

ATTACHMENT 12

M-705L OXIDIZER LEACHING PROCESS

12	<u>OXIDIZER LEACHING PROCESS</u>	3
12-1	<u>PURPOSE AND SCOPE</u>	3
12-2	<u>PROCESS DESCRIPTION</u>	3
12-3	<u>WASTE ANALYSIS AND OPERATING PARAMETERS</u>	4
12-4	<u>ENVIRONMENTAL PERFORMANCE STANDARDS</u>	4
12-4-1	<u>Prevention of Releases to Ground Water or Subsurface Environment</u>	4
12-4-2	<u>Prevention of Releases to Surface Water, Wetlands, or Soil Surface</u>	4
12-4-3	<u>Prevention of Releases to Air</u>	4
12-5	<u>MONITORING, ANALYSIS, INSPECTION, RESPONSE, REPORTING, AND CORRECTIVE ACTION</u>	5
12-6	<u>RECORD KEEPING AND REPORTING</u>	5
12-7	<u>CLOSURE</u>	5

12 **OXIDIZER LEACHING PROCESS**

12-1 **PURPOSE AND SCOPE**

ATK Launch Systems - Promontory (ATK) operates a small treatment process in which it can remove the oxidizer from class 1.3 explosive sufficient enough to render the explosive nonreactive. This process is conducted in Building M-705L. This process leaches the oxidizer from class 1.3 explosives with heated water, and agitation if needed, rendering the explosive nonreactive. The effluent wastewater is then treated through various processes in the advanced wastewater treatment facility prior to being discharged. The remaining solid residue is then prepared for disposal as a solid waste.

The oxidizer leaching process allows some reactive hazardous waste to be treated by wastewater technology in place of treatment by open burning.

12-2 **PROCESS DESCRIPTION**

The oxidizer leaching process is a simple process. ATK only treats specific waste streams that can fit this treatment methodology. As previously described, the process leaches the water soluble oxidizer from 1.3 class explosives using water and agitation if necessary to render the explosive nonreactive.

The following is a description of the oxidizer leaching process. The process uses a 600 gallon leach tank that was fabricated from 3/16" stainless steel. The tank is equipped with high and low level transmitters and is heated by low pressure steam. The tank has been designed with steel grating between the reactive waste items and the heat exchanger to prevent direct contact with the explosive material and the hot surface of the heat exchanger. The heated steam control is interlocked with the water level, to prevent steam heat from being applied when the low level water alarm is active.

The system also utilizes air sparging to assist in the leaching process if needed. Water is supplied to the unit and is protected with backflow prevention. The building has been adequately ventilated for this process. Water sampling is performed periodically to monitor the oxidizer levels during the leaching process. Once the oxidizer levels stop increasing in the water, this indicates that no further leaching is taking place and the process is complete. The inert waste is then removed from the baskets and prepared for disposal as a solid waste. The oxidizer containing wastewater is then treated by one or multiple biological, chemical, or physical treatment processes at the wastewater treatment facility.

12-3 **WASTE ANALYSIS AND OPERATING PARAMETERS**

Prior to treatment of a new composite propellant waste or propellant contaminated waste article, a Waste Profile is developed to determine the operating parameters such as, temperature, air agitation and time necessary to complete the oxidizer removal.

The Waste Profile is developed in a “bench top” laboratory type process and then followed by laboratory testing to determine the amount of oxidizer remaining and a determination of when the material is no longer a reactive waste. The Waste Profile number and laboratory testing results are maintained in the facility permit operating record.

The system is designed and operated to prevent any releases to the environment and to safely render the reactive material to a nonreactive state.

12-4 **ENVIRONMENTAL PERFORMANCE STANDARDS**

The M-705L leaching process has been located, designed, operated, and maintained in a manner that will ensure protection of human health and the environment. This section addresses the prevention of releases due to the migration of hazardous constituents into the ground water or subsurface environment, surface waters, wetlands, surface soils, and in the air.

12-4-1 **Prevention of Releases to Ground Water or Subsurface Environment**

Several parameters have been considered in determining the prevention of a release to ground water or to subsurface environments. It is important to note that this process is completed inside a closed building with containment. The containment system, consisting of concrete floor space with curbing and a concrete sump within the floor space area, is shown in the facility drawing contained in Attachment 6 (Figure K-1). Because of this secondary containment, there should be negligible potential for deposition or migration of waste constituents into the subsurface or groundwater.

12-4-2 **Prevention of Releases to Surface Water, Wetlands, or Soil Surface**

The oxidizer leaching area has secondary containment to ensure collection of any spill or release. The oxidizer leach tank has a maximum volume of approximately 600 gallons. The containment system has a volume of approximately 800 gallons. Within the containment system is a blind sump with a volume of approximately 100 gallons. The sump is only used if a spill occurs; it is not used on a routine basis. The sump is located beneath the leach tank to contain a small spill. The overall floor space containment is

designed to collect any large spill and has more than sufficient capacity to hold any spill during the oxidizer leaching process.

The use of this containment along with the high level transmitter and the low volume of waste and wastewater reduces the potential for any releases to surface water, wetlands, or surrounding soils.

Wastewater resulting from this treatment process will be treated by one or multiple biological, chemical, or physical treatment processes at the wastewater treatment facility prior to being discharge to the environment.

12-4-3 **Prevention of Releases to Air**

The oxidizer leaching process is completed within a closed building that contains a closed tank with a lid. The only constituent released to the air is a very small amount of hydrogen. An on-site Safety evaluation has been completed to verify that no hazard is created from the small amount of hydrogen released within the building. Since there is very small amount of constituents released to the air, the potential for any adverse effects to human health or the environment are negligible.

12-5 **MONITORING, ANALYSIS, INSPECTION, RESPONSE, REPORTING, AND CORRECTIVE ACTION**

Handling explosive waste requires special handling precautions and safety procedures, ATK personnel follow internal procedures for performing the leaching process. ATK will conduct the leaching process in a manner that will ensure protection of human health and the environment.

ATK will comply with the requirements specified in the facility Contingency Plan (Attachment 4), when there has been a release at Building M-705L that threatens human health or the environment.

ATK will comply with the ignitable and reactive waste regulations as required by R315-264-17.

ATK will inspect Building M-705L in accordance with the inspection schedule contained in Attachment 2.

12-6 **RECORD KEEPING AND REPORTING**

The Permittee shall record in the Operating Record the following:

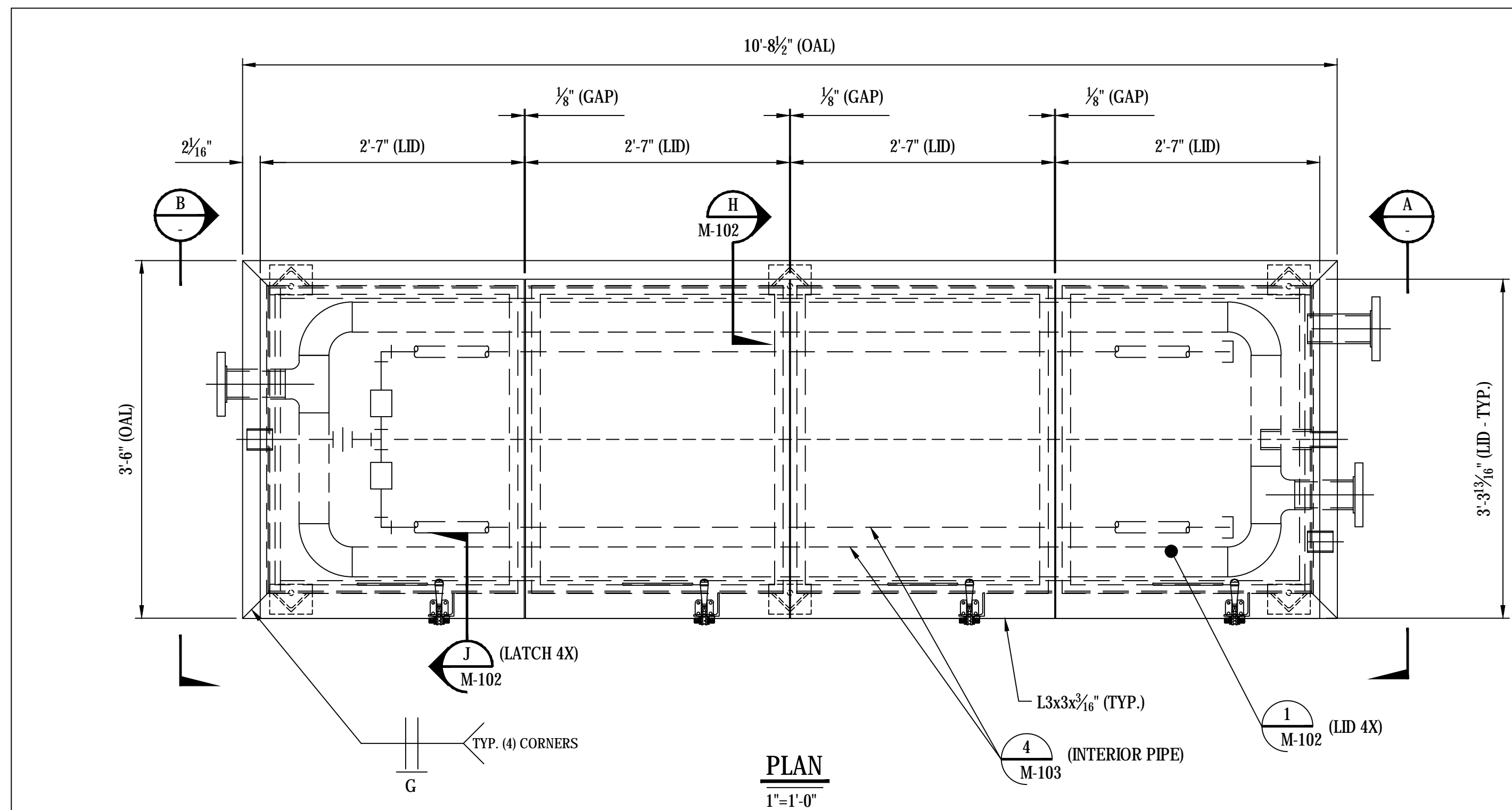
- 12-6.1 The date a batch of contaminated production materials is placed in the M-705L treatment tank;

- 12-6.2 The quantity and description of contaminated productions materials or propellants/explosives, including the Waste Profile #, placed in the treatment tank;
- 12-6.3 The laboratory testing results associated with each Waste Profile #;
- 12-6.4 The date the treatment process for each batch of contaminated production materials or propellants/explosives is complete;
- 12-6.5 The date the wastewater is pumped out of the tank to the wastewater treatment plant; and
- 12-6.6 The waste determination of the treated production materials and the date they are removed from the tank.

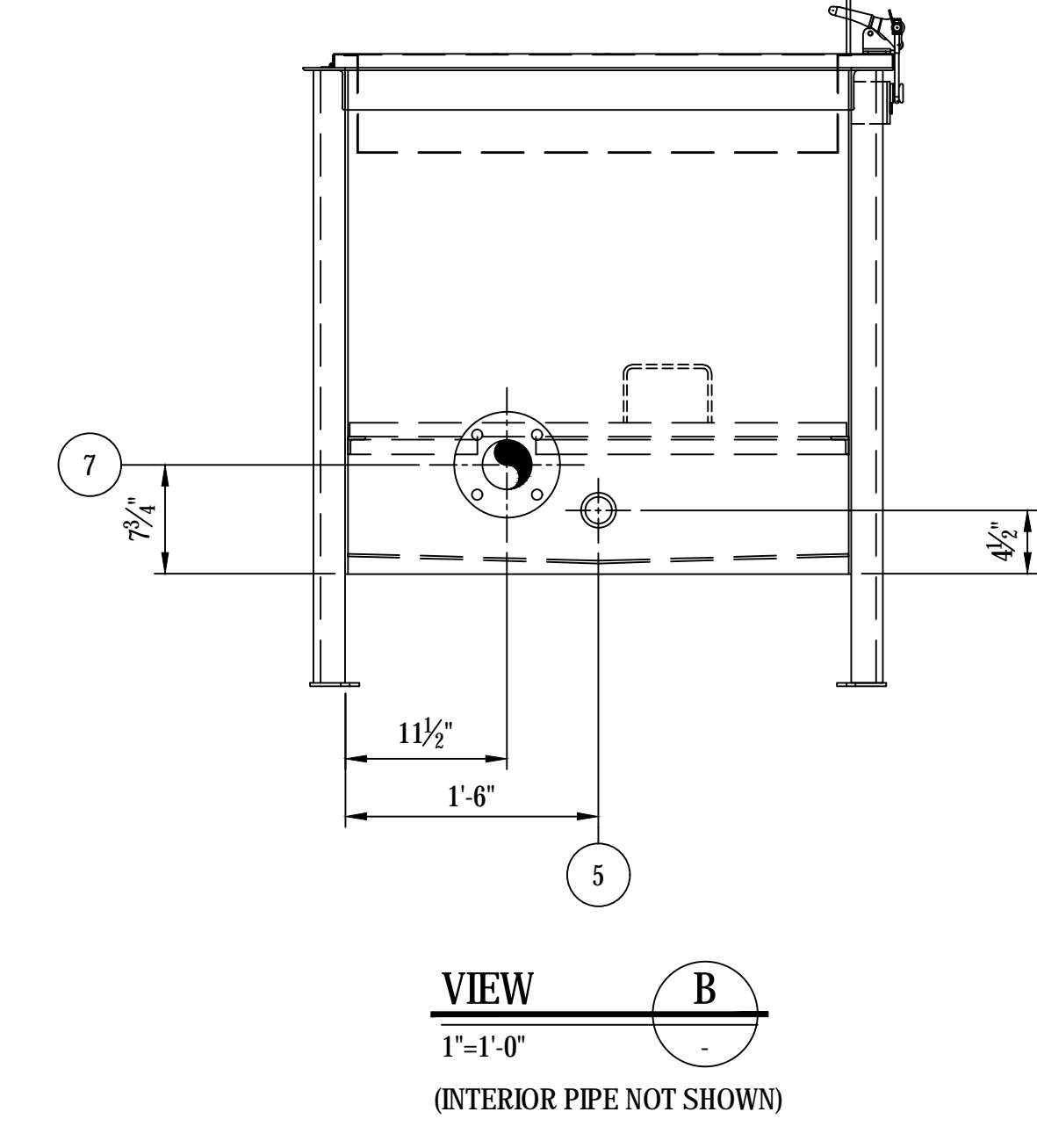
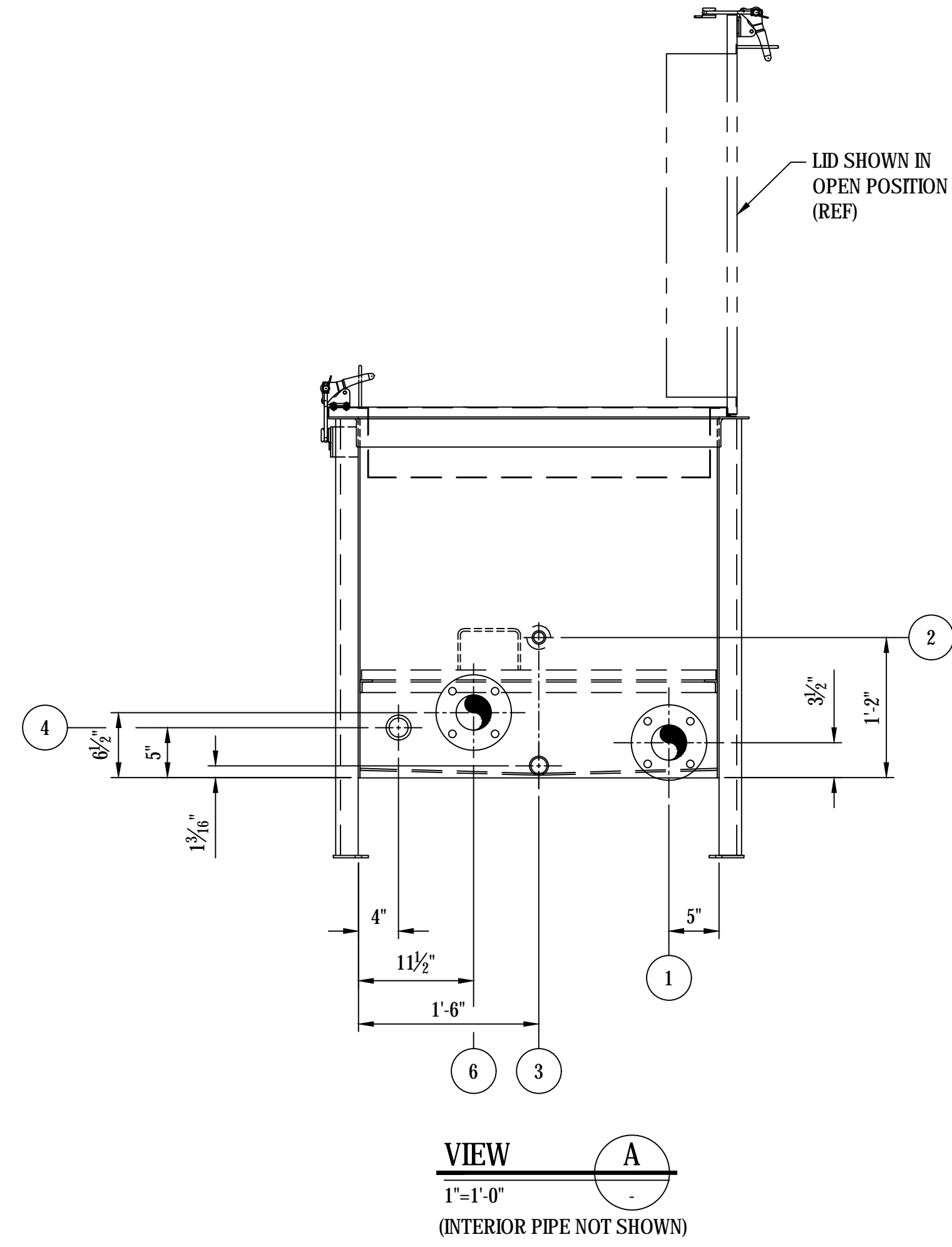
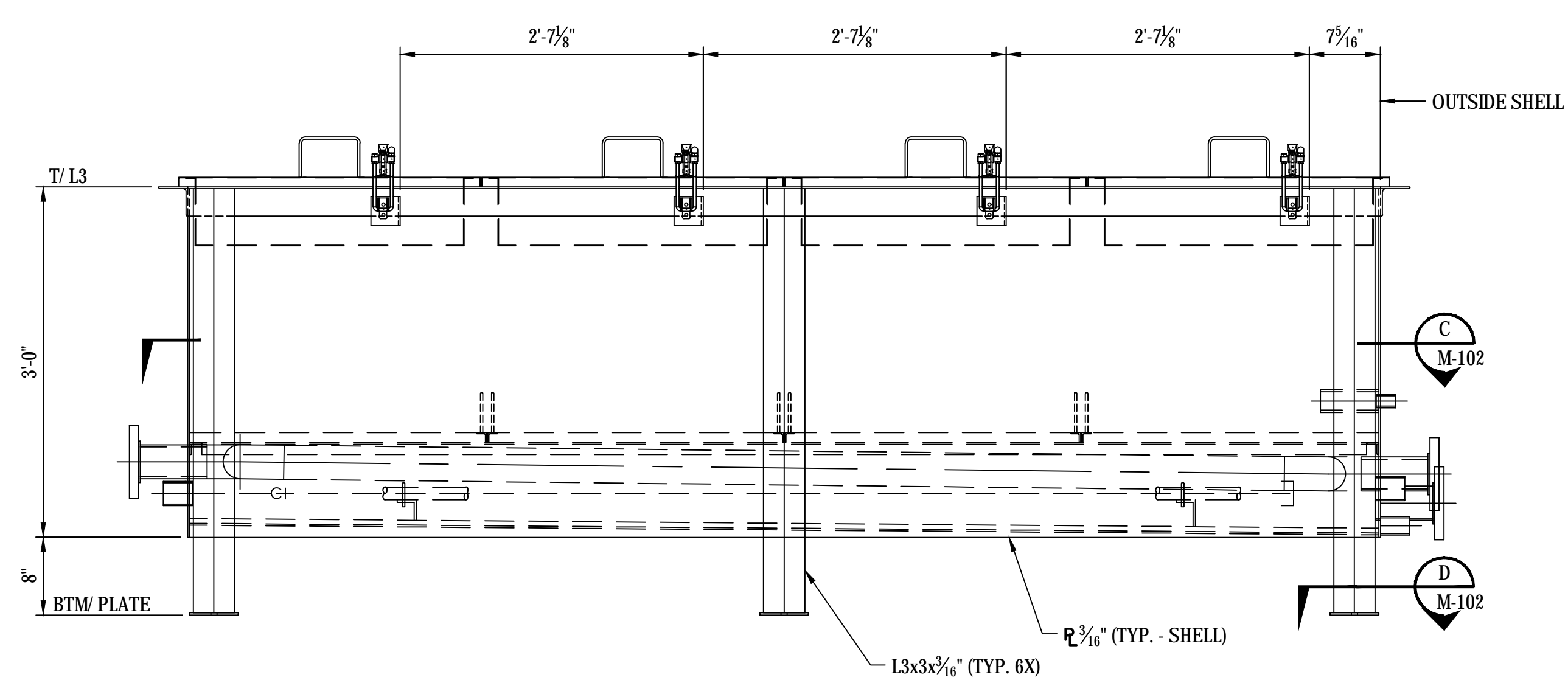
12-7 **CLOSURE**

ATK will close Building M-705L in accordance with R315-264-110 through R315-264-120, R315-264-178, Permit Condition II.O. and Attachment 5 of this Permit.

ZONE		REV.	DESCRIPTION	DATE	APPROVED
NA	0	NEW DRAWING PER FEO 582201		E HANSEN 4/30/18	



MARK	SIZE	CLASS	SERVICE
1	3"	R.F. 150#	LEVEL
2	3/4"	FNPT 3000#	TEMP.
3	1 1/2"	SCH. 40S PIPE (T.O.E.)	DRAIN
4	1 1/2"	FNPT 3000#	WATER SUPPLY
5	1 1/2"	FNPT 3000#	AIR SPARGER SUPPLY
6	3"	R.F. 150#	STEAM SUPPLY (HEATER)
7	3"	R.F. 150#	CONDENSATE RETURN



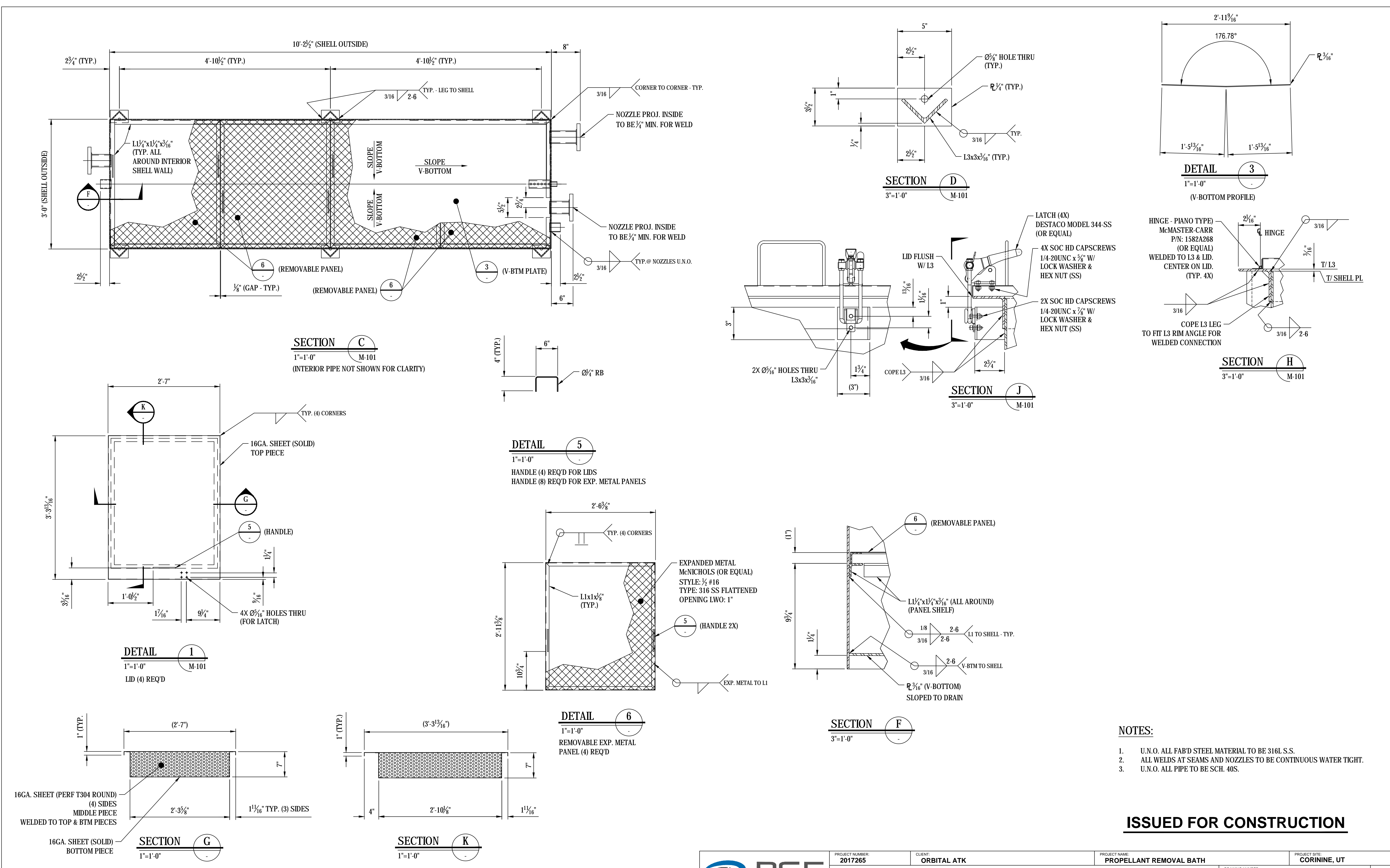
- NOTES:**
- U.N.O. ALL FAB'D STEEL MATERIAL TO BE 316L.S.S.
 - ALL WELDS AT SEAMS AND NOZZLES TO BE CONTINUOUS WATER TIGHT.
 - FLANGE HOLES TO STRADDLE CENTERLINES.

ISSUED FOR CONSTRUCTION

PSE PRECISION SYSTEMS ENGINEERING 9805 South 500 West Sandy, Utah 84070 USA www.pseutah.com (801) 943-5555	PROJECT NUMBER 2017265	CLIENT ORBITAL ATK	PROJECT NAME PROPELLANT REMOVAL BATH	PROJECT SITE CORINNE, UT
	WASH TANK PLAN AND ELEVATIONS			DRAWING NUMBER 2017265-M-101
DES. CHK. ENG. CHK. ENG. APPR. 0 ISSUED FOR CONSTRUCTION	PREDTID NUMBER: NONE AREA: --- SHEET: 1 OF 1			

DRAWING M705-M-182	REFERENCE DRAWINGS M705 WATER BASED LEACH TANK PIPING	SEE EPIC FOR COMPLETE APPROVAL RECORD DO NOT SCALE THIS DRAWING	NORTHROP GRUMMAN INNOVATION SYSTEMS SECTOR FLIGHT SYSTEMS DIVISION, PROMONTORY, UT M705 TANK FOR WATER BASED LEACHING OF REACTIVE WASTE SHEETS 1-3
APPROVALS: _____ DATE: _____ PREPARER: _____ CHECKER: _____ FACILITY ENGINEER: _____ USER: _____		SAFETY: _____ RELEASE: _____	
THIS PRINT, AND THE INFORMATION AND TECHNOLOGY HEREON, IS THE PROPERTY OF ORBITAL ATK FLIGHT SYSTEMS GROUP PROPULSION SYSTEMS, AND MAY NOT BE USED, REPRODUCED, OR DISCLOSED TO OTHERS WITHOUT WRITTEN PERMISSION. PERMITTED REPRODUCTIONS IN WHOLE OR PART, INCLUDING BORROWER'S SHOP DRAWINGS, SHALL BEAR OR REFER TO THIS NOTICE. RETURN OF THIS PRINT SHALL BE MADE UPON REQUEST.		SIZE: E CASE CODE: 07703 SCALE: NOTED	DRAWING NO.: M705-M-181 REV: 0 SHEET: 1 OF 3

ZONE		REV.	DESCRIPTION	DATE	APPROVED
NA		0	NEW DRAWING PER FEO 582201	E HANSEN 4/30/18	



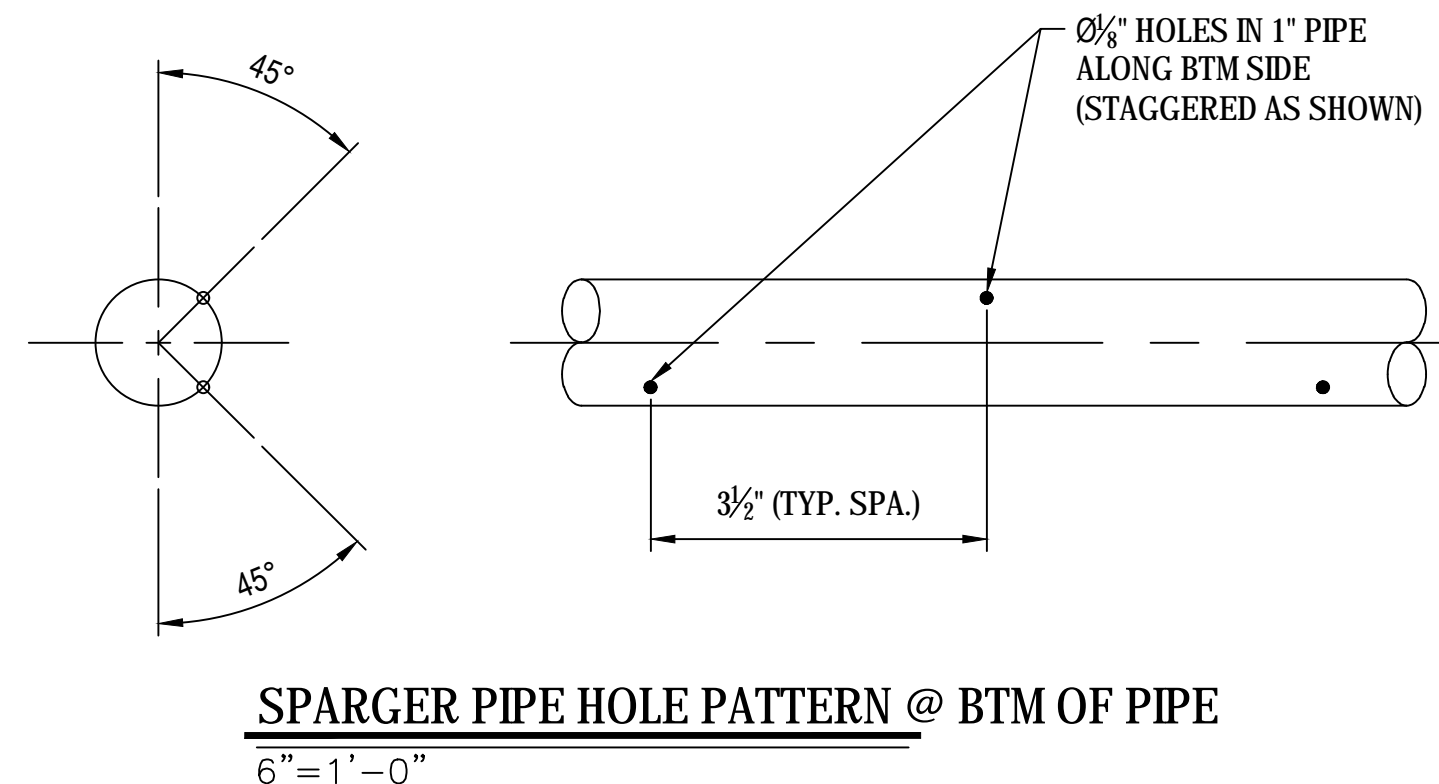
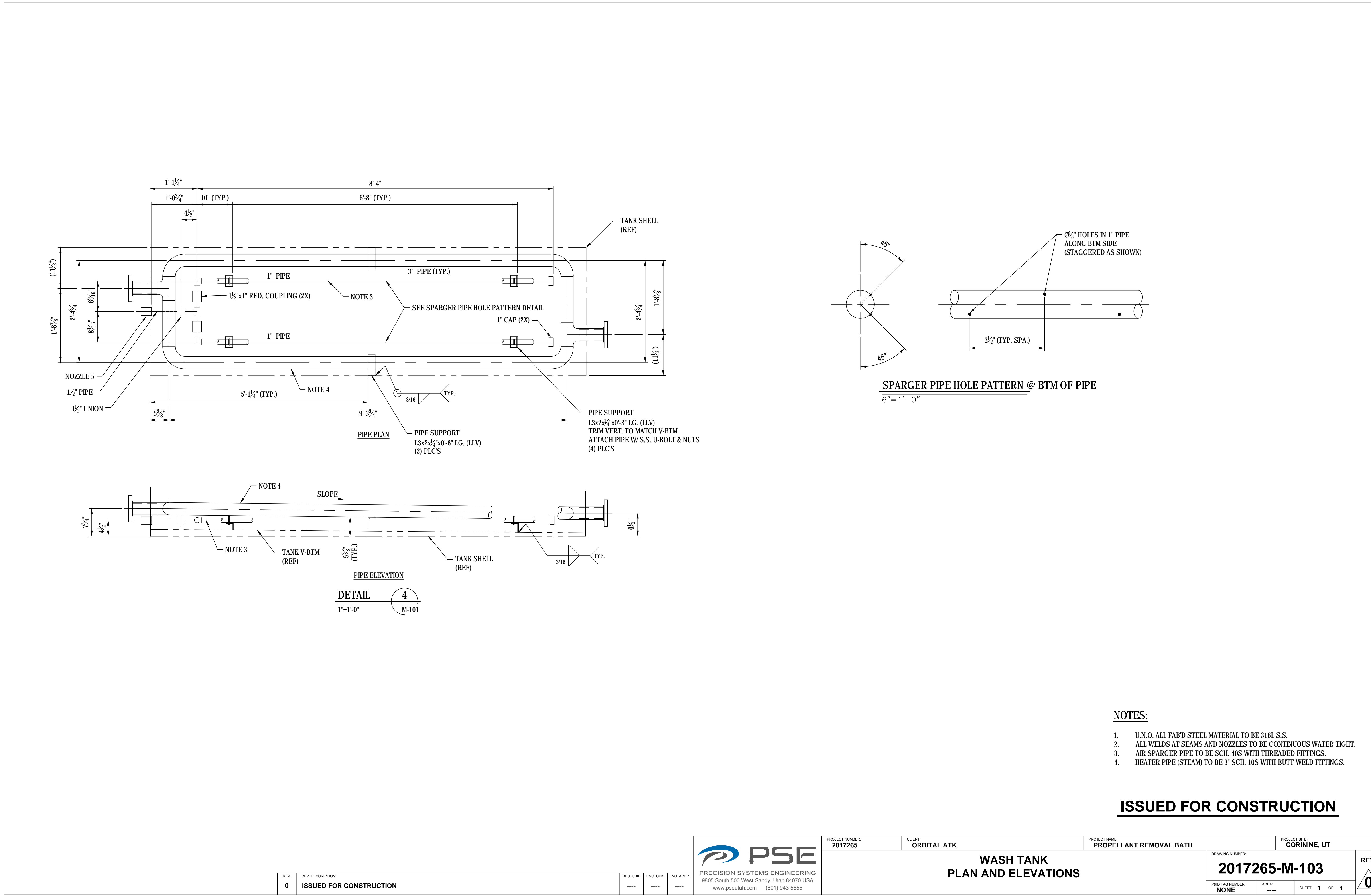
- NOTES:**
- U.O. ALL FAB'D STEEL MATERIAL TO BE 316L S.S.
 - ALL WELDS AT SEAMS AND NOZZLES TO BE CONTINUOUS WATER TIGHT.
 - U.O. ALL PIPE TO BE SCH. 40S.

ISSUED FOR CONSTRUCTION

REV. 0	ISSUED FOR CONSTRUCTION	DES. CHK. ---	ENG. CHK. ---	ENG. APPE. ---	PROJECT NUMBER 2017265	CLIENT ORBITAL ATK	PROJECT NAME PROPELLANT REMOVAL BATH	PROJECT SITE CORININE, UT
PSE PRECISION SYSTEMS ENGINEERING 9805 South 500 West Sandy, Utah 84070 USA www.pseutah.com (801) 943-5555					WASH TANK PLAN AND ELEVATIONS		DRAWING NUMBER: 2017265-M-102	REV: 0
					FACTORY NUMBER: NONE AREA: --- SHEET 1 OF 1			

DRAWING M705-M-182	REFERENCE DRAWINGS M705 WATER BASED LEACH TANK PIPING	SEE EPIC FOR COMPLETE APPROVAL RECORD DO NOT SCALE THIS DRAWING	NORTHROP GRUMMAN INNOVATION SYSTEMS SECTOR FLIGHT SYSTEMS DIVISION, PROMONTORY, UT M705 TANK FOR WATER BASED LEACHING OF REACTIVE WASTE SHEETS 1-3
		APPROVALS: _____ DATE: _____ PREPARER: _____ CHECKER: _____ FACILITY ENGINEER: _____ USER: _____	
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REVISION HISTORY				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
NA	0	NEW DRAWING PER FEO 582201	E HANSEN 4/30/18	



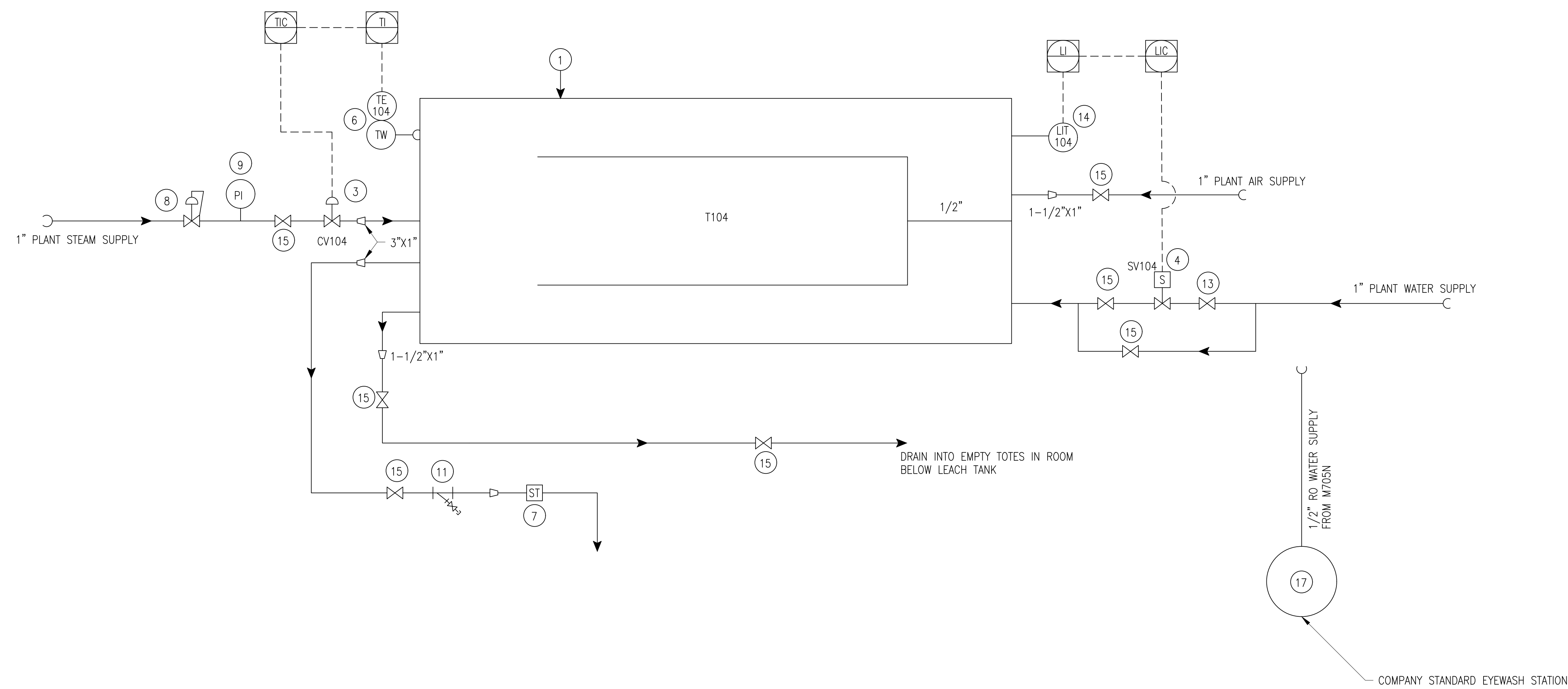
- NOTES:**
1. U.N.O. ALL FAB'D STEEL MATERIAL TO BE 316L S.S.
 2. ALL WELDS AT SEAMS AND NOZZLES TO BE CONTINUOUS WATER TIGHT.
 3. AIR SPARGER PIPE TO BE SCH. 40S WITH THREADED FITTINGS.
 4. HEATER PIPE (STEAM) TO BE 3\"/>

ISSUED FOR CONSTRUCTION

REV: 0	ISSUED FOR CONSTRUCTION	DES. CHK: ---	ENGR. CHK: ---	ENGR. APPR: ---	PSE PRECISION SYSTEMS ENGINEERING 9805 South 500 West Sandy, Utah 84070 USA www.pseutah.com (801) 943-5555	PROJECT NUMBER: 2017265 CLIENT: ORBITAL ATK PROJECT NAME: PROPELLANT REMOVAL BATH PROJECT SITE: CORINNE, UT	DRAWING NUMBER: 2017265-M-103 PLOT TAG NUMBER: NONE AREA: --- SHEET: 1 OF 1	REV: 0
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DRAWING: M705-M-182	REFERENCE DRAWINGS: M705 WATER BASED LEACH TANK PIPING	SEE EPIC FOR COMPLETE APPROVAL RECORD	NORTHROP GRUMMAN INNOVATION SYSTEMS SECTOR FLIGHT SYSTEMS DIVISION, PROMONTORY, UT M705 TANK FOR WATER BASED LEACHING OF REACTIVE WASTE SHEETS 1-3		
DO NOT SCALE THIS DRAWING		APPROVALS: _____ DATE: _____			
PREPARED: _____		CHECKER: _____			
FACILITY ENGINEER: _____		USER: _____			
SAFETY: _____		RELEASE: _____			
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REVISION HISTORY				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
NA	0	NEW DRAWING PER FEO 582201	E HANSEN 4/30/18	



LEACH TANK PIPING
SCALE: 1/1

MATERIAL LIST		
ITEM	QTY	DESCRIPTION
1	1	STAINLESS STEEL LEACH TANK FABRICATED BY GBI
3	1	SPENCE STEAM SUPPLY CONTROL VALVE, SERIAL # 00310010-2
4	1	WATER SUPPLY SOLENOID VALVE
6	1	OMEGA RTD
7	1	STEAM TRAP
8	1	STEAM PRESSURE REGULATOR, SET AT 15 PSI
9	1	STEAM PRESSURE GAUGE
11	1	1" STRAINER
12	1	1/2" BALL VALVE
13	1	1" BALL VALVE
14	1	ROSEMOUNT LEVEL TRANSMITTER, SERIAL # 1085749
15	7	1" BALL VALVE
-	2	1-1/2"x1" REDUCER
-	2	3"x1" REDUCER
-	3	3" 150# FLANGE, SST
-	5'-0"	3" PIPE
-		1" PIPE AS NEEDED
-		1/2" PIPE AS NEEDED
17	1	EYEWASH STATION

DRAWING	REFERENCE DRAWINGS	SEE EPIC FOR COMPLETE APPROVAL RECORD
M705-M-181	M705 TANK FOR WATER BASED LEACHING OF REACTIVE WASTE	DO NOT SCALE THIS DRAWING
		APPROVALS
		DATE
		PREFABR
		CHECKER
		FACILITY ENGINEER
		USER
		SAFETY
		RELEASE

NORTHROP GRUMMAN
INNOVATION SYSTEMS SECTOR
FLIGHT SYSTEMS DIVISION, PROMONTORY, UT

M705 WATER BASED LEACH TANK PIPING

SIZE	CASE CODE	DRAWING NO.	REV.
E	07703	M705-M-182	0
SCALE: NOTED	FEO: 582201	SHEET: 1 OF 1	

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