiency of the proposed carbon canister system, A1, would be at least 95% by weight as required by District Regulation 8-5-306.1.

**2.0 EMISSION CALCULATIONS**

Emission estimates were performed using EPA Tanks 4.0.9d program (see Attachment A). The uncontrolled POC emissions from the tank, S1, are summarized below:

Source #	Working Loss, lb/yr	Breathing Loss, lb/yr	Total Loss, lb/yr
1	255.01	370.37	<b>625.38</b>

The controlled emissions using A1 abatement efficiency of 95% are as follows:

$(625.38 \text{ lb/yr}) (1-0.95) = \mathbf{31.27 \text{ lb/yr or } 0.10 \text{ lb/day}}$

**Carbon Breakthrough Calculation:**

The EPA Tanks 4.0.9d program was used to estimate 625.38 lb/yr of POC emissions from the tank. A gasoline with RVP 11 was used in the emission calculations as a conservative estimate of annual emissions. As per information provided by carbon supplier, for BTEX (gasoline), the carbon will adsorb 20% by weight and achieve greater than 95% removal. This equates to 5 lb of carbon needed to capture 1 lb of POC emissions. The carbon system will consist of 400 lb of carbon (two 200 lb canisters in series).

Annual Carbon usage rate is calculated as:

625.38 lb POC/yr x 5 lb C/lb POC = 3127 lb C/yr

200 lb C per drum / 3,127 lb C/yr = 0.063 yr per 200 lb C = 23.34 days to breakthrough (on average) per 200 lb C

Therefore, the first adsorber drum is expected to have an effective operating life of 23 days, before it should be replaced.

It can be concluded that replacing the first drum in the Carbon Canister System A1 at least every 23 days will ensure that there are “no detectable emissions”, i.e., no more than 10 ppmv of organic compound emissions, at A1’s exhaust. However, Pick-n-Pull will initially be required to monitor daily NMHC concentration of the process exhaust gas with a photo-ionization detector (PID) or flame-ionization detector (FID). The monitoring results (based on actual measurements taken at the site during operation of S1/A1) may be used by the applicant to propose to the District monitoring schedule change based on the demonstrated breakthrough rates of the carbon vessels.

### 3.0 TOXICS

Toxic air contaminant (TAC) emissions from S1 are shown below.

TAC	Hourly emissions (lbs/hr)	Acute TAC trigger level (lbs/hr)	Exceeds Acute TTL?	Annual emissions (lbs/yr)	Chronic TAC trigger level (lbs/yr)	Exceeds Chronic TTL?
Hexane (n-)	0.0003	NA	No	3.04	270,000	No
Benzene	0.0003	2.9	No	3.37	3.8	No
Toluene	0.0004	82	No	3.76	12,000	No
Ethyl benzene	Negligible	NA	No	0.25	43	No
Xylenes (m-)	0.0001	49	No	1.05	27,000	No

All TAC emissions are below their respective chronic and acute trigger levels; therefore, a health risk screening analysis pursuant to Regulation 2, Rule 1, Section 316 is not required.

### 4.0 BEST AVAILABLE CONTROL TECHNOLOGY

In accordance with BAAQMD Regulation 2, Rule 2, Section 301, a source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NOx, CO, SO<sub>2</sub> or PM<sub>10</sub> must use BACT. For this application, BACT is not triggered because S1 annual average daily POC emissions are calculated to be 0.10 lbs/day.

## 5.0 PLANT CUMULATIVE INCREASE

Pollutant	Existing (ton/yr)	New (ton/yr)	New Total (ton/yr)
NO <sub>x</sub>	0	0	0
CO	0	0	0
SO <sub>x</sub>	0	0	0
PM10	0	0	0
POC	0	0.016	0.016

## 6.0 OFFSETS

Offsets must be provided for any new or modified source at a facility that emits more than 10 tons/yr of POC or NO<sub>x</sub>. The District may provide offsets from the Small Facility Banking Account for a facility with emissions between 10 and 35 tons/yr of POC or NO<sub>x</sub>, provided that the facility has no available offsets. Since permitted POC emissions at this plant are less than 10 tons/yr as calculated in Section 5.0, offsets are not required for this application.

## 7.0 STATEMENT OF COMPLIANCE

S1 tank will be subject to Regulation 8, Rule 5, Sections 301 and 306.

S1 is required to be equipped with an approved emission control system by section 8-5-301. The tank will comply with this section as it will be equipped with A1, Carbon Canister System.

A1 is expected to comply with section 8-5-306 (Requirements for approved emission control systems). Appropriate permit conditions including source test requirement will be imposed on S1/A1 to show compliance with section 8-5-306.

The project is considered to be ministerial under the District's CEQA Regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emissions factors as outlined in the District Permit Handbook Chapter 4.

Offsets, PSD, NSPS and NESHAPS are not triggered.

## **PUBLIC NOTIFICATION**

Since S-1 is located within 1,000 feet of the outer boundary of a K-12 school site (i.e., Windsor Christian Schools), this project is subject to the public notification requirements contained in Regulation 2, Rule 1, Section 412. These requirements require the District to distribute the public notice to the parents or guardians of children enrolled in any school within one-quarter mile of the source and to each address within a radius of 1000 feet of the source.

## 8.0 PERMIT CONDITIONS

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For S1 (Gasoline Storage Tank, Fixed Roof, 1000 gallon capacity; abated by A1, Carbon Canister System, Carbtrol, G-1P, two 200-lb carbon canisters in series)

1. The owner/operator of S1 shall not exceed 26,000 gallons of gasoline throughput during any consecutive twelve-month period. [Basis: Cumulative Increase]
2. In order to demonstrate compliance with Part 1, the owner/operator of S1 shall either maintain the total monthly throughput of gasoline stored, summarized on a consecutive twelve-month basis in a District approved log, or shall be able to generate these records within three business days. These records shall be kept on site and made available for District inspection for a period of two years from the date that the record was made. [Basis: Cumulative Increase, Recordkeeping]
3. The owner/operator shall vent Source S1 at all times to Abatement device A1, Carbon Canister System, two (200 lb minimum capacity) activated carbon vessels arranged in series. [Basis: Cumulative Increase, Regulation 8-5]
4. The owner/operator of S1/A1 shall monitor NMHC concentration of the process exhaust gas with a photo-ionization detector (PID), flame-ionization detector (FID) or other method approved in writing by the District at the following locations:
  - a. At the inlet to the second to last carbon vessel in series.
  - b. At the inlet to the last carbon vessel in series.
  - c. At the outlet of the carbon vessel that is last in series prior to venting to the atmosphere.

When using an FID to monitor breakthrough, readings may be taken with and without a carbon filter tip fitted on the FID probe. Concentrations measured with the carbon filter tip in place shall be considered methane and are not counted as NMHC. [Basis: Cumulative Increase]

5. The owner/operator shall record the monitor readings of Part 4 in a monitoring log at the time they are taken. The monitoring results shall be used to estimate the frequency of carbon change-out necessary to maintain compliance with Parts 6 and 7, and shall be conducted on a daily basis. The owner/operator of S1 may propose for District review, based on actual measurements taken at the site during operation of S1, that the monitoring schedule be changed based on the demonstrated breakthrough rates of the carbon vessels. Written approval by the District's Engineering Division must be received by the owner/operator prior to a change to the monitoring schedule. [Basis: Cumulative Increase]
6. The owner/operator shall change out the second to last carbon vessel with unspent carbon upon breakthrough, defined as the detection at its outlet of the higher of the following:
  - a. 10% of the inlet stream concentration to the carbon vessel.
  - b. 100 ppmv or greater (measured as C1).[Basis: Cumulative Increase]

7. The owner/operator shall change out the last carbon vessel with unspent carbon upon detection at its outlet of 10 ppmv or greater (measured as C1).  
[Basis: Cumulative Increase]
8. The owner/operator shall ensure that S1 is not operated while carbon which abates S1 is being replaced. [Basis: Cumulative Increase]
9. The owner/operator of S1/A1 shall maintain the following records for each month of operation of the source:
  - a. The hours and times of operation.
  - b. Each monitor reading or analysis result for the day of operation they are taken.
  - c. The number of carbon beds removed from service.

All measurements, records and data shall be retained for at least two years from the date of entry, and shall be made available to the District staff upon request. [Basis: Cumulative Increase, Recordkeeping]

Start-up condition for A1, Carbon Canister System:

10. No later than 60 days from issuance of the Authority to Construct for A1, the owner/operator shall install A1, Carbon Canister System, on S1, Gasoline Storage Tank. The owner/operator shall notify the District's Engineering Division once the installation of A1 is complete. [Basis: Regulation 2-1-403]

## 9.0 RECOMMENDATION

Staff recommends the following:

1. Issue a permit to operate to Pick-n-Pull Auto Dismantlers for the following source:
 

**S1 Gasoline Storage Tank, Fixed Roof, 1000 gallon capacity; abated by A1, Carbon Canister System, Carbtrol, G-1P, two 200-lb carbon canisters in series**
2. Issue a conditional Authority to Construct to Pick-n-Pull Auto Dismantlers for the following abatement device:
 

**A1 Carbon Canister System, Carbtrol, G-1P, two 200-lb carbon canisters in series**

By: \_\_\_\_\_ Date \_\_\_\_\_  
 Sanjeev Kamboj  
 Senior Air Quality Engineer

**ATTACHMENT A (TANKS 4.0.9d EMISSIONS REPORT)**