

FEDERAL OPERATING PERMIT - TECHNICAL REVIEW SUMMARY

SITE OPERATING PERMIT (SOP) MINOR REVISION

Permit #:	O1506	Company:	Hensley Industries, Inc.
Project #:	33973	Site:	Hensley Industries
Regulated Entity #:	RN100689934	Application Area:	Dallas Plant
Region:	4	Customer #:	CN600396493
NAICS Code:	331513	County:	Dallas
Permit Reviewer:	Heriberto Quintanilla	NAICS Name:	Steel Foundries

SITE INFORMATION

Physical Location: 2108 Joe Field Rd
Nearest City: Dallas
Major Pollutants: CO, VOC
Additional FOPs: None

PROJECT SUMMARY

Hensley Industries, Inc.'s Dallas Plant is a steel foundry facility and a major source of emissions. It is subject to 30 TAC Chapter 122 and holds a Federal Operating Permit (FOP) which was last renewed on December 28, 2018. The company submitted an application for a minor revision to their Dallas Plant which was received by the TCEQ on July 6, 2022. The minor revision consisted of updating pre-construction authorization information and updating 30 TAC Chapter 115 requirements. The applicant submitted the required documentation to make the revisions, including the forms OP-2, OP-SUMR, OP-REQ1, OP-REQ3, OP-PBRSUP, and OP-UA18. These documents were certified by the OP-CRO1 form signed by the DAR.

PROCESS DESCRIPTION

Hensley Industries operates a secondary steel foundry which produces low alloy steel castings used in heavy construction and mining equipment. Castings are produced by pouring molten metal into molds with cores to create hollow internal sections. After the metal has cooled, the casting is separated from the mold, cleaned, and finished. The production process involves a number of steps:

Raw Material Storage and Handling

Raw material handling and storage operations include receiving, unloading, storing, and conveying of raw materials such as scrap, alloys, virgin sand, additives, and binders. Hensley receives scrap via open top trucks. Primarily scrap is unloaded via a lifting magnet. Alloys are transported by truck to the plant in aggregate form and are unloaded into a partially enclosed storage area. Virgin sand and other bulk materials are delivered to the site by truck and are pneumatically conveyed to inside storage silos. Particulate matter emissions from raw material storage and handling are controlled by the building enclosure and routing through various fabric filters. Baghouses (EPNs ST-B14, ST-B15, and STB27) are used to control emissions from aggregate material storage and handling.

Pattern Making

Patterns provide the exterior or interior shape of the finished casting and are produced in wood, metal, or resin for use in the core and mold making process.

Core and Mold Making

Hensley makes two types of molds for its castings: Green sand molds and air set molds/floor molds. Hensley employs a phenolic urethane resin system to make floor molds. Hensley makes three types of cores;

1. Resin coated sand and heat to make shell cores;
2. Phenolic urethane air set/no bake cores are made with a two-part resin and liquid catalyst binder system; and
3. Phenolic urethane cold box cores are made from a two-part resin and triethylamine catalyst.

Air set molds, green sand molds, and the three types of cores all receive a coating of high solids zirconium old wash in an isopropyl alcohol suspension, which is then torched prior to molten metal pouring.

Melting Furnaces

The foundries are supplied with molten steel from either of two electric arc furnaces (EAFs). EAFs operate as a batch melting process. The EAF operating cycle is made up of the following operations:

- Furnace charging- adding scrap to the furnace in a charge bucket.
- Melting- melting is performed using electrical and chemical energy. Electrical energy is supplied using three graphite electrodes. Chemical energy is supplied using oxygen lances, which produce heat through exothermic reactions.
- Refining- carbon, oxygen, and lime alloys are added to the metal to reach the desired composition.
- Tapping- molten metal is poured from the furnace into a ladle for transport to the pouring floor.
- Furnace turn-around- is the time period between tapping and charging a new batch.

The operation of the EAFs is synchronized so that while one furnace is completing the melting cycle the other is being charged with steel for the next batch.

Each furnace has an external hooded enclosure through which forced draft ventilation occurs and an off gas exhaust port through the top. Both top vents of each furnace exhaust to a common fabric filter baghouse. The exhaust of the baghouse is vented through a stack directly to the atmosphere. Dust collected at the baghouse is removed and reintroduced to the furnaces as charge.

Pouring, Cooling, and Shakeout

The molds are laid in a line on the pouring floor platforms. The metal is poured from the ladle into the molds. After the castings have cooled sufficiently, the shakeout removes the casting from the mold. The casting is then transported to the finishing area. Particulate matter generated from pouring, cooling, and shakeout is controlled by routing through fabric filters.

Sand Recovery and Reclamation

Sand is cooled and screened following the shakeout process. Most sand is collected and reused directly or routed to the reclaimer for treatment prior to reuse. In the thermal reclaimer, spent sand is heated in a fluidized calcining bed to remove organic resins remaining on the sand. A small amount of sand is unusable and is recycled as roadbase.

Finishing Operations

From the foundries, castings are sent to one of several cleaning stations where gates and risers are removed, castings are ground, welded, heat treated, and shot blasted to finish the castings to customer specifications. Scrap steel generated by castings rejection, or cutting, and deburring is also collected and reused as furnace charge.

TECHNICAL REVIEW

Summary of Revision

- Incorporation of OP-PBRSUP
- Incorporation of emission increases based on PBR registrations 151691 and 169252, both PBR 106.261/09/04/2000
- Updated site-wide PCAs
- Addition of detailed 30 TAC Chapter 115, Surface Coating Operations requirements for unit WOOD-2. Previously it had high-level citations.

Permit Content Summary

1. Was Periodic Monitoring (PM) required and added during this revision?..... No
2. Was Compliance Assurance Monitoring (CAM) required and added during this revision?..... No
3. Was case-by-case PM or CAM added during this revision?..... No
4. Identify if the following are applicable for this project:
 - (a) Manually-built applicable requirements..... No
 - (b) Customized Special Terms and Conditions..... Yes
 - (c) Manual changes to the IMS-generated applicable requirements..... No
5. Did the applicant's review/comments on the working draft permit result in changes to the permit content?..... Yes
6. Will the draft permit be sent to public announcement with unresolved issues (i.e., disagreements with applicant)?..... No

Permit reviewer notes:

- Permit Term 11 (IMS term B.142) was customized to identify the current project number and submittal date on Form OP-PBRSUP
- After sending the WDP, the applicant requested to add low-level citations to WOOD-2 for 30 Chapter 115, Surface Coating Operations

- Applicant confirmed CAM is not needed for unit ST-B3
- During the September 2013 renewal (project 17970), two units (ADHESIVE and SOLVENT) were added to the permit and authorized under De minimis regulation. The notation 116.119(A)(1) was approved for currently issued permit and was carried forward into this draft permit.

Statement of Basis

A Statement of Basis sets forth the legal and factual basis for the applicable requirements that are included in the FOP. A Statement of Basis was prepared for this project and is included in the permit file.

Delinquent Fee Check

1. The delinquent fee check was performed on 12/08/2022.
2. Were there any delinquent fees owed?..... No

Public Announcement Information

Were comments received during the Public Announcement period?..... No

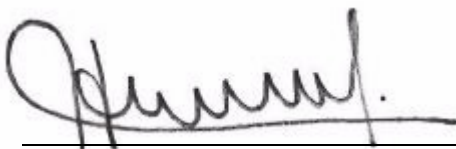
EPA Review

Did the EPA comment on the draft permit?..... No

IMPORTANT MILESTONES

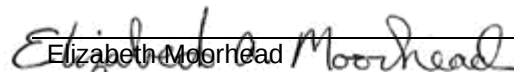
Milestone (Standard)	Start Date	End Date
Date Application Received by TCEQ	07/06/2022	
Date Project Received by Engineer	07/28/2022	
Technical Review Period	09/15/2022	12/08/2022
Working Draft Permit Reviewed by Applicant	09/30/2022	12/07/2022
Date RVN-5/Draft Permit Mailed	01/25/2023	
Public Announcement Period	01/31/2023	03/02/2023
EPA Review Period	03/31/2023	03/17/2023

REVISED PERMIT APPROVAL DATE: March 29, 2023



Heriberto Quintanilla
Permit Reviewer
Operating Permits Section
Air Permits Division

03/23/2023
Date



Elizabeth Moorhead
Team Leader
Operating Permits Section
Air Permit Division

03/23/2023
Date

CONTACT INFORMATION

Responsible Official:

John Fiedler
President
Hensley Industries Inc
2108 Joe Field Rd
Dallas, Texas 75229-3255
Email: jfiedler@hensleyind.com

Duly Authorized Representative:

Mrs. Jean Carleton, P.E.
Environmental Manager
Hensley Industries, Inc.
PO Box 29779
Dallas, TX 75229-0779
Phone: (972) 406-4747
Email: jcarleton@hensleyind.com

Technical Contact:

Jean Carleton, P.E.
Environmental Manager
Hensley Industries, Inc.
PO Box 29779
Dallas, TX 75229-0779
Phone: (972) 406-4747
Email: jcarleton@hensleyind.com

Permit Consultant:

Lyndsie Slater
Consultant
Trinity Consultants
12700 Park Central Dr., Ste. 2100
Dallas, TX 75251
Phone: (972) 661-8100
Email: lslater@trinityconsultants.com