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## **Air Quality Standard Permit For Animal Carcass Incinerators (Pet Crematories)**

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# **ANIMAL CARCASS INCINERATOR (PET CREMATORY)**

## **AIR QUALITY STANDARD PERMIT SUMMARY DOCUMENT**

### **I. EXECUTIVE SUMMARY**

The Texas Commission on Environmental Quality (TCEQ or commission) is issuing a new air quality standard permit for animal carcass incinerators (ACIs). The new standard permit would be applicable to ACIs with a maximum burn rate of 200 pounds per hour (lb/hr). This standard permit has some minor administrative changes from the proposed permit and technical summary based on informal comments from TCEQ staff.

### **II. EXPLANATION AND BACKGROUND OF AIR QUALITY STANDARD PERMIT**

The commission is issuing an air quality standard permit authorizing ACI units under authority of the Texas Health and Safety Code 382.05195, Standard Permit, and Title 30 Texas Administrative Code (30 TAC) Chapter 116, Subchapter F, Standard Permits. The commission previously authorized ACIs under the conditions of a permit by rule, 30 TAC § 106.494, Pathological Waste Incinerators, or under 30 TAC Chapter 116, Subchapter B, New Source Review Permits. This standard permit provides a streamlined preconstruction authorization mechanism that may be used by any ACI complying with its requirements and not prohibited by other local, state or federal permitting statutes or regulations.

This standard permit is designed to allow for authorization of an ACI. However, it is not intended to provide an authorization mechanism for all possible unit configurations or for unusual operating scenarios. Those facilities that cannot meet the standard permit conditions may apply for a case-by-case review of an air quality permit under 30 TAC § 116.111, General Application.

### **III. OVERVIEW OF AIR QUALITY STANDARD PERMIT**

The permit by rule for pathological waste incinerators, 30 TAC § 106.494, offers a streamlined authorization mechanism for ACIs with incineration rates equal to or less than 200 lb/hr. Permit by rule registrations are typically processed in 30 days or less, do not require individual public notice, and have minimal design and operational requirements. However, the permit by rule for pathological waste incinerators is only available to a non-commercial ACI: defined under 30 TAC § 106.494 as an incinerator which does not accept pathological waste or carcasses generated off-site for monetary compensation. Prior to issuance of this standard permit, all commercial ACIs were subject to a case-by-case review and were required to obtain preconstruction authorization by submitting a full new source review application under 30 TAC § 116.111.

Identical incinerators of the same make and model were subject to different preconstruction authorization requirements, solely on the basis of whether the facility accepted monetary compensation for animal cremation. Commercial ACI operators frequently raised objections that there is no technical basis to support the burdensome requirements associated with a full new source review. In addition, many non-commercial ACIs would have liked the option for commercial activity to supplement the cost of operation

but did not do so simply because they would have preferred to avoid the lengthier permitting process under 30 TAC § 116.111.

An applicant for a case-by-case permit to operate a commercial ACI is required to provide notice to the public, which includes an opportunity for requesting a contested case hearing on the proposed facility. In the past five years, approximately one out of every five ACI applications received one or more hearing requests. Hearing requests were based on issues including nuisance odors, ambient air quality concerns, negative health impacts, and property concerns such as appearance, location and property values. TCEQ does not have any jurisdiction to consider property value concerns. However, TCEQ does address any possible health and environmental considerations associated with a permitted facility. In response to these concerns, the TCEQ is issuing a standard permit for commercial ACIs that takes into consideration the health and environmental issues, including nuisance, that are associated with these facilities.

ACIs are predictable and minor sources of air contaminants. The resources required for a case-by-case review of each new commercial ACI are greater than warranted for such small and consistent sources. By issuing a standard permit for commercial ACIs, the TCEQ is streamlining resources used for ACIs while ensuring, by completion of a protectiveness review and application of current best available control technology (BACT), that the design and operation of these units are strict enough to address and relieve public concern.

#### **IV. PERMIT CONDITION ANALYSIS AND JUSTIFICATION**

This standard permit requires ACIs to comply with certain administrative requirements, including registration, a fee, general requirements, operational and design requirements, recordkeeping requirements, public notice requirements, and executive director approval. This standard permit requires renewal of registration every 10 years.

##### Applicability

Section (1) of the standard permit outlines the applicability criteria of the standard permit. This standard permit applies to new units installed, or existing units modified, after the effective date of this standard permit.

### Administrative Requirements

Section (2) of the standard permit outlines the administrative requirements for all facilities. Subsection (A) requires registration of the proposed facilities in accordance with the regulatory requirements of 30 TAC § 116.611, Registration to Use a Standard Permit, including a current form PI-1S, Registrations for Air Standard Permit. Consistent with Title 30 TAC § 116.610(a)(1), Applicability, emissions and distance limitations set forth in 30 TAC Chapter 106 do not apply to ACIs under this standard permit. The protectiveness review conducted for the standard permit addressed emission rates and distance limitations for qualifying facilities.

Subsection (B) of this standard permit requires a \$900 fee in accordance with 30 TAC § 116.614, Standard Permit Fees, for any single unit or multiple unit application. A fee of \$900 is appropriate in the case of this standard permit to recover staff expenses expended to review a registration application.

Subsection (C) states that facilities cannot be constructed and/or operated until the applicant obtains from the executive director written approval of the registration. Although 30 TAC § 116.611(b) states that all standard permit reviews must be completed within 45 days unless otherwise specified, this review period is not appropriate for facilities that register under this standard permit due to the extended amount of time necessary to complete the required public notice.

### Public Notice

Section (3) of this standard permit requires that owners and operators of ACIs authorized by this standard permit provide public notice. The standard permit public notice will allow for local communities to be informed of proposed ACI projects. The public will have the opportunity to submit comments to the agency and to be informed on the outcome of the standard permit review. The public notice will not, however, allow for the public to request a contested case hearing, as incinerators meeting the requirements of this standard permit have been demonstrated to meet all air permitting requirements, including passing a health effects review.

Subsection (3)(A) requires the applicant to publish notice of intent to construct an ACI no later than the 30th day after the executive director receives the registration. The applicant must publish notice at least once in a newspaper of general circulation in the municipality in which the ACI is proposed to be located or in the municipality nearest to the proposed location of the ACI, as required by subsection (3)(C). If the elementary or middle school nearest to the proposed ACI provides a bilingual education program as

required by Subchapter B, Chapter 29, Texas Education Code, the applicant must also publish the notice at least once in an additional publication of general circulation in the municipality or county in which the ACI is proposed to be located that is published in the language taught in the bilingual education program. This requirement is waived if such a publication does not exist or if the publisher refuses to publish the notice. Subsection (3)(D) requires that the notice include: 1) a brief description of the proposed location and nature of the proposed ACI; 2) a description, including a telephone number, of the manner in which the executive director may be contacted for further information; 3) a description, including a telephone number, of the manner in which the applicant may be contacted for further information; 4) the location and hours of operation of the commission's regional office at which a copy of the application is available for review and copying; and 5) a brief description of the public comment process and the mailing address and deadline for filing written comments.

Subsection (3)(B) states that the public notice requirements in 30 TAC Chapter 39 Subchapter H, Applicability and General Provisions, and Subchapter K, Public Notice of Air Quality Applications, do not apply. Facilities authorized by this standard permit are subject to the public notice requirements as set forth in section (3) of this standard permit.

As stated in subsection (3)(E), the public comment period begins on the first date notice is published under subsection (3)(A) and extends to 30 days after the publication date. As required by subsection (3)(F), the executive director will approve or deny the standard permit registration not later than the 30th day after the end of the public comment period. The executive director will base the decision on whether the representations made in the application meet the requirements of this standard permit. The executive director will consider all comments received during the public comment period in determining whether to approve the registration. If the executive director denies the registration, the executive director will state the reasons for the denial and any modifications necessary for the proposed ACI to qualify for the authorization. Subsection (3)(G) specifies that the executive director will issue a written response to any public comments received related to the standard permit at the same time as or as soon as practicable after the executive director grants or denies the application. Issuance of the response after the granting or denial of the registration does not affect the validity of the executive director's decision to grant or deny the registration. The executive director will mail the response to each person who filed a comment and make the response available to the public.

#### General Requirements

In addition to the requirements found in 30 TAC § 116.615, General Conditions, Section (4) of the

standard permit outlines the general requirements for all facilities. Subsection (A) specifies that permit holders must comply with 30 TAC Chapter 330, Municipal Solid Waste. For example, owners may elect to qualify their ACIs for the Municipal Solid Waste (MSW) permit by rule for ACIs under 30 TAC § 330.75, Animal Crematory Facility Design and Operation Requirements for Permitting by Rule, or undergo a full case-by-case MSW review under 30 TAC § 330.4, Permit Required. However, the TCEQ expects most ACI operators will elect to use the MSW permit by rule. Owners of ACIs must comply with both the air permit and MSW requirements and will always be limited by the more stringent requirement.

Subsection (B) states that each ACI must bear a nameplate with the model and serial number on it in a visible location in order to facilitate compliance determinations.

Historical permitting has shown that some ACI operators expand their operations to include multiple ACIs and that it would be necessary to address these types of scenarios in this standard permit. Subsection (C) has the twofold effect of imposing a cap on the number of incinerators able to be authorized under this standard permit and based upon the number of incinerators, establishes a minimum property line distance to the incinerator(s). The structure of Subsection (C) offers flexibility to ACI operators by giving them a matrix of options, based on the total incineration capacity, the number of incinerators, and incinerator distance to the property line. For example, an operator could obtain authorization for two 200 lb/hr incinerators and would be required to construct them at least 100 ft from the property line. The same operator may instead elect to install one 200 lb/hr incinerator and two 100 lb/hr incinerators, but they would have to place all of them at a minimum of 200 ft from the property line. In both cases, the operator would have reached the total incineration capacity cap of 400 lb/hr such that any future expansions would require a case-by-case new source review under 30 TAC § 116.111. The basis for establishing this matrix of options was to give operators flexibility without compromising air quality and to establish continuity with the MSW permit by rule that has a minimum setback requirement of 50 ft from the property line.

Subsection (D) requires that incinerators with a maximum incineration rate greater than 100 lb/hr must comply with the requirements specified under Section 8 of this standard permit.

#### Design Requirements

Subsections (5)(A) through (E) outline the ACI design requirements. Current BACT reviews for ACIs require dual-chambered incinerator design.

The primary chamber of an ACI consists of a refractory lined chamber with one natural gas/propane fired burner. Operating temperatures in the primary chamber range from 1,200 to 1,600 degrees Fahrenheit. Hot flue gases from the primary chamber pass into the secondary chamber. The secondary chamber is also refractory lined and is generally about two-thirds the volume of the primary chamber. The secondary chamber is heated by a second natural gas/propane fired burner and typically fires at twice the heat rate of the primary chamber burner. The sole function of the secondary chamber is to ensure complete combustion and it is one of the most critical components in a properly functioning incinerator. For small ACIs a minimum secondary chamber temperature of 1,600 degrees Fahrenheit with a flue gas residence time of one half second or more will create the proper environment for complete combustion. In order to demonstrate compliance with this standard permit, the operator must continuously monitor and record the secondary chamber temperature as required by subsection (C). Flue gas residence time is not a parameter that can be continuously monitored; however, it may be demonstrated with data obtained from stack testing. ACI vendors typically conduct stack testing on all of their incinerator lines and are able to provide the TCEQ with the stack test data to allow for the calculation of flue gas residence time. The TCEQ maintains a list of ACIs that have been demonstrated to the TCEQ to meet the flue gas residence time requirement. To have a particular ACI added to the TCEQ list of incinerators meeting the residence time requirements, ACI manufacturers or ACI standard permit registrants may also submit the necessary stack test data to the Compliance Support Section of the TCEQ. The list is available on the TCEQ website [http://www.tceq.state.tx.us/permitting/air/nav/air\\_combustsources.html](http://www.tceq.state.tx.us/permitting/air/nav/air_combustsources.html) or may be obtained by contacting the TCEQ.

The hot flue gases then pass through the stack and out into the atmosphere. In order to ensure maximum dispersion and minimize down wash effects, subsection (5)(D) prohibits the use of any obstruction to flow, such as a rain cap, unless designed to automatically open when the incinerator is operating and subsection (5)(E) requires that the incinerator exhaust stack height be a minimum of 20 feet from ground level and be at least three feet above the structure housing the ACI.

#### Operational Requirements

Subsections (6)(A) through (J) outline the operational requirements. Subsection (A) explicitly states that only animal carcasses and any associated animal packaging material may be incinerated. It further emphasizes that incineration of research or laboratory test animals is prohibited. Transportation packaging plastics comprised of chlorinated compounds produce acid gas emissions and can promote the

formation of dioxins and furans during incineration unless controlled by a scrubber. Since ACIs are not equipped with scrubbers, it is the duty of the ACI owners to ensure that packaging does not contain chlorinated compounds.

Once the animals are at the ACI site, the carcasses must be incinerated within two hours or stored in a freezer in order to minimize odors. Subsection (B) is consistent with the storage requirements of the MSW permit by rule.

Animal carcasses are batch loaded into the chamber, with capacities typically ranging from 200 lb to 800 lb per batch load depending on the incinerator model and burn rate. The standard permit will allow for maximum incinerator capacities of up to 200 lb/hr and maximum batch loads must not exceed the manufacturer's specifications. Subsection (C) requires that each load must be weighed by a scale. The scale must be certified biennially to the most current National Institute of Standards and Technology Handbook 44 standards by a third party (who is licensed by the Texas Department of Agriculture).

The operational requirements during incineration include operating the ACI per the manufacturer's instructions, posting the operating instructions at each unit, and limiting burner fuel to natural gas or propane. Subsection (F) specifies requirements for the secondary chamber temperature during incineration, including the minimum temperature, and the averaging period for compliance demonstration with the temperature limitation.

Visible emissions from ACIs must not exceed 5.0% opacity averaged over a six minute period. Operators are not required to be trained opacity readers. This requirement is in place to allow TCEQ inspectors to have an enforceable limitation for visible emissions if an ACI is improperly operated and smokes. Subsection (H) requires ACIs without continuous opacity or carbon monoxide monitors to be limited to operating from one-hour after sunrise to one-hour before sunset. This requirement is identical to the requirement found in Title 30 TAC § 111.129(1), Operating Requirements. After the completion of an incineration cycle, the ashes must be stored in a closed container until they are returned to the customer or disposed of at an MSW landfill. In accordance with 30 TAC Chapter 330, on-site burial or spreading of ashes on the property is strictly forbidden. Subsection (J) reminds owners that incinerators must also meet any applicable requirements of 30 TAC §§ 111.121, 111.125, 111.127, and 111.129 of this title (relating to Single-, Dual-, and Multiple-Chamber Incinerators; Testing Requirements; Monitoring and Recordkeeping Requirements; and Operating Requirements).

### Recordkeeping Requirements

Subsection (7)(A) specifies three types of records that must be permanently kept at the site: the notice of the standard permit registration and subsequent renewals from the TCEQ, the standard permit application and any subsequent representations submitted to the TCEQ, and any stack sampling results or other air emissions testing that may be conducted on the unit(s) at the site. It should be noted that this standard permit will not require stack sampling on any ACIs; however, the executive director of the TCEQ retains the right to require stack sampling if deemed necessary.

In order to demonstrate compliance with the ACI design and operational requirements of this standard permit, subsection (B) specifies several types of records that must be kept at the site for five years after collection. The records include the weight of carcasses loaded and cycle times, scale calibration, secondary chamber temperature, types of carcasses and method of handling (i.e., frozen or immediate burn), operator's name, date and time of operation of the incinerator, dates and times of emergency incinerator shutdowns and malfunctions, including both the reason for the shutdown or malfunction (i.e. power outage, operator error, etc.), a description of both corrective and preventative actions taken, and continuous emission monitoring systems (CEMS) data.

### Incinerators with a maximum incineration rate greater than 100 lb/hr

Section (8) describes the steps that operators of ACIs with incineration rates greater than 100 lb/hr must follow to be in compliance with the oxygen (O<sub>2</sub>) monitoring and recordkeeping required under 30 TAC Chapter 111, Control of Air Pollution from Visible Emissions and Particulate Matter. Title 30 TAC § 111.127 requires ACIs with incineration rates greater than 100 lb/hr to continuously monitor and record the O<sub>2</sub> content of the exhaust of the incinerator. Title 30 TAC § 111.121 further stipulates that the O<sub>2</sub> content must be maintained at greater than 4% by volume.

Subsection (A) states the minimum O<sub>2</sub> concentration that must be maintained as required by 30 TAC § 111.121.

Subsection (B) outlines how the O<sub>2</sub> concentration must be measured and recorded. Paragraph (B)(i) specifies that the continuous O<sub>2</sub> monitor must satisfy the requirements found in Title 40 Code of Federal Regulations (40 CFR) Part 60, Appendix B, Performance Specification 3. The continuous O<sub>2</sub> monitor must also be routinely checked and calibrated to ensure accurate readings. Paragraph (B)(ii) specifies the

applicable quality assurance requirements, which are found in 40 CFR Part 60, Appendix F, Procedure 1, Quality Assurance Requirements for Gas Continuous Emission Monitoring Systems Used for Compliance Determination. This subsection also defines quality assurance accuracy standards and where and how often to report any exceedance of the accuracy standards. Paragraph (B)(iii) states that the monitoring data shall be reduced to hourly average concentrations at least once each day, using a minimum of four equally spaced data points from each one-hour period.

Subsection (C) requires the owner or operator to conduct the initial certification of their O<sub>2</sub> monitor within 60 days of the start of operation of the ACI. The owner or operator must contact the appropriate TCEQ regional office to schedule a pre-certification meeting no less than 45 days prior to certification testing. The purpose of the meeting is to review procedures, to provide the proper data forms for recording pertinent data, and to review the format for submitting the certification report. Within 30 days after the completion of the initial certification, copies of the certification report must be sent to the appropriate TCEQ regional office, any appropriate local pollution control program, and to the TCEQ Compliance Support Division.

## **V. PROTECTIVENESS REVIEW**

A comprehensive health effects review was conducted to evaluate the potential environmental impacts of authorizing this standard permit. ACI emission profiles were obtained from pre-construction applications from case-by-case reviews. In total, seven different incinerator models from three different manufacturers, with incineration rates ranging from 75 lb/hr to 200 lb/hr were used in this evaluation. All seven ACI models were then put into a matrix of operating scenarios due to the general permitting requirements under subsection (4)(C) which establishes a sitewide maximum incineration rate, minimum property line distance, and the maximum number of incinerators that can be authorized. In total, 28 different ACI configurations were evaluated.

The predicted air dispersion modeling concentrations resulting from emissions from various ACI configurations were compared to the appropriate state and federal health-based or nuisance-based standards. The comparison was used to evaluate the potential to cause adverse health effects in members of the general public, including sensitive subgroups (i.e. children, the elderly, or those with existing respiratory conditions). The specific health-based standards or guidance levels employed in evaluating the potential emissions include national ambient air quality standards (NAAQS), TCEQ standards contained

in 30 TAC Chapter 111, and TCEQ Effect Screening Levels. NAAQS, which are created by the EPA, are set to protect sensitive members of the population such as children, the elderly, and individuals with existing respiratory conditions. The air dispersion modeling was conducted for the emission of oxides of nitrogen, carbon monoxide, sulfur dioxide, particulate matter less than 10 microns in diameter, and volatile organic compounds. The air dispersion modeling was performed by the TCEQ using EPA's SCREEN3 modeling program and evaluated for potential impacts. The results of the modeling show that the modeled pollutant concentrations are within state and federal guidelines designed to protect human health and the environment. Consequently negative health effects are not expected.

Copies of the protectiveness review conducted for ACIs may be obtained by contacting the TCEQ , Office of Permitting, Remediation, and Registration, Air Permits Division, at (512) 239-1250.

## **VI. PUBLIC NOTICE AND COMMENT PERIOD**

In accordance with 30 TAC § 116.603, Public Participation in Issuance of Standard Permits, the TCEQ published notice of this standard permit in the *Texas Register* and newspapers of the largest general circulation in the following metropolitan areas: Amarillo; Austin; Corpus Christi; Dallas; El Paso; Houston; Lower Rio Grande Valley; Lubbock; Permian Basin; San Antonio; and Tyler. The date for these publications was June 24, 2005. The public comment period was from the date of publication until 5:00 PM on July 28, 2005.

## **VII. PUBLIC MEETING**

A public meeting on the proposal was offered on July 28, 2005, at 9:00 a.m., at the Texas Commission on Environmental Quality in Building B, Room 201A, 12100 Park 35 Circle, Austin, Texas. Only one individual attended the meeting and did not wish to provide formal comments.

## **VIII. ANALYSIS OF COMMENTS**

No formal comments were received on this standard permit.

## **IX. STATUTORY AUTHORITY**

This standard permit is issued under Texas Health and Safety Code (THSC), § 382.011, General Powers and Duties, which authorizes the commission to control the quality of the state's air, THSC § 382.023, Orders, which authorizes the commission to issue orders necessary to carry out the policy and purposes of the TCAA, THSC § 382.051, Permitting Authority of the Commission: Rules, which authorizes the commission to issue permits, including standard permits for similar facilities for numerous similar sources, and THSC § 382.05195, Standard Permit, which authorizes the commission to issue standard permits according to the procedures set out in that section.