

RETURN BIDS TO:

RETOURNER LES SOUMISSIONS À:

Bid Receiving
PWGSC
33 City Centre Drive
Suite 480
Mississauga
Ontario
L5B 2N5
Bid Fax: (905) 615-2095

Revision to a Request for a Standing Offer

Révision à une demande d'offre à commandes

Regional Individual Standing Offer (RISO)

Offre à commandes individuelle régionale (OCIR)

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Offer remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'offre demeurent les mêmes.

Comments - Commentaires

Vendor/Firm Name and Address

Raison sociale et adresse du
fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution

Public Works and Government Services Canada
Ontario Region
33 City Centre Drive
Suite 480
Mississauga
Ontario
L5B 2N5

Title - Sujet Storage Tanks		
Solicitation No. - N° de l'invitation K3D33-121331/A		Date 2013-03-19
Client Reference No. - N° de référence du client K3D33-121331		Amendment No. - N° modif. 001
File No. - N° de dossier TOR-2-35308 (015)	CCC No./N° CCC - FMS No./N° VME	
GETS Reference No. - N° de référence de SEAG PW-\$TOR-015-6211		
Date of Original Request for Standing Offer		2013-02-21
Date de la demande de l'offre à commandes originale		
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2013-04-03		Time Zone Fuseau horaire Eastern Daylight Saving Time EDT
Address Enquiries to: - Adresser toutes questions à: Abela, Aaron		Buyer Id - Id de l'acheteur tor015
Telephone No. - N° de téléphone (905) 615-2061 ()	FAX No. - N° de FAX (905) 615-2060	
Delivery Required - Livraison exigée		
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction:		
Security - Sécurité This revision does not change the security requirements of the Offer. Cette révision ne change pas les besoins en matière de sécurité de la présente offre.		

Instructions: See Herein

Instructions: Voir aux présentes

Acknowledgement copy required	Yes - Oui	No - Non
Accusé de réception requis	<input type="checkbox"/>	<input type="checkbox"/>
The Offeror hereby acknowledges this revision to its Offer. Le proposant constate, par la présente, cette révision à son offre.		
Signature	Date	
Name and title of person authorized to sign on behalf of offeror. (type or print) Nom et titre de la personne autorisée à signer au nom du proposant. (taper ou écrire en caractères d'imprimerie)		
For the Minister - Pour le Ministre		

Solicitation No. - N° de l'invitation

K3D33-121331/A

Amd. No. - N° de la modif.

001

Buyer ID - Id de l'acheteur

tor015

Client Ref. No. - N° de réf. du client

K3D33-121331

File No. - N° du dossier

TOR-2-35308

CCC No./N° CCC - FMS No/ N° VME

La modification n° 001 à la demande de proposition vise à tenir compte de ce qui suit :

A) Fournir des documents en format PDF de plus haute résolution afin que l'on puisse lire les renseignements en petits caractères pour chacun des dessins .

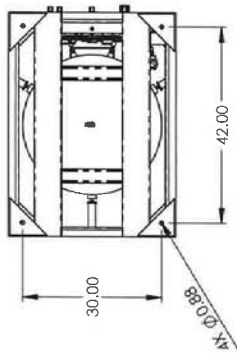
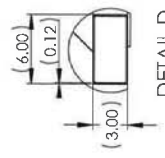
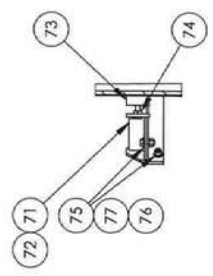
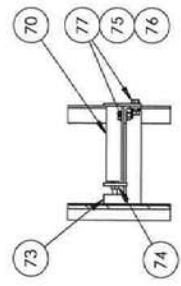
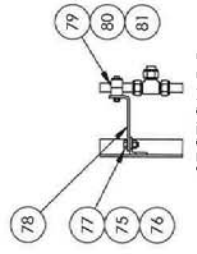
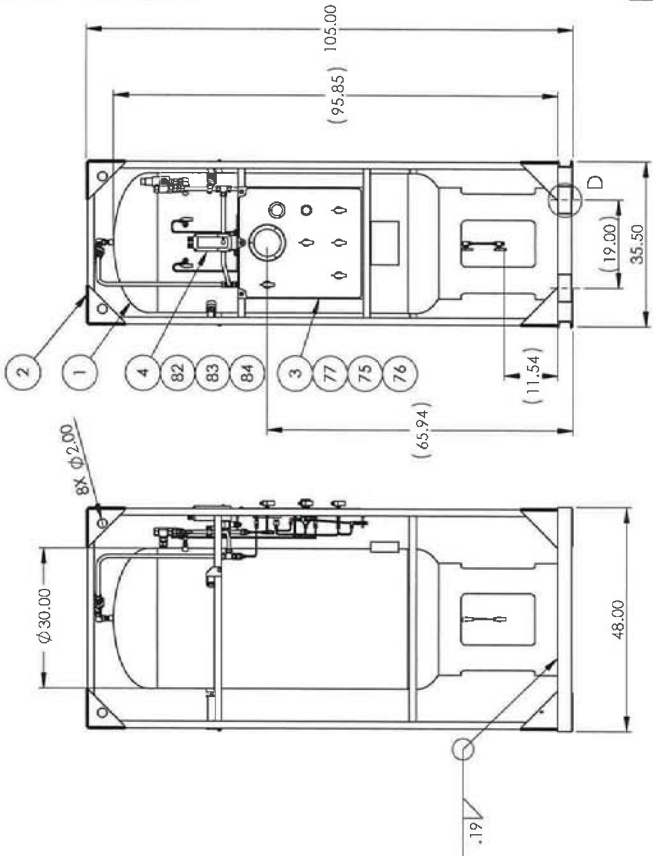
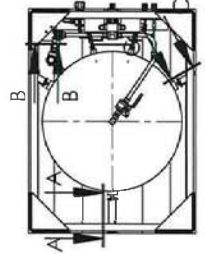
Se reporter au document en pièce jointe.

TOUTES LES AUTRES MODALITÉS DEMEURENT INCHANGÉES



 OCT 22/2012

BILL OF MATERIALS					Notes	
Item	QTY	Part No	MATERIAL	CRN	DESCRIPTION	
1	1	5826 0-0 Vessel	Stainless Steel		Vessel	See dwg UA-TANK-0010-00
2	1	5825-0-0 Frame	SS 304	N/A	Frame	See dwg UA-TANK-0050-00
3	1		See BOM	N/A	Panel	See dwg UA-TANK-0100-00
4	1	ExMax-45 90-SF-A-CSA		NA	Emergency Dump valve actuator - Schiebeck	CSA Cert. 2236405 + SUPP. 23444516 Made with UA-TANK-0200 UA-TANK-0200* using Swagelok SS-MB-63-F05-17/SC-M
70	1				Pad Mount, Rear	
71	1				Pad Mount, Left	
72	1				Pad Mount, Right	
73	3	315-242 (Spaenaur)	Vulcanized Natural Rubber		Foot Pad	
74	3		SS 316		Nut, Hex. Jam - 3/75-16 UNC	
75	22		SS 316		Washer, Narrow - 3/75	
76	11		SS 316		Nut, Hex - 3/75-16 UNC	
77	11		SS 316		Bolt, Hex - 3/75-16 UNC x 1.00	
78	1		SS 304		Mfg Bkt - 18 x 2.50 x 6.00	
79	1	304-SS PA-12T	Polyamide		Clamp Support, Swagelok - 75 Tube	
80	2		SS 316		Washer, Narrow - 250	
81	2		SS 316		Nut, Hex - 25-20 UNF	
82	4		SS 316		Bolt, Hex - 5/16-13 UNC x 1.25	
83	4		SS 316		Nut, Hex - 5/16-13 UNC	
84	8		SS 316		Washer, Narrow - 50	



- NOTES:
- ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED.
 - USE PTFE TAPE ON ALL NPT FITTINGS.
 - USE LOCITITE NICKEL ANTI-SEIZE FOR ALL BOLTED JOINTS.
 - ALL OPENINGS MUST BE CAPPED OR PLUGGED FOR STORAGE AND TRANSPORTATION.

PV Eng
 Precision Vessel Engineering, Ltd.
 100 Bowden Drive, Suite B
 Oakville, Ontario L6M 4K4
 Tel: 905.886.8888
 Fax: 905.886.8889



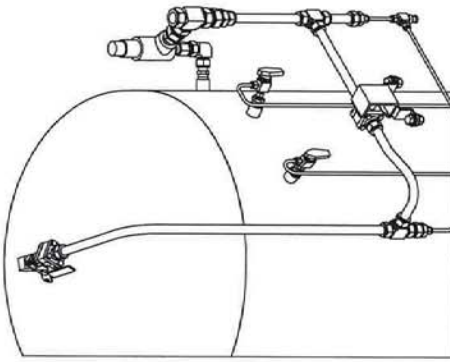
Environment Canada
 Meteorological Service of Canada
 Service Météorologique du Canada

TITLE:
 HYDROGEN STORAGE TANK
 ASSEMBLY
 DRAWING NUMBER:
 UA-TANK-0000-00
 REVISION:
 DATE:

Item	QTY	PartNo	MATERIAL	CRN	DESCRIPTION	Notes
1	1	15226-0.0-Vessel	Stainless Steel		Vessel	See dwg UA-TANK-0010-00
35	1	19198DC01BKE0275 1/2" x 3/4"	Bronze	05787 540125875	Relief Valve - Kunkle 275 psi	
36	1	Swagelok SS-1210-9	SS 316	OA12577.5C	Valve - 750 Tube, 1/4 Turn	
37	2	Swagelok SS-1210-9	SS 316	OA12577.5C	Elbow, 90 - 75 Tube	
38	2	Swagelok SS-1211-PC	SS 316	OA12577.5C	Port Connector - 750 Tube	
39	2	Swagelok SS-12-TA-1-8	SS 316	OA12577.5C	Tube Adapter, Male - 750 OD, 1/2 NPT	
41	1	Swagelok SS-1610-1-12	SS 316	OA12577.5C	Std Male Conn - 1.00 Tube to 3/4 NPT	
42	1	Swagelok SS-1610-3	SS 316	OA12577.5C	Tee, Union - 1.00 Tube	
43	1	Swagelok SS-1610-8-12	SS 316	OA12577.5C	Union - 1.00 Tube, 75 Tube	
44	2	Swagelok SS-1210-3	SS 316	OA12577.5C	Tee Union - 75 Tube	
45	2	Swagelok SS-1210-6-4	SS 316	OA12577.5C	Union - 75 Tube, 25 Tube	
46	1	Swagelok SS-400-3-4-1FT	SS 316	OA12577.5C	Tee, Run, Female - 25 Tube, 1/4 NPT	
47	2	Swagelok SS-43GS4-A-LH-SHD	SS 316	OA12577.5C	Valve - 250 Tube, 1/4 Turn	
48	3	Swagelok SS-4-TA-1-8	SS 316	OA12577.5C	Tube Adapt - 25 Tube 1/2 NPT	
49	2	Swagelok SS-43GS4-LH-SHD	SS 316	OA12577.5C	Valve 2 Way - 25 Tube	
50	1		TP3163161 SMLS	NA	Tube - 750 OD 18 Ga. (049) x 37.59	See Detail on UA-TANK-0012-00
51	1		TP3163161 SMLS	NA	Tube - 750 OD 18 Ga. (049) x 11.36	See Detail on UA-TANK-0012-00
52	1		TP3163161 SMLS	NA	Tube - 750 OD 18 Ga. (049) x 9.44	
53	1		TP3163161 SMLS	NA	Tube - 750 OD 18 Ga. (049) x 9.69	
54	1		TP3163161 SMLS	NA	Tube - 750 OD 18 Ga. (049) x 4.00	See Detail on UA-TANK-0012-00
56	1		TP3163161 SMLS	NA	Tube - 250 OD 20 Ga. (035) x 38.09	
57	1		TP3163161 SMLS	NA	Tube - 250 OD 20 Ga. (035) x 9.29	See Detail on UA-TANK-0012-00
58	1		TP3163161 SMLS	NA	Tube - 250 OD 20 Ga. (035) x 34.68	See Detail on UA-TANK-0012-00
59	1		TP3163161 SMLS	NA	Tube - 250 OD 20 Ga. (035) x 3.72	
60	1		TP3163161 SMLS	NA	Tube - 250 OD 20 Ga. (035) x 23.55	See Detail on UA-TANK-0012-00
61	1		TP3163161 SMLS	NA	Tube - 250 OD 20 Ga. (035) x 6.00	
62	1		SA-182 F316S16L	NA	Plug - 1/4 NPT	
63	2	Swagelok SS-1611-PC	SS 316	OA12577.5C	Connector, Port - 1.00 Tube	
64	1	Swagelok SS-12-TA-7.8	SS 316	OA12577.5C	Tube Adapt, Fem - 75 Tube, 3/4 NPT	

NOTES:

1. ALL COMPONENTS ARE SWAGELOK SUPPLY UNLESS OTHERWISE NOTED.
2. ASSEMBLY BY SWAGELOK TRAINED TECHNICIAN ONLY
3. USE PTFE TAPE ON ALL NPT FITTINGS.
4. USE LOCITITE ANTI-SEIZE ON ALL BOLTED JOINTS.
5. USE ONLY SEAMLESS TUBING.



VIEW E



Environment
Canada
Meteorological Service of Canada
Service Météorologique du Canada

TITLE:

HYDROGEN STORAGE TANK

DRAWING NUMBER:

UA-TANK-0010-00

REVISION:

DATE:

BILL OF MATERIALS		
ITEM	QTY	MATERIAL
5	1	Shell - 30.00 OD, 31 THK, 54.00 Long
6	2	Head Nemo-50 Imperial - 30.00 OD, 2.1", .312 THK, SA-240 316
7	1	Skirt - 24.00 OD, 1.1 THK, 25.75 Long
8	5	Threading Full Coupling, Class 3000, 0.50 NPS
9	1	Bracket, Nameplate
		SS

NOTES:

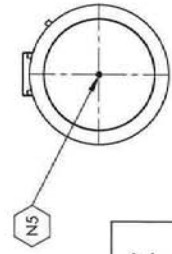
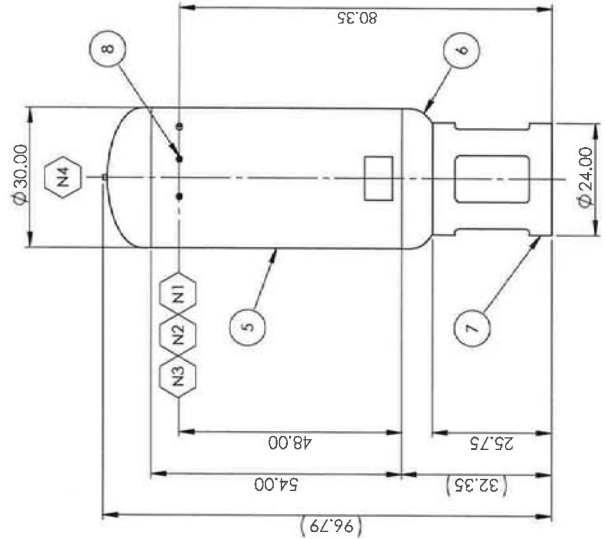
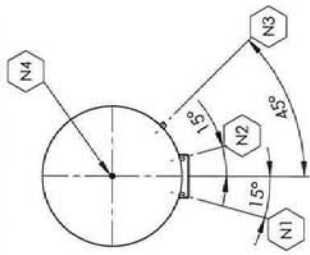
- All dimensions in inches.
- All welds shall be neat in appearance, free from slag and other defects.
- Vessel to be cleaned of scale, oil, weld spatter and all other foreign material, prior to hydrostatic test.
- All welds to be tested by radiography.
- Maximum misalignment of flange joints is limited to .25T (Category A, B, C, D up to 1/2" thick).
- All couplings conform to B16.11 standards.
- Nozzle elevations are critical.
- Material used for nozzle and fittings.
- All unspecified welds to be .25" fillet.
- Welding in accordance with ASME Section IX.
- Nameplate bracket by fabricator.
- External surfaces of the tank and skirt to have a uniform glass bead finish.

DESIGN DATA	
Code	Design Code: ASME VIII-1 2010 ed. 2011 add.
	Seismic Code: UBC-1197
	Wind Code: N/A
Design Conditions	
MAWP - Int. Ext.	300 / 0 psi @ 122 °F
MDMT: -45 °F @ 300 psi	
Corrosion Allowance	0 in. For non-corrosive service
Examination	
Impact Testing	Exempt per UHA-51(d)
Radiography	RT 3: Spot Long and Circ seams
PWHT:	None
Hydro Test:	990 psi
Service	
Fluid:	Hydrogen gas
Capacity:	26.6 cu. ft./199 Gal/753.3 L
Weight - Empty:	730 lb
Weight - Operating:	880 lbs

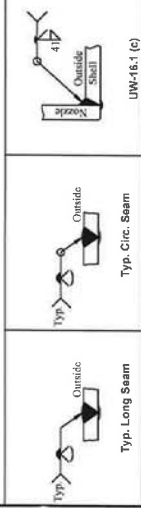


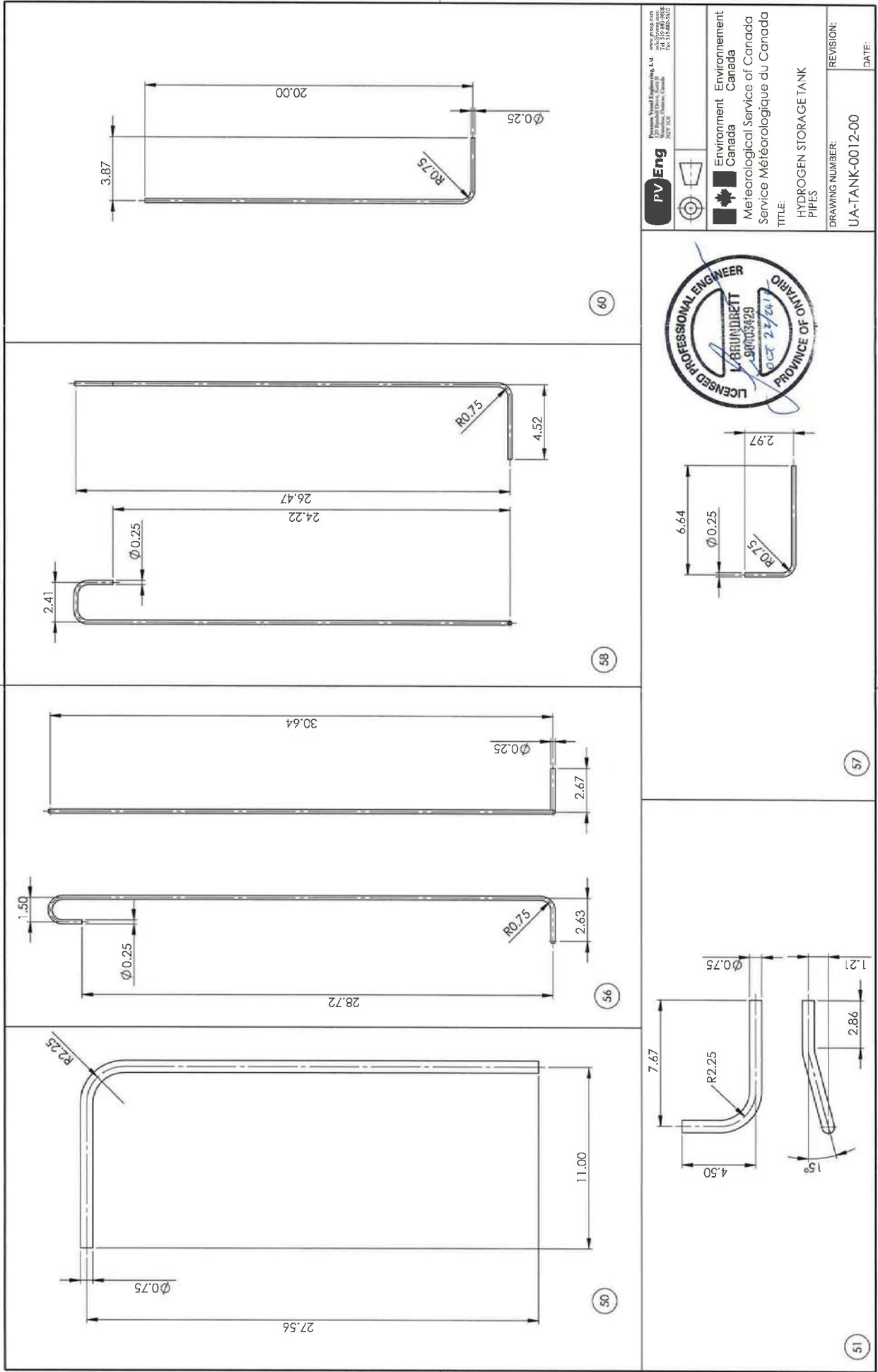
Environment
Canada
Meteorological Service of Canada
Service Météorologique du Canada

TITLE:	HYDROGEN STORAGE TANK VESSEL
REVISION:	UA-TANK-001 1-00
DATE:	



NOZZLE		WELDS		BOM ITEM #
Mark	Size	Qty	Type	
N1	1/2"	1	Input	41
N2	1/2"	1	Output	42
N3	1/2"	1	Relief	43
N4	1/2"	1	Purge	44
N5	1/2"	1	Drain	45





PV Eng
Petersen Vent Engineering, Ltd.
1000 Highway 10, Suite 100
Windsor, Ontario, Canada
N9A 6K5
Tel: 519-940-7888
Fax: 519-940-5813

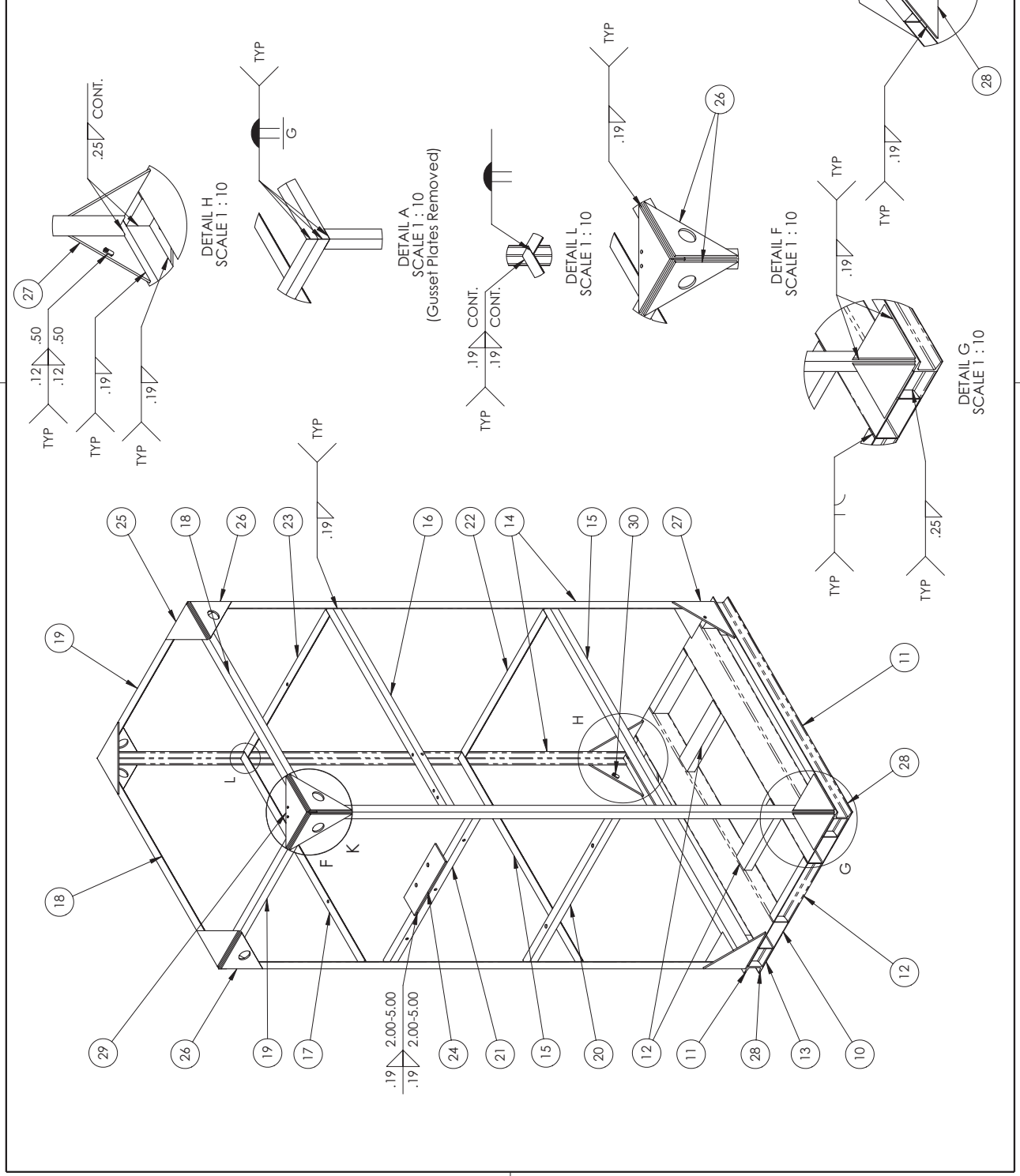


Environment Canada
Meeteorological Service of Canada
Service Météorologique du Canada

TITLE:
HYDROGEN STORAGE TANK
PIPES

REVISION:
DRAWING NUMBER:
UA-TANK-0012-00
DATE:

BILL OF MATERIALS			
Item	QTY	DESCRIPTION	MATERIAL
10	2	Tube, Rect. - 6.00 x 3.00 x .12 x 48.00	SS 304
11	2	Channel - C3 x 5 x 48.00	SS 304
12	4	Channel - C3 x 5 x 13.00	SS 304
13	4	Channel - C3 x 5 x 4.00	SS 304
14	4	Angle - 1.50 x 1.50 x .19 x 100.00	SS 304
15	2	Angle - 1.50 x 1.50 x .19 x 46.50	SS 304
16	1	Angle - 1.50 x 1.50 x .19 x 46.50	SS 304
17	1	Angle - 1.50 x 1.50 x .19 x 47.00	SS 304
18	2	Angle - 1.50 x 1.50 x .19 x 35.00	SS 304
19	2	Angle - 1.50 x 1.50 x .19 x 34.50	SS 304
20	1	Angle - 1.50 x 1.50 x .19 x 32.00	SS 304
21	1	Angle - 1.50 x 1.50 x .19 x 32.00	SS 304
22	1	Angle - 1.50 x 1.50 x .19 x 32.00	SS 304
23	1	Angle - 1.50 x 1.50 x .19 x 32.00	SS 304
24	1	Plate, Cover - .25 x 4.00 x 24.50	SS 304
25	9	Plate, Gusset - .25 x 8.00 x 8.00	SS 304
26	8	Plate, Lifting - .25 x 8.00 x 8.00	SS 304
27	2	Plate, Grd Lug - .25 x 8.00 x 8.00	SS 304
28	4	Plate, Mounting - .25 x 8.00 x 8.00	SS 304
29	1	Plate, Brkt Mtg - .25 x 8.00 x 8.00	SS 304
30	2	Weld Nut, Offset - 3/5-16 UNC (94581A148)	18-8 SS



NOTES:

1. ESTIMATED WEIGHT: 320 LBS
2. ALL WELDS CONTINUOUS UNLESS OTHERWISE STATED
3. FIT-UP AND EDGE PREP AS REQUIRED
4. ALL WELDS TO BE NEAT AND CLEAN IN APPEARANCE
5. DE-BURR ALL HOLES AND REMOVE SHARP EDGES
6. EXTERNAL SURFACES OF THE FRAME TO HAVE A UNIFORM GLASS BEAD FINISH.

Primeval Asset Engineering Ltd.
 www.pveng.com
 Tel: 516-880-0808
 Fax: 516-880-0809
 142-111-0809

Environment Canada
 Meteorological Service of Canada
 Service Météorologique du Canada

TITLE:

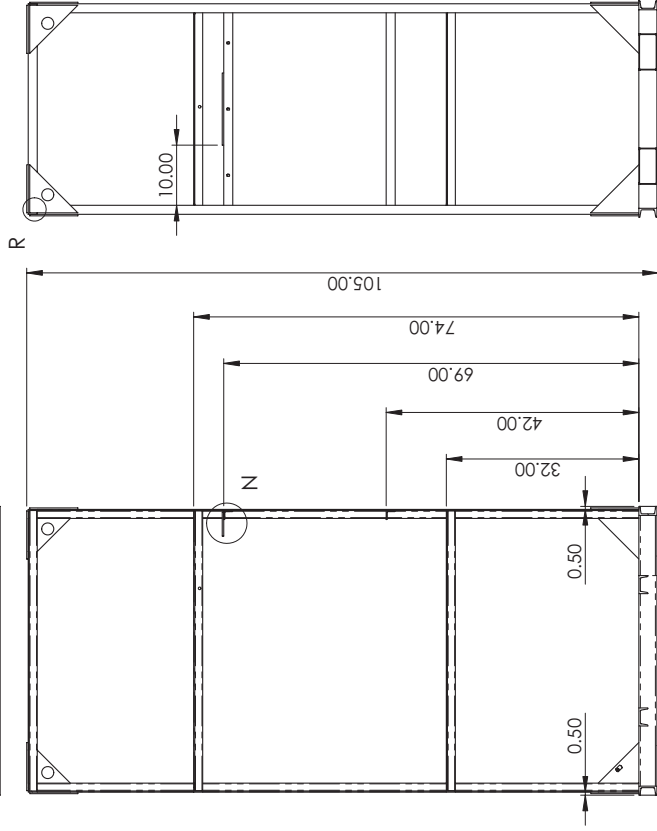
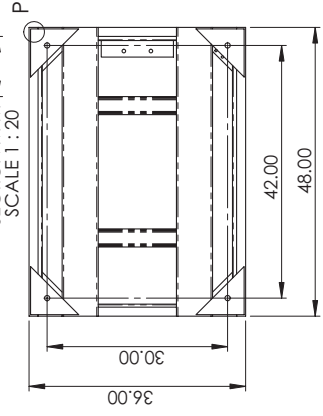
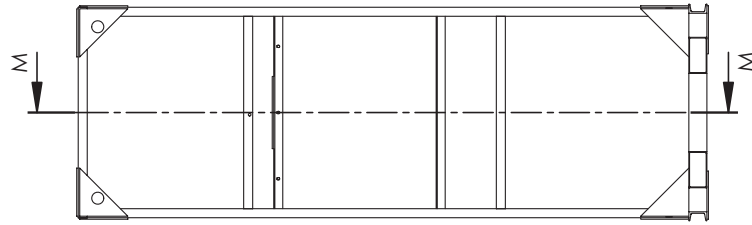
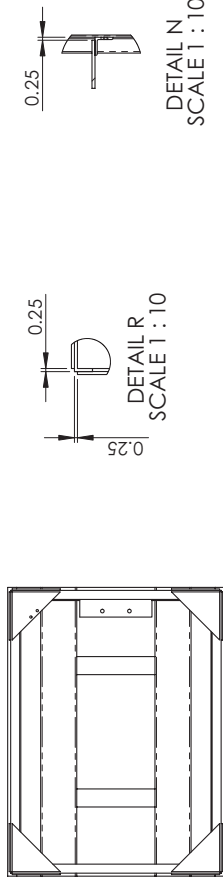
HYDROGEN STORAGE TANK FRAME COMP.

DRAWING NUMBER:

UA-TANK-0050-00

REVISION:

DATE:



NOTES:

PV Eng
Pavane-Viret Engineering Ltd.
www.pve.com
100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

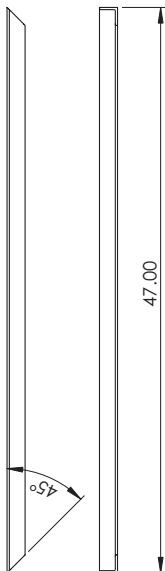
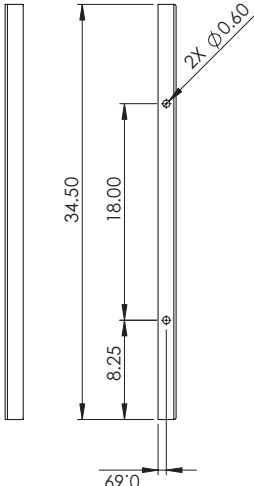
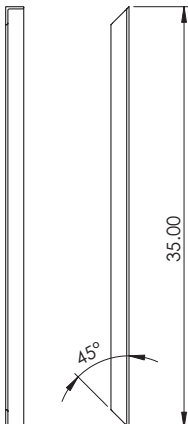
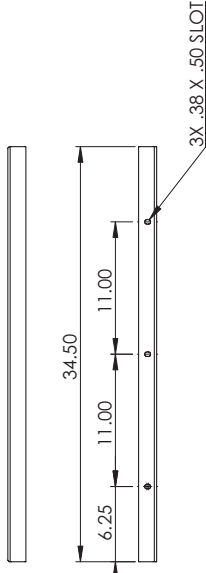
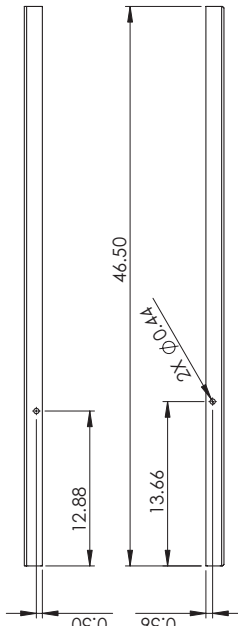
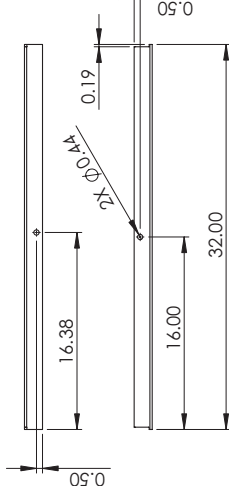
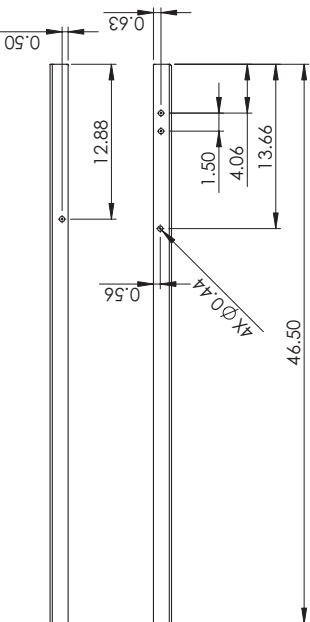
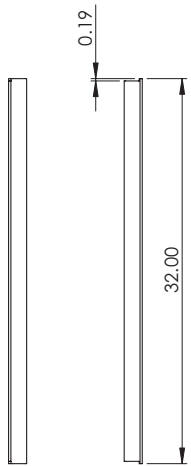




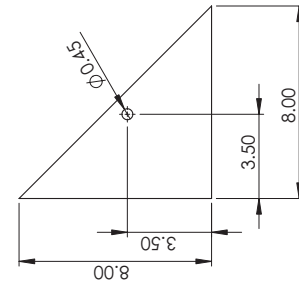
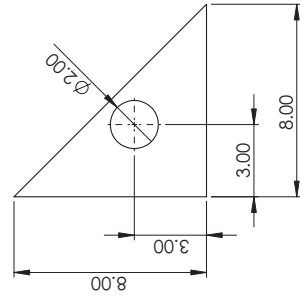
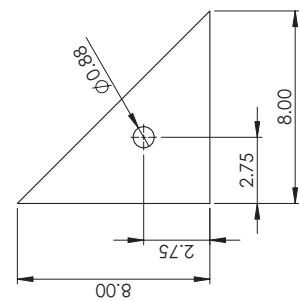
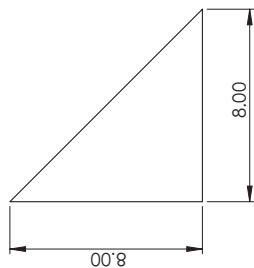
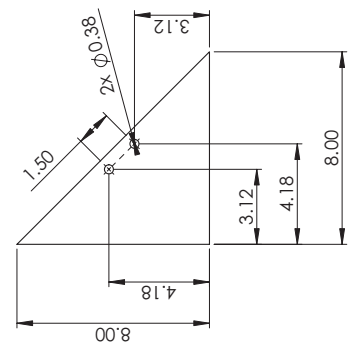
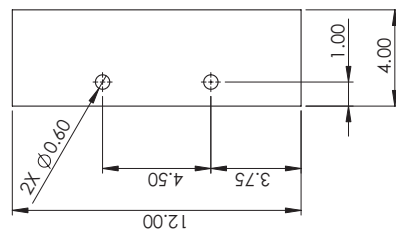
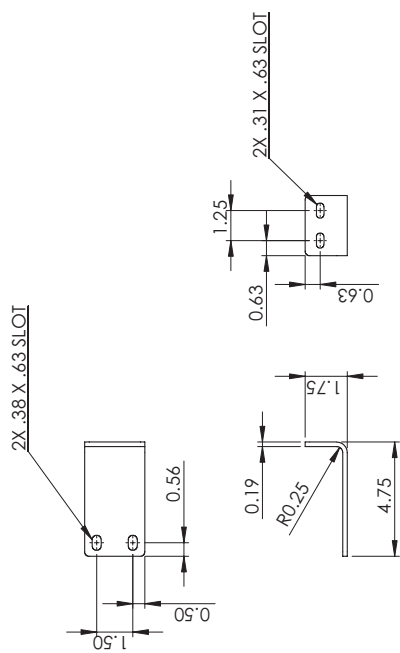
Environment Canada
Météorological Service of Canada
Service Météorologique du Canada

TITLE:
HYDROGEN STORAGE TANK
FRAME

DRAWING NUMBER:
UA-TANK-0051-00

REVISION:
DATE:

 <p>(18)</p>	 <p>(20)</p>
 <p>(19)</p>	 <p>(21)</p>
 <p>(17)</p>	 <p>(23)</p>
 <p>(16)</p>	 <p>(22)</p>
<div>NOTES:</div>	
<div><div><div>PV Eng Pinnacle View Engineering Ltd. www.pveng.com Tel: 516-830-0808 14211 14th Ave Markham, Ontario, Canada M3J 1G5</div><div>Environment Canada Meteorological Service of Canada Service Météorologique du Canada TITLE: HYDROGEN STORAGE TANK FRAME CROSS MEMBERS</div></div><div>DRAWING NUMBER: UA-TANK-0052-00</div><div>REVISION: DATE:</div></div>	



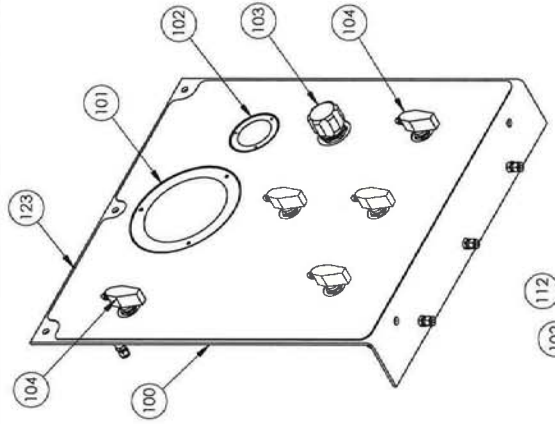
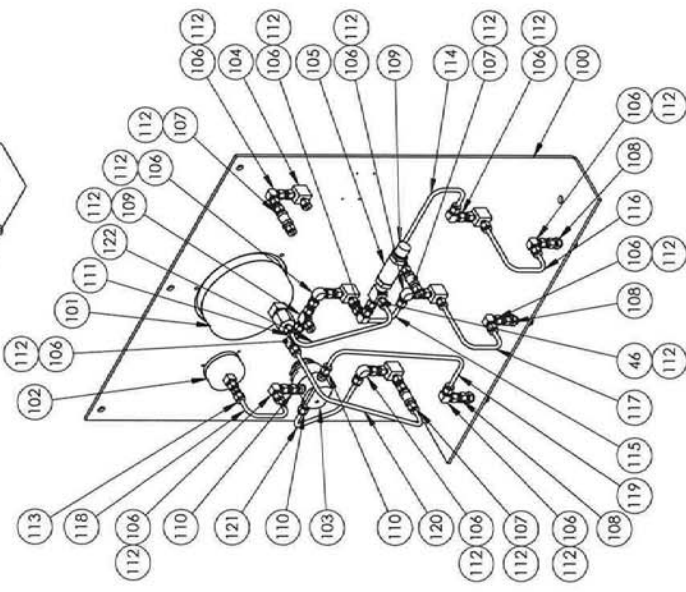
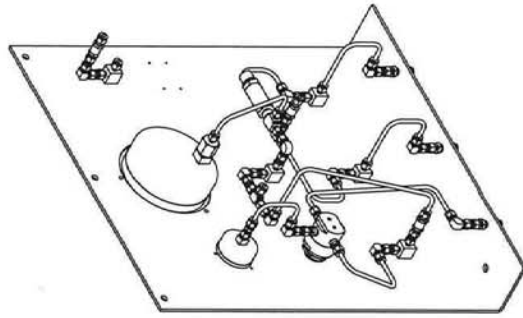
NOTES:



BILL OF MATERIALS					DESCRIPTION		Notes	
Item	QTY	PartNo	MATERIAL	CRN				
100	1	UA-TANK-0101	SS 304		Panel Plate		See dwg UA-TANK-0101-00	
101	1	Swagelok PGI-60B-PC300-BAPX-RGJ	SS 316	OF02026 2C	6" DIAL PRESSURE GAUGE (UP TO 300PSI WITH DIAL SCALE)		FRONT FLANGE MOUNTING	
102	1	Swagelok PGI-63B-PC300-CAQX-RGJ	SS 316	OF02026 2C	2.5" DIAL PRESSURE GAUGE TO 300PSI DIAL SCALE		FRONT FLANGE MOUNTING	
103	1	Swagelok KPRJG1C417A600HK	SS 316	OC6054 SC	SS REGULATOR WITH GAUGE OUTLET			
104	5	Swagelok SS-4GS-A-LL	SS 316	OC6054 SC	BALL VALVE WITH LATCH LOCK HANDLE		VERTICAL ORIENTATION OF HANDLE IS OPEN	
105	1	WIK A F-10-A-PBI-NB-7G2X67-ZZ			4-20mA, 2 WIRE 1/4" NPT 300PSI SENSING EXPLOSION PROOF CSA CERTIFIED CLASS II, III		PTFE TAPE TO BE USED ON ALL NPT FITTINGS	
106	11	Swagelok SS-400-9	SS 316	OA12577 SC	Elbow, 90° - 25 Tube			
107	3	Swagelok SS-4C-PP-1	SS 316	OC12577 SC	0.25" TUBE CHECK VALVE WITH 1PSI CRACKING PRESSURE		FLOW DIRECTION IS CRITICAL	
108	3	Swagelok SS-400-61	SS 316	OA12577 SC	Bulkhead Union - 25 Tube			
109	2	Swagelok SS-400-3	SS 316	OA12577 SC	Tee, Union - 25 Tube			
110	3	Swagelok SS-400-1-4	SS 316	OA12577 SC	Str Male Conn - 25 Tube to 1/4 NPT			
111	1	Swagelok SS-400-2-8	SS 316	OA12577 SC	Str Fem Conn - 25 Tube to 1/2 NPT			
112	16	Swagelok SS-401-PC	SS 316	OA12577 SC	Port Connector - 25 Tube			
113	1	Swagelok SS-400-6	SS 316	OA12577 SC	Union - 25 Tube			
46	1	Swagelok SS-400-3-41F-T	SS 316	OA12577 SC	Tee, Run, Female - 25 Tube, 1/4 NPT			
114	1		SA-213		Tube - 250 OD 20 Ga (035) x -9.36			
115	1		SA-213		TUBE 250 OD 20 Ga (035) X-9.36			
116	1		SA-213		TUBE 250 OD 20 Ga (035) X-8.50			
117	1		SA-213		TUBE 250 OD 20 Ga (035) X-8.50			
118	1		SA-213		TUBE 250 OD 20 Ga (035) X-6.65			
119	1		SA-213		Tube - 250 OD 20 Ga (035) x -14.30			
120	1		SA-213		Tube - 250 OD 20 Ga (035) x -15.62			
121	1		SA-213		Tube - 250 OD 20 Ga (035) x -9.33			
122	1		SA-213		Tube - 250 OD 20 Ga (035) x -9.97			
123	1	UA-TANK-0199	TP316/316L SMLS		Label - Hydro Tank Panel		See dwg UA-TANK-0199-00	

Notes:

- The manufacturer shall have a valid certificate of authorization to assemble and register category H fittings in accordance with CSA B51
- PTFE tape to be used on all NPT connections
- Use Loctite Nickel Anti-seize on all bolted joints
- All tubing shall be deburred
- Assembly by Swagelok trained technician only
- Each assembly manufactured shall be pneumatically pressure tested to 300 psi with helium in accordance with ASME B31.3. Each joint shall be verified leak free by applying Swagelok Snoop, no bubbles permitted.
- Use only seamless tubing
- Only use stainless steel fasteners and nylock nuts for the pressure gauges
- All components are Swagelok supply unless otherwise noted
- Logo plate to be fixed with stainless steel rivets after assembly, refer to dwg UA-TANK-0198.



P. V. Eng
 1000 Yonge Street
 Suite 100
 Toronto, Ontario M5E 1B5
 Tel: 416-593-8888
 Fax: 416-593-8889

Environment
 Canada
 Meteorological Service of Canada
 Service Météorologique du Canada

TITLE:

HYDROGEN STORAGE TANK
PANEL ASSEMBLY

DRAWING NUMBER:

UA-TANK-0100-00

REVISION:

DATE:



REVISION HISTORY:			
REV	DESCRIPTION	DATE	INITIALS
00	INITIAL RELEASE	26SEP2012	J/A
01	Outlet Gauge Size update	14NOV2012	J/A

NOTES:
 1) THICKNESS IS 3/16" MATERIAL IS 304 STAINLESS STEEL
 2) INNER BEND RADIUS IS 3/16"
 3) REMOVE ALL SHARP EDGES AND BURRS
 4) PROTECT SURFACE DURING FABRICATION TO ENSURE NO DAMAGE

TOLERANCES UNLESS OTHERWISE SPECIFIED:
 FROM 30.0mm TO 59.9mm = $\pm 0.25\text{mm}$
 $\pm 0.005"$
 ALL RADII = $\pm 1.0\text{mm}$
 ALL ANGLES = $\pm 1.0^\circ$

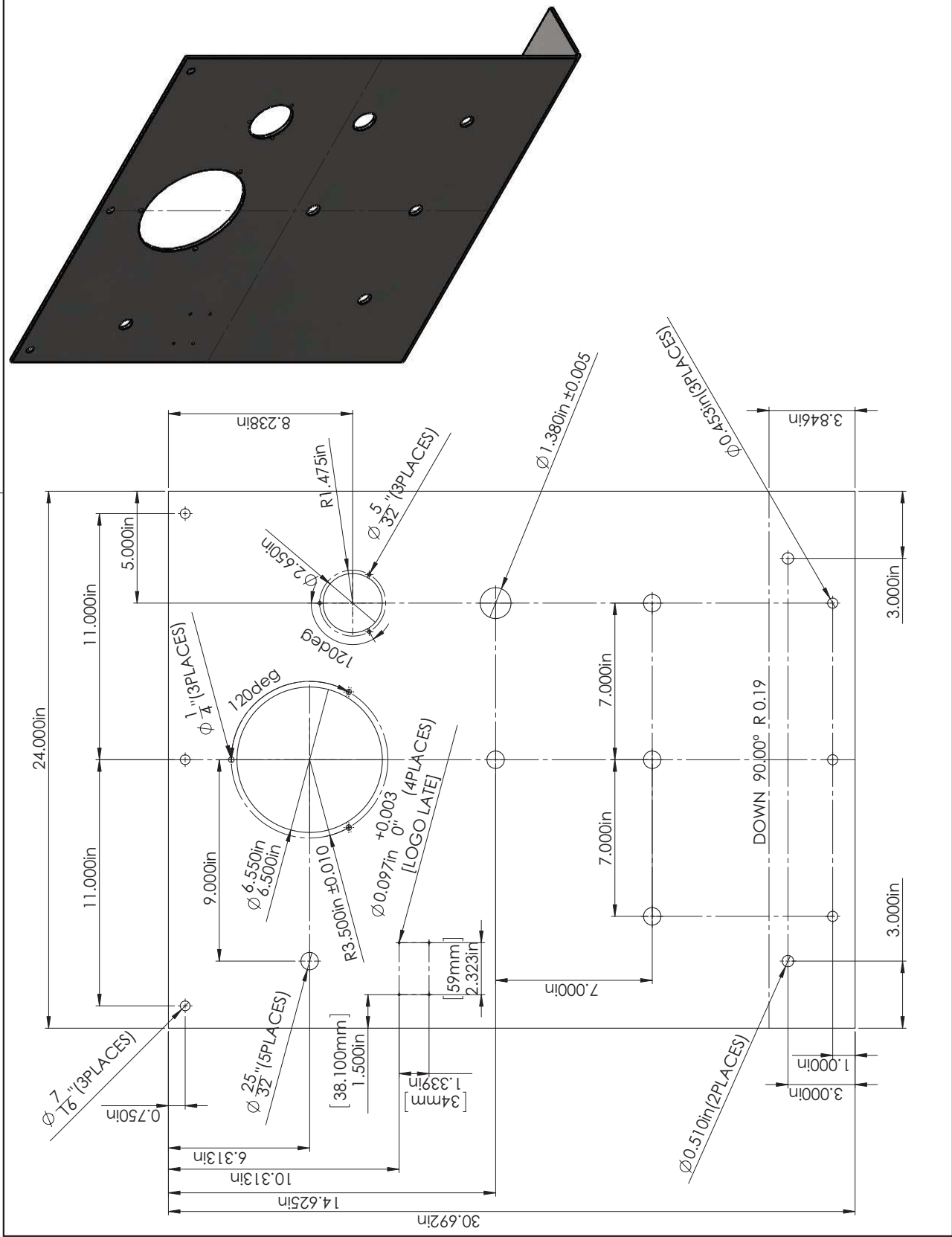
DESIGN: JEFF ANDERSON 14NOV2012
 APPROVED: PETER LEJBUK 14NOV2012
 MATERIAL: NOTED

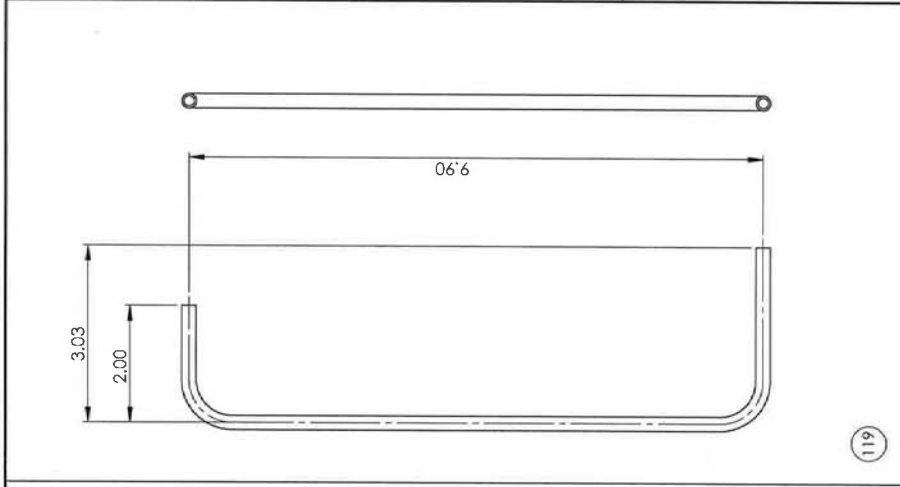
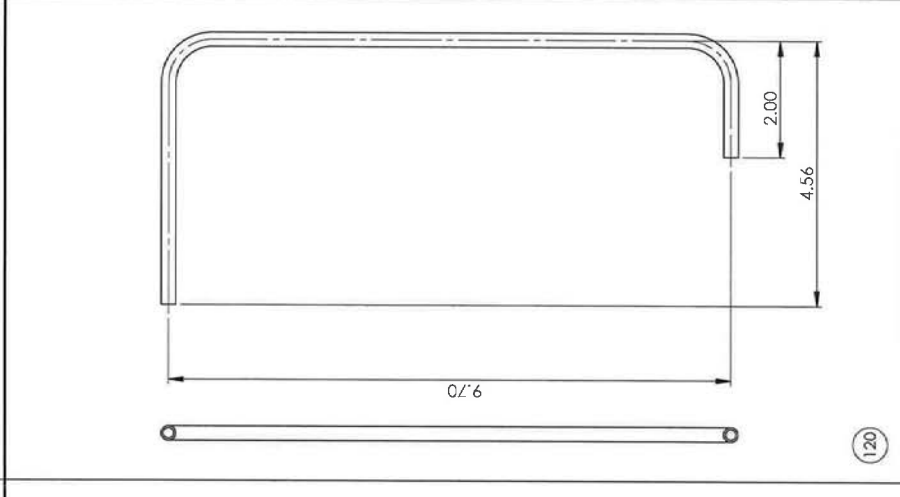
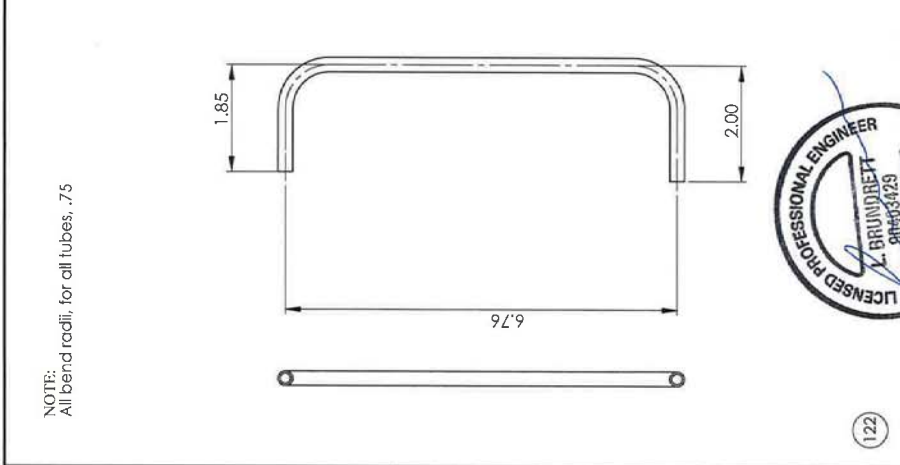
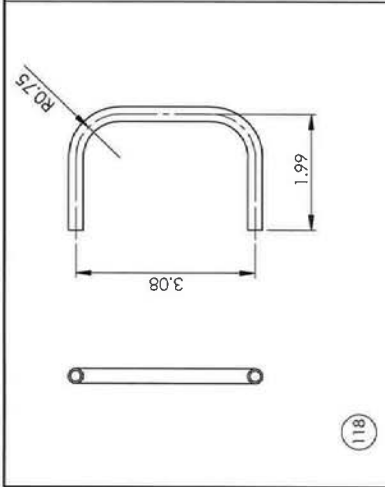
FINISH: AS SUPPLIED
 ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED

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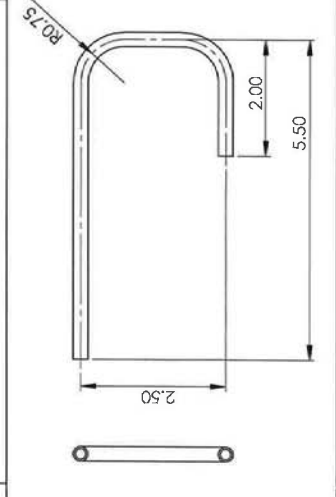
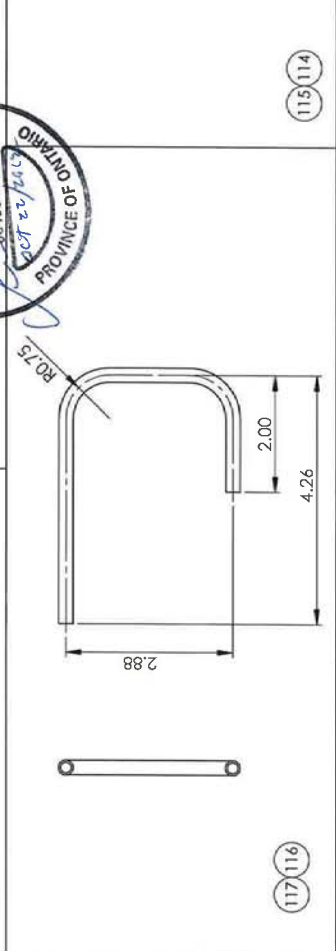
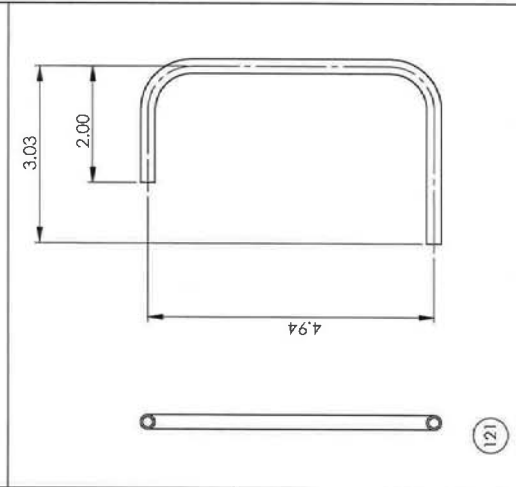
TITLE: HYDROGEN TANK PANEL

DRAWING NUMBER: UA - TANK - 0101 - 01
 REVISION: 01





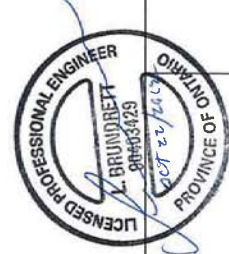
NOTE:
All bend radii, for all tubes, .75



pV Eng
Professional Engineering Ltd.
1000 Yonge Street, Suite 100
Toronto, Ontario, Canada
M4Y 1G8
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Environment Canada
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Service Météorologique du Canada

TITLE: HYDROGEN STORAGE TANK PIPES
DRAWING NUMBER: UA-TANK-0102-00
REVISION: DATE:



Technical drawing of a rectangular plate with the following dimensions and features:

- Overall width: 2.56
- Overall height: 1.57
- Top edge features:
 - Left corner: 0.12
 - Right corner: 0.12
- Bottom edge features:
 - Left corner: 0.12
 - Right corner: 0.12
- Internal dimensions:
 - Distance from top-left corner to center of top-left hole: 2.32 ± 0.02
 - Distance from bottom-left corner to center of bottom-left hole: 1.34 ± 0.02
- Holes:
 - Top-left hole: $\phi 0.09$
 - Bottom-left hole: $\phi 0.09$
- Text on the plate:
 - "LOGO"
 - CRN XXXXXXXC
 - S/N: UA-H2-TANK-XXXX
 - P/N: UA-TANK-0000
 - HYDROGEN STORAGE SYSTEM
 - MANUFACTURER NAME
 - PHONE NUMBER

REV	DESCRIPTION	DATE	INITIALS

- 1) PLATE THICKNESS 16 gauge
MATERIAL 304SS
- 2) "LOGO" TO BE REPLACED
WITH COMPANY TRADEMARK
- 3) CRN NUMBER TO BE COMPLETED BY
REPLACING X
- 4) MANUFACTURER NAME TO BE
REPLACED WITH COMPANY NAME
INCLUDING TELEPHONE NUMBER
- 5) SERIAL NUMBER (S/N) TO BE
COMPLETED BY REPLACING X ONLY
- 6) PART NUMBER AND HYDROGEN
STORAGE SYSTEM NOT TO BE CHANGED
- 7) SAMPLE TO BE SENT TO
ENVIRONMENT CANADA FOR
APPROVAL

DESIGN: JEFF ANDERSON	25OCT2012
APPROVED: PETER LEIJBUK	25OCT2012
MATERIAL: LISTED	

AS FINISHED

Meteorological Service of Canada
Service Météorologique du Canada

STORAGE TANK, PANEL
LOGO PLATE

UA-TANK-0198

REVISION HISTORY:			
REV	DESCRIPTION	DATE	INITIALS
00	INITIAL RELEASE	30OCT2012	J.A

NOTES:

- 1) REMOVE ALL SHARP EDGES AND BURRS

TOLERANCES UNLESS OTHERWISE SPECIFIED:
 $\pm 0.01"$
 ALL RADII = ± 0.025
 ALL ANGLES = $\pm 1.0^\circ$

DESIGN: JEFF ANDERSON
 03OCT2012

APPROVED: PETER LEJBUK
 04OCT2012

MATERIAL: ALUMINIUM 6061

FINISH: AS SUPPLIED

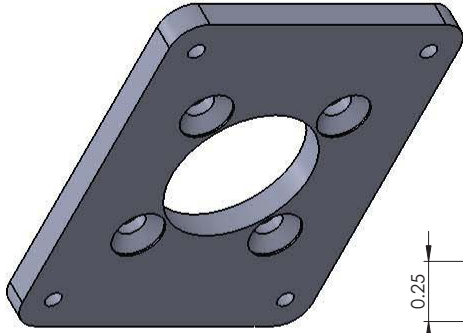
ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED

Environment Canada
 Meteorological Service of Canada
 Service Météorologique du Canada

TITLE: HYDROGEN TANK, ACTUATOR PLATE

DRAWING NUMBER: UA - TANK - 0200 - 00

REVISION: 00



0.25

0.02

A

DETAIL A

$\phi 0.26(4 \text{ PLACES})$
 COUNTERSINK FOR M6
 FLAT HEAD SCREW

3.54

2.91

0.31

0.30

$\phi 0.16(4 \text{ PLACES})$

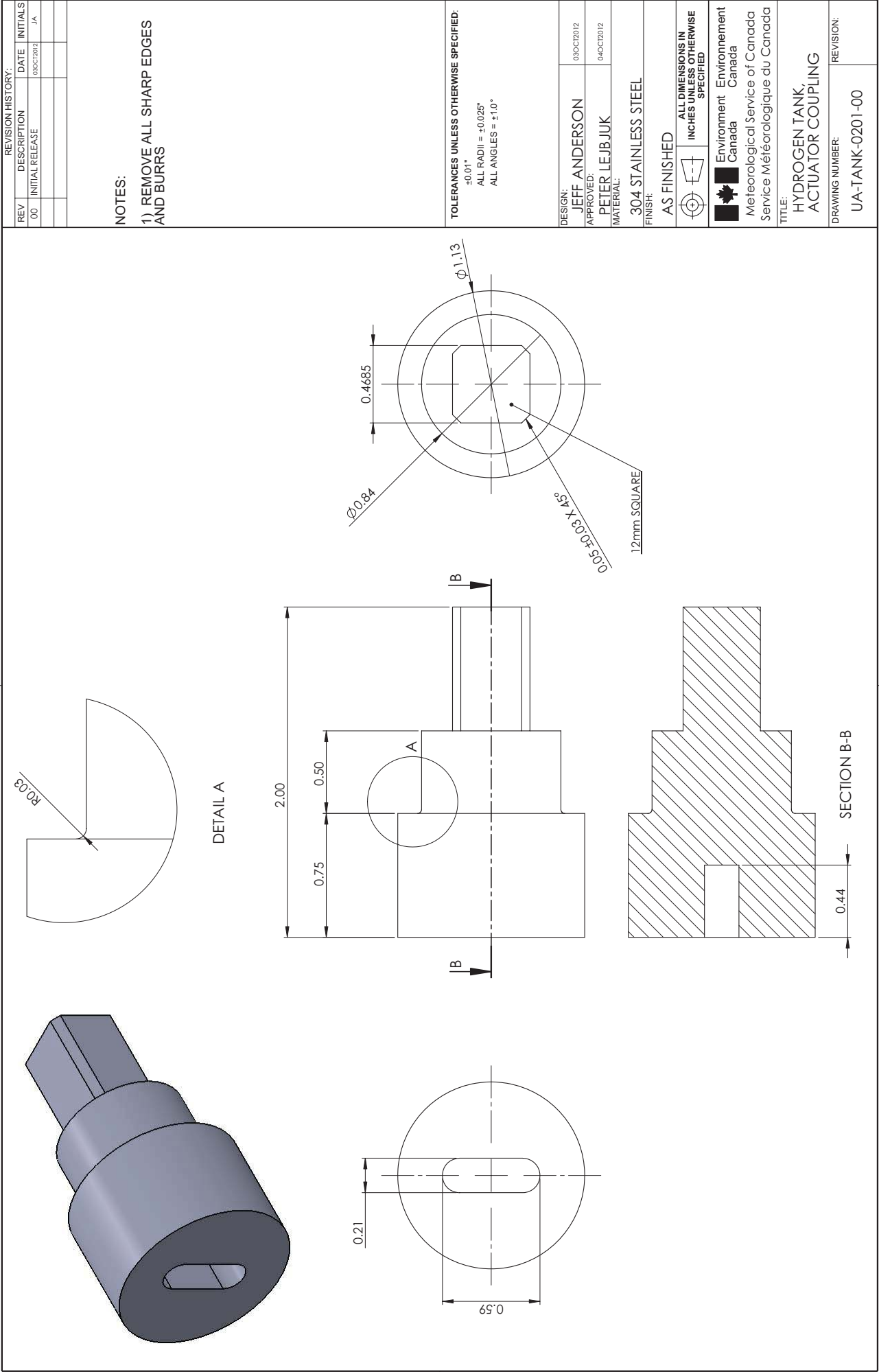
$\phi 1.97$

$\phi 1.42$

2.95

2.36

R0.28



REVISION HISTORY:			
REV	DESCRIPTION	DATE	INITIALS
00	INITIAL RELEASE	03/01/2012	JA
NOTES:			
1) REMOVE ALL SHARP EDGES AND BURRS			
TOLERANCES UNLESS OTHERWISE SPECIFIED: ±0.01" ALL RADII = ±0.025" ALL ANGLES = ±1.0°			
DESIGN:	JEFF ANDERSON	03/01/2012	
APPROVED:	PETER LEJBJUK	04/01/2012	
MATERIAL:	304 STAINLESS STEEL		
FINISH:	AS FINISHED		
	ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED		
	Environment Canada Metéorological Service of Canada Service Météorologique du Canada		
TITLE:	HYDROGEN TANK ACTUATOR COUPLING		
DRAWING NUMBER:	UA-TANK-0201-00	REVISION:	

