Firm Name, City & State:	FEI Number:
Inspection Date(s):	FCE Number:
Investigators:	

DEPARTMENT OF HEALTH AND HUMAN SERVICES
FOOD AND DRUG ADMINISTRATION

PROCESSING IN WATER IN STILL RETORTS (Retort Survey)

INSTRUCTIONS

Complete the question blocks below. Narrative responses to each item can be entered in the item's "comments" area or where otherwise prompted. Draw a diagram of the retort, or obtain one from the firm and attach it to the EIR as an exhibit. Measure and verify retort plumbing – record on this form. Report all pipe sizes as inside diameter (ID).

Before entering the interior of the retort, you must confirm with the firm that you are following the firm's Standard Operating Procedures designed to meet OSHA confined space requirements. If the firm insists that only plant personnel enter the retort, witness the measurement procedure and data collection. To obtain OSHA confined space information and safety procedures, see the confined space presentation on the FDA ORAU web site. If the firm is not aware of the OSHA confined space requirements or does not have a confined space program, DO NOT ENTER THE RETORT.

If problems are found with the firm's retort equipment or processing system, refer the reader to the Turbo EIR for a narrative description of specific problems with supporting evidence, under "Objectionable Conditions and Management's Response." Submit the completed form as an EIR attachment.

RETORT DESCRIPTION				
RETORT NO.	TYPE OF RETORT	Γ	LENGTH OR HEIGHT	DIAMETER
	Vertical	Horizontal		
NUMBER OF BASKETS OR C	RATES PER RETO	RT:		
FOR VERTICAL RETORTS, B PRESENT TO PROTECT THE (<u>SHALL</u> REQUIREMENT – 113 COMMENTS:	STEAM SPREADE			Yes
ARE BAFFLE PLATES PRESENT IN THE BOTTOM OF THE RETORT?				
ARE VERTICAL RETORTS EQUIPPED WITH CENTERING GUIDES TO PROVIDE A 1.5-INCH CLEARANCE BETWEEN THE SIDE WALLS OF THE RETORT AND THE CRATE?				
ARE THERE ANY PROTRUSI THAT COULD DAMAGE CON COMMENTS:			ORT DOOR CASING G OF CRATES?	Yes

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Firm Name:	FEI Number:
DO THE RETORTS FOLLOW THE ARRANGEMENTS IN THE DIAGF IF NO, DOES THE FIRM HAVE ON HAND HEAT DISTRIBUTION DA' INFORMATION WHICH DEMONSTRATES THAT THE HEAT DISTRI	TA OR OTHER SUITABLE
(<u>SHALL</u> REQUIREMENT – 13.40(b)(13)) EXPLAIN, IF NECESSARY:	
COMPUTER	CONTROLS
DOES A COMPUTER CONTROL ANY OF THE RETORT FUNCTION COMMENTS:	S? Yes
DOES THE FIRM HAVE DOCUMENTATION ON HAND WHICH INDICTION THAT THE COMPUTER SYSTEM HAS BEEN VALIDATED?	
IS RECORD KEEPING PART OF THE COMPUTER FUNCTION? IF YES, DOES THE RECORD KEEPING COMPLY WITH 21 CFR PAI EXPLAIN:	
INDICATING MERCURY-IN-GLAS	S THERMOMETERS (113.40(b)(1))
IS THE RETORT EQUIPPED WITH AT LEAST ONE MERCURY-IN-G (<u>SHALL</u> REQUIREMENT) COMMENTS:	iLASS (MIG) THERMOMETER? Yes No
IS THE RETORT EQUIPPED WITH ANOTHER TYPE OF TEMPERATIFY YES, DESCRIBE THE TEMPERATURE INDICATOR:	TURE INDICATOR? Yes No
ARE SCALE DIVISIONS EASILY READABLE TO 1°F (.5°C)?(SHALL REQUIREMENT)	Yes No
NO. OF DEGREES F OR C/IN. OF GRADUATED SCALE:	
DATE LAST TESTED FOR ACCURACY:	
(THERMOMETERS <u>SHALL</u> BE TESTED FOR ACCURACY AGAINST INSTALLATION AND AT LEAST ONCE A YEAR THEREAFTER; RECOUSED, METHOD USED AND PERSON PERFORMING THE TEST SH TAG, SEAL OR OTHER MEANS OF IDENTITY THAT INCLUDES THE	ORDS OF ACCURACY CHECKS THAT SPECIFY DATE, STANDARD OULD BE MAINTAINED. EACH THERMOMETER SHOULD HAVE A
COMMENTS:	
STANDARD USED FOR THE TEST:	
NAME AND TITLE OF PERSON WHO PERFORMED TEST:	

Firm Name:	FEI Number:
IS THE LAST TEST DATE IDENTIFIED ON THE THERMOMETER? WERE CALIBRATING TEST RECORDS PREPARED/MAINTAINED? (SHOULD REQUIREMENT) COMMENTS:	
DESCRIBE THE FIRM'S ACTIONS REGARDING MIG THERMOMETERS	THAT WERE OUT OF CALIBRATION:
IS THE MERCURY UNDIVIDED?	AT CANNOT
WHEN MIG THERMOMETERS ARE FOUND TO BE PROVIDING READING TEMPERATURES, DOES THE FIRM EVALUATE PRODUCTS PRODUCE DESCRIBE THE FIRM'S PROCEDURES:	
IS THE THERMOMETER LOCATED WHERE IT IS EASY TO READ ACC (<u>SHALL</u> REQUIREMENT – 113.40(b)(1)) COMMENTS:	URATELY?Yes No 🗌
IS THE SENSOR BULB POSITIONED SO THAT IT EXTENDS DIRECTLY OF AT LEAST 2 INCHES WITHOUT A SEPARABLE WELL OR SLEEVE OF THE WATER DURING THE COMPLETE PROCESS?	AND IS BENEATH THE SURFACE
ON HORIZONTAL RETORTS, IS THE MIG THERMOMETER INSERTED THE RETORT SHELL IN THE SIDE AT THE CENTER?(SHOULD REQUIREMENT) EXPLAIN WHERE AND HOW THE MIG IS POSITIONED:	
IS THE MERCURY THERMOMETER USED AS THE REFERENCED INS (SHALL REQUIREMENT) COMMENTS:	TRUMENT DURING PROCESSING?Yes
TEMERATURE RECORDING	DEVICE (113.40(b)(2))
IS THE RETORT EQUIPPED WITH A TEMPERATURE RECORDING DE TYPE OF TEMPERATURE RECORDER IF OTHER, DESCRIBE:	

Firm Name:	FEI Number:
DO THE CHART SPECIFICATIONS MEET THE REQUIREMENTS OF (GRADUATIONS ON THE TEMPERATURE RECORDING CHART SHA) OF 10°F (5.5°C) OF THE PROCESSING TEMPERATURE. EACH CHAIR NOT MORE THAN 55°F/IN. (12°C/CM) WITHIN A RANGE OF 20°F (10 COMMENTS:	LL NOT EXCEED 2°F (1°C) WITHIN A RANGE RT <mark>SHALL</mark> HAVE A WORKING SCALE OF
IS THE TEMPERATURE CHART ADJUSTED TO AGREE AS NEARLY THE KNOWN ACCURATE MERCURY-IN-GLASS (MIG) THERMOMETE (SHALL REQUIREMENT - NOTE ANY DIFFERENCE BETWEEN THE FAND THE MIG THERMOMETER AND WHICH READING IS HIGHER.) COMMENTS:	ER DURING THE PROCESSING PERIOD? Yes No
IS THERE A MEANS FOR PREVENTING UNAUTHORIZED ADJUSTM (A MEANS OF PREVENTING UNAUTHORIZED CHANGES IN ADJUST MANAGEMENT STATING "ONLY AUTHORIZED PERSONS ARE PERITHE RECORDING DEVICE, IS A SATISFACTORY MEANS FOR PREVICOMMENTS:	MENTS <u>SHALL</u> BE PROVIDED. A LOCK OR NOTICE FROM MITTED TO MAKE ADJUSTMENTS," POSTED AT OR NEAR
IS THE CHART DRIVE TIMING MECHANISM ACCURATE?IF NO, EXPLAIN:	Yes
IS THE RECORDER COMBINED WITH A STEAM CONTROLLER TO A RECORDING/CONTROLLING INSTRUMENT?	
FOR VERTICAL STILL RETORTS EQUIPPED WITH A TEMPERATUR THE TEMPERATURE SENSOR PROBE LOCATED AT THE BOTTOM CRATE SUPPORT SO THAT STEAM DOES NOT STRIKE IT DIRECTI (SHALL REQUIREMENT) COMMENTS:	OF THE RETORT BELOW THE LOWEST
FOR RETORTS OTHER THAN VERTICAL STILL RETORTS EQUIPPE INSTRUMENT, IS THE RECORDING THERMOMETER BULB LOCATE MIG THERMOMETER?	ED ADJACENT TO THE BULB OF THE
FOR HORIZONTAL STILL RETORTS EQUIPPED WITH A TEMPERAT IS THE TEMPERATURE RECORDING/CONTROLLING BULB LOCAT THE HORIZONTAL PLANE PASSING THROUGH THE CENTER OF T STEAM IMPINGEMENT ON THE CONTROL BULB? (SHALL REQUIREMENT) COMMENTS:	ED BETWEEN THE WATER SURFACE AND HE RETORT SO THAT THERE IS NO DIRECT

Firm Name:	FEI Number:	
PRESSURE GAGE (113.40(b)(3)(i))		
IF A PRESSURE GAGE IS PRESENT, IS IT GRAD (SHOULD REQUIREMENT) COMMENTS:	DUATED IN DIVISIONS OF 2 LBS. OR LESS?Yes No	
PRES	SURE RELIEF VALVE (113.40(b)(3)(ii))	
	BLE PRESSURE RELIEF OR CONTROL VALVE INSTALLED	
(SHOULD REQUIREMENT) COMMENTS:		
ST	FEAM CONTROLLER (113.40(b)(4))	
	TIC STEAM CONTROL VALVE?Yes No No AUTOMATIC STEAM CONTROLLER TO MAINTAIN THE RETORT TEMPERATURE.)	
IS THE CONTROLLER COMBINED WITH A TEMP A RECORDING/CONTROLLING INSTRUMENT? . COMMENTS:	PERATURE RECORDER TO FUNCTION ASYes No	
IF THE TEMPERATURE (STEAM) CONTROLLER AN ADEQUATE FILTER TO ASSURE A SUPPLY	R IS AIR OPERATED, DOES THE SYSTEM HAVE OF CLEAN, DRY AIR?Yes \ No \	
(AIR OPERATED TEMPERATURE CONTROLLERS FILTER SYSTEMS TO ASSURE A SUPPLY OF CL COMMENTS:	·	
REPORT THE MANUFACTURER, SIZE, MODEL	AND TYPE OF AUTOMATIC STEAM CONTROL VALVE:	
STI	EAM INTRODUCTION (113.40(b)(5))	
IS STEAM DISTRIBUTED IN THE BOTTOM OF T	HE RETORT?Yes	
(STEAM <u>SHALL</u> BE DISTRIBUTED IN THE BOTTO DISTRIBUTION THROUGHOUT THE RETORT.) COMMENTS:	OM OF THE RETORT IN A MANNER ADEQUATE TO PROVIDE UNIFORM HEAT	
FOR HORIZONTAL STILL RETORTS, IS THERE AT THE LENGTH OF THE BOTTOM OF THE RETOR UNIFORMLY ALONG THE UPPER PART OF THE		
(<u>SHALL</u> REQUIREMENT) DESCRIBE THE SHAPE AND DIMENSIONS OF T	THE STEAM SPREADER PIPE:	

Firm Name: FEI Number:		
STACKING EQUIPMENT AND CONTAINER POSITION (113.40(b)(7))		
ARE CRATES, TRAYS, ETC., FOR HOLDING CONTAINERS MADE OF STRAP IRON OR OTHER ADEQUATELY PERFORATED MATERIAL?		
ARE CONTAINERS POSITIONED IN THE RETORT AS SPECIFIED IN THE SCHEDULED PROCESS?		
ARE DIVIDERS, TRAYS, RACKS OR OTHER MEANS OF POSITIONING FLEXIBLE CONTAINERS DESIGNED AND EMPLOYED TO ENSURE EVEN CIRCULATION OF THE HEATING MEDIUM AROUND ALL CONTAINERS? Yes \(\subseteq \text{No} \subseteq \text{COMMENTS:} \)		
DRAIN LINE AND VALVE (113.40(b)(8))		
ARE SCREENS USED OVER ALL DRAIN OPENINGS TO PREVENT CLOGGING OF DRAINS?YesYes		
IS THE DRAIN LINE VALVE WATER TIGHT AND NON-CLOGGING?		
WATER LEVEL INDICATOR (113.40(b)(9))		
DOES WATER COVER THE TOP LAYER OF CONTAINERS IN THE RETORT BASKETS DURING THE ENTIRE COME-UP TIME AND PROCESSING PERIOD?		
DOES WATER COVER THE TOP LAYERS OF CONTAINERS DURING THE COOLING PERIOD?		
SHOULD COVER THE TOP LAYER DURING THE COOLING PERIODS – 113.40(b)(9).) COMMENTS:		
IS THERE A MEANS TO DETERMINE THE WATER LEVEL IN THE RETORT DURING OPERATION?		
IF YES, WHAT MONITORING DEVICES ARE USED? Gage Sight-glass Glass Petcock Other		
IF OTHER, EXPLAIN TYPE:		
IF NO MONITORING DEVICES, EXPLAIN:		
(THERE SHALL BE A MEANS OF DETERMINING THE WATER LEVEL IN THE RETORT DURING OPERATION.)		
DOES THE OPERATOR CHECK AND RECORD THE WATER LEVEL AT INTERVALS SUFFICIENT TO ENSURE ITS ADEQUACY?		
(<u>SHALL</u> REQUIREMENT) COMMENTS:		

Firm Name: FEI Number:			
PROCESSING WATER			
IS THE PROCESSING WATER HEATED IN A SEPARATE VESSEL AND THEN INTRODUCED INTO THE PROCESSING VESSEL?	s 🗌	No	
COMMENTS:			
WAS THE TEMPERATURE OF THE PRE-HEATED WATER TAKEN INTO CONSIDERATION DURING TEMPERATURE DISTRIBUTION STUDIES?	s 🗌	No	
DOES THE FIRM CONTROL THE PRE-HEATING OF PROCESS WATER AS CRITICAL TO THE THERMAL PROCESS? COMMENTS:	s 🗌	No	
AIR SUPPLY AND CONTROLS (113.40(b)(10))			
IS AIR SUPPLIED TO THE RETORTS DURING THE COME-UP, PROCESSING AND COOLING PERIODS TO PROMOTE CIRCULATION OF WATER AND TEMPERATURE DISTRIBUTION?	s 🗌	No	
IF YES, IS THE AIR INTRODUCED AT THE PROPER PRESSURE AND RATE? (SHALL REQUIREMENT – 113.40(b)(10)(i))	s 🗌	No	
COMMENTS:			
IS THE COMPRESSED AIR SUPPLIED TO THE RETORT CONTROLLED BY AN AUTOMATIC PRESSURE CONTROL UNIT?Ye	s 🗌	No	
(<u>SHALL</u> REQUIREMENT – 113.40(b)(10)(i)) COMMENTS:			
IS THE AIR SUPPLY LINE EQUIPPED WITH A CHECK VALVE TO PREVENT WATER FROM ENTERING THE SYSTEM?Ye	s 🗌	No	
(<u>SHALL</u> REQUIREMENT – 113.40(b)(10)(i)) COMMENTS:			
HAS THE ADEQUACY OF THE AIR OR WATER CIRCULATION FOR UNIFORM HEAT DISTRIBUTION WITHIN THE RETORT BEEN ESTABLISHED IN ACCORDANCE WITH PROCEDURES RECOGNIZED BY A COMPETENT PROCESS AUTHORITY?	s 🗌	No	
ARE RECORDS OF THE ESTABLISHMENT OF UNIFORM HEAT DISTRIBUTION KEPT ON FILE?	s 🗌	No	
(<u>SHALL</u> REQUIREMENT – 113.40(b)(10)(i)) COMMENTS:			
IF AIR IS USED TO PROMOTE WATER CIRCULATION IN THE RETORT, IS IT INTRODUCED INTO THE STEAM LINE AT A POINT BETWEEN THE RETORT AND THE STEAM CONTROL VALVE AT THE BOTTOM OF THE RETORT? YE	s 🗌	No	
(<u>SHALL</u> REQUIREMENT – 113.40(b)(10)(i)) COMMENTS:			

Firm Name:	FEI Number:
WHEN A WATER CIRCULATING SYSTEM IS USED FOR HEAT WATER WILL BE DRAWN FROM THE BOTTOM OF THE RETO THROUGH A SPREADER THAT EXTENDS THE LENGTH OF TO SHALL REQUIREMENT – 113.40(b)(10)(ii)) COMMENTS:	RT THROUGH A SUCTION MANIFOLD AND DISCHARGED
FOR WATER CIRCULATING SYSTEMS, ARE THE HOLES IN T DISTRIBUTED, AND DO THEY HAVE AN AGGREGATE AREA AREA OF THE OUTLET LINE FROM THE PUMP?(SHALLISHOULD REQUIREMENT – 113.40(b)(10)(ii)) COMMENTS:	NOT GREATER THAN THE CROSS-SECTION
ARE SUCTION OUTLETS PROTECTED WITH NON-CLOGGING FROM ENTERING THE CIRCULATING SYSTEM?(SHALL REQUIREMENT – 113.40(b)(10)(ii))) COMMENTS:	
IS THE WATER PUMP EQUIPPED WITH A PILOT LIGHT OR O WARN THE OPERATOR WHEN IT IS NOT RUNNING?(SHALL REQUIREMENT – 113.40(b)(10)(ii)) COMMENTS:	
IS AN ALTERNATE METHOD OF WATER CIRCULATION USED 113.40(b)(10)(ii) IF YES, HAS THE METHOD BEEN ESTABLISHED BY A COMP DESCRIBE THE ALTERNATE METHOD:	
COOLING	WATER SUPPLY
FOR VERTICAL STILL RETORTS, IS THE COOLING WATER IN THE RETORT BETWEEN THE WATER AND CONTAINER LEVI (SHOULD REQUIREMENT – 113.40(b)(11)) COMMENTS:	ITRODUCED AT THE TOP OF
FOR HORIZONTAL RETORTS, IS THE COOLING WATER INTE THE SUCTION SIDE OF THE PUMP?(SHOULD REQUIREMENT – 113.40(b)(11)) COMMENTS:	
IS THE WATER COOLING LINE EQUIPPED WITH A CHECK VA (SHOULD REQUIREMENT – 113.40(b)(11)) COMMENTS:	ALVE?Yes No

Firm Name:	FEI Number:
RETORT HE	ADSPACE
IS HEADSPACE, NECESSARY TO CONTROL THE AIR PRESSURE, THE WATER LEVEL AND THE TOP OF THE RETORT SHELL?	
(SHOULD REQUIREMENT – 113.40(b)(12))	
COMMENTS:	
RETORT PLUMBING AN	D EQUIPMENT ISSUES
WHEN WAS THE LAST MAJOR OVERHAUL OR MAINTENANCE PE COMMENTS:	RFORMED ON THE RETORTS?
DOES THE FIRM CONDUCT A RETORT SURVEY PERIODICALLY (OVERHAUL OR AFTER MAINTENANCE IS PERFORMED ON CRITIC BOILER CONFIGURATION, ETC.)?	CAL EQUIPMENT (RETORTS, FILLER,
A RETORT SURVEY IS NOT REQUIRED BY THE REGULATIONS, B PROCESSING SYSTEM IS IN COMPLIANCE WITH FDA REGULATIO (VALVE TYPE, STEAM SPREADER CONFIGURATION, ETC.) AS WHE CONDUCTED.	ONS AND THAT THE SYSTEM MEETS THE SAME CRITERIA
COMMENTS:	
DO THE BOILERS SUPPLY SUFFICIENT STEAM TO THE RETORTS	?
IS THERE SUFFICIENT PRESSURE IN THE HEADER PIPE SUPPLY ESPECIALLY WHEN MORE THAN ONE RETORT IS BEING VENTED	
COMMENTS:	
TEMPERATURE	DISTRIBUTION
HAVE TEMPERATURE DISTRIBUTION STUDIES BEEN PERFORME IF SO, WHO CONDUCTED THE STUDY, WHAT PROCEDURES WER	
IS THERE DOCUMENTATION SUCH AS A RETORT DIAGRAM AND	PARAMETERS USED TO VALIDATE THE TESTS?
(FOR AN EXPLANATION OF TEMPERATURE DISTRIBUTION, SEE P. FOR CONDUCTING TEMPERATURE DISTRIBUTION STUDIES IN ST	
COMMENTS:	
HAVE THERE BEEN ANY CHANGES TO THE RETORTS OR THERN THE LAST TEMPERATURE DISTRIBUTION STUDY THAT COULD A	
(THE RETORT DESIGN, LOADING CONFIGURATION, SMALLEST CO ATTAINMENT OF TEMPERATURE DISTRIBUTION IN THE RETORT – THESE FACTORS COULD NECESSITATE A NEW TEMPERATURE DI A CHANGE HAS BEEN MADE IN THE THERMAL PROCESSING SYS FIRM SHOULD HAVE ON FILE DOCUMENTATION OF THE CHANGE PROCESS AUTHORITY.)	SEE PP. 21-22 OF LACF GUIDE, PART 2. A CHANGE IN ANY OF STRIBUTION STUDY AND POSSIBLY A NEW VENT SCHEDULE. IF TEM THAT COULD AFFECT TEMPERATURE DISTRIBUTION, THE
COMMENTS:	

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