

**Engineering Evaluation
Kimco Westlake LP
Plant # 21439
Application Number 24648**

Background

On behalf of Kimco Westlake LP, (Kimco), Northgate Environmental Management Inc., has applied for an Authority to Construct for soil remediation at the site located at 183 Southgate Avenue in Daly City, Ca. This soil vapor extraction unit consists of a regenerative vacuum blower (S-1) with a maximum capacity of 250 scfm. Soil vapor will be extracted with vapor abatement achieved by a minimum of two (200 pound) carbon beds in series. Any liquid phase wastewater that is collected from the knockout drums will be collected in 55 gallon drums and disposed off-site for treatment. Emission monitoring for operation of the equipment will be conducted according to established Source Test methodology. Procedures are outlined in the conditions

The applicant will be conditioned to provide written notification at the start of the operation. Procedures are outlined in the conditions found below. The Carbon unit influent and effluent VOC concentrations will be monitored with a portable flame-ionization detector (OVA-FID) on a schedule reflecting current loading rates and predicted Carbon capacity. Monitoring schedule changes will be allowed only after District review of concentration measurements and subsequent receipt of District approval.

This source is located within 1,000 feet of the outer boundary of several schools and as such this application requires Public Notification via Reg. 2-1-412. A Public Notice was prepared and sent out to the home address of the students of the schools and to each address within a radius of 1,000 feet of the source. This Evaluation Report was posted on the District Webpage along with the Public Notice.

Emission Calculations

For a conservative estimate of yearly emissions, we shall assume that the system is operated for an entire year within an inlet concentration corresponding to the initial soil concentration level. Generalized assumptions follow:

- * Operating conditions: Pressure = 1 Atm; Inlet Temperature = 21°C; 1 mole occupies 24.15L
- * Influent values based on operational parameters of equipment: influent rate = 250 scfm (maximum); Equation Taken from Permit Handbook Chapter 9.2

Source S-1
A/N 24547

Operating Time	365	days/yr
Flowrate CFM	500	
abatement device efficiency	99.00%	

$$EP = C_{ia} * Q * C_{oa} * (1-A) \text{ [Equation 1a]}$$

EP = Abated Emissions (lbs/day),
C_{ia} = Influent Concentration (ug/L),
Q = Flow Rate

(scfm),

Coa = Dimensional Constant (Conversion Factor) for Equation 1a,
 Coa = 1 lb/4.536E8 ug * 28.317 L/ft3 * 1440 min/day = 8.99E-5 lb-L-min/ug-ft3-day
 Coa = 8.99E-05 lb-L-min/ug-ft3-day

Compound	(µg/m3)	(µg/L)	unabated lbm/day	abated lbm/day	Abated lbm/yr	tons/yr	Trigger Level lbm/yr
Hexane	4300	4.300	1.933E-01	1.933E-03	0.705	3.53E-04	2.70E+05
* PCE	58000	58.000	2.607E+00	2.607E-02	9.516	4.76E-03	18
carbon disulfide	50	0.050	2.248E-03	2.248E-05	0.008	4.10E-06	3.10E+04
chloroform	32	0.032	1.438E-03	1.438E-05	0.005	2.63E-06	20
MEK	710	0.710	3.191E-02	3.191E-04	0.116	5.82E-05	NA
Toluene	230	0.230	1.034E-02	1.034E-04	0.038	1.89E-05	1.20E+04
Benzene	260	0.260	1.169E-02	1.169E-04	0.043	2.13E-05	3.8
* Methylene Chloride	5.01	0.005	2.252E-04	2.252E-06	0.001	4.11E-07	1.10E+02
* Acetone	570	0.570	2.562E-02	2.562E-04	0.094	4.68E-05	NA
Ethanol	230	0.230	1.034E-02	1.034E-04	0.038	1.89E-05	NA
THF	1100	1.1	4.945E-02	4.945E-04	0.180	9.02E-05	NA
2,2,4 TMP trimethylpentane	5400	5.4	2.427E-01	2.427E-03	0.886	4.43E-04	NA

A/N 24648

Operating Time 365 days/yr
 Flowrate CFM 250
 abatement device efficiency 98.00%

EP = Cia * Q * Coa * (1-A) [Equation 1a]

EP = Abated Emissions (lbs/day),
 Cia = Influent Concentration (ug/L),
 Q = Flow Rate (scfm),

Coa = Dimensional Constant (Conversion Factor) for Equation 1a,
 Coa = 1 lb/4.536E8 ug * 28.317 L/ft3 * 1440 min/day = 8.99E-5 lb-L-min/ug-ft3-day
 Coa = 8.99E-05 lb-L-min/ug-ft3-day

Compound	(µg/m3)	(µg/L)	unabated lbm/day	abated lbm/day	Abated lbm/yr	tons/yr	Trigger Level lbm/yr
TCE	130	0.130	2.92E-03	5.84E-05	0.021	1.07E-05	54.00
* PCE	15000	15.000	3.37E-01	6.74E-03	2.461	1.23E-03	18.00
Toluene	390	0.390	8.77E-03	1.75E-04	0.064	3.20E-05	12000.00
Benzene	110	0.110	2.47E-03	4.94E-05	0.018	9.02E-06	3.80

*NPOCs

Cumulative Increase

Compounds	lbm/day	lbm/yr	tons/yr
POCs	2.83E-04	0.10	5.17E-05
NPOCs	6.74E-03	2.46	1.23E-03

A/N 24649

Operating Time 365 days/yr
 Flowrate CFM 250
 abatement device efficiency 98.00%

EP = Cia * Q * Coa * (1-A) [Equation 1a]

EP = Abated Emissions (lbs/day),
 Cia = Influent Concentration (ug/L),
 Q = Flow Rate (scfm),

Coa = Dimensional Constant (Conversion Factor) for Equation 1a,
 Coa = 1 lb/4.536E8 ug * 28.317 L/ft3 * 1440 min/day = 8.99E-5 lb-L-min/ug-ft3-day
 Coa = 8.99E-05 lb-L-min/ug-ft3-day

Compound	(µg/m3)	(µg/L)	unabated lbm/day	abated lbm/day	Abated lbm/yr	tons/yr	Trigger Level lbm/yr
TCE	2000	2.000	4.50E-02	8.99E-	0.328	0.000164	54.00

				04			
* PCE	23000	23.000	5.17E-01	1.03E-02	3.774	0.001887	18.00
chloroform	130	0.130	2.92E-03	5.84E-05	0.021	1.07E-05	20.00
Vinyl Chloride	15	0.015	3.37E-04	3.37E-04	0.123	6.15E-05	1.40
Benzene	140	0.140	3.15E-03	6.29E-05	0.023	1.15E-05	3.80
MEK- 2 butanone	18	0.018	4.05E-04	8.09E-06	0.003	1.48E-06	NA
* Acetone	68	0.068	1.53E-03	3.06E-05	0.011	5.58E-06	NA
1,1, 2,2, tetrachloroethylene	58	0.058	1.30E-03	2.61E-05	9.516E-03	4.76E-06	1.90

Cumulative Increase- tons/yr

	<i>Current</i>	<i>Total</i>
<i>POCs</i>	<i>0.00005</i>	<i>0.00005</i>
<i>NPOCs</i>	<i>0.0012</i>	<i>0.0012</i>

Emissions from the storage drums are exempt as the drum is closed and hauled offsite for disposal and the capacity is less than 260 gallons and aqueous phase is less than 1% (wt) organic compounds. Exempt per 2-1-123.1 and per 2-1-123.2.

Toxics

The facility did not exceed the toxic risk screen for any compounds. Therefore no risk screen analysis is required as emissions did not exceed toxic trigger level for any of the other compounds.

New Source Review

This proposed project will not emit over 10 lbs per highest day and is therefore not required to implement BACT; however, it is achieved in practice. For Soil Vapor Extraction operations, BACT is defined as attainment of set destruction efficiencies corresponding to set influent concentration values. Operation of the Carbon vessels will be conditioned to ensure attainment of the following required destruction efficiencies: ≥98.5% if inlet POC ≥2000; ≥97% if inlet POC ≥2000 to <200 ppmv; ≥90% if inlet POC <200 ppmv.

Offsets

Offsets are not applicable for this application, as emissions do not exceed 10 tons/yr. Facility not subject to Reg 2-2-302.

CEQA

The project is considered to be ministerial under the Districts proposed 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 emission factors and therefore is not discretionary as defined by CEQA. This project is in compliance with Chapter 9.2 of the permit handbook for soil treatment systems.

Compliance

Based on the information submitted, this operation is expected to be in compliance with Regulation 8-47-301, Emission Control Requirements, Specific compounds, and 8-47-302, Organic compounds. The POC emissions will be vented through a Carbon adsorption system at all times of operation.

The storage drums will have a capacity less than 260 gallons. This results in emissions being below the trigger level and the facility meets the exemption criteria of Regulation 2-1-123.1 (Tank less than 260 gallons capacity) and Regulation 2-1-123.2 (aqueous solution contains less than 1% (wt) organic compounds).

This project is within 1,000 ft from the nearest public school and is therefore subject to the public notification requirements of Regulation 2-1-412

PSD, NSPS, and NESHAPS are not triggered.

Recommendation

The District has reviewed the material contained in the permit application for the proposed project and has made a preliminary determination that the project is expected to comply with all applicable requirements of District, state, and federal air quality-related regulations. The preliminary recommendation is to issue an Authority to Construct for the facility listed below. However, the proposed source will be located within 1000 feet of a school, which triggers the public notification requirements of District Regulation 2-1-412.6. After the comments are received and reviewed, the District will make a final determination on the permit.

I recommend that the District initiate a public notice and consider any comments received prior to taking any action on issuance of an Authority to Construct for the following source:

S-1: Soil Vapor Extraction System consisting of a 250 max scfm vacuum blower, and ancillary equipment, abated by A-1, SVE Abatement System, consisting of a minimum of two 200 lb capacity Carbon Adsorption Vessels arranged in series

And recommend that a C/E be issued for:

Enclosed Storage Drums less than 260 gallons exempt per 2-1-123.1 and 2-1-123.2

Conditions for S-1:

Permit Conditions for SVE operation; abated with Activated Carbon Vessels

1. The owner/operator shall abate the Precursor Organic Compound (POC) emissions from Source S-1 by A-1 SVE Abatement System, two (200 lb minimum capacity) Activated Carbon Vessels arranged in series, during all periods of operation. Influent vapor flow shall not exceed 250 scfm. In no event shall PCE emissions to the atmosphere exceed 2.46 pounds per year. [Basis: Regulation 8-47-301]
2. The owner/operator of these sources shall monitor with a photo-ionization detector (PID), flame-ionization detector (FID), or other method approved in writing by the District's Source Test Manager at the following locations:

- a. At the inlet to the second to the 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 for the purposes of these permit conditions. [Basis: Cumulative Increase, Regulation 2-5, TBACT]

3. The owner/operator shall record these monitor readings in a monitoring log at the time they are taken. The owner/operator shall use the monitoring results to estimate the frequency of carbon change-out necessary to maintain compliance with conditions number 4 and 5, and shall be conducted on a daily basis. The owner/operator of these sources may propose for District review, based on actual measurements taken at the site during operation of these sources, that the monitoring schedule be changed based on the decline in organic emissions and/or 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, Regulation 2-5, TBACT]
4. The owner/operator shall immediately 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. 10 ppmv or greater (measured as hexane).[Basis: Cumulative Increase, Regulation 2-5, TBACT]
5. The owner/operator shall immediately change out the last carbon vessel with unspent Carbon upon detection at its outlet of 10 ppmv (measured as hexane). [Basis: Cumulative Increase, Regulation 2-5, TBACT]
6. The owner/operator of these sources shall maintain the following records for each month of operation of the sources:
 - 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 required to be maintained by the owner/operator shall be retained and made available for inspection by the District for at least two years following the date the data is recorded.

[basis: Regulation 1-523]

7. The owner/operate shall report any non-compliance of these conditions shall be reported to Compliance & Enforcement Division at the time that it is discovered. The owner/operator shall detail the corrective action taken and include the data showing the exceedance as well as the time of occurrence in the submittal. [Basis: Cumulative Increase, Regulation 2-5, TBACT]
8. Upon final completion of the remediation project, the operator of Source S-1 shall notify the Engineering Division within two weeks of decommissioning the operation. [Basis: Cumulative Increase, Regulation 2-5, TBACT]

November 29, 2012

Irma Salinas
Senior Air Quality Engineer

A/N 24648

Kimco Westlake LP

Plant # 21439