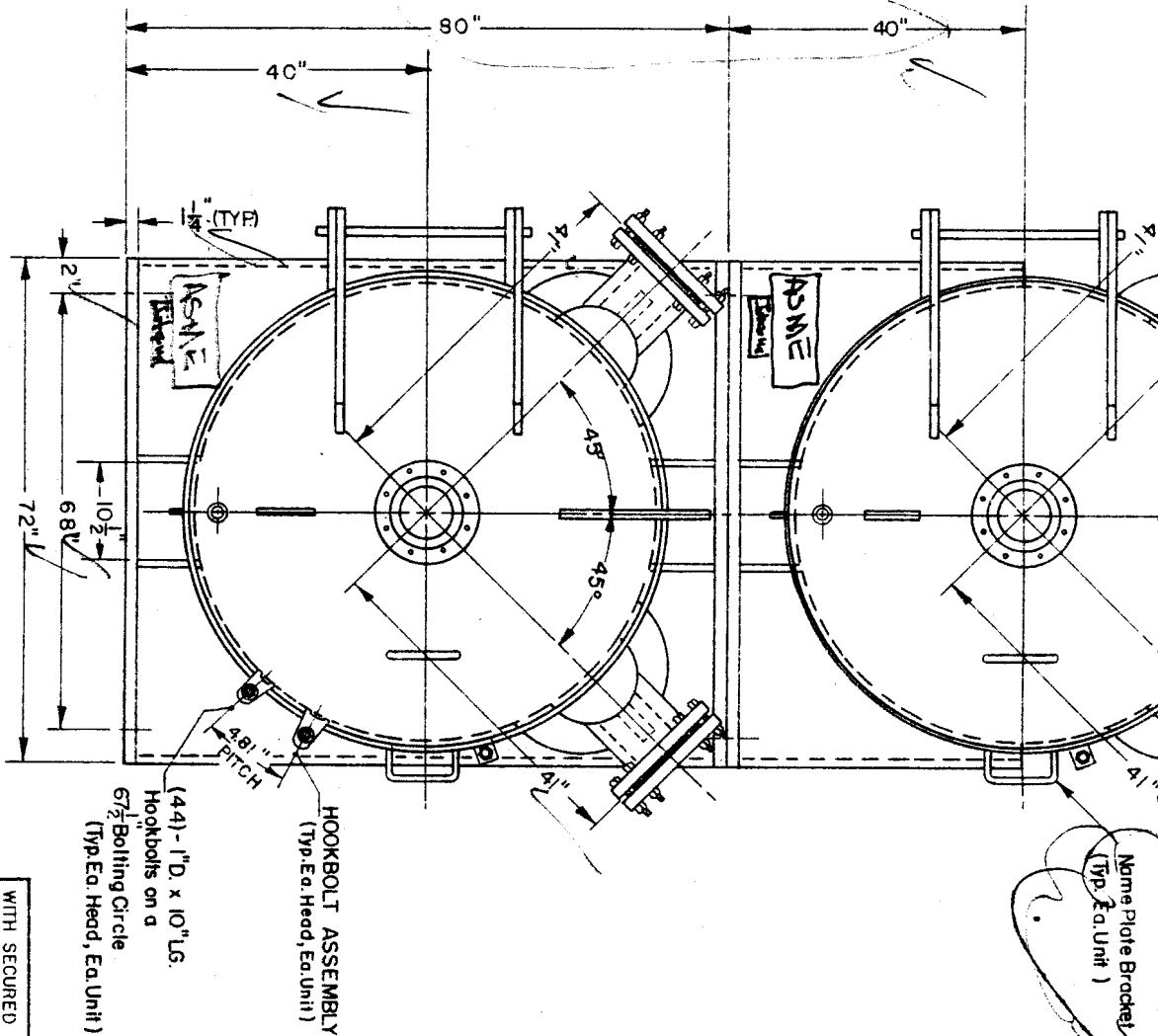


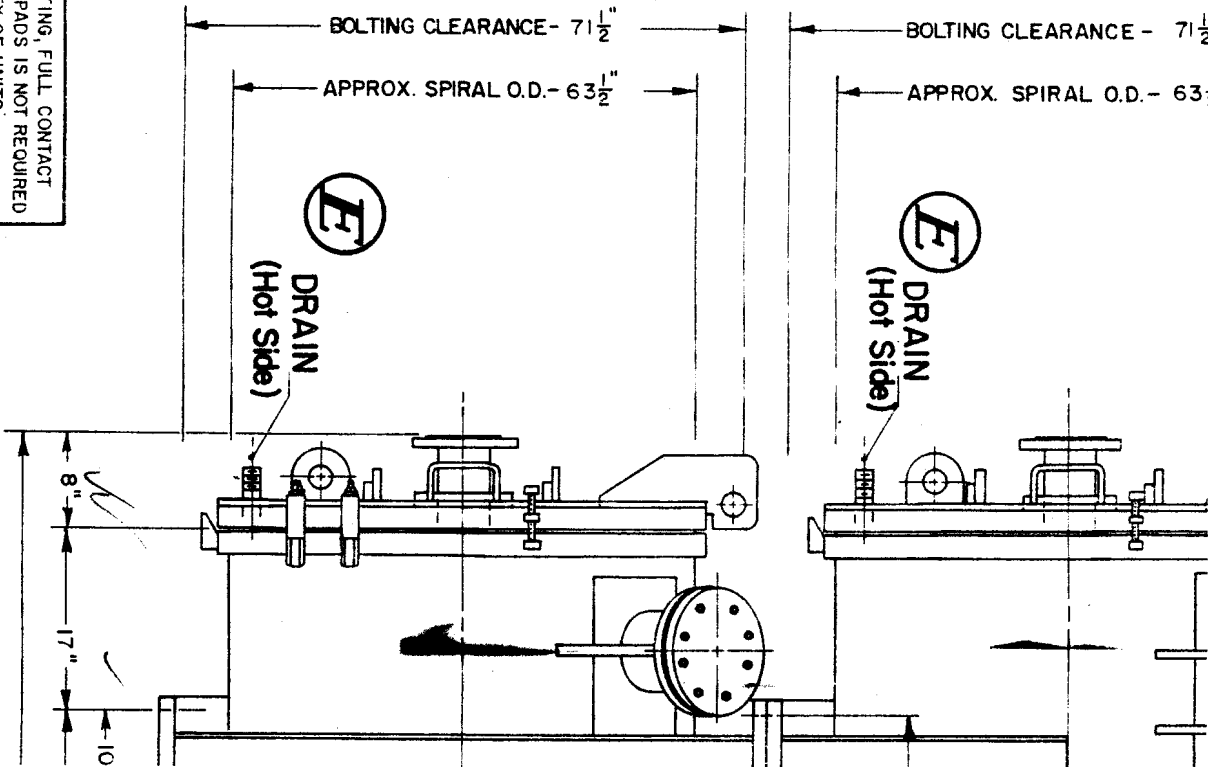
\*CHANGE INSPIRAL PLATE THICKNESS  
 3/16" Tk. up to 31-7/8" O.D.  
 1/4" Tk. from 31-7/8" O.D. up to 48-1/2" O.D.  
 5/16" Tk. over 48-1/2" O.D.

|                                               |                                                                 |
|-----------------------------------------------|-----------------------------------------------------------------|
| PROJECT :                                     | CARVER GREENFIELD<br>SLUDGE DEHYDRATION & ERS<br>CONTRACT NO. 1 |
| OWNER :                                       | L.A. County Sanitary District #2                                |
| ENGINEER :                                    | FOSTER WHEELER                                                  |
| CONTRACTOR :                                  | BRINDENSON CORPORATION                                          |
| SUPPLIER'S PURCHASE                           |                                                                 |
| MANUFACTURER'S                                | AMERICAN HEAT RECLAIMING                                        |
| NAME :                                        | DIV. OF ALFA-LAVAL, INC.                                        |
| Weight, Flooded - Approx. (Each Unit)         | 40,200#                                                         |
| Weight, Empty - Approx. (Each Unit)           | 35,000#                                                         |
| Test Pressure (Both Sides)                    | 108 P.S.I.                                                      |
| Maximum Allowable Working Press. (Both Sides) | 70 P.S.I.                                                       |
| Design Temp. (Both Sides)                     | 300° F.                                                         |
| Inner Channel (Hot Side)                      | 5/16"                                                           |
| Outer Channel (Cold Side)                     | 7/16"                                                           |
| Spiral Shell Nominal Thickness                | 3/125" W. 72" Wide                                              |
| Spiral Material, Except As Noted              | SA-240, 304L S.S.                                               |

NOTE :  
 ALL HEADS SA-516-70, Faced with SA-240, 304L S.S.  
 ALL GASKETS - NON ASBESTOS, 1/8" Tk. X 67" Nom. Dia.  
 ALL FLANGES SA-105, 150# A.N.S.I.  
 HOOKBOLT Assy, 4.4" Dia. Cover, 1" Dia. x 10" Lg. SA-193, B7 PLATED  
 LOCATION OF BREAKER BOLTS & NAMEPLATE MFG. OPTION.  
 PAINT - 90E-92 TMEME-ZINC, 2.0 to 3.5 mils. D.F.T.



WITH SECURED BOLTING, FULL CONTACT BETWEEN SUPPORT PADS IS NOT REQUIRED TO INSURE STABILITY OF UNITS.



FOR WELD DETAILS SEE DWG. NO. W-608A  
SPACER STUDS TO BE IN LINE ON BOTH SIDE:

**NOZZLE SCHEDULE FOR ONE UNIT**

ALL FLANGED NOZZLES SA-403, 304 L.S.S  
STUB ENDS, SCH. 160 - EXCEPT NOZZLES G  
SCH. 80 - DRAINS E & F ARE SA-312, 304 L.S.S.  
VENTS H ARE SA-312, 304 L.S.S., SCH. 160

| MARK | NO. | REQ'D. | SIZE | RATING | FACING            | REMARKS |
|------|-----|--------|------|--------|-------------------|---------|
| H    | 2   | 1      | 1"   | 150#   | N.P.T.            | Capped  |
| G    | 4   | 6"     | 150# | L.J.   | With blind flange |         |
| F    | 1   | 1"     | 150# | N.P.T. | Capped            |         |
| E    | 1   | 1"     | 150# | N.P.T. | Capped            |         |
| D    | 1   | 4"     | 150# | L.J.   |                   |         |
| C    | 1   | 4"     | 150# | L.J.   |                   |         |
| B    | 1   | 4"     | 150# | L.J.   |                   |         |
| A    | 1   | 4"     | 150# | L.J.   |                   |         |

DESIGNED, CONSTRUCTED AND NATIONAL BOA  
STAMPED IN ACCORDANCE WITH A.S.M.E. CODE  
SEC. VIII - DIV. 1, 1983 ADDENDA, SUMMER-1983

**CERTIFIED PRINT**

APPROVED FOR FABRICATION OR ERECTION  
BY \_\_\_\_\_ DATE 10-6-86

DIMENSION TOLERANCES ON ALL  
STACKED UNITS MAKE IT DIFFICULT  
TO ALIGN SHOP FABRICATED PIPING.  
LOOSE FLANGE AND FIELD JOINTS  
MUST BE INCORPORATED INTO  
PIPING DESIGN.

**AMERICAN HEAT RECLAIM**  
DIV. OF ALFA-LAVAL  
P.O. BOX 10 LYMENS, PA. 17048

CUSTOMER: BRINDERSON CORPORATION

ORDER NO. 6163 ITEM NO. E

(6) 2420 SQ. FT. SPIRAL HEAT EXCH.

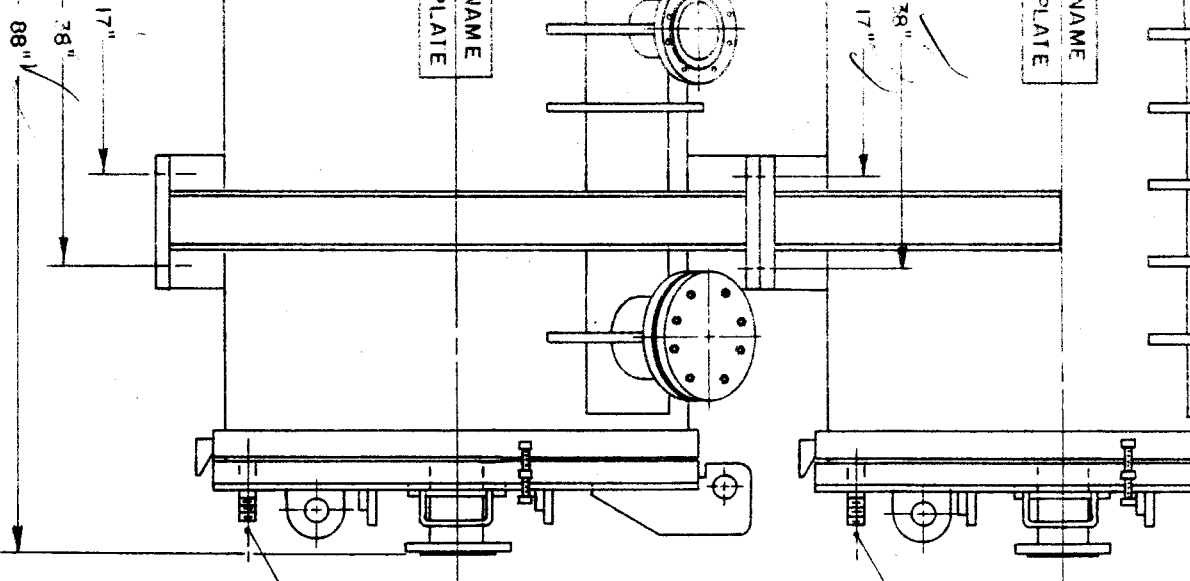
|              |          |        |            |
|--------------|----------|--------|------------|
| DWG. BY SHJ  | CHK'D.   | APP'D. | JOB NO. AS |
| DATE 1-23-86 | MFG. NO. |        | DWG. NO. V |

NOZZLE A HAS A 100 LB. FORCE IN  
THE HORIZONTAL DIRECTION WITH  
13,200 IN. LB. MOMENT  
NOZZLES B THRU D HAVE A 500 LB.  
FORCE IN THE VERTICAL AND HORIZONTAL  
DIRECTION WITH A 7200 IN. LB. MOMENT

MFG. NO. 17724  
CHECKED AS PULL T  
A.S.M.E. TAG OKED  
N. B. NO. 13727  
WARN. TAGS. N.P.

MFG. NO. 17725  
CHECKED AS PULL T  
A.S.M.E. TAG OKED  
N. B. NO. 13728  
WARN. TAGS. N.P.

**INSPECTION REQUIRED**

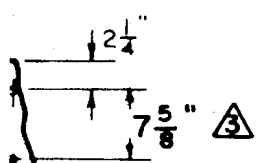


REV. 5  
REV. 4  
REV. 3  
REV. 2  
REV. 1

| REV. | DATE    | SYMBOL | DESCRIPTION                                    |
|------|---------|--------|------------------------------------------------|
| 5    | 10-6-86 | SHJ    | REV. DWG. STATUS TO CERTIFIED                  |
| 4    | 9-17-86 | SHJ    | REV. MOUNTING HOLE SIZE & PAINT                |
| 3    | 8-28-86 | SMY    | REV. STUD PATTERN DIM. AS INDICATED            |
| 2    | 6-24-86 | SHJ    | ADDED NOZZLE FORGES & MOMENTS - STUD PATTERN   |
| 1    | 3-4-86  | SHJ    | REV. TO ADD VENTS & TO SLOT MOUNTING PAD HOLES |

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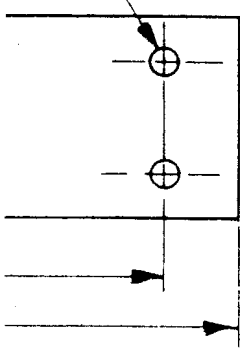
17723



FLOW

RN

les  
o.)



AL PLATE THICKNESS  
 31-7/8" O.D.  
 31-7/8" O.D. up to 48-1/2" O.D.  
 r 48-1/2" O.D.

|                                           |                                                                 |
|-------------------------------------------|-----------------------------------------------------------------|
| PROJECT :                                 | CARVER GREENFIELD<br>SLUDGE DEHYDRATION & ERS<br>CONTRACT NO. 1 |
| OWNER :                                   | L.A. County Sanitary District #2                                |
| ENGINEER :                                | FOSTER WHEELER                                                  |
| CONTRACTOR :                              | BRINDERSON CORPORATION                                          |
| SUPPLIER'S PURCHASE<br>AGREEMENT NUMBER : | AS - 12418                                                      |
| MANUFACTURER'S<br>NAME :                  | AMERICAN HEAT RECLAIMING<br>DIV. OF ALFA-LAVAL, INC.            |

|                                               |                      |
|-----------------------------------------------|----------------------|
| Weight, Flooded - Approx. (Each Unit)         | 40,200#              |
| Weight, Empty - Approx. (Each Unit)           | 35,000#              |
| Test Pressure (Both Sides)                    | 108 P.S.I.           |
| Maximum Allowable Working Press. (Both Sides) | <del>70</del> P.S.I. |
| Design Temp. (Both Sides)                     | <del>300</del> ° F.  |
| Inner Channel (Hot Side)                      | 5/16"                |
| Outer Channel (Cold Side)                     | 7/16"                |
| OPEN BOTH ENDS                                |                      |
| * Spiral Shell Nominal Thickness              | .3125" W 72" Wide    |
| Spiral Material, Except As Noted              | SA-240, 304L S.S.    |

NOTE : *2.09 MILK P.H.T.*  
 ALL HEADS SA-516-70, Faced with SA-240, 304L S.S.  
 ALL GASKETS - NON ASBESTOS, 1/8" Tk. X 67" Nom. Dia.  
 ALL FLANGES SA-105, 150# A.N.S.I.  
 HOOKBOLT Assy. 44 Per Cover, 1" D. x 10" Lg. SA-193, B7 (ZINC PLATED)  
 LOCATION OF BREAKER BOLTS & NAMEPLATE MFG. OPTION.  
 PAINT - 90E-92 T NEME - ZINC, 2.0 to 3.5 mils. D.F.T.

FOR WELD DETAILS SEE DWG. NO. W-608A  
SPACER STUDS TO BE IN LINE ON BOTH SIDES

**NOZZLE SCHEDULE FOR ONE UNIT**

ALL FLANGED NOZZLES SA-403, 304 L.S.S. TYPE A  
STUB ENDS, SCH. 160 - EXCEPT NOZZLES G ARE  
SCH. 80 - DRAINS E & F ARE SA-312, 304 L.S.S., Sch. 160  
VENTS H ARE SA-312, 304 L.S.S., SCH. 160

| H    | 2         | 1"   | ---    | N.P.T. | Capped          | (Each Uni |
|------|-----------|------|--------|--------|-----------------|-----------|
| G    | 4         | 6"   | 150 #  | L.J.   | With Blind Flg. | (Each Uni |
| F    | 1         | 1"   | ---    | N.P.T. | Capped          | ( " "     |
| E    | 1         | 1"   | ---    | N.P.T. | Capped          | ( " "     |
| D    | 1         | 4"   | 150 #  | L.J.   |                 | ( " "     |
| C    | 1         | 4"   | 150 #  | L.J.   |                 | ( " "     |
| B    | 1         | 4"   | 150 #  | L.J.   |                 | ( " "     |
| A    | 1         | 4"   | 150 #  | L.J.   |                 | ( " "     |
| MARK | NO. REQ'D | SIZE | RATING | FACING | REMARKS         |           |

DESIGNED, CONSTRUCTED AND NATIONAL BOARD  
STAMPED IN ACCORDANCE WITH A.S.M.E. CODE  
SEC. VIII - DIV. I, 1983 ADDENDA, SUMMER-1985

**CERTIFIED PRINT**

APPROVED FOR FABRICATION OR ERECTION

BY \_\_\_\_\_ DATE 10-6-86

DIMENSION TOLERANCES ON ALL  
STACKED UNITS MAKE IT DIFFICULT  
TO ALIGN SHOP FABRICATED PIPING.  
LOOSE FLANGE AND FIELD JOINTS  
MUST BE INCORPORATED INTO  
PIPING DESIGN.

REVIEW

|      |    |
|------|----|
| Q.C. | JS |
| A.I. | AS |
| P.M. | DR |



**AMERICAN HEAT RECLAIMING  
DIV. OF ALFA-LAVAL, INC.**  
P.O. BOX 10 LYKENS, PA. 17048-0010

CUSTOMER: BRINDERSON CORPORATION

ORDER NO. 6163 ITEM NO. E 109

(6) 2420 SQ. FT. SPIRAL HEAT EXCHANGERS

DWG. BY SHJ CHK'D. APP'D. JOB NO. AS-12418

DATE 1-23-86 MFG. NO. [REDACTED] DWG. NO. W-608

A HAS A 100 lb. FORCE IN  
HORIZONTAL DIRECTION WITH  
in. lb. MOMENT  
S B thru D HAVE A 500 lb.  
IN THE VERTICAL AND HORIZONTAL  
DIRECTION WITH A 7,200 in. lb. MOMENT

MFG. NO. 17724  
CHECKED AS BUILT  
A.S.M.E. TAG OKED  
N. E. NO. 13727  
WARN. TAGS NR

MFG. NO. 17725  
CHECKED AS BUILT  
A.S.M.E. TAG OKED  
N. E. NO. 13728  
WARN. TAGS NR

INSPECTION REQUIRED

|                                               |     |
|-----------------------------------------------|-----|
| EV. DWG. STATUS TO CERTIFIED                  | SHJ |
| EV. MOUNTING HOLE SIZE & PAINT                | SHJ |
| EV. STUD PATTERN DIM. AS INDICATED            | SMY |
| EV. NOZZLE FORCES & MOMENTS - STUD PATTERN    | SHJ |
| EV. TO ADD VENTS & TO SLOT MOUNTING PAD HOLES | SHJ |
| REVISION                                      | BY  |

17723