State of Washington
Department of Ecology
Technical Support Document (TSD)

Source Background and Description

Source Name:	**Pasco Sanitary Landfill**
	1901 Dietrich Road, Pasco, WA
Source Location:	**SW ¼ of the NW1/4 of Section 22, Range 30, Township 9, WM**
County:	**Franklin**
SIC Code:	

Approval Order No.:	**16AQ-E031**
Permit Engineer:	**Robert Koster**

An initial performance test conducted on the RTO described below and authorized by Approval Order No. 14AQ-E571 found that the GCE RTO was not achieving emission limits proposed in the NOC application and required by the conditions of the Approval Order. Several months of trouble-shooting and testing of the unit ensued with the general conclusion that the GCE RTO could not be made to achieve the BACT/t-BACT limits of the 14AQ-E571 Approval Order. The applicants hired several experts and engaged the services of Anguil Environmental Systems to evaluate replacing the RTO with an Anguil unit. It was determined that an Anguil RTO, Model 25, 2,500 SCFM would be able to comply with the emission limits established as BACT and t-BACT for the 2014 GCE Unit. Additionally, the Anguil unit would be designed to operate at the same gas flows and dilution air flows, so that most (all) of the analyses for the failed RTO could be used for the new unit.

An NOC application for the Anguil unit was received by Ecology on October 27, 2016. Preliminary Determination No. 16AQ-E571 was prepared to provide the new RTO approval to the public for comment. The conditions of 16AQ-E571 are identical to those of the 2014 approval, but with the addition of destruction and removal efficiencies (DRE) that were removed from the 2014 approval at the applicant's request. The DRE are the basis of the BACT and t-BACT findings of the approval and were thought by the applicant to be duplicative and too costly to test for. Having experienced the failure of the GCE RTO, Ecology now insists that the DRE limits be explicit.

The following is the technical support document for the 2014 GCE RTO. Supporting documentation remains substantially the same for the new unit as all operational parameters of the new RTO are the same or will result in slightly lower receptor impacts during RTO operations.

Approval Order No.: **14AQ-E571**
Permit Engineer: **Robert Koster**

Introduction

The Washington State Clean Air Act and its supporting regulation, the General Regulation for Air Pollution Sources requires all new or modified sources of air pollution to submit notice before constructing and operating any new source of air pollution except single family and duplex dwellings or de minimis sources. This process is referred to as NSR. NSR includes a verification that the new or modified source will not cause or contribute to a violation of any ambient air quality standard, employ Best Available Control Technology (BACT), and comply with all federal and state rules. After the analysis, an order of approval is issued that sets forth requirements and conditions to ensure those requirements are met.

History

On August 18, 2014, the Industrial Waste Area Generators Group (IWAG) responsible for the clean-up of Zone A (the 40,000 drum hazardous waste deposit at the Pasco Sanitary Landfill) submitted a Notice of Construction (NOC) application for the rerouting of Zone A gas from the flare combusting both municipal waste generated gas and the Zone A gas to a regenerative thermal oxidizer (RTO) dedicated to the Zone A soil vapor extraction (SVE) system. The SVE system is currently operated as part of an interim compliance strategy for the IWAG to prevent the spread of subsurface contaminants from Zone A under Agreed Order No. 9240. Historically the Ecology Air Quality Program did not require NOC approval for a Model Toxics Control ACT (MTCA) project such as this. In late 2013 it was determined that this could jeopardize Ecology's ability to implement federal air quality permitting requirements in Washington. As per guidance on the application of the permit exemption for MTCA projects, Ecology's air quality program agreed to issue approval for criteria pollutant emissions from this SVE/RTO project. Following that agreement, it was determined that the toxic air contaminant health impact evaluation would be most efficiently performed by Ecology's AQP toxicologists and that the determinations resulting should be incorporated into the criteria air pollutant approval.

Permitted Emission Units and Pollution Control Equipment

The AQP has not issued a permit for the Zone A clean up. It was the program's historic belief that the MCTA permit exemption applied and that AQP interests were served by TCP implementing substantive and mandatory AQ requirements. So, rather than issuing separate AQ approval, the AQP assisted the Toxics Clean-up Program (TCP) to implement necessary AQ requirements. In accordance with Ecology guidance issued in late 2013, the AQP will now issue an approval for this RTO project. The approval will include any specific air toxics limitations as an efficient way to use the AQ toxicology and modeling expertise.

Unpermitted Emission Units and Pollution Control Equipment

There are no unpermitted facilities operated by this source during this review process.

New Emission Units and Pollution Control Equipment

The proposed RTO will replace the use of the flare to dispose of the gases drawn from the area (Zone A) with drums of hazardous waste. The RTO is designed to combust 1000 scfm of the contaminated soil vapor extracted from Zone A with 1300 scfm of dilution air. In addition, seven gallons per hour of condensate will be introduced to the RTO for disposal. The application indicates that the overall VOC destruction and removal efficiency will be greater than 98%.

The source consists of the following new facility/unit:

(a) One two-canister RTO, Gulf Coast Environmental (GCE) Model 20-92-RTO,

Existing Approval Orders

None

Stack Summary

There is one stack for the RTO which has been evaluated for this project. In the past, the SVE gases were cofired in the flare that combusted gases generated in the municipal solid waste part of the landfill. The municipal solid waste gases will be isolated from the SVE gases and will continue to be combusted in the flare.

Enforcement Issue(s)

There are no air quality enforcement actions pending for this source.

Recommendation

Staff recommends that the construction and operation of the RTO facility be approved. This recommendation is based on the following facts and conditions:

Information used in this review was derived from the revised application and Second Tier Health Impact Assessment (received October 24, 2014).

A complete application for the purposes of this review was received on October 24, 2014.

Emission Calculations

See appendix A for emission estimates.

Actual Emissions

No previous emission data has been received by the air quality program from the source.

Limited Potential to Emit

The source shall limit total VOC emissions to a maximum of 3.3 lb/hr at the outlet of the RTO. The source must also demonstrate and continue to demonstrate that the RTO will result in a 98% destruction/removal efficiency for the contaminants being removed from the contaminated vadose zone by the SVE system.

County Attainment Status

Pollutant	Status
PM10	attainment
SO2	attainment
NO2	attainment
Ozone	attainment
CO	attainment
Lead	attainment

Part 70 Permit Determination

The landfill SVE facility is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

(a) each criteria pollutant is less than one hundred (100) tons per year;

(b) a single hazardous air pollutant (HAP) is less than ten (10) tons per year, and;

(c) any combination of HAPs is less than twenty-five (25) tons per year.

State and Federal Rule Applicability

The proposed facility is subject to the requirements of WAC 173-400-110, New Source Review (NSR), and WAC 173-455-120, NSR Fees.

1.1. WAC 173-400-113, Requirements for new sources in attainment or unclassifiable areas, is the State regulation that defines the evaluations of the air quality project at this landfill. The subsections of WAC 173-400-113 require the following:

1.1.1. WAC 173-400-113(1): "The proposed new source will comply with all applicable new source performance standards (NSPS), national emission standards for hazardous air pollutants (NESHAP)...".

1.1.1.1. Ecology is not aware of any NSPS or NESHAP that apply to the Pasco Landfill operations.

1.1.2. WAC 173-400-113(2): "The proposed new source or modification will employ BACT for all pollutants not previously emitted or whose emissions would increase as a result of the new source or modification".

1.1.2.1. Pasco Landfill proposes that the RTO, resulting in 98% control of the VOC removed from the vadose zone by the SVE system, and its exhaust containing a maximum of 3.3 pounds per hour VOC represents BACT and t-BACT. Ecology agrees although we note that there is no economic analyses provided supporting this determination. The control proposed requires that the

active oxidation bed in the RTO be maintained at a temperature at or higher than 1600 degrees Fahrenheit, and that the flow of SVE gas and condensate and dilution air are accurately and precisely monitored.

1.1.3. WAC 173-400-113(5): "If the proposed new source or the proposed modification will emit any toxic air pollutants regulated under chapter 173-460 WAC, the source meets all applicable requirements of that program. The RTO will reduce and emit several pollutants regulated under WAC 173-460. Because this project is being done under an agreed clean up order under MTCA, normal air quality program jurisdiction does not apply. However, Ecology's Toxic Cleanup Program does not have the toxicology or air pollution engineering expertise required for this project so AQ and TCP agreed that AQ would process the RTO application in accordance with AQ NSR rules.

1.2. WAC 173-460, Controls for New Sources of Toxic Air Pollutants, is the State regulation that addresses the risk to the public from routine releases of toxic air contaminants from new and modified sources.

1.2.1. WAC 173-460-050: The applicant must quantify the facility's emissions of toxic air contaminants. The applicant has done this in its application. The toxics emission point will be the exhaust stack of the RTO.

1.2.2. WAC 173-460-060: The applicant must install and operate t-BACT on each emission point for which there is an increase in a toxic air pollutant. The Approval Order based on the analyses described in this technical support document contains emission limitations that reflect t-BACT for a hazardous waste clean-up project like this one.

1.2.3. WAC 173-460-070: This section of the regulation requires that impacts of emissions of toxic air pollutants be demonstrated to be sufficiently low to protect human health and safety. This was accomplished by modeling the dispersion of any TAP emitted at a rate greater than the WAC 173-460 small quantity emission rates to determine the concentration of that pollutant at the property boundary. The RTO while reducing the halogenated organics in the SVE stream, produces acid gases as a result. HF and HCl are the two acid gases of greatest concern and HCl will be emitted at a rate sufficient to exceed the acceptable source impact level (ASIL) at the property boundary. This impact triggers a Health Impact Assessment (HIA), referred to as a Tier II toxics review, to determine if the impacts can be approved at concentrations determined to be higher than the ASIL. The applicant provided a HIA to the Ecology modelers and toxicologists for this Tier II review. The toxicologists have provided the Tier II recommendation in Appendix B to this technical support document. As part of the Tier I review, Ecology questioned whether dioxins might also be formed by this control device. After review of documents referenced by the applicant, Ecology found no evidence that dioxins are a concern great enough to establish permit limits or require emission testing. The important features of this control device that support that determination are the requirement that the unit be maintained at 1600 degrees Fahrenheit and the fact that the heat recovery bed quenches the exhaust stream to below dioxin-favorable

temperatures almost immediately. The unit will emit very low levels of particulate matter to serve as necessary nucleation sites for the formation process.

1.2.4. There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) applicable to this source.

Conclusion

Ecology has determined the applicant, Environmental Partners, Inc., has satisfied all of the requirements of New Source Review for its proposal to establish an air pollution control device on the soil vapor extraction system at the Pasco Landfill MTCA clean up site. The construction and operation of this pollution control device (the RTO) shall be subject to the conditions of the attached proposed Approval Order no. 14AQ-E571.