

Slaughterhouses



WARNING

Some viewers may find this
disturbing viewer discretion
is advised.

**BUDDY HAS
AN AXE TO GRIND.
A BIG AXE.**



Slaughterhouse



OH NO!

Information Needed for Permitting

Base Material

Process

Use of Water

Configuration of Base Material

Date of first discharge

Volume of wastewater discharge

Amount of material used

Categorical Exceptions

Safety



Cattle



- When dairy cows are unable to produce viable milk for consumption.



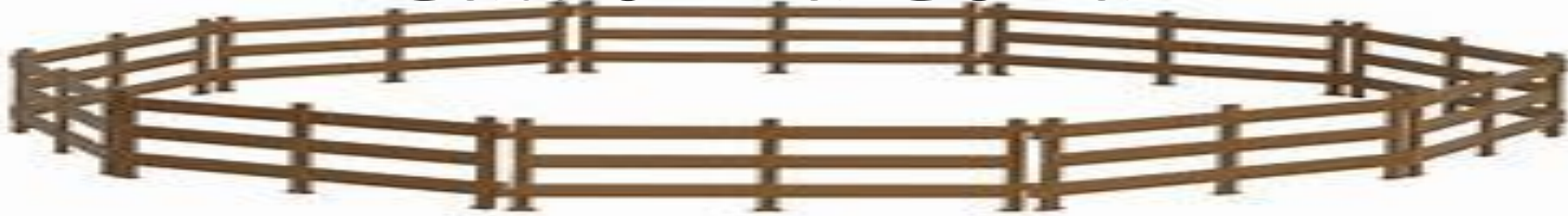
Cattle



- The cattle are picked up and sent off in trucks for slaughterhouses.



Cattle in a Corral



- These Cattle are brought by truckers to the slaughterhouse facility from dairy farms throughout the State.
- The cattle are loaded into a Corral located outside of the building.
- Water is used for drinking by the cattle.
- Prior to entrance to the facility, each cow is rinsed with a water and bug spray combination that goes on the ground.

Kill Room Floor

- Upon entering the facility, each cow is locked into a rail guide.
- When in the kill room, a large spike with a electrical voltage attached is used to incapacitate the cow by striking the cow in the head.

Bleeding Area

- Following the kill room, a process is used to isolate the blood.
- In this process, the cow is lifted up by its hind legs then cut open at the throat to help with the draining of the blood to a floor drain.
- This floor drain goes to a collection pit.
- The blood in the pit is pumped and hauled away for further process as additives in common food and household products.

Removal of the head

- Next, the heads of the cattle are removed and collect for testing by an outside facility.
- The tongues will be removed from the head and be saved to be sold.

Hide Removal



- When most of the blood has been drained, the carcass is moved to the next area for rinsing of the hide again.
- This drain will go to the sewer and the discharge will have residual blood.
- After rinsing, the hide is pulled while being cut from the carcass.
- The hides are collect for transportation and processing offsite.

Hide Removal



- Hides are taken overseas where they are tanned and turned into leather for products such as boots, gloves, saddles, etc.

Removal of the organs

- The carcass will be completely opened from bottom to top for removal of the organs.
- A cart is placed under the carcass to collect and transport the organs.
- These organs will go to a separate area for separation and processing.
- Any organs not being processed further onsite are sent to outside hauling trucks.

Cleaning of the organs

- In organ processing, the outsides will be rinsed off.
- The heart and a few other organs will be collected to be sold.
- Some of these organs will receive additional processing onsite such as the stomachs.

Stomach Processing



- The stomachs will be processed by people who will remove the paunch from the inside and place it into cans.
- Paunch is a word used to describe the contents of the cow's stomachs including the grass, fluids, stomach juices, etc.
- The inside will then be rinsed into the floor drains which leads to the sewer.
- This rinsing will produce solids in the form of Total Suspended Solids and Total Dissolved Solids.
- Good screens in the floor drains are helpful in removing a large amount of Total Suspended Solids from entering the discharge to the sewer.

Screens





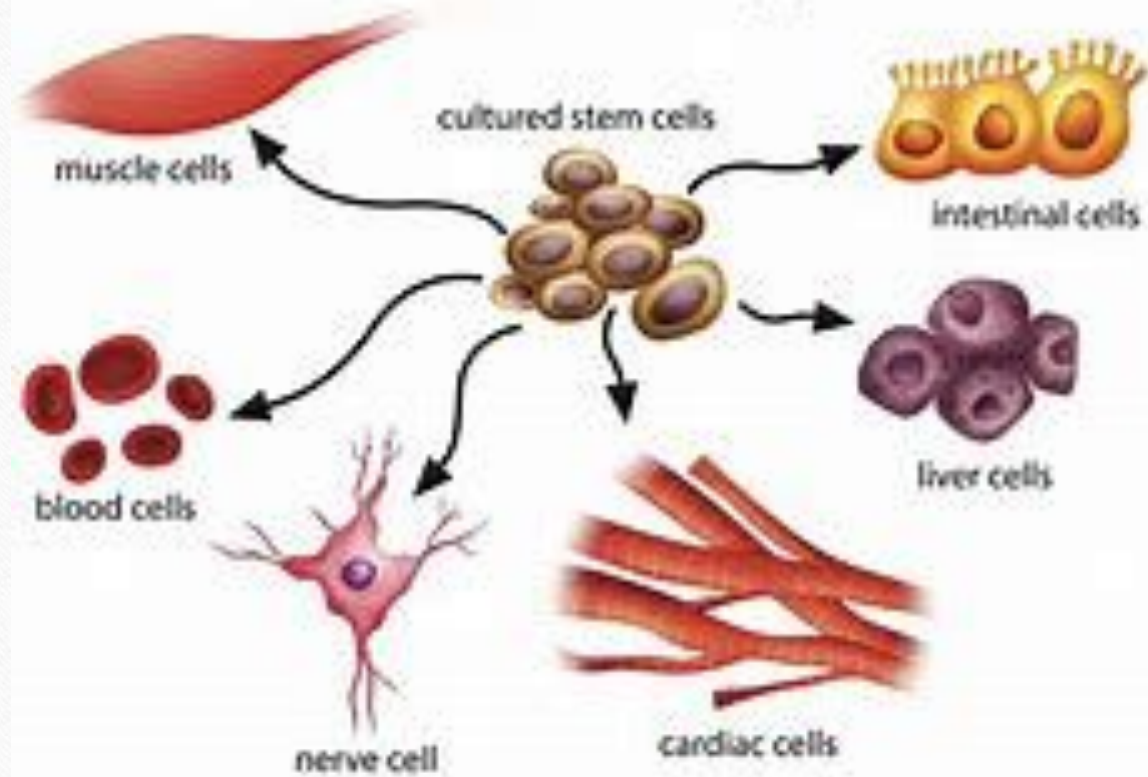
Bleaching of the organs

- The stomachs are then placed in a bleach solution.
- After a set amount of time in the bleaching solution, the stomachs are rinsed again to remove the bleach.
- The stomachs are then sent to a freezer for selling as “Menudo”.

Calves

- During some of the processing, a discovery of a calf inside a cow will occur.
- The calf will have passed away.
- The calf carcass will be drain of fluids such as stem cells for use in research.

Stem Cell Applications



Cooling of the carcass

- The carcass is misted as it enters the freezers.
- Multiple times in the freezer the carcass is sprayed with water to help clean off the meat.
- The carcass proceeds through several freezers for a set amount of time prior to going to cutting area to drain any liquids.

Cutting of the carcass



- Large sections are brought into the cutting room floor where multiple people will remove parts as it goes through the area.
- Bone is remove from meat. These bones are sent by conveyor to the truck that is also used for hauling the unusable organs.
- These inedible by-products are sent to a rendering facility.

Packaging

- Meat is packaged in boxes and/or shrink wrapped
- These packages are weighed.

Sell

- Sent offsite for sell or sold onsite at the office.

Inedible Rendering

- Inedible rendering plants produce inedible tallow and grease, which are used in livestock and poultry feed, soap, and production of fatty-acids.
- Dry rendering is a batch or continuous process that dehydrates raw material in order to release fat. Following dehydration in batch or continuous cookers, the melted fat and protein solids are separated.

Table 9.5.3-1. COMPOSITION OF RAW MATERIALS FOR
INEDIBLE RENDERING^a

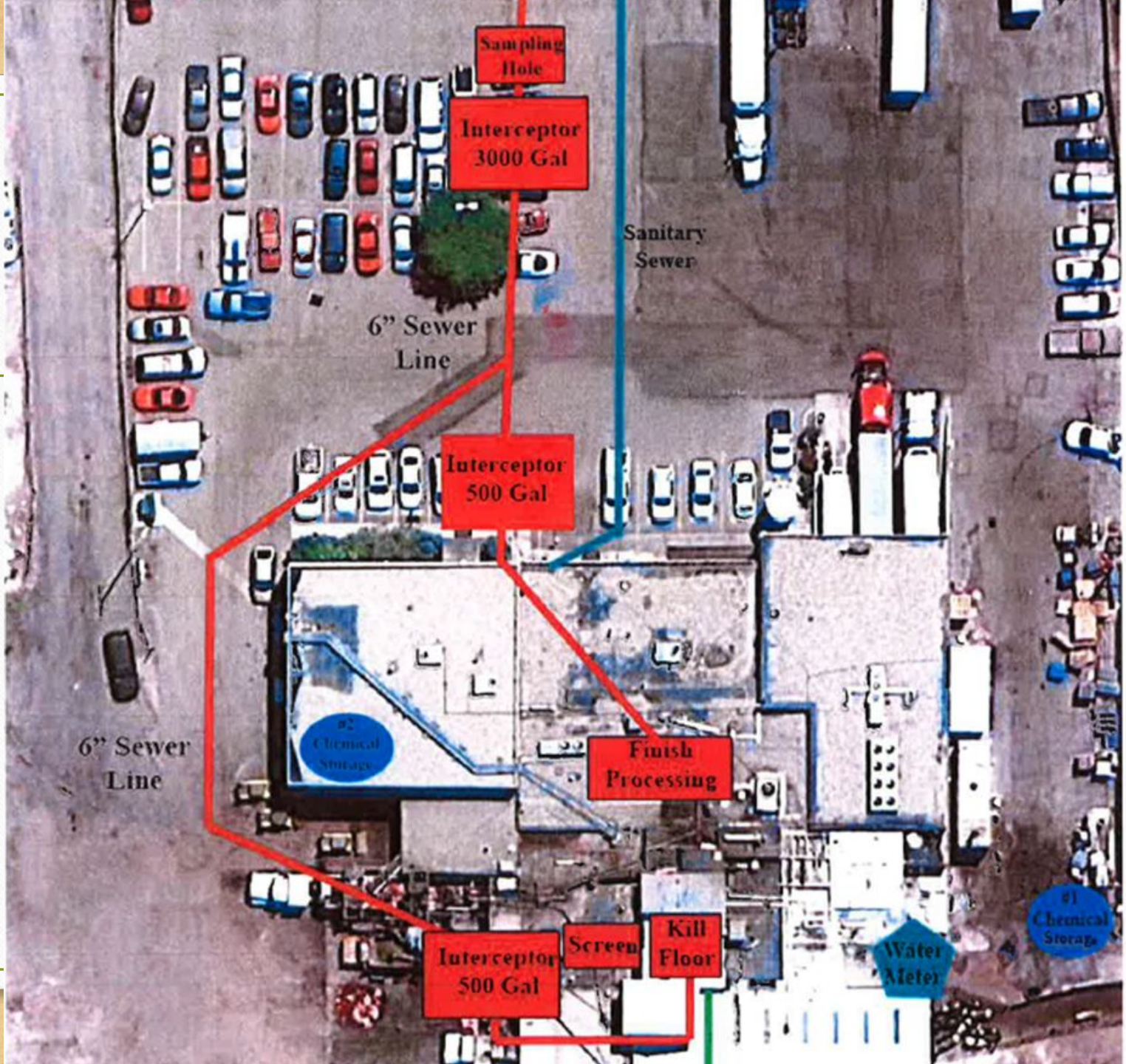
Source	Tallow/Grease, wt %	Protein Solids, wt %	Moisture, wt %
Packing house offal ^b and bone			
Steers	30-35	15-20	45-55
Cows	10-20	20-30	50-70
Calves	10-15	15-20	65-75
Sheep	25-30	20-25	45-55
Hogs	25-30	10-15	55-65
Poultry offal	10	25	65
Poultry feathers	None	33	67

Sanitization

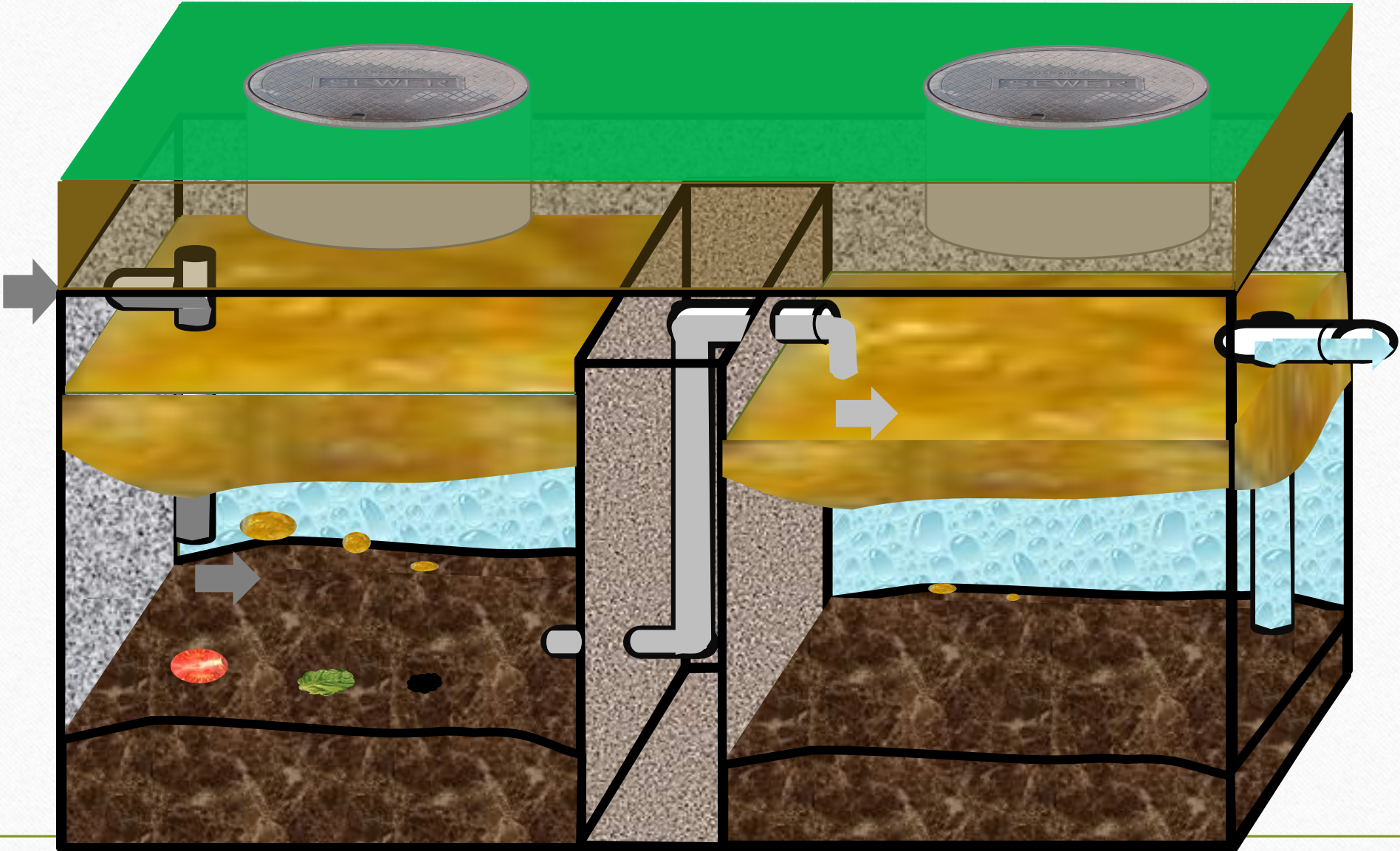
- After about 16 hours of processing, cleaning must be done on all the equipment.
- Nightly for about 8 hours the facility is cleaned, rinsed, and sanitized.
- Hooks are dipped in acids for sterilization and allow to air dry.

Treatment

- This facility started with a 500 gallon grease interceptor.
- Following multiple problems with the sewer control authority at the time, additional grease interceptors were installed.
- An additional 500 gallon first and then later a 3000 gallon grease interceptor was installed.



Grease Interceptor



Created by South Valley Sewer District Pretreatment Program

Current Treatment Maintenance

- The 3000 gallon interceptor is pumped once a week on Mondays with each of the 500 gallon grease interceptors being pumped once a week on Wednesdays.

Organic Loading (BOD)

	2011	2012	2013	2014	2015	2016	2017	2018	2019
First Half of Year	1789	5586	2844	4060 3840	5420	1870	5138	2614 3070	3060
Second Half of Year	11829	2734	2927	4540	4710	5820	4190	4790	

Organic Loading (COD)

	2011	2012	2013	2014	2015	2016	2017	2018	2019
First Half of Year	3480	5940	5505						5070
Second Half of Year	21060	5385	6420				7950	7280	4680

Total Oil and Grease Loading

	2011	2012	2013	2014	2015	2016	2017	2018	2019
First Half of Year	129	279	181	130	186	721	111	317	57
Second Half of Year	947	289	277	54	89	10	18	83	112

Total Recoverable Petroleum Hydrocarbons Loading

	2011	2012	2013	2014	2015	2016	2017	2018	2019
First Half of Year	<5	17	9	48	105	17	<5	115	57
Second Half of Year	27	8	10	28	43	<5	11	50	54

Wastewater Discharge Flow

50,000 gallons per day

1,000,000 gallon per month

Sewer Bill

	First half 2019	Second half 2019	Total per year	2019 Total
COD	\$12,159 per month	\$8,183 per month	\$114,386	\$186,438
TSS	\$3,716 per month	\$2,837 per month	\$37,336	
Domestic	\$2,486 per month	\$2,554 per month	\$ 30,243	

Regulations



- 40 CFR 432 – Meat and Poultry Products Point Source Category

Regulations (Simple)

- 432.10 Applicability.
- This part applies to discharges of process wastewater resulting from the production of meat carcasses, in whole or in part, by simple slaughterhouses. Process wastewater includes water from animal holding areas at these facilities.
- 432.11 Special definitions.
- For the purpose of this subpart: Simple slaughterhouse means a slaughterhouse that provides only minimal, if any, processing of the by-products of meat slaughtering. A simple slaughterhouse would include usually no more than two by-product processing operations such as rendering, paunch and viscera handling, or processing of blood, hide or hair.

Regulations(Complex)

- 432.20 Applicability.
- This part applies to discharges of process wastewater associated with the production of meat carcasses, in whole or in part, by complex slaughterhouses. Process wastewater includes water from animal holding areas at these facilities.
- 432.21 Special definitions.
- For the purpose of this subpart: Complex slaughterhouse means a slaughterhouse that provides extensive processing of the by-products of meat slaughtering. A complex slaughterhouse would usually include at least three processing operations such as rendering, paunch and viscera handling, or processing of blood, hide or hair.

Regulations

Simple Slaughterhouses

- 432.14 Pretreatment standards for existing sources (PSES). [Reserved]
- 432.16 Pretreatment standards for new sources (PSNS). [Reserved]

Complex Slaughterhouses

- 432.24 Pretreatment standards for existing sources (PSES). [Reserved]
- 432.26 Pretreatment standards for new sources (PSNS). [Reserved]

What does that mean for 40 CFR 432 PSES or PSNS?

- Follow 40 CFR 403
- Are they a Significant Industrial User?
 - Flow?
 - Organic?

Questions?



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