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ENGINEERING DATA TRANSMITTAL

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2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) TWRS Projects/SST Retrieval	4. Related EDT No.: n/a
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8. Originator Remarks: For approval and release of a new supporting document. This document has been generated to ensure retrievability of the Project W-320 "Master Calculation List".		9. Equip./Component No.: n/a
		10. System/Bldg./Facility: 241-C-106
11. Receiver Remarks: 11A. Design Baseline Document? [] Yes [X] No		12. Major Assm. Dwg. No.: n/a
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		14. Required Response Date:

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Designator	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	HNF-2527	-	0	Project W-320, 241-C-106 Sluicing, Master Calculation List	NA			-

16. KEY

Approval Designator (F)	Reason for Transmittal (G)		Disposition (H) & (I)	
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 2. Release 3. Information	4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment	4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION
(See Approval Designator for required signatures)

(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN
2	1	Design Authority	JW Bailey	8/6/98	S2-48						
		Design Agent									
2	1	Cog.Eng.	MC Davenport	8/6/98	S2-48						
2	1	Cog. Mgr	JW Bailey	8/6/98	S2-48						
		QA									
		Safety									
		Env.									

18. M.C. Davenport 8/6/98 Signature of EDT Originator / Date	19. Authorized Representative for Receiving Organization / Date	20. J.W. Bailey 8/6/98 Design Authority/ Cognizant Manager / Date	21. DOE APPROVAL (if required) Ctrl. No. [] Approved [] Approved w/comments [] Disapproved w/comments

Project W-320, 241-C-106 Sluicing, Master Calculation List

John W. Bailey
Numatec Hanford Co., Richland, WA 99352
U.S. Department of Energy Contract DE-AC09-96RL13200

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Key Words: W-320, Sluicing, Tank 241-C-106, Tank 241-AY-102, Calculation, WRSS.

Abstract: This supporting document has been prepared to make the "Master Calculation List" readily retrievable.

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ID: 25

Release Approval Date Release Stamp

Approved for Public Release

Project W-320 Master Calculation List

	Calc No. W-320-	Rev	Status	Discpl	Calculation Title	Originator	Comments	Issued Under HNF-
1	21-001	0	As-Built	Civ/ Struct	Drainage Run-Off - Size Culverts	PC Brinkman	Site work:	2461
2	21-002	0	App'd	Civ/ Struct	Site Drainage- Interfarm & C-Farm	MR Custer	Site work:	2461
3	24-001	1	As-Built	Civ/ Struct	Cold Test Facility Mock-ups	JG Rupert	Equipment Removal Sys: W-106 Caisson, retained for record only and not listed on the drawing index	2461
4	24-002	1	As-Built	Civ/ Struct	Flex. Receiver Suppt & Shielded Work Platform - sluicing Pit 241-AY-02B		Equipment Removal Sys: Pit 241-AY-02B, retained for record only and not listed on the drawing index	2462
5	24-003	1	As-Built	Civ/ Struct	Flexible Receiver Suppt & Shielded Work Platform - Pump Pit 241-CR-06A	MB Lasota	Equipment Removal Sys: Pit 241-CR-06A, retained for record only and not listed on the drawing index	2463
6	24-004	1	As-Built	Civ/ Struct	Flexible Receiver Suppt & Shielded Work Platform - Heel Pit 241-CR-06B	MB Lasota	Equipment Removal Sys: Pit 241-CR-06B	2464
7	24-005	0	As-Built	Civ/ Struct	Design Two Electrical Equipment Skids and One Concrete Slab	JG Rupert	Equipment Removal Sys: Transfer Switch/Breakers Skid; XFMR/Breaker Skid	2461
8	24-006	0	As-Built	Civ/ Struct	Distribution Panel Skid & Pad Design	JR Booth	Equipment Removal Sys: Distribution Panel Skid	2461
9	24-007	0	As-Built	Civ/ Struct	Design Bracket that Clamps to a Crane Boom to Support a Camera Pan/Tilt	JG Rupert	Equipment Removal Sys: Camera Pan Tilt, retained for record only and not listed on the drawing index	2461
10	24-008		Not Used		Not Used		Not Used	NA
11	24-009		Not Used		Not Used		Not Used	NA
12	24-010		Not Used		Not Used		Not Used	NA
13	24-011	1	As-Built	Civ/ Struct	Pump Pit C-06A Analysis and Cover Block Design	MB Lasota	C-Farm: Pit C-06A; ECN W-320-192	2465
14	24-012		Not Used		Not Used		Not Used	NA
15	24-013	0	App'd	Civ/ Struct	Sluice Pit C-06C Analysis Of The Pit Wall	MB Lasota	C-Farm: Pit C-06C; See Calc W-320-24-011	2465
16	24-014	1	As-Built	Civ/ Struct	Process Building & Equipment Skid Foundation	MR Custer	C-Farm: 241-C-91; Non-Complex SC3 Structure	2465

Project W-320 Master Calculation List

	Calc No. W-320-	Rev	Status	Discpl	Calculation Title	Originator	Comments	Issued Under HNF-
17	24-015	1	App'd	Civ/ Struct	241-C-106 Dome Load Summary Report	RW Davidson	C-Farm: Tank 241-C-106	2466
18	24-016	2	As-Built	Civ/ Struct	Sluice Pit AY-02E Analysis	MB Lasota	AY-Farm: Pit AY-02E; Design Verified (Simple SC 1)	2466
19	24-017	2	App'd	Civ/ Struct	Pump Pit AY-02A Analysis/New Cover Design	MB Lasota	AY-Farm: Pit AY-02A; ECN W-320-319	2466
20	24-018	1	As-Built	Civ/ Struct	241-AY-102 Dome Load Summary Report	RW Davidson	AY-Farm: Tank 241-AY-102	2466
21	24-019	1	As-Built	Civ/ Struct	Prefiltration/Recirculation Skid, Structural Design (Process Control Bldg)	MR Custer	HVAC Skid: 241-C-91; ECN Incorp	2467
22	24-020	1	As-Built	Civ/ Struct	Intake Air Filter Pad & Cooling Coil Frame	RW Davidson	C-Farm: Intake Air Filter; SC 3 Equip. Pad/Anchorage	2467
23	24-021	2	As-Built	Civ/ Struct	Equipment Foundation - Exhaust Air Cleanup Train	RW Davidson	C-Farm: Exhaust Air Cleanup Train; SC 3 Equip. Pad/Anchorage	2467
24	24-022	1	As-Built	Civ/ Struct	Service Building Foundation (A&W Bldg.)	RW Davidson	Site work: 241-C-73; Non-Complex SC 3 Structure	2467
25	24-023	0	As-Built	Civ/ Struct	Equipment Foundation - Chiller and Pumps	MR Custer	C-Farm: Chiller and Pumps; SC 3 Equip. Pad/Anchorage	2467
26	24-024	1	As-Built	Civ/ Struct	Electrical Equipment Pad (241-C-51)	RW Davidson	C-Farm: 241-C-51; SC 3 Equip. Pad/Anchorage	2467
27	24-025	1	App'd	Civ/ Struct	Cover Block Lifting Bail Evaluation	MB Lasota	C-Farm:	2468
28	24-026	0	As-Built	Civ/ Struct	Seismic Shutdown System Pad/Wind Missile Evaluation	JR Booth	AY- & C-Farm: 241-AY-51A/51B, 241-C-51A/51B; Design Verified (simple SC 3/1)	2468
29	24-027	3	As-Built	Civ/ Struct	Seismic Analysis for Misc. Safety Related Equipment Attachments	MB Lasota	C-Farm: SC 3 Equip. Anchorage	2468
30	24-028	1	App'd	Civ/ Struct	Engineering Evaluation of Commercial Grade Items	RW Davidson	C-Farm:	2468
31	24-029	2	As-Built	Civ/ Struct	Structural Analysis of safety Related Electrical Equipment Supports.	MB Lasota	AY- & C-Farm	2468
32	24-030	0	As-Built	Civ/ Struct	Electrical Equipment and Conduit Supports-Process Bldg. Skid	MR Custer	HVAC Skid:	2468
33	24-031	0	As-Built	Civ/ Struct	Process Bldg Equip Skid Rigging Frame	MR Custer	HVAC Skid: 241-C-91, retained for record only and not listed on the drawing index	2468
34	24-032	0	As-Built	Civ/ Struct	Cover Block Analysis-Sluice Pit AY-02E	MB Lasota	AY-Farm: Pit AY-02E; ECN W-320-173	2468

Project W-320 Master Calculation List

	Calc No. W-320-	Rev	Status	Discpl	Calculation Title	Originator	Comments	Issued Under HNF-
35	24-033	0	As-Built	Civ/ Struct	Vehicle Load Over Pipeline	RL Ackerman	C-Farm:	2468
36	24-034	0	As-Built	Civ/ Struct	Process Bldg Lower Lifting Frame	MR Custer	C-Farm: 241-C-91 retained for record only and listed on the drawing index	2468
37	24-035	0	As-Built	Civ/ Struct	Recirculation/Exhaust Skid Strl Evaluations	NG Ha	C-Farm: Exhaust Air Cleanup Train	2468
38	24-036	0	App'd	Civ/ Struct	Exhaust Skid Platform Modification	AS Langevin	C-Farm:	2468
39	24-037	0	App'd	Civ/ Struct	Check Calcs for AY-102 Electrical Equipment Rack	LA Valle	AY-Farm;	2468
40	24-038	0	As-Built	Civ/ Struct	DBE Analysis for 1000 CFM Portable Exhauster	CA Fargo	AY- & C-Farm: Exhausters VTP-POR-007 & -008	2468
41	25-001	0	As-Built	Mech	Decontamination Spray Ring Pipe Stress	RC Campbell	Equipment Removal Sys: Use of Spray Ring deleted from project. Calc checked against released drawings, retained for record only and not listed on the drawing index	No
42	25-002	1	As-Built	Mech	Lifting Fixture Stress Analysis, Transfer Pump Lifting Fixture	RC Campbell	Equipment Removal Sys: Removal of the existing Transfer Pump and the use of the Pump Lifting Fixture deleted from project. Calc checked against released drawings, retained for record only and not listed on the drawing index	No
43	25-003	1	As-Built	Mech	Lifting Fixture Stress Analysis, Heel Jet Lifting Fixture	RC Campbell	Equipment Removal Sys: Removal of the existing Heel Jet and the use of the Heel Jet Lifting Fixture deleted from project. Calc checked against released drawings, retained for record only and not listed on the drawing index	No
44	25-004	0	App'd	Mech	Center of Gravity, Heel Jet, Tank 106C, Pit B	RC Campbell	Equipment Removal Sys: Removal of the Heel Jet deleted from project. Calc given final review, retained for record only and not listed on the drawing index	No
45	25-005	0	App'd	Mech	Center of Gravity, Agitator Pump, Tank 102AY, Pit B	RC Campbell	Equipment Removal Sys: Removal of the Agitator Pump deleted from project. Calc given final review, retained for record only and not listed on the drawing index	No

Project W-320 Master Calculation List

	Calc No. W-320-	Rev	Status	Discpl	Calculation Title	Originator	Comments	Issued Under HNF-
46	25-006	0	App'd	Mech	Center Of Gravity, Transfer pump, Tank 106C, Pit A "Mystery Pump"	RC Campbell	Equipment Removal Sys: Removal ot the existing Transfer Pump deleted from project. Calc given final review, retained for record only and not listed on the drawing index	No
47	25-007	1	As-Built	Mech	Lifting Fixture Stress Analysis, Agitator Pump Lifting Fixture	RC Campbell	Equipment Removal Sys: Removal of the existing Agitator Pump and the use of the Pump Lifting Fixture deleted from project. Calc checked against released drawings, retained for record only and not listed on the drawing index	No
48	25-008	1	As-Built	Mech	Spool Piece Weight, Pump Pit 102AY, Pit B	RC Campbell	Equipment Removal Sys: Use of the Pit B spool piece deleted from project. Calc checked against released drawings, retained for record only and not listed on the drawing index	No
49	25-009	0	As-Built	Mech	Spool Piece Weight, Pump Pit 106C, Pit A	RC Campbell	Equipment Removal Sys: Use of the Pit A spool piece deleted from project. Calc checked against released drawings, retained for record only and not listed on the drawing index	No
50	25-010	1	As-Built	Mech	Spool Piece Weight, Pump Pit 106C, Pit B	RC Campbell	Equipment Removal Sys: Use of the Pit B spool piece deleted from project. Calc checked against released drawings, retained for record only and not listed on the drawing index	No
51	25-011	0	As-Built	Mech	Tie Rod Sizing for Spool Pieces	RC Campbell	Equipment Removal Sys: Use of spool pieces deleted from project. Calc checked against released drawings, retained for record only and not listed on the drawing index	No
52	25-012	0	As-Built	Mech	Pump Lifting Point Strength Analysis	RC Campbell	Equipment Removal Sys: Removal of the existing Transfer Pump deleted from project. Calc checked against released drawings, retained for record only and not listed on the drawing index	No

Project W-320 Master Calculation List

	Calc No. W-320-	Rev	Status	Discpl	Calculation Title	Originator	Comments	Issued Under HNF-
53	25-013	1	App'd	Mech	Weight and Center of Gravity for Heel Jet Mock-up	RC Campbell	Equipment Removal Sys: Removal of the Heel Jet deleted from project. Calc given final review, retained for record only and not listed on the drawing index	No
54	25-014	0	App'd	Mech	Heel Jet Lifting Point Strength Analysis	RC Campbell	Equipment Removal Sys: Removal of the Heel Jet deleted from project. Calc given final review, retained for record only and not listed on the drawing index	No
55	25-015	0	App'd	Mech	Agitator Lifting Point Strength Analysis	RC Campbell	Equipment Removal Sys: Removal of the Agitator Pump deleted from project. Calc given final review, retained for record only and not listed on the drawing index	No
56	25-016	1	As-Built	Mech	Weight and Center of Gravity for Transfer Pump Mock-up	RC Campbell	Equipment Removal Sys: Removal of the Trasfer Pump and the use of the Mock-up deleted from project. Calc checked against released drawings, retained for record only and not listed on the drawing index	No
57	25-017	0	As-Built	Mech	Flange Thickness of Shielding Plugs	RC Campbell	Equipment Removal Sys: Shielding plugs used for installation only and not part of permanent facility modification. Calc checked against released drawings, retained for record only and not listed on the drawing index	No
58	25-018	0	As-Built	Mech	Lifting Capacity of Bails	RC Campbell	Equipment Removal Sys: Shielding plugs used for installation only and not part of permanent facility modification. Calc checked against released drawings, retained for record only and not listed on the drawing index	No
59	25-019	1	As-Built	Mech	Pin sizing of Heel Jet Mockup Joints	RC Campbell	Equipment Removal Sys: Removal of the Heel Jet deleted from project. Calc checked against released drawings, retained for record only and not listed on the drawing index	No

Project W-320 Master Calculation List

	Calc No. W-320-	Rev	Status	Discpl	Calculation Title	Originator	Comments	Issued Under HNF-
60	25-020	0	As-Built	Mech	Weight and Center of Gravity, Agitator Pump Mockup	RC Campbell	Equipment Removal Sys: Removal of the Agitator Pump deleted from project. Calc checked against released drawings, retained for record only and not listed on the drawing index	No
61	25-021	0	As-Built	Mech	Go/No Go Gauges	RC Campbell	Equipment Removal Sys: Go/No Go gauges used for installation only and not part of a permanent facility modification. Calc checked against released drawings, retained for record only and not listed on the drawing index	No
62	25-022	0	App'd	Mech	Wire Rope Lifting Fixture Rated Load	RC Campbell	Equipment Removal Sys: Wire rope used for installation only and not part of a permanent facility modification. Calc given final review, retained for record only and not listed on the drawing index	No
63	25-023	0	App'd	Mech	Equipment Retrieval T-Bar Modification (Horizontal Claw)	NJ Juplo	Equipment Removal Sys: T-Bar used for demolition clean-up only and not part of a permanent facility modification. Calc given final review, retained for record only and not listed on the drawing index	No
64	25-024	0	App'd	Mech	Equipment Retrieval T-Bar Modification (Vertical Claw)	NJ Juplo	Equipment Removal Sys: T-Bar used for demolition clean-up only and not part of a permanent facility modification. Calc given final review, retained for record only and not listed on the drawing index	No
65	25-025	0	App'd	Mech	Waste Pit Skip Assy	MD Brockett	Equipment Removal Sys: Skip Assy used for demolition clean-up only and not part of a permanent facility modification. Calc given final review, retained for record only and not listed on the drawing index	No

Project W-320 Master Calculation List

	Calc No. W-320-	Rev	Status	Discpl	Calculation Title	Originator	Comments	Issued Under HNF-
66	27-001	1	VOID	Piping	Sizing of Drain Lines for the Pump Pit (241-CR-06A), the Heel Pit (241-CR-06B), and the Sluice Pit (241-CR-06C)	NJ Juplo	C-Farm: Heel Pit work deleted. Drain slots covered and replaced by 6" dia. drain hole in sluicer top plate, see H-2-818551 sh 4. Calc voided, given final review, retained for record only and not listed on the drawing index. Superseded by calc 27-041	No
67	27-002	1	VOID	Piping	Hydraulic Analysis for Slurry Pump Normal Operations at Maximum Operational Temperature	DL Stone	C-Farm: Calc voided, given final review, retained for record only and not listed on the drawing index. Superseded by calc 27-048	No
68	27-003	0	App'd	Piping	Slurry Pumps Hydraulic Calculation	NJ Juplo	C-Farm: For Pumps P-1361 & P-1362 and Line 4" SL-100-M9. Calc not As-Built, given final review and original content retained for record, to support Pump P-Spec, W-320-P17, dated 1/17/95. Superseded by 27-048	2471
69	27-004	1	VOID	Piping	Hydraulic Analysis for Slurry Pump Start up Operations at Maximum Operational Temperature	DL Stone	C-Farm: Calc voided, given final review, retained for record only and not listed on the drawing index. Superseded by calc 27-048	No
70	27-005	1	VOID	Piping	Hydraulic Analysis for Slurry Pump Start up Operations at Minimum Operational Temperature	DL Stone	C-Farm: Calc voided, given final review, retained for record only and not listed on the drawing index. Superseded by calc 27-048	No
71	27-006		Not Used		Not Used		Not Used	NA
72	27-007		Not Used		Not Used		Not Used	NA
73	27-008	1	VOID	Piping	Hydraulic Analysis for Sluice Pump at Maximum Operating Temperature	DL Stone	AY-Farm: Calc voided, given final review, retained for record only and not listed on the drawing index. Superseded by calc 27-048	No

Project W-320 Master Calculation List

	Calc No. W-320-	Rev	Status	Discpl	Calculation Title	Originator	Comments	Issued Under HNF-
74	27-009	0	App'd	Piping	Hydraulic Analysis for Sluice Pump at Minimum Operating Temperature	K. Cleveland	AY-Farm: For Pumps P-0621 & P-0622 and Line 4" SN-200-M9. Calc not As-Built, given final review and original content retained for record, to support Pump P-Spec, W-320-P17, dated 1/17/95. Superseded by 27-048	2471
75	27-010	0	Void	Piping	Estimate Water Hammer Due to Sudden Valve Closure or Sudden Power Loss to Transfer Pump	K Merzouk	AY, C & Inter-Farm: Significant pressure transients due to sudden valve closure only. Valves on process lines deleted from project. Calc voided, given final review, retained for record only and not listed on the drawing index.	No
76	27-011	0	As-Built	Piping	Sizing of Compressor	NJ Juplo	C-Farm: Air Compressor CPR-1361	2471
77	27-012	0	Void	Piping	Pressure Forces at Changes in Direction in Transfer Line During Transient States	K Merzouk	AY, C & Inter-Farm: Significant pressure transients due to sudden valve closure only. Valves on process lines deleted from project. Calc voided, given final review, retained for record only and not listed on the drawing index.	No
78	27-013	3	As-Built	Piping	Process Pipe Stress Analysis	DL Stone	AY, C & Inter-Farm: Lines 4" SL-100-M9 & 4" SN-200-M9. Ref calc's 27-016, 029 & 055	2472
79	27-014	3	As-Built	Piping	Encasement Pipe Stress Analysis	DL Stone	AY, C & Inter-Farm: Lines 4" SL-100-M9 & 4" SN-200-M9 encasements	2473
80	27-015	3	As-Built	Piping	Support Structural Analysis	DL Stone JR Booth	AY, C & Inter-Farm: Lines 4" SL-100-M9 & 4" SN-200-M9 structural supports	2474
81	27-016	2	As-Built	Piping	C Farm Jumper Stress Analysis	DL Stone	C-Farm: Pit C-06A (jumper U9-A,B) & Pit C-06C (jumper U6-A). Ref calc's 27-013 & 055	2474
82	27-017	0	As-Built	Piping	Distributor Stress Analysis	RC Campbell	AY-Farm; Distributor D-0621	2474
83	27-018	0	VOID	Piping	Sizing of Pressure Relief Valve	RC Campbell	C-Farm: Requirement to pressure relieve process flow (350 gpm) deleted from project. Calc voided, retained for record only and not listed on the drawing index.	No

Project W-320 Master Calculation List

	Calc No. W-320-	Rev	Status	Discpl	Calculation Title	Originator	Comments	Issued Under HNF-
84	27-019	0	As-Built	Piping	Winch Analysis	D.L. Stone	AY & C-Farm: Winches W-0621 & W-1361	2474
85	27-020	0	App'd	Piping	Alternate Routing Analysis, M10, M11, M12, and M13	RC Campbell	AY-Farm: Alternate routing not used, calc given final review, retained for record only & not listed on drawing index	No
86	27-021	0	App'd	Piping	Distributor Siphon Breaker	RC Campbell	AY-Farm: Calc given final review, retained for record only & not listed on drawing index. Superseded by calc's 27-045 & 27-048	No
87	27-022	0	App'd	Piping	Sluice Pump Siphon Break	RC Campbell	AY-Farm: Calc given final review, retained for record only & not listed on drawing index. Superseded by calc's 27-045 & 27-048	No
88	27-023		Not Used		Not Used		Not Used	NA
89	27-024	0	Void	Piping	Tank Template Drain Flow	AW McNichols	AY & C-Farm: Calc voided, retained for record only & not listed on the drawing index. Superseded by calc 27-041	No
90	27-025	0	Void	Piping	Heel Pump System Operating Point	RC Campbell	C-Farm: Heel Pump deleted from project. Calc voided, given final review, retained for record only & not listed on drawing index.	No
91	27-026	0	Void	Piping	Eductor Sizing System Curve	RC Campbell	C-Farm: Eductor System deleted from project. Calc voided, given final review, retained for record only & not listed on drawing index.	No
92	27-027		Not Used		Not Used		Not Used	NA
93	27-028	1	As-Built	Piping	Miscellaneous Pipe Stress Analysis	DL Stone	C-Farm: Drain Line, 3" DR-302-M9, & it's 6" encasement	2475
94	27-029	3	As-Built	Piping	Miscellaneous Jumper Pipe Stress Analysis - AY Farm	DL Stone	AY-Farm: Pit AY-02E (jumper U2-A,B) & Pit AY-02A (jumper U11-A). Ref calc's 27-013 & 055	2475
95	27-030	0	As-Built	Piping	HVAC Seal Loop	AW McNichols	C-Farm: Loops 6" VT-1001-M42 & 6" VT-1002 -M42	2475
96	27-031	0	As-Built	Piping	Booster Pump Restrain Analysis	RC Campbell	AY-Farm: Sluice Pump, P-0622	2475

Project W-320 Master Calculation List

	Calc No. W-320-	Rev	Status	Discpl	Calculation Title	Originator	Comments	Issued Under HNF-
97	27-032	0	As-Built	Piping	Slurry Pump Seismic Stability	NJ Juplo	C-Farm: Slurry Pump, P-1361	2476
98	27-033	0	Void	Piping	Stress on Sluicer Arm	AW McNichols	C-Farm: Calc voided, given final review, retained for record only & not listed on the drawing index. Superseded by calc's 27-034 & 27-044	No
99	27-034	0	As-Built	Piping	Analysis of Sluicer	MB Lasota	C-Farm: Sluicer, S-1361	2476
100	27-035	0	As-Built	Piping	Checking Sluicer Gears for Adequacy	A. Tedrow	C-Farm: Sluicer, S-1361	2476
101	27-036	1	As-Built	Piping	Winch/Pump Rigging Assembly	DL Stone	AY & C-Farm: Rigging assembly for winches W-0621 & W-1361	2476
102	27-037	0	App'd	Piping	Winch/Pump Simulation Testing Assembly	DL Stone	AY & C-Farm; Test assembly used for training/testing only, not part of a permanent facility modification. Calc given final review, retained for record only & not listed on drawing index.	No
103	27-038	0	App'd	Piping	Stress Analysis of Encasement Pipe Buried in Controlled Density Fill	MH Ahmed	AY & C-Farm: The option to bury encasement pipe in controlled fill was not used. Calc given final review, retained for record only & not listed on drawing index.	No
104	27-039	0	App'd	Piping	Temporary Winch Support Platform	JG Rupert	AY & C-Farm: The platform was used to support installation and was not part of a permanent facility modification. Calc given final review, retained for record only & not listed on drawing index.	No
105	27-040	0	As-Built	Piping	Booster Pump Assembly Components	DL Stone	C-Farm: Booster Pump P-1362 seismic restraint	2476
106	27-041	1	As-Built	Piping	High Capacity Drain Flow	DL Stone	AY & C-Farm: The 6" dia. drain is used in C-Farm Pits 06A & 06C and in AY-Farm Pits 02A & 02E. Drains have been installed in Winches W-0621 & W-1361, Distributor D-0621, and Sluicer S-1361. Supersedes calc's 27-001 and 27-024	2476
107	27-042	0	As-Built	Piping	Adapter Plate Stress Analysis	DL Stone	AY & C-Farm: Adapter plates for winches W-1361 & W-0621	2476

Project W-320 Master Calculation List

	Calc No. W-320-	Rev	Status	Discpl	Calculation Title	Originator	Comments	Issued Under HNF-
108	27-043	0	As-Built	Piping	Reynolds Numbers at Various % Solids	DL Stone	AY, C & Inter-Farm: Lines 4" SL-100-M9 & 4" SN-200-M9	2476
109	27-044	0	As-Built	Piping	Sluicer Nozzle Force Analysis	DL Stone	C-Farm: Hydraulic force of Sluicer (S-1361) nozzle. Supersedes calc 27-033	2477
110	27-045	0	As-Built	Piping	Pipe Drain Flows & Anti-Siphon Sizing	DL Stone	AY-Farm: Lines 4" SL-100-M9 (D-0621) & 4" SN-200-M9 (W-0621)	2477
111	27-046	0	As-built	Piping	Flushing Nozzle Lifting Force	TK Peterson	AY-Farm: Lifting force on shielding plugs in cover blocks for AY-Farm's pits 02A & 02E	2477
112	27-047	0	As-Built	Piping	Pit Volume and In/Out Flow Areas	MR Custer	AY & C-Farm: 6C's Pits 06A & 06C and 2AY's Pits 02A & 02E	2477
113	27-048	0	As-Built	Piping	Slurry/Supernate Hydraulic Analysis	K Hayase	AY, C & Inter-Farm: Lines 4" SL-100-M9 & 4" SN-200-M9 and their appurtenances. As-Built Slurry and Sluice Systems Hydraulic Calc. Supersedes Calc's 27-002, 003, 004, 005, 008, 009, 021 & 022.	2478
114	27-049	0	As-Built	Piping	Size of HVAC Duct Flushing System	NJ Juplo	C-Farm & HVAC Skid: Duct, 10" VT-1010-M8	2479
115	27-050	0	App'd	Piping	Portable Exhauster Installation Analysis	K Hayase	AY & C-Farm: Portable exhausters are for emergency back-up only and are not installed. Calc given final review but not As-Build.	2479
116	27-051	0	As-Built	Piping	Jumper Flushing Supply Head Analysis	K Hayase	AY-Farm: Pits 02A &02E jumpers to support flushing lines 4" SL-100-M9 & 4" SN-200-M9	2479
117	27-052	0	App'd	Piping	AY-102 Annulus Supply Air Filter Housing Installation Analysis	K Hayase	AY-Farm: Filter housing used for testing only and removed before project turn over. Calc given final review, retained for record only & not listed on the drawing index.	2479
118	27-053	0	As-Built	Piping	New Supernate Jumper Analysis	K Hayase	AY-Farm: Pit 02A, (jumper U3-U11-B)	2479
119	27-054	0	App'd	Piping	System Curves for Portable Exhauster Installation	K Hayase	AY & C-Farm: System curves for portable exhausters to be used for 6C's dome exhaust air and 2AY's dome & annulus exhaust air. Portable exhausters are not installed. Calc given final review but not As-Built.	2479

Project W-320 Master Calculation List

	Calc No. W-320-	Rev	Status	Discpl	Calculation Title	Originator	Comments	Issued Under HNF-
120	27-055	0	As-Built	Piping	Nozzle Plate & Encasement Plate Analysis	M Ahmed	AY & C-Farm: Wall nozzle analysis for jumpers U9-A,B (pit C-06A), U6-A (pit C-06C), U2-A,B (pit AY-02E) and U11-A (pit AY 02A). Ref calc's 27-013, 016 & 029.	2479
121	28-001	1	As-built	HVAC	Exhaust Airflow Sizing for Tank 241-C-106	PH Langowski	C-Farm: Exhaust system airflow component sizing to include; HEME, HEMF, exhaust skid, and exhaust Fan FN-1362. Ref calc's 28-004 & 008	2483
122	28-002	0	Void	HVAC	Directed Air System	N/A	C-Farm: Directed Air System deleted from project. Calc voided, given final review, retained for record only and not listed on the drawing index. Renumbered from H-002 to 28-002.	No
123	28-003	0	As-built	HVAC	Equipment Sizing & Selection Recirculation Fan	PH Langowski	HVAC Skid: Recirculation Fan FN-1362. Renumbered from H-003 to 28-003	2483
124	28-004	1	As-built	HVAC	Sizing High Efficiency Mist Eliminator	RA Pina	HVAC Skid: Mist Eliminator HME-1361 Renumbered from H-004 to 28-004	2483
125	28-005	1	As-built	HVAC	Sizing Electric Heating Coil	RA Pina	HVAC Skid: Recirculation Heater HC-1361 Renumbered from H-005 to 28-005	2483
126	28-006	0	As-built	HVAC	Equipment Sizing & Selection, Recirculation Condenser	CT O'Neill	HVAC Skid: Recirc Condenser HX-1361 Renumbered from H-006 to 28-006	2483
127	28-007	0	As-built	HVAC	Chiller Skid System Sizing and Selection	R Abjelina	C-Farm: Sizing Chiller Skid Components. Calc done by offsite subcontractor	2483
128	28-008	1	As-built	HVAC	High Efficiency Metal Filter Shielding Input and Flushing Frequency	PH Langowski	HVAC Skid: Metal Filter HMF-1361 Renumbered from H-008 to 28-008	2483
129	28-009		Not Used		Not Used		Not Used	NA
130	28-010		Not Used		Not Used		Not Used	NA
131	28-011	1	As-built	HVAC	Exhaust Skid Stack Sizing and Fan Sizing	PH Langowski	C-Farm: Stack 296-C-006, Fan FN-1362, and Heater HC-1362. Renumbered from H-011 to 28-011	2483

Project W-320 Master Calculation List

	Calc No. W-320-	Rev	Status	Discpl	Calculation Title	Originator	Comments	Issued Under HNF-
132	28-012	0	As-built	HVAC	Process Building HVAC	RA Pina	C-Farm: Process bldg's Fan FN-1364, Filter F-1368 and Heaters UH-1362 & UH-1361. Renumbered from H-012 to 28-012	2484
133	28-013	0	As-built	HVAC	Chilled Water Line Expansion/Contraction and Heat Gain	R Abjelina	C-Farm: Lines 3" CWS-803-M4 & 3" CWR-850-M4. Calc done by offsite subcontractor. Renumbered from H-013 to 28-013	2484
134	28-014	0	App'd	HVAC	Air Flow Calc System Review for Capture Velocity	RG Hale	Equipment Removal Sys: Used to support equipment removal and not part of permanent facility modification. Calc given final review, retained for record only and not listed on drawing index.	No
135	28-015	1	As-built	HVAC	Sizing of Moisture Separator	RA Pina	HVAC Skid: Moisture Separator MS-1361 Renumbered from H-015 to 28-015	2484
136	28-016	0	As-built	HVAC	Pressure Relief Seal Loop Sizing	PH Langowski	C-Farm: 6" VT-1001-M42 & 6" VT-1002-M9. Ref calc's 28-020 (commercial grade analysis) and 28-031 (independent verification). Renumbered from H-016 to 28-016	2484
137	28-017	2	As-built	HVAC	Service Building Fan Selection and Heating Load	RA Pina	Inter-Farm: Air & Water Service Bldg's Filter F-1366, Fan FN-1363, and Heater HC-1363 Renumbered from H-017 to 28-017	2484
138	28-018	1	As-built	HVAC	Pressure Loss Upstream of the Exhaust Skid	PH Langowski	HVAC Skid & C-Farm: Fans FN-1361 and FN-1362. Renumbered from H-018 to 28-018	2484
139	28-019		Not Used		Not Used		Not Used	NA
140	28-020	0	As-built	HVAC	Commercial Grade Item Analysis, Pressure Relief Seal Loop	PH Langowski	C-Farm: 6" VT-1001-M42 & 6" VT-1002-M42. Ref calc's 28-020 (seal loop sizing) & 28-031 (independent verification). Renumbered from H-020 to 28-020	2484
141	28-021	0	As-built	HVAC	Above Ground Pipe Stress Analysis for Duct Piping	DL Stone	C-Farm: 10" VT-1010-M8, 8" VT-1022-M8, and 6" VT-1060-M8 Renumbered from H-021 to 28-021	2485

Project W-320 Master Calculation List

	Calc No. W-320-	Rev	Status	Discpl	Calculation Title	Originator	Comments	Issued Under HNF-
142	28-022	0	As-built	HVAC	Seal Pot Sizing for Leak Detection	RA Pina	C-Farm: Process bldg 241-C-91's seal pot sizing. Renumbered from H-022 to 28-022	2485
143	28-023	1	As-built	HVAC	Cooling and Heating Required for Seismic Switch Missile Enclosure	PH Langowski	AY & C-Farm: Heating/Cooling Units; AC-1361, AC-1362, AC-0621, and AC-0622. Renumbered from H-023 to 28-023	2485
144	28-024	2	As-built	HVAC	Cooling and Heating Required for Variable Speed Drive (VSD) Enclosure	PH Langowski	AY-Farm: Enclosure Skid 241-AY-51. Renumbered from H-024 to 28-024	2485
145	28-025	1	As-built	HVAC	Cooling and Heating Required for Motor Control Center (MCC) Enclosure	PH Langowski	C-Farm: Enclosure Skid 241-C-51. Renumbered from H-025 to 28-025	2485
146	28-026	0	As-built	HVAC	Sizing of Ventilation Insulation	RA Pina	HVAC Skid: Process Bldg 241-C-91 insulation. Renumbered from H-026 to 28-026	2485
147	28-027	1	As-built	HVAC	Above Ground Pipe Support Stress Analysis	RC Campbell	HVAC Skid: Bldg 241-C-91 duct supports Renumbered from H-027 to 28-027	2485
148	28-028	N/A	Void	N/A	N/A	N/A		NA
149	28-029	1	As-built	HVAC	Cooling Load in Pump Pit 241-C-06A	RA Pina	C-Farm: Pump Pit 06A cooling load. Renumbered from H-029 to 28-029	2485
150	28-030	1	As-built	HVAC	Cooling Load in Pump Pit 241-AY-102	WJ Hodges	AY-Farm: Sluice Pit AY-02E cooling load. Chiller R-0621 & Fan/Coil FC-0621. Renumbered from H-030 to 28-030	2486
151	28-031	0	As-built	HVAC	Pressure Relief Seal Loop Design Verification	EL Dalpiaz	C-Farm: 6" VT-1001-M42 & 6" VT-1002-M42. Ref calc's 28-016 (seal loop sizing) & 28-020 (commercial grade analysis). Renumbered from H-031 to 28-031	2486
152	28-032	0	As-built	HVAC	Process Building Piping Stress Analysis	RC Campbell	HVAC Skid: Process Bldg 241-C-91 dome exhaust air piping (ducting). Renumbered from H-032 to 28-032	2486
153	28-033	0	As-built	HVAC	Process Building Duct Support Stress Analysis	RC Campbell	HVAC Skid: Process Bldg 241-C-91 pipe (duct) supports. Renumbered from H-033 to 28-033	2486

Project W-320 Master Calculation List

	Calc No. W-320-	Rev	Status	Discpl	Calculation Title	Originator	Comments	Issued Under HNF-
154	28-034	0	As-built	HVAC	Exhaust Skid Maximum Allowable Leakage Criteria	PH Langowski	C-Farm: Exhaust Skid pressure decay leak test requirements. Renumbered from H-034 to 28-034	2486
155	28-035	0	As-built	HVAC	Recirculation Heater, N509 Duct Requirements	RA Pina	HVAC Skid: Process Bldg recirculation heater HC-1361. Renumbered from H-035 to 28-035	2486
156	31-001	0	As-built	Elect	Fault Current Analysis	JC Del Rosario	Equipment Removal Sys:	2487
157	31-002	0	As-built	Elect	Standby Generator Sizing	JC Del Rosario	Equipment Removal Sys:	2487
158	31-003	0	As-built	Elect	Feeder Cable Sizes & % Voltage Drop	JC Del Rosario	Equipment Removal Sys:	2487
159	31-004	0	App'd	Elect	Transformer Sizing	DL Levandowski	Equipment Removal Sys: Done to Support Construction Trailer Installation.	No
160	31-005	0	App'd	Elect	Total Loads for Lunchroom Trailer & Office Trailer	DL Levandowski	Equipment Removal Sys: Done to Support Construction Trailer Installation.	No
161	31-006	0	App'd	Elect	Total Loads for Fabrication shop	DL Levandowski	Equipment Removal Sys: Done to Support Construction Trailer Installation.	No
162	31-007	1	App'd	Elect	Total Loads for Fabrication Shop, Lunchroom Trailer & Office Trailer	DL Levandowski	Equipment Removal Sys: Done to Support Construction Trailer Installation.	No
163	31-008	1	App'd	Elect	Wireway Sizes for Rack Details	DL Levandowski	Equipment Removal Sys: Done to Support Construction Trailer Installation.	No
164	31-009	1		Elect	Conduit, Nipple, conductor, Grounding & Trip Setting sizing	DL Levandowski	Equipment Removal Sys: Done to Support Construction Trailer Installation.	No
165	31-010	1	As-built	Elect	C-106 Demand Load Analysis, Size Feeders, Voltage Drop, and Fault Study	TJ Kasnick	C-Farm:	2487
166	31-011	1	As-built	Elect	Tank C-106 Load Determination, Feeder/Protection Sizing, Voltage Drop, Lighting Calculations & Conduit Sizing.	DE Larson	C-Farm:	2487
167	31-012		Not Used		Not Used		Not Used	NA

Project W-320 Master Calculation List

	Calc No. W-320-	Rev	Status	Discpl	Calculation Title	Originator	Comments	Issued Under HNF-
168	31-013	0	App'd	Elect	Cable Pulling Tension -C-Farm	DE Larson	C-Farm: Not required for design will be used to direct wire installation during construction.	No
169	31-014	0	As-built	Elect	C-Farm Heat Tracing	RH Graeber	C-Farm:	2488
170	31-015	2	As-built	Elect	Service Building Electrical Equipment Sizing.	DE Larson	Site Work:	2488
171	31-016	1	As-built	Elect	AY-102 Demand Load Analysis, Size Feeders, Voltage Drop and Fault Study	TJ Kasnick	AY-Farm:	2487
172	31-017	1	As-built	Elect	Tank AY-102 Load Determination, Feeder/Protection Sizing, Voltage Drop and Lighting Calculations	RH Graeber	AY-Farm:	2487
173	31-018		Not Used	Elect	Not Used		Not Used	NA
174	31-019	0	Prelm	Elect	Cable Pulling Tension - AY-Farm	DE Larson	AY-Farm: Not required for design will be used to direct wire installation during construction.	No
175	31-020		Not Used	Elect	Not Used		Not Used	NA
176	31-021	0	N/A	Elect	Load Calculations for Control/Lunch Room Trailer	F Morales	Control/Lunch Room: Package Voided By Descoping	No
177	31-022	1	As-built	Elect	Control Circuit Sizing & Voltage Drop Analysis for Seismic Shutdown System (Class 1E)	M Khorsandian	AY & C-Farm:	2488
178	31-023	0	Void	Elect	Control System to AY-Farm Wire Sizing, Voltage Drop and Conduit Sizing	SA Najjar	Control Room: Cancelled by Descoping	No
179	31-024	0	Void	Elect	Control System to C-Farm Wire Sizing, Voltage Drop and Conduit Sizing	SA Najjar	Control Room: Cancelled by Descoping	No
180	33-001	0	App'd	Mech	Exposure Rate with Pump Vertically Above Open Pit (Tank C-106) Pump Pit	GJ Peter	C-Farm: This calc was used to determined radiation fields during demolition and was not part of a permanent facility modification. Calc given final review, retained for record only & not listed on drawing index.	No

Project W-320 Master Calculation List

	Calc No. W-320-	Rev	Status	Discpl	Calculation Title	Originator	Comments	Issued Under HNF-
181	33-002	0	App'd	Mech	Plug Thickness at End of Riser 42" Riser (ID = 32") Pit CR-06A Tank C-106	GJ Peter	C-Farm: This calc was used to size a shielding plug to be used during demolition and was not part of a permanent facility modification. Calc given final review, retained for record only & not listed on drawing index.	No
182	33-003	0	App'd	Mech	Above Pit Shielding Thickness with Pump or Plug in Place - Pit CR - 06A (Tank C-106)	GJ Peter	C-Farm: This calc was used to size a shielding plug to be used during demolition and was not part of a permanent facility modification. Calc given final review, retained for record only & not listed on drawing index.	No
183	33-004	1	As-Built	Mech	Earth Cover Shielding Thickness for Project W-320	SR Gedeon	AY, C & Inter-Farm: Lines 4" SL-100-M9 & 4" SN-200-M9 earth cover shielding. Calc done by onsite (WHC) subcontractor.	2489
184	33-005	1	As-Built	Mech	Cover Block, Sidewall Shielding Thickness for Pump Pit 241-C-06A and Sluice Pit 241-C-06C	CT Li	C-Farm: Pit 241-C-06A shielding	2489
185	33-006	0	As-Built	Mech	Individual Shielding Thickness for HEMF or HEME	GJ Peter	HVAC Skid: HME-1361 & HMF-1361 shielding	2489
186	33-007	1	As-Built	Mech	Shielding Thickness to Reduce 10 mR/Hr to 2 mR/Hr Using (A) Solid Steel Plate or (B) Air Gap	CT Li	HVAC Skid: Bldg 241-C-91 shielding wall	2489
187	33-008	1	As-Built	Mech	Determine if Shielding Necessary for 10" Vapor Pipe from Tank Dome to HVAC System	CT Li	C-Farm: Line 10" VT-1010-M8 shielding	2489
188	33-009	0	As-Built	Mech	Shielding Calculation for Pump Pit AY--02	SR Gedeon	AY-Farm: Pits 241-AY-02A & 241-AY-02E shielding. Calc done by onsite (WHC) subcontractor	2489
189	33-010	0	App'd	Mech	Determine the Worst Exposure Rate Inside the Pump Pit 241-C-06A	GJ Peter	C-Farm: This calc was used to estimate exposure rates for an in Pit (C-06A) entry during demolition and was not part of a permanent facility modification. Calc given final review, retained for record only & not listed on drawing index.	No
190	34-001	0	As-Built	Cthdc	Rectifier 46 (Cross-Site Transfer Lines)	AR Snowhite	Site work:	2492

DISTRIBUTION SHEET

To	From	Page 1 of 1
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Project W-320, HNF-2527, Master Calculation List		ECN No. n/a

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DE Evans	S2-47				
W-320 Project Files	R1-29				