

50-305

RESPONSE TO NUREG-0737 ITEM II.D.1

Docket # *50-305*

Control # *8403280048*

Date *3/23/84* of Document:  
REGULATORY DOCKET FILE

.2970	-1.	-252.	-753.	744.	19.	2537.	.0087	.0144	-.0318	-.0240	.0418	.0754	1782.
.2980	219.	-736.	-1170.	1069.	-231.	3259.	.0195	.0111	-.0416	-.0176	.0536	.0700	2317.
.2990	457.	-1173.	-1584.	1320.	-475.	3861.	.0291	.0081	-.0501	-.0111	.0651	.0651	2769.
.3000	723.	-1559.	-1997.	1503.	-709.	4328.	.0371	.0054	-.0571	-.0045	.0758	.0610	3125.
.3010	1015.	-1890.	-2390.	1614.	-926.	4658.	.0433	.0032	-.0625	.0019	.0850	.0577	3381.
.3020	1300.	-2149.	-2730.	1647.	-1119.	4846.	.0477	.0014	-.0663	.0072	.0930	.0548	3531.
.3030	1552.	-2317.	-3003.	1622.	-1274.	4887.	.0506	.0000	-.0687	.0109	.0992	.0519	3575.
.3040	1754.	-2383.	-3203.	1559.	-1378.	4790.	.0519	-.0008	-.0697	.0128	.1032	.0488	3520.
.3050	1890.	-2347.	-3313.	1464.	-1437.	4573.	.0519	-.0012	-.0695	.0125	.1048	.0451	3378.
.3060	1947.	-2218.	-3322.	1345.	-1454.	4259.	.0507	-.0013	-.0683	.0099	.1040	.0407	3166.
.3070	1932.	-2008.	-3235.	1223.	-1431.	3866.	.0487	-.0010	-.0664	.0052	.1005	.0356	2898.

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.25.52.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24  
LOADS  
SHOCK  
PRESSURE  
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	3	MEMBER	1	SEQUENCE	18	LOCATION	END	TYPE	EL						
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	STRESS (PSI)		
.3080	1853.	-1736.	-3061.	1111.	-1374.	3413.	.0458	-.0004	-.0637	-.0011	.0944	.0299	2590.		
.3090	1717.	-1423.	-2799.	1007.	-1291.	2924.	.0423	.0004	-.0605	-.0087	.0862	.0239	2259.		
.3100	1537.	-1091.	-2462.	911.	-1189.	2420.	.0383	.0013	-.0568	-.0169	.0761	.0177	1919.		
.3110	1334.	-758.	-2073.	836.	-1071.	1918.	.0337	.0022	-.0524	-.0248	.0545	.0120	1584.		
.3120	1113.	-433.	-1650.	784.	-940.	1428.	.0287	.0032	-.0475	-.0314	.0518	.0069	1268.		
.3130	876.	-121.	-1204.	747.	-796.	963.	.0234	.0040	-.0418	-.0363	.0389	.0027	981.		
.3140	628.	174.	-755.	722.	-631.	529.	.0178	.0047	-.0354	-.0387	.0261	-.0005	738.		
.3150	376.	453.	-326.	710.	-448.	126.	.0119	.0051	-.0281	-.0379	.0139	-.0024	572.		
.3160	125.	713.	68.	709.	-253.	-244.	.0058	.0054	-.0199	-.0337	.0026	-.0029	533.		
.3170	-112.	943.	420.	708.	-52.	-575.	-.0004	.0053	-.0110	-.0260	-.0075	-.0020	616.		
.3180	-321.	1131.	725.	702.	153.	-865.	-.0068	.0050	-.0013	-.0148	-.0163	.0002	758.		
.3190	-500.	1273.	980.	686.	357.	-1120.	-.0131	.0044	.0090	-.0008	-.0239	.0034	917.		
.3200	-651.	1371.	1195.	656.	558.	-1347.	-.0193	.0035	.0195	.0154	-.0301	.0072	1078.		
.3210	-779.	1421.	1378.	610.	760.	-1547.	-.0253	.0024	.0302	.0328	-.0353	.0111	1233.		
.3220	-881.	1421.	1542.	547.	959.	-1718.	-.0309	.0011	.0405	.0504	-.0395	.0145	1377.		
.3230	-964.	1379.	1693.	472.	1148.	-1863.	-.0359	-.0004	.0503	.0675	-.0432	.0171	1509.		
.3240	-1040.	1307.	1834.	392.	1326.	-1986.	-.0401	-.0021	.0592	.0832	-.0463	.0183	1631.		
.3250	-1119.	1222.	1973.	314.	1497.	-2093.	-.0434	-.0039	.0670	.0967	-.0491	.0177	1747.		
.3260	-1204.	1130.	2107.	245.	1648.	-2181.	-.0457	-.0058	.0734	.1077	-.0515	.0152	1850.		
.3270	-1281.	1031.	2230.	196.	1765.	-2246.	-.0468	-.0077	.0782	.1160	-.0537	.0109	1930.		
.3280	-1338.	927.	2330.	172.	1840.	-2287.	-.0467	-.0097	.0813	.1217	-.0558	.0049	1982.		
.3290	-1374.	823.	2404.	175.	1867.	-2306.	-.0455	-.0116	.0827	.1249	-.0577	-.0025	2003.		
.3300	-1387.	726.	2446.	204.	1841.	-2311.	-.0432	-.0135	.0823	.1256	-.0591	-.0112	1996.		
.3310	-1365.	631.	2448.	257.	1766.	-2303.	-.0399	-.0153	.0803	.1242	-.0601	-.0209	1964.		
.3320	-1302.	533.	2409.	327.	1645.	-2283.	-.0358	-.0171	.0768	.1209	-.0605	-.0313	1909.		
.3330	-1201.	437.	2330.	401.	1479.	-2255.	-.0310	-.0187	.0720	.1158	-.0601	-.0422	1838.		
.3340	-1071.	345.	2210.	474.	1281.	-2227.	-.0255	-.0202	.0661	.1091	-.0588	-.0534	1761.		
.3350	-915.	258.	2051.	538.	1069.	-2204.	-.0197	-.0216	.0595	.1012	-.0566	-.0649	1690.		
.3360	-739.	170.	1860.	583.	848.	-2183.	-.0135	-.0228	.0522	.0922	-.0532	-.0764	1627.		
.3370	-542.	74.	1638.	605.	616.	-2158.	-.0072	-.0240	.0444	.0826	-.0487	-.0877	1566.		
.3380	-320.	-38.	1383.	610.	378.	-2119.	-.0007	-.0251	.0364	.0728	-.0434	-.0983	1508.		
.3390	-80.	-171.	1102.	603.	145.	-2061.	.0058	-.0261	.0283	.0633	-.0372	-.1082	1451.		
.3400	165.	-324.	808.	587.	-80.	-1975.	.0122	-.0271	.0200	.0543	-.0299	-.1173	1390.		
.3410	410.	-500.	506.	574.	-292.	-1851.	.0187	-.0280	.0118	.0462	-.0216	-.1252	1321.		
.3420	658.	-703.	197.	580.	-484.	-1675.	.0252	-.0290	.0037	.0395	-.0127	-.1316	1239.		
.3430	895.	-927.	-108.	614.	-653.	-1443.	.0315	-.0299	-.0042	.0345	-.0031	-.1366	1145.		
.3440	1110.	-1163.	-399.	679.	-793.	-1155.	.0378	-.0308	-.0119	.0312	.0073	-.1400	1049.		
.3450	1299.	-1408.	-676.	785.	-899.	-811.	.0439	-.0317	-.0192	.0300	.0182	-.1416	973.		

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.25.52.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24  
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PRESSURE  
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

.3350	-915.	258.	2051.	538.	1069.	-2204.	-.0197	-.0216	.0595	.1012	-.0566	-.0649	1690.
.3360	-739.	170.	1860.	583.	848.	-2183.	-.0135	-.0228	.0522	.0922	-.0532	-.0764	1627.
.3370	-542.	74.	1638.	605.	616.	-2158.	-.0072	-.0240	.0444	.0826	-.0487	-.0877	1566.
.3380	-320.	-38.	1383.	610.	378.	-2119.	-.0007	-.0251	.0364	.0728	-.0434	-.0983	1508.
.3390	-80.	-171.	1102.	603.	145.	-2061.	.0058	-.0261	.0283	.0633	-.0372	-.1082	1451.
.3400	165.	-324.	808.	587.	-80.	-1975.	.0122	-.0271	.0200	.0543	-.0299	-.1173	1390.
.3410	410.	-500.	506.	574.	-292.	-1851.	.0187	-.0280	.0118	.0462	-.0216	-.1252	1321.
.3420	658.	-703.	197.	570.	-484.	-1675.	.0252	-.0290	.0037	.0395	-.0127	-.1316	1239.
.3430	895.	-927.	-108.	614.	-653.	-1443.	.0315	-.0299	-.0042	.0345	-.0031	-.1366	1145.
.3440	1110.	-1163.	-399.	679.	-793.	-1155.	.0378	-.0308	-.0119	.0312	.0073	-.1400	1049.
.3450	1299.	-1408.	-676.	785.	-899.	-811.	.0439	-.0317	-.0192	.0300	.0182	-.1416	973.

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CONDITION 24

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ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	3	MEMBER	1	SEQUENCE	18	LOCATION	END	TYPE	EL						
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS		
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)		
.3460	1467.	-1655.	-940.	932.	-971.	-417.	.0497	-.0325	-.0261	.0309	.0294	-.1413	950.		
.3470	1611.	-1901.	-1188.	1113.	-1017.	17.	.0551	-.0333	-.0324	.0339	.0409	-.1392	1016.		
.3480	1735.	-2139.	-1421.	1317.	-1042.	478.	.0600	-.0340	-.0380	.0390	.0524	-.1352	1177.		
.3490	1848.	-2368.	-1641.	1537.	-1044.	949.	.0641	-.0345	-.0427	.0458	.0636	-.1292	1406.		
.3500	1944.	-2576.	-1839.	1756.	-1021.	1407.	.0674	-.0348	-.0465	.0539	.0742	-.1217	1665.		
.3510	2016.	-2752.	-2009.	1954.	-976.	1830.	.0697	-.0348	-.0492	.0626	.0842	-.1129	1921.		
.3520	2066.	-2890.	-2149.	2122.	-910.	2200.	.0709	-.0346	-.0508	.0715	.0930	-.1032	2150.		
.3530	2098.	-2986.	-2253.	2253.	-822.	2500.	.0709	-.0341	-.0512	.0800	.1003	-.0927	2335.		
.3540	2102.	-3033.	-2309.	2303.	-713.	2717.	.0696	-.0332	-.0504	.0874	.1059	-.0820	2461.		
.3550	2070.	-3021.	-2311.	2358.	-584.	2839.	.0672	-.0320	-.0485	.0931	.1097	-.0715	2519.		
.3560	2004.	-2945.	-2262.	2333.	-440.	2860.	.0637	-.0304	-.0457	.0970	.1113	-.0614	2506.		
.3570	1911.	-2808.	-2165.	2263.	-290.	2782.	.0592	-.0286	-.0419	.0989	.1104	-.0519	2425.		
.3580	1790.	-2613.	-2017.	2149.	-146.	2613.	.0537	-.0264	-.0374	.0985	.1071	-.0432	2282.		
.3590	1643.	-2365.	-1819.	1997.	-7.	2358.	.0475	-.0240	-.0324	.0959	.1014	-.0355	2083.		
.3600	1469.	-2063.	-1580.	1819.	125.	2026.	.0407	-.0213	-.0268	.0910	.0934	-.0290	1837.		
.3610	1269.	-1713.	-1305.	1619.	244.	1624.	.0335	-.0185	-.0210	.0841	.0832	-.0236	1554.		
.3620	1047.	-1328.	-1000.	1400.	346.	1171.	.0261	-.0156	-.0151	.0754	.0712	-.0196	1252.		
.3630	817.	-925.	-672.	1168.	429.	684.	.0186	-.0127	-.0091	.0651	.0576	-.0166	957.		
.3640	583.	-517.	-334.	929.	492.	178.	.0111	-.0099	-.0031	.0538	.0427	-.0148	718.		
.3650	349.	-114.	6.	684.	530.	-334.	.0039	-.0071	.0027	.0419	.0270	-.0139	625.		
.3660	119.	272.	336.	435.	546.	-836.	-.0029	-.0046	.0083	.0296	.0110	-.0139	734.		
.3670	-97.	624.	649.	187.	539.	-1310.	-.0093	-.0022	.0137	.0176	-.0052	-.0146	963.		
.3680	-296.	933.	938.	-58.	510.	-1742.	-.0152	-.0002	.0188	.0061	-.0211	-.0158	1224.		
.3690	-482.	1194.	1200.	-299.	465.	-2123.	-.0204	.0015	.0236	-.0045	-.0364	-.0174	1479.		
.3700	-661.	1407.	1433.	-534.	417.	-2447.	-.0249	.0029	.0280	-.0141	-.0507	-.0195	1712.		
.3710	-835.	1570.	1639.	-763.	372.	-2709.	-.0287	.0039	.0321	-.0226	-.0638	-.0219	1913.		
.3720	-1004.	1681.	1816.	-984.	333.	-2903.	-.0317	.0045	.0359	-.0299	-.0753	-.0244	2078.		
.3730	-1162.	1736.	1962.	-1196.	304.	-3027.	-.0341	.0049	.0393	-.0360	-.0852	-.0269	2204.		
.3740	-1305.	1734.	2078.	-1400.	288.	-3081.	-.0357	.0050	.0422	-.0407	-.0933	-.0290	2289.		
.3750	-1430.	1679.	2160.	-1595.	282.	-3067.	-.0368	.0049	.0448	-.0441	-.0993	-.0306	2338.		
.3760	-1532.	1576.	2203.	-1778.	285.	-2991.	-.0374	.0046	.0467	-.0463	-.1032	-.0315	2353.		
.3770	-1602.	1430.	2203.	-1945.	293.	-2854.	-.0374	.0043	.0481	-.0472	-.1050	-.0312	2336.		
.3780	-1638.	1248.	2159.	-2092.	303.	-2660.	-.0370	.0040	.0489	-.0470	-.1046	-.0297	2290.		
.3790	-1637.	1040.	2070.	-2215.	310.	-2414.	-.0362	.0037	.0489	-.0459	-.1020	-.0269	2218.		
.3800	-1603.	821.	1931.	-2305.	312.	-2124.	-.0349	.0036	.0480	-.0439	-.0973	-.0225	2123.		
.3810	-1537.	605.	1745.	-2354.	306.	-1795.	-.0333	.0037	.0462	-.0413	-.0906	-.0167	2006.		
.3820	-1439.	400.	1513.	-2356.	282.	-1433.	-.0313	.0040	.0434	-.0384	-.0822	-.0093	1869.		
.3830	-1307.	209.	1242.	-2307.	235.	-1039.	-.0268	.0046	.0395	-.0355	-.0725	-.0005	1713.		

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DIS/ADLPIPE

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83/12/02.

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

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INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING



.3730	-1162.	1736.	1962.	-1196.	304.	-3027.	-0.341	.0049	.0393	-.0360	-.0852	-.0269	2204.
.3740	-1305.	1734.	2078.	-1400.	288.	-3081.	-.0357	.0050	.0422	-.0407	-.0933	-.0290	2289.
.3750	-1430.	1679.	2160.	-1595.	282.	-3067.	-.0368	.0049	.0448	-.0441	-.0993	-.0306	2338.
.3760	-1522.	1576.	2203.	-1778.	285.	-2991.	-.0374	.0046	.0467	-.0463	-.1032	-.0315	2353.
.3770	-1602.	1430.	2203.	-1945.	293.	-2854.	-.0374	.0043	.0481	-.0472	-.1050	-.0312	2336.
.3780	-1638.	1248.	2159.	-2092.	292.	-2660.	-.0370	.0040	.0489	-.0470	-.1046	-.0297	2290.
.3790	-1637.	1040.	2070.	-2215.	310.	-2414.	-.0362	.0037	.0489	-.0459	-.1020	-.0269	2218.
.3800	-1603.	821.	1931.	-2305.	312.	-2124.	-.0349	.0036	.0480	-.0439	-.0973	-.0225	2123.
.3810	-1537.	605.	1745.	-2354.	306.	-1795.	-.0333	.0037	.0462	-.0413	-.0906	-.0167	2006.
.3820	-1439.	400.	1513.	-2356.	282.	-1433.	-.0313	.0040	.0434	-.0384	-.0822	-.0093	1869.
.3830	-1307.	209.	1242.	-2307.	235.	-1039.	-.0288	.0046	.0395	-.0355	-.0725	-.0005	1713.

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
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INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	3	MEMBER	1	SEQUENCE	18	LOCATION	END	TYPE	EL	DZ	RX	RY	RZ	STRESS
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)
.3840	-1145.	41.	938.	-2203.	165.	-619.	-.0260	.0055	.0345	-.0327	-.0617	.0095	1547.	
.3850	-963.	-96.	613.	-2047.	71.	-186.	-.0229	.0067	.0284	-.0307	-.0503	.0205	1386.	
.3860	-775.	-192.	281.	-1843.	-41.	248.	-.0195	.0082	.0212	-.0299	-.0385	.0321	1253.	
.3870	-585.	-247.	-46.	-1598.	-167.	675.	-.0160	.0101	.0132	-.0307	-.0268	.0439	1175.	
.3880	-403.	-261.	-352.	-1328.	-298.	1085.	-.0123	.0123	.0045	-.0333	-.0156	.0555	1173.	
.3890	-241.	-232.	-624.	-1047.	-423.	1463.	-.0087	.0148	-.0047	-.0382	-.0050	.0667	1246.	
.3900	-109.	-157.	-853.	-772.	-531.	1794.	-.0053	.0175	-.0141	-.0453	.0048	.0770	1364.	
.3910	-10.	-41.	-1036.	-516.	-615.	2067.	-.0022	.0204	-.0234	-.0544	.0136	.0863	1495.	
.3920	64.	105.	-1175.	-293.	-674.	2281.	.0003	.0234	-.0323	-.0653	.0216	.0948	1615.	
.3930	121.	268.	-1273.	-113.	-708.	2436.	.0023	.0266	-.0404	-.0771	.0286	.1026	1712.	
.3940	168.	438.	-1340.	19.	-718.	2533.	.0036	.0297	-.0477	-.0892	.0350	.1098	1775.	
.3950	208.	611.	-1386.	102.	-703.	2574.	.0042	.0327	-.0538	-.1007	.0407	.1166	1800.	
.3960	245.	781.	-1423.	143.	-669.	2568.	.0041	.0355	-.0586	-.1110	.0462	.1232	1791.	
.3970	287.	936.	-1459.	149.	-621.	2530.	.0034	.0381	-.0621	-.1191	.0513	.1299	1759.	
.3980	342.	1068.	-1502.	132.	-566.	2475.	.0021	.0404	-.0643	-.1244	.0562	.1367	1714.	
.3990	402.	1174.	-1553.	101.	-504.	2416.	.0005	.0422	-.0651	-.1268	.0508	.1435	1665.	
.4000	456.	1260.	-1611.	67.	-436.	2357.	-.0014	.0436	-.0649	-.1261	.0552	.1501	1617.	

MAXIMUM VALUE OF STRESS OCCURS AT

TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)
.0670	4653.	1167.	-5762.	8268.	-1028.	6316.	.0457	.0422	-.1459	.0909	.2504	.2824	7047.

SECTION	3	MEMBER	2	SEQUENCE	20	LOCATION	END	TYPE	RU	DZ	RX	RY	RZ	STRESS
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)
0.0000	0.	0.	0.	0.	0.	0.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.
.0010	-2.	2.	-1.	-1.	0.	2.	-.0000	-.0000	-.0000	.0000	.0000	-.0000	-.0000	2.
.0020	-9.	5.	-5.	-7.	2.	9.	-.0000	-.0000	-.0000	.0000	.0001	-.0001	-.0001	8.
.0030	-11.	-7.	-4.	-12.	9.	16.	-.0000	-.0001	-.0000	-.0000	.0004	-.0002	-.0002	15.
.0040	-0.	-49.	8.	-15.	23.	21.	-.0000	-.0001	-.0001	-.0001	.0010	-.0002	-.0002	23.
.0050	16.	-112.	19.	-27.	41.	36.	.0001	-.0003	-.0002	-.0002	.0019	-.0001	-.0001	41.
.0060	28.	-183.	15.	-60.	64.	68.	.0003	-.0005	-.0004	.0001	.0032	-.0001	-.0001	75.
.0070	42.	-276.	-3.	-108.	97.	115.	.0006	-.0008	-.0007	.0006	.0050	.0001	.0001	125.

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ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

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ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING



TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	STRESS (PSI)
0.0000	0.	0.	0.	0.	0.	0.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.
.0010	-2.	2.	-1.	-1.	0.	2.	-0.0000	-0.0000	-0.0000	.0000	.0000	-0.0000	2.
.0020	-9.	5.	-5.	-7.	2.	9.	-0.0000	-0.0000	-0.0000	.0000	.0001	-0.0001	8.
.0030	-11.	-7.	-4.	-12.	9.	16.	-0.0000	-0.0001	-0.0000	-0.0000	.0004	-0.0002	15.
.0040	-0.	-49.	8.	-15.	23.	21.	-0.0000	-0.0001	-0.0001	-0.0001	.0010	-0.0002	23.
.0050	16.	-112.	19.	-27.	41.	36.	.0001	-0.0003	-0.0002	-0.0002	.0019	-0.0001	41.
.0060	28.	-183.	15.	-60.	64.	68.	.0003	-0.0005	-0.0004	.0001	.0032	-0.0001	75.
.0070	42.	-276.	-3.	-108.	97.	115.	.0006	-0.0008	-0.0007	.0006	.0050	.0001	125.

ADLPIPE PAGE 200 DIS/ADLPIPE ADLPIPE STRESS ANALYSIS 83/12/02. 18.25.52.  
 S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
 2 SAFETY COLD FKW24F--2 PSV

CONDITION 24  
 LOADS  
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INTERNAL FORCES IN THE PIPING  
 FORCES AND MOMENTS ACT ON THE PIPING

SECTION	MEMBER	SEQUENCE	LOCATION	END	TYPE	RU	TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	STRESS (PSI)
3	2	20					.0080	75.	-427.	-18.	-161.	157.	177.	.0012	-0.0013	-0.0011	.0015	.0077	.0005	193.
							.0090	128.	-660.	-3.	-207.	282.	267.	.0021	-0.0019	-0.0016	.0022	.0121	.0012	297.
							.0100	169.	-939.	38.	-251.	468.	409.	.0033	-0.0027	-0.0022	.0029	.0188	.0018	452.
							.0110	186.	-1207.	53.	-316.	663.	598.	.0051	-0.0036	-0.0031	.0042	.0274	.0027	638.
							.0120	203.	-1434.	-13.	-421.	834.	808.	.0074	-0.0045	-0.0045	.0073	.0366	.0046	833.
							.0130	219.	-1601.	-158.	-568.	984.	1045.	.0104	-0.0055	-0.0067	.0122	.0466	.0075	1040.
							.0140	217.	-1709.	-349.	-732.	1124.	1306.	.0137	-0.0064	-0.0094	.0179	.0581	.0111	1263.
							.0150	236.	-1790.	-580.	-906.	1253.	1540.	.0174	-0.0071	-0.0128	.0242	.0706	.0155	1471.
							.0160	336.	-1910.	-850.	-1072.	1397.	1702.	.0212	-0.0076	-0.0170	.0313	.0832	.0209	1651.
							.0170	530.	-2130.	-1095.	-1220.	1491.	1796.	.0252	-0.0081	-0.0219	.0379	.0961	.0271	1776.
							.0180	827.	-2471.	-1283.	-1338.	1390.	1814.	.0296	-0.0084	-0.0276	.0431	.1086	.0338	1785.
							.0190	1231.	-2854.	-1496.	-1441.	1070.	1749.	.0345	-0.0086	-0.0341	.0485	.1171	.0414	1689.
							.0200	1586.	-3072.	-1752.	-1505.	605.	1708.	.0397	-0.0085	-0.0408	.0536	.1207	.0489	1587.
							.0210	1586.	-2920.	-1853.	-1385.	391.	1876.	.0438	-0.0081	-0.0460	.0531	.1260	.0514	1594.
							.0220	1090.	-2336.	-1635.	-1003.	648.	2245.	.0459	-0.0070	-0.0483	.0424	.1395	.0457	1714.
							.0230	457.	-1361.	-1500.	-595.	926.	2497.	.0468	-0.0050	-0.0497	.0301	.1491	.0379	1839.
							.0240	84.	-187.	-1805.	-378.	1272.	2431.	.0465	-0.0022	-0.0514	.0254	.1444	.0349	1867.
							.0250	-76.	776.	-1949.	-122.	1346.	2047.	.0444	.0009	-0.0532	.0184	.1388	.0320	1654.
							.0260	141.	1181.	-1637.	258.	424.	1156.	.0416	.0045	-0.0554	.0049	.1350	.0282	848.
							.0270	1140.	1208.	-1757.	365.	-728.	-361.	.0385	.0082	-0.0586	.0021	.1104	.0339	600.
							.0280	2149.	1508.	-2313.	281.	-1055.	-1838.	.0329	.0116	-0.0599	.0070	.0725	.0409	1441.
							.0290	1985.	2188.	-1846.	758.	-1054.	-2689.	.0232	.0147	-0.0562	-0.0114	.0526	.0257	2012.
							.0300	1666.	2464.	-674.	1673.	-805.	-3624.	.0128	.0177	-0.0484	-0.0417	.0653	.0006	2745.
							.0310	1999.	2486.	-427.	1887.	-599.	-4614.	.0047	.0183	-0.0422	-0.0507	.0412	-0.0130	3384.
							.0320	2432.	2574.	-849.	1462.	-1471.	-5246.	-0.0003	.0160	-0.0394	-0.0430	-0.0002	-0.0215	3802.
							.0330	2560.	2401.	-793.	1402.	-2426.	-5652.	-0.0038	.0127	-0.0352	-0.0385	-0.0296	-0.0379	4252.
							.0340	2400.	2055.	-429.	1613.	-2418.	-5763.	-0.0071	.0081	-0.0273	-0.0366	-0.0480	-0.0612	4350.
							.0350	1824.	2135.	-529.	1292.	-2514.	-5181.	-0.0100	.0010	-0.0197	-0.0276	-0.0713	-0.0869	3978.
							.0360	1243.	2253.	-974.	690.	-3481.	-4396.	-0.0107	-0.0074	-0.0144	-0.0089	-0.1063	-0.1103	3808.
							.0370	1217.	1489.	-1022.	643.	-4096.	-4017.	-0.0102	-0.0157	-0.0075	.0130	-0.1454	-0.1290	3891.
							.0380	1005.	309.	-333.	1020.	-3759.	-3271.	-0.0121	-0.0249	.0034	.0247	-0.1713	-0.1524	3428.
							.0390	-89.	-258.	546.	1137.	-3678.	-1724.	-0.0172	-0.0351	.0159	.0259	-0.1870	-0.1855	2843.
							.0400	-927.	-716.	977.	1115.	-4048.	-715.	-0.0225	-0.0433	.0289	.0346	-0.2206	-0.2119	2871.
							.0410	-1105.	-1859.	1699.	1487.	-3202.	-457.	-0.0293	-0.0491	.0471	.0414	-0.2559	-0.2302	2400.
							.0420	-2222.	-2780.	3536.	1986.	-1618.	677.	-0.0417	-0.0556	.0711	.0208	-0.2526	-0.2609	1786.
							.0430	-3983.	-2843.	5184.	1977.	-685.	2170.	-0.0564	-0.0611	.0949	-0.0039	-0.2380	-0.2922	2032.
							.0440	-4492.	-2947.	5473.	1530.	207.	2114.	-0.0685	-0.0619	.1166	-0.0004	-0.2526	-0.2965	1770.
							.0450	-4536.	-3284.	5767.	979.	1881.	1487.	-0.0808	-0.0601	.1393	.0018	-0.2518	-0.2900	1746.

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INTERNAL FORCES IN THE PIPING  
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.0340	2400.	2055.	-429.	1613.	-2418.	-5763.	-.071	.0081	-.0273	-.0366	-.0480	-.0612	4350.
.0350	1824.	2135.	-529.	1292.	-2514.	-5181.	-.100	.0010	-.0197	-.0276	-.0713	-.0869	3978.
.0360	1243.	2253.	-974.	690.	-3481.	-4396.	-.107	-.0074	-.0144	-.0089	-.1063	-.1103	3808.
.0370	1217.	1489.	-1022.	643.	-4096.	-4017.	-.0102	-.0157	-.0075	.0130	-.1454	-.1290	3891.
.0380	1005.	309.	-333.	1020.	-3759.	-3271.	-.0121	-.0249	.0034	.0247	-.1713	-.1524	3428.
.0390	-89.	-258.	546.	1137.	-3678.	-1724.	-.0172	-.0351	.0159	.0259	-.1870	-.1855	2843.
.0400	-927.	-716.	977.	1115.	-4048.	-715.	-.0225	-.0433	.0289	.0346	-.2206	-.2119	2871.
.0410	-1105.	-1859.	1699.	1487.	-3202.	-457.	-.0293	-.0491	.0471	.0414	-.2559	-.2302	2400.
.0420	-2223.	-2780.	3536.	1986.	-1618.	677.	-.0417	-.0556	.0711	.0208	-.2526	-.2609	1786.
.0430	-3983.	-2843.	5184.	1977.	-685.	2170.	-.0564	-.0611	.0949	-.0039	-.2320	-.2922	2032.
.0440	-4492.	-2947.	5473.	1530.	287.	2114.	-.0685	-.0619	.1166	-.0004	-.2526	-.2965	1770.
.0450	-4536.	-3284.	5767.	979.	1881.	1487.	-.0808	-.0601	.1393	.0018	-.2518	-.2900	1746.

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INTERNAL FORCES IN THE PIPING  
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SECTION	MEMBER	SEQUENCE	LOCATION	END	TYPE	RU	TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	STRESS (PSI)
.0460	3	2					.0460	-5533.	-3051.	6752.	134.	3095.	1830.	-.0954	-.0591	.1602	-.0171	-.2031	-.2905	2425.
.0470	3	2					.0470	-5860.	-2496.	6607.	-1174.	3340.	1577.	-.1055	-.0554	.1719	-.0116	-.1667	-.2682	2612.
.0480	3	2					.0480	-4249.	-2512.	4987.	-2452.	3433.	-407.	-.1075	-.0469	.1740	.0339	-.1382	-.2078	2857.
.0490	3	2					.0490	-2860.	-2621.	4086.	-3247.	3756.	-1895.	-.1074	-.0380	.1718	.0643	-.1399	-.1476	3582.
.0500	3	2					.0500	-2938.	-1846.	4092.	-3707.	3782.	-1774.	-.1070	-.0302	.1648	.0665	-.0695	-.1041	3764.
.0510	3	2					.0510	-2485.	-651.	2975.	-3885.	3569.	-2136.	-.0997	-.0193	.1479	.0903	-.0303	-.0450	3836.
.0520	3	2					.0520	-958.	127.	1210.	-3396.	3469.	-3343.	-.0850	-.0053	.1235	.1308	-.0249	.0307	3973.
.0530	3	2					.0530	-391.	837.	922.	-2218.	3274.	-3143.	-.0695	.0062	.0972	.1335	.0124	.0860	3405.
.0540	3	2					.0540	-837.	2004.	1290.	-873.	2895.	-1697.	-.0541	.0156	.0688	.1087	.0648	.1272	2337.
.0550	3	2					.0550	-547.	3306.	389.	449.	2558.	-1211.	-.0345	.0279	.0363	.1016	.0720	.1664	1932.
.0560	3	2					.0560	71.	4333.	-662.	1974.	2104.	-1246.	-.0133	.0412	.0030	.0919	.0623	.2069	2118.
.0570	3	2					.0570	-178.	5032.	-272.	3578.	1414.	-105.	.0044	.0503	-.0269	.0454	.0844	.2230	2594.
.0580	3	2					.0580	-329.	5356.	265.	4892.	882.	1238.	.0203	.0568	-.0544	-.0062	.1037	.2337	3446.
.0590	3	2					.0590	373.	5445.	-242.	5927.	641.	1363.	.0369	.0648	-.0806	-.0332	.0910	.2530	4122.
.0600	3	2					.0600	637.	5614.	-519.	6898.	412.	1413.	.0505	.0720	-.1023	-.0625	.0927	.2601	4755.
.0610	3	2					.0610	178.	5670.	21.	7548.	219.	2344.	.0598	.0744	-.1189	-.1022	.1276	.2524	5330.
.0620	3	2					.0620	546.	5124.	-26.	7629.	263.	2866.	.0694	.0740	-.1336	-.1132	.1508	.2575	5496.
.0630	3	2					.0630	1780.	4228.	-1016.	7328.	221.	2383.	.0805	.0730	-.1474	-.0871	.1555	.2765	5196.
.0640	3	2					.0640	2393.	3619.	-1865.	6747.	-123.	2147.	.0895	.0696	-.1577	-.0544	.1822	.2852	4773.
.0650	3	2					.0650	2543.	3158.	-2628.	5647.	-396.	2452.	.0959	.0622	-.1639	-.0165	.2251	.2859	4158.
.0660	3	2					.0660	3435.	2304.	-4094.	4055.	-542.	2248.	.1029	.0527	-.1682	.0467	.2464	.2958	3146.
.0670	3	2					.0670	4653.	1167.	-5762.	2386.	-1028.	1566.	.1098	.0423	-.1702	.1211	.2528	.3048	2045.
.0680	3	2					.0680	5162.	157.	-6784.	816.	-1680.	1335.	.1131	.0298	-.1673	.1796	.2675	.2942	1547.
.0690	3	2					.0690	5225.	-800.	-7374.	-725.	-1811.	1486.	.1120	.0155	-.1583	.2214	.2771	.2671	1653.
.0700	3	2					.0700	5274.	-1914.	-7715.	-2061.	-1491.	1455.	.1078	.0012	-.1440	.2492	.2674	.2280	1975.
.0710	3	2					.0710	4899.	-3073.	-7335.	-2966.	-1216.	1441.	.0999	-.0126	-.1247	.2507	.2512	.1695	2369.
.0720	3	2					.0720	4061.	-4190.	-6306.	-3623.	-975.	1715.	.0883	-.0267	-.1020	.2260	.2306	.0937	2780.
.0730	3	2					.0730	3389.	-5389.	-5259.	-4276.	-735.	1906.	.0751	-.0405	-.0780	.1905	.1890	.0141	3194.
.0740	3	2					.0740	2924.	-6626.	-4197.	-4784.	-759.	1802.	.0617	-.0528	-.0540	.1465	.1295	-.0664	3484.
.0750	3	2					.0750	2098.	-7557.	-2762.	-4965.	-860.	1781.	.0472	-.0633	-.0291	.0871	.0727	-.1531	3602.
.0760	3	2					.0760	837.	-7910.	-1221.	-4961.	-691.	2048.	.0317	-.0722	-.0043	.0199	.0217	-.2408	3648.
.0770	3	2					.0770	-348.	-7804.	-60.	-4916.	-621.	2255.	.0175	-.0789	.0171	-.0385	-.0343	-.3166	3669.
.0780	3	2					.0780	-1097.	-7565.	774.	-4711.	-1062.	2105.	.0062	-.0830	.0338	-.0822	-.0952	-.3733	3551.
.0790	3	2					.0790	-1571.	-7232.	1570.	-4249.	-1533.	1800.	-.0034	-.0846	.0471	-.1152	-.1484	-.4122	3278.
.0800	3	2					.0800	-2174.	-6465.	2344.	-3601.	-1531.	1627.	-.0135	-.0840	.0584	-.1402	-.1843	-.4371	2856.
.0810	3	2					.0810	-2880.	-5172.	2895.	-2847.	-1454.	1357.	-.0237	-.0802	.0669	-.1536	-.2061	-.4473	2341.
.0820	3	2					.0820	-3096.	-3854.	3095.	-2057.	-1698.	536.	-.0323	-.0732	.0718	-.1497	-.2246	-.4358	1834.
.0830	3	2					.0830	-2590.	-2890.	3078.	-1360.	-1969.	-710.	-.0399	-.0644	.0742	-.1309	-.2410	-.4014	1683.

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.0730	3389.	-5389.	-5259.	-4276.	-735.	1906.	.6751	-.0405	-.0780	.1905	.1890	.0141	3194.
.0740	2924.	-6626.	-4197.	-4784.	-759.	1802.	.0617	-.0528	-.0540	.1465	.1295	-.0664	3484.
.0750	2098.	-7557.	-2762.	-4965.	-860.	1781.	.0472	-.0633	-.0291	.0871	.0727	-.1531	3602.
.0760	837.	-7910.	-1221.	-4961.	-691.	2048.	.0317	-.0722	-.0043	.0159	.0217	-.2408	3648.
.0770	-749.	-7804.	-60.	-4916.	-621.	2255.	.0175	-.0789	.0171	-.0385	-.0343	-.3166	3669.
.0780	-1097.	-7565.	774.	-4711.	-1062.	2105.	.0062	-.0830	.0338	-.0822	-.0952	-.3733	3551.
.0790	-1571.	-7232.	1570.	-4249.	-1533.	1800.	-.0034	-.0846	.0471	-.1152	-.1484	-.4122	3278.
.0800	-2174.	-6465.	2344.	-3601.	-1531.	1627.	-.0135	-.0840	.0584	-.1402	-.1843	-.4371	2856.
.0810	-2880.	-5172.	2895.	-2847.	-1454.	1357.	-.0237	-.0802	.0669	-.1536	-.2061	-.4473	2341.
.0820	-3096.	-3854.	3095.	-2057.	-1698.	536.	-.0323	-.0732	.0718	-.1497	-.2246	-.4358	1834.
.0830	-2590.	-2890.	3076.	-1360.	-1969.	-710.	-.0399	-.0644	.0742	-.1309	-.2410	-.4014	1683.

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.25.52.

S/RV PIPING KEWAUNEE GKW02F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	3	MEMBER	2	SEQUENCE	20	LOCATION	END	TYPE	RU	DX	DY	DZ	RX	RY	RZ	STRESS
TIME	FX	FY	FZ	MX	MY	MZ				(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)										
.0840	-1964.	-1945.	3076.	-807.	-2053.	-1888.	-.0482	-.0547	.0760	-.1082	-.2453	-.3549				1957.
.0850	-1656.	-611.	3034.	-310.	-2085.	-3016.	-.0576	-.0431	.0793	-.0859	-.2374	-.3049				2480.
.0860	-1410.	925.	2807.	173.	-1926.	-4349.	-.0671	-.0293	.0813	-.0619	-.2271	-.2504				3208.
.0870	-1132.	2311.	2651.	588.	-1387.	-5533.	-.0766	-.0156	.0856	-.0409	-.2134	-.1931				3865.
.0880	-1089.	3539.	2838.	973.	-744.	-6161.	-.0860	-.0032	.0902	-.0286	-.1901	-.1386				4234.
.0890	-1166.	4660.	3081.	1472.	-203.	-6582.	-.0937	.0088	.0936	-.0179	-.1660	-.0864				4548.
.0900	-1118.	5563.	3149.	2131.	489.	-7049.	-.0987	.0207	.0952	-.0030	-.1482	-.0342				4975.
.0910	-1213.	6194.	3397.	2868.	1407.	-7031.	-.1018	.0304	.0954	.0078	-.1245	.0124				5205.
.0920	-1546.	6541.	3923.	3620.	2190.	-6352.	-.1024	.0372	.0931	.0131	-.0908	.0511				5144.
.0930	-1567.	6506.	4132.	4351.	2611.	-5669.	-.0982	.0423	.0862	.0283	-.0655	.0907				5128.
.0940	-1149.	6119.	3818.	4975.	2757.	-5125.	-.0890	.0458	.0751	.0575	-.0538	.1330				5161.
.0950	-927.	5624.	3508.	5421.	2758.	-4070.	-.0771	.0462	.0621	.0849	-.0376	.1671				4933.
.0960	-1129.	5179.	3355.	5704.	2772.	-2464.	-.0642	.0439	.0494	.1040	-.0120	.1881				4586.
.0970	-1355.	4756.	2947.	5838.	2906.	-957.	-.0499	.0407	.0371	.1235	.0088	.2016				4443.
.0980	-1522.	4307.	2299.	5751.	3004.	365.	-.0350	.0366	.0254	.1425	.0232	.2084				4381.
.0990	-1755.	3704.	1815.	5376.	2892.	1779.	-.0213	.0306	.0149	.1519	.0403	.2053				4286.
.1000	-1786.	2784.	1457.	4745.	2695.	2968.	-.0092	.0236	.0064	.1527	.0559	.1954				4187.
.1010	-1482.	1660.	969.	3924.	2562.	3541.	.0012	.0171	-.0002	.1496	.0634	.1815				3959.
.1020	-1217.	628.	493.	2935.	2382.	3772.	.0088	.0112	-.0047	.1381	.0700	.1596				3600.
.1030	-1049.	-345.	211.	1811.	2077.	3905.	.0138	.0051	-.0075	.1161	.0793	.1303				3222.
.1040	-573.	-1482.	-38.	645.	1767.	3690.	.0177	-.0006	-.0094	.0912	.0826	.1012				2792.
.1050	93.	-2571.	-355.	-476.	1479.	3143.	.0212	-.0054	-.0107	.0659	.0792	.0730				2363.
.1060	356.	-3140.	-616.	-1524.	1164.	2712.	.0235	-.0095	-.0115	.0351	.0799	.0394				2239.
.1070	253.	-3210.	-845.	-2464.	952.	2447.	.0250	-.0128	-.0123	.0010	.0849	.0026				2427.
.1080	310.	-3186.	-1177.	-3231.	784.	2033.	.0274	-.0151	-.0142	-.0286	.0348	-.0288				2627.
.1090	599.	-3227.	-1490.	-3751.	538.	1506.	.0311	-.0166	-.0180	-.0531	.0811	-.0533				2749.
.1100	608.	-3118.	-1514.	-4057.	641.	1251.	.0338	-.0179	-.0222	-.0825	.0916	-.0792				2894.
.1110	554.	-2766.	-1736.	-4387.	293.	974.	.0372	-.0182	-.0295	-.1068	.1030	-.1012				3035.
.1120	1259.	-2668.	-2581.	-4827.	-683.	105.	.0437	-.0173	-.0413	-.1123	.0946	-.1069				3287.
.1130	2459.	-3048.	-3390.	-5158.	-1575.	-896.	.0513	-.0163	-.0546	-.1119	.0820	-.1024				3685.
.1140	3140.	-3355.	-3607.	-5236.	-2219.	-1274.	.0575	-.0161	-.0667	-.1218	.0873	-.1032				3928.
.1150	3355.	-3203.	-3869.	-5176.	-2879.	-1384.	.0634	-.0151	-.0785	-.1308	.0937	-.1058				4100.
.1160	3765.	-2925.	-4598.	-5048.	-3361.	-1739.	.0705	-.0128	-.0903	-.1271	.0830	-.1003				4253.
.1170	3967.	-2730.	-4966.	-4758.	-3681.	-1679.	.0769	-.0114	-.1000	-.1269	.0762	-.0952				4209.
.1180	3721.	-2571.	-4738.	-4278.	-3698.	-988.	.0814	-.0112	-.1069	-.1352	.0828	-.0948				3869.
.1190	3389.	-2211.	-4739.	-3805.	-4306.	-319.	.0860	-.0107	-.1143	-.1339	.0792	-.0906				3879.
.1200	3598.	-2011.	-5261.	-3340.	-5031.	-208.	.0912	-.0089	-.1214	-.1141	.0520	-.0740				4073.
.1210	3870.	-2223.	-5274.	-2633.	-4772.	20.	.0934	-.0077	-.1230	-.0976	.0306	-.0564				3673.

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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18.25.52.

S/RV PIPING KEWAUNEE GKW02F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING



.1100	651.	-2118.	-1714.	-4057.	241.	1251.	.0338	-.0179	-.0222	-.0825	.0716	-.0792	2894.
.1110	554.	-2766.	-1736.	-4387.	293.	974.	.0372	-.0182	-.0295	-.1068	.1030	-.1012	3035.
.1120	1259.	-2668.	-2581.	-4827.	-693.	105.	.0437	-.0173	-.0413	-.1123	.0246	-.1069	3287.
.1130	2459.	-3048.	-3390.	-5158.	-1575.	-896.	.0513	-.0163	-.0546	-.1119	.0820	-.1024	3685.
.1140	3140.	-3355.	-3607.	-5236.	-2219.	-1274.	.0575	-.0161	-.0667	-.1218	.0873	-.1032	3928.
.1150	3355.	-3203.	-3869.	-5176.	-2679.	-1384.	.0634	-.0151	-.0785	-.1308	.0937	-.1058	4100.
.1160	3765.	-2925.	-4598.	-5048.	-3361.	-1739.	.0705	-.0128	-.0903	-.1271	.0830	-.1003	4253.
.1170	3967.	-2730.	-4966.	-4758.	-3681.	-1679.	.0769	-.0114	-.1000	-.1269	.0762	-.0952	4209.
.1180	3721.	-2571.	-4738.	-4278.	-3698.	-988.	.0814	-.0112	-.1069	-.1352	.0828	-.0948	3869.
.1190	3389.	-2211.	-4739.	-3805.	-4306.	-319.	.0860	-.0107	-.1143	-.1339	.0792	-.0906	3879.
.1200	3598.	-2011.	-5261.	-3340.	-5031.	-208.	.0912	-.0089	-.1214	-.1141	.0520	-.0740	4073.
.1210	3870.	-2223.	-5274.	-2633.	-4772.	20.	.0934	-.0077	-.1230	-.0976	.0306	-.0564	3673.

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.25.52.

S/RV PIPING KEWAUNEE GKWC0F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24  
LOADS  
SHOCK  
PRESSURE  
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	3	MEMBER	2	SEQUENCE	20	LOCATION	END	TYPE	RU						
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS		
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)		
.1220	3033.	-2135.	-4208.	-1734.	-4521.	1192.	.0903	-.0082	-.1194	-.1021	.0398	-.0547	3361.		
.1230	2301.	-1861.	-3532.	-917.	-4317.	1957.	.0855	-.0074	-.1135	-.0938	.0361	-.0473	3254.		
.1240	2351.	-1797.	-3562.	-301.	-4115.	1843.	.0805	-.0051	-.1061	-.0632	.0055	-.0248	3046.		
.1250	2151.	-1911.	-2936.	249.	-3718.	2044.	.0717	-.0042	-.0931	-.0431	-.0101	-.0067	2865.		
.1260	1338.	-1868.	-1639.	728.	-2805.	2699.	.0578	-.0044	-.0735	-.0381	-.0036	.0012	2669.		
.1270	441.	-1298.	-890.	922.	-2157.	2897.	.0422	-.0027	-.0518	-.0237	-.0083	.0109	2513.		
.1280	46.	-701.	-752.	915.	-1149.	2304.	.0258	.0008	-.0276	.0042	-.0303	.0292	1842.		
.1290	-743.	-220.	170.	866.	55.	2147.	.0058	.0028	.0006	.0139	-.0293	.0382	1561.		
.1300	-1829.	255.	1569.	690.	1025.	2299.	-.0162	.0038	.0301	.0108	-.0126	.0403	1759.		
.1310	-2046.	633.	1997.	302.	2102.	1416.	-.0364	.0071	.0574	.0269	-.0224	.0553	1721.		
.1320	-2057.	1110.	2057.	-159.	2737.	144.	-.0549	.0115	.0816	.0469	-.0399	.0720	1851.		
.1330	-2407.	1467.	2776.	-487.	3291.	-577.	-.0735	.0144	.1046	.0488	-.0379	.0789	2276.		
.1340	-2698.	1685.	3628.	-727.	3672.	-1050.	-.0897	.0164	.1241	.0443	-.0348	.0836	2620.		
.1350	-2522.	1978.	3759.	-876.	3858.	-1949.	-.1012	.0198	.1380	.0512	-.0548	.0945	2973.		
.1360	-2508.	2496.	3784.	-746.	4252.	-2729.	-.1098	.0237	.1486	.0532	-.0767	.1000	3442.		
.1370	-3401.	3335.	4529.	-367.	4315.	-2486.	-.1172	.0258	.1565	.0301	-.0757	.0874	3366.		
.1380	-3987.	3959.	5087.	73.	4398.	-2190.	-.1207	.0275	.1601	.0060	-.0835	.0758	3312.		
.1390	-3937.	4361.	5000.	500.	4193.	-2339.	-.1193	.0299	.1578	-.0079	-.1123	.0715	3254.		
.1400	-4083.	4785.	5010.	992.	3563.	-2256.	-.1157	.0318	.1515	-.0298	-.1346	.0606	2920.		
.1410	-4322.	5013.	5264.	1503.	3106.	-1872.	-.1110	.0327	.1433	-.0615	-.1453	.0441	2646.		
.1420	-4246.	5000.	5279.	1867.	2410.	-1601.	-.1039	.0332	.1318	-.0901	-.1601	.0308	2321.		
.1430	-3705.	4715.	4915.	2145.	1747.	-1700.	-.0944	.0341	.1178	-.1098	-.1818	.0237	2189.		
.1440	-3445.	4451.	4748.	2405.	1059.	-1526.	-.0845	.0343	.1031	-.1336	-.1875	.0122	2048.		
.1450	-3381.	4209.	4649.	2516.	409.	-1061.	-.0742	.0333	.0879	-.1575	-.1794	-.0007	1861.		
.1460	-2782.	3735.	4004.	2360.	46.	-945.	-.0618	.0323	.0716	-.1647	-.1779	-.0024	1714.		
.1470	-2162.	3294.	3144.	1992.	-618.	-840.	-.0481	.0309	.0543	-.1630	-.1713	-.0003	1515.		
.1480	-1768.	2894.	2389.	1534.	-1044.	-503.	-.0346	.0286	.0378	-.1593	-.1487	.0012	1296.		
.1490	-1397.	2488.	1538.	919.	-1350.	-80.	-.0209	.0257	.0215	-.1487	-.1182	.0056	1102.		
.1500	-668.	1918.	322.	99.	-1879.	88.	-.0059	.0226	.0040	-.1244	-.0936	.0186	1270.		
.1510	376.	1065.	-998.	-771.	-2255.	64.	.0094	.0194	-.0131	-.0925	-.0714	.0375	1607.		
.1520	1021.	280.	-1934.	-1571.	-2661.	413.	.0233	.0153	-.0286	-.0674	-.0372	.0508	2102.		
.1530	1516.	-451.	-2761.	-2262.	-2747.	843.	.0359	.0114	-.0423	-.0439	-.0027	.0620	2465.		
.1540	2023.	-1160.	-3597.	-2833.	-2846.	1177.	.0478	.0080	-.0549	-.0200	.0234	.0732	2820.		
.1550	2384.	-1898.	-4114.	-3211.	-2882.	1633.	.0583	.0046	-.0653	-.0035	.0475	.0807	3110.		
.1560	2508.	-2631.	-4217.	-3365.	-2349.	2298.	.0663	.0012	-.0720	.0021	.0744	.0824	3170.		
.1570	2194.	-3001.	-4121.	-3422.	-2050.	3155.	.0724	-.0017	-.0772	-.0009	.1007	.0773	3428.		
.1580	2039.	-3271.	-4218.	-3435.	-1790.	3679.	.0777	-.0032	-.0814	-.0017	.1131	.0746	3601.		
.1590	2083.	-3645.	-4249.	-3384.	-1345.	3998.	.0817	-.0042	-.0840	-.0041	.1189	.0740	3645.		

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.25.52.

S/RV PIPING KEWAUNEE GKWC0F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24  
LOADS  
SHOCK  
PRESSURE  
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

.1490	-1397.	2488.	1538.	919.	-1350.	-80.	-1209	.0257	.0215	-1487	-1182	.0056	1102.
.1500	-668.	1918.	322.	99.	-1879.	88.	-10059	.0226	.0040	-1244	-0936	.0186	1270.
.1510	376.	1065.	-998.	-771.	-2255.	64.	.0094	.0194	-.0131	-.0925	-.0714	.0375	1607.
.1520	1021.	280.	-1934.	-1571.	-2661.	413.	.0233	.0153	-.0286	-.0674	-.0372	.0508	2102.
.1530	1516.	-451.	-2761.	-2262.	-2747.	843.	.0359	.0114	-.0423	-.0439	-.0027	.0620	2465.
.1540	2023.	-1160.	-3597.	-2833.	-2846.	1177.	.0478	.0080	-.0549	-.0200	.0234	.0732	2820.
.1550	2384.	-1898.	-4114.	-3211.	-2882.	1632.	.0583	.0046	-.0653	-.0035	.0475	.0807	3110.
.1560	2508.	-2631.	-4217.	-3365.	-2349.	2298.	.0663	.0012	-.0720	-.0021	.0744	.0824	3170.
.1570	2194.	-3001.	-4121.	-3422.	-2050.	3155.	.0724	-.0017	-.0772	-.0009	.1007	.0773	3428.
.1580	2039.	-3271.	-4218.	-3439.	-1790.	3679.	.0777	-.0032	-.0814	-.0017	.1131	.0746	3601.
.1590	2083.	-3645.	-4249.	-3384.	-1345.	3998.	.0817	-.0042	-.0840	-.0041	.1189	.0740	3645.

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.25.52.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24  
LOADS  
SHOCK  
PRESSURE  
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	3	MEMBER	2	SEQUENCE	20	LOCATION	END	TYPE	RU						
TIME (SEC)	FY (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)		DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	STRESS (PSI)	
.1600	1807.	-3839.	-3902.	-3306.	-1244.	4558.		.0835	-.0052	-.0853	-.0164	.1312	.0687	3887.	
.1610	1581.	-3830.	-3682.	-3221.	-1349.	4886.		.0843	-.0051	-.0862	-.0260	.1361	.0661	4048.	
.1620	1799.	-3831.	-3793.	-3036.	-970.	4619.		.0843	-.0030	-.0859	-.0259	.1270	.0721	3783.	
.1630	1572.	-3537.	-3481.	-2727.	-759.	4606.		.0818	-.0007	-.0838	-.0347	.1296	.0729	3644.	
.1640	1120.	-3050.	-2921.	-2374.	-612.	4723.		.0773	.0017	-.0804	-.0475	.1389	.0721	3586.	
.1650	1180.	-2614.	-2795.	-2065.	-267.	4267.		.0727	.0054	-.0769	-.0472	.1337	.0816	3201.	
.1660	1304.	-2038.	-2805.	-1804.	-280.	3596.		.0677	.0099	-.0735	-.0420	.1245	.0942	2718.	
.1670	1256.	-1386.	-2593.	-1541.	-301.	3042.		.0610	.0141	-.0688	-.0404	.1221	.1043	2308.	
.1680	1176.	-686.	-2354.	-1333.	-361.	2501.		.0534	.0181	-.0632	-.0386	.1196	.1142	1926.	
.1690	1401.	-54.	-2409.	-1155.	-240.	1613.		.0457	.0227	-.0571	-.0290	.1052	.1284	1347.	
.1700	1471.	642.	-2366.	-924.	-223.	787.		.0374	.0270	-.0501	-.0214	.0906	.1388	832.	
.1710	1100.	1451.	-1941.	-616.	-550.	384.		.0280	.0301	-.0423	-.0224	.0826	.1405	613.	
.1720	1026.	1954.	-1560.	-182.	-244.	-165.		.0186	.0328	-.0329	-.0199	.0653	.1438	233.	
.1730	802.	2435.	-1049.	380.	94.	-602.		.0088	.0349	-.0227	-.0198	.0466	.1420	484.	
.1740	200.	3000.	-284.	1034.	301.	-734.		-.0016	.0361	-.0118	-.0257	.0336	.1316	878.	
.1750	-317.	3387.	451.	1681.	668.	-832.		-.0115	.0362	-.0006	-.0293	.0174	.1199	1342.	
.1760	-672.	3553.	1106.	2250.	862.	-930.		-.0205	.0352	.0098	-.0286	-.0031	.1085	1741.	
.1770	-902.	3500.	1727.	2767.	1127.	-1052.		-.0286	.0332	.0202	-.0248	-.0235	.0965	2135.	
.1780	-1334.	3507.	2352.	3149.	1173.	-992.		-.0363	.0302	.0303	-.0214	-.0379	.0799	2362.	
.1790	-1638.	3455.	2707.	3334.	1355.	-1007.		-.0432	.0264	.0401	-.0119	-.0541	.0644	2519.	
.1800	-1772.	3261.	2881.	3348.	1592.	-1102.		-.0490	.0220	.0495	.0024	-.0707	.0500	2607.	
.1810	-2063.	3067.	3135.	3220.	1372.	-1013.		-.0540	.0165	.0579	.0147	-.0800	.0321	2456.	
.1820	-2110.	2696.	3198.	2976.	1406.	-1070.		-.0581	.0106	.0659	.0312	-.0907	.0166	2333.	
.1830	-2110.	2307.	3133.	2627.	1502.	-1164.		-.0615	.0046	.0732	.0486	-.1004	.0008	2185.	
.1840	-2213.	1932.	3127.	2240.	1523.	-1186.		-.0645	-.0015	.0796	.0618	-.1041	-.0182	1993.	
.1850	-2228.	1448.	3120.	1832.	1513.	-1245.		-.0666	-.0076	.0848	.0727	-.1059	-.0374	1808.	
.1860	-2081.	874.	3002.	1367.	1310.	-1361.		-.0673	-.0137	.0878	.0835	-.1098	-.0549	1572.	
.1870	-1734.	203.	2759.	902.	1199.	-1572.		-.0666	-.0194	.0888	.0940	-.1164	-.0701	1465.	
.1880	-1560.	-331.	2591.	476.	822.	-1630.		-.0648	-.0247	.0879	.0979	-.1188	-.0881	1271.	
.1890	-1383.	-779.	2362.	109.	447.	-1667.		-.0617	-.0294	.0853	.0985	-.1225	-.1059	1165.	
.1900	-1133.	-1173.	2048.	-172.	255.	-1708.		-.0574	-.0333	.0812	.0968	-.1292	-.1219	1170.	
.1910	-1150.	-1346.	1894.	-326.	-139.	-1497.		-.0524	-.0366	.0756	.0871	-.1314	-.1405	1037.	
.1920	-1207.	-1436.	1805.	-321.	-433.	-1248.		-.0467	-.0389	.0690	.0730	-.1327	-.1582	916.	
.1930	-1199.	-1481.	1700.	-208.	-587.	-1057.		-.0406	-.0401	.0616	.0569	-.1352	-.1730	827.	
.1940	-1263.	-1431.	1685.	-24.	-703.	-820.		-.0347	-.0404	.0537	.0364	-.1337	-.1864	728.	
.1950	-1366.	-1329.	1767.	216.	-758.	-591.		-.0292	-.0397	.0456	.0128	-.1267	-.1976	664.	
.1960	-1305.	-1270.	1790.	454.	-736.	-545.		-.0238	-.0378	.0370	-.0087	-.1179	-.2028	689.	
.1970	-1049.	-1259.	1691.	601.	-764.	-670.		-.0183	-.0350	.0278	-.0257	-.1077	-.2008	796.	

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24  
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INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING



.1870	-1734.	203.	2759.	902.	1199.	-1572.	-.0666	-.0194	.0888	.0940	-.1164	-.0701	1465.
.1880	-1560.	-331.	2591.	476.	822.	-1630.	-.0648	-.0247	.0879	.0979	-.1188	-.0881	1271.
.1890	-1783.	-779.	2362.	109.	447.	-1667.	-.0617	-.0294	.0853	.0985	-.1225	-.1059	1165.
.1900	-1133.	-1173.	2043.	-172.	255.	-1708.	-.0574	-.0333	.0812	.0968	-.1292	-.1219	1170.
.1910	-1150.	-1342.	1894.	-326.	-139.	-1497.	-.0524	-.0366	.0756	.0871	-.1314	-.1405	1037.
.1920	-1207.	-1436.	1805.	-211.	-433.	-1248.	-.0467	-.0389	.0690	.0730	-.1327	-.1582	916.
.1930	-1199.	-1481.	1700.	-208.	-587.	-1057.	-.0406	-.0401	.0616	.0569	-.1352	-.1730	827.
.1940	-1263.	-1431.	1685.	-24.	-703.	-820.	-.0347	-.0404	.0537	.0364	-.1337	-.1864	728.
.1950	-1366.	-1329.	1767.	216.	-758.	-591.	-.0292	-.0397	.0456	.0128	-.1267	-.1976	664.
.1960	-1365.	-1270.	1790.	454.	-736.	-545.	-.0238	-.0378	.0370	-.0087	-.1179	-.2028	689.
.1970	-1049.	-1259.	1691.	601.	-764.	-670.	-.0183	-.0350	.0278	-.0257	-.1077	-.2008	796.

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INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	3	MEMBER	2	SEQUENCE	20	LOCATION	END	TYPE	RU						
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	STRESS (PSI)		
.1980	-710.	-1239.	1514.	622.	-860.	-850.	-.0129	-.0317	.0181	-.0388	-.0929	-.1926	917.		
.1990	-336.	-1168.	1246.	555.	-870.	-1073.	-.0076	-.0279	.0085	-.0472	-.0729	-.1789	1003.		
.2000	40.	-1008.	852.	428.	-762.	-1322.	-.0021	-.0235	-.0010	-.0495	-.0485	-.1599	1068.		
.2010	388.	-767.	358.	240.	-659.	-1516.	.0037	-.0189	-.0108	-.0455	-.0202	-.1362	1126.		
.2020	776.	-542.	-216.	6.	-576.	-1642.	.0101	-.0146	-.0211	-.0352	.0103	-.1076	1173.		
.2030	1233.	-389.	-856.	-228.	-469.	-1722.	.0172	-.0104	-.0318	-.0187	.0412	-.0749	1213.		
.2040	1664.	-260.	-1515.	-417.	-392.	-1714.	.0248	-.0066	-.0428	.0018	.0723	-.0407	1218.		
.2050	2041.	-166.	-2153.	-540.	-371.	-1591.	.0327	-.0033	-.0542	.0245	.1022	-.0067	1160.		
.2060	2442.	-206.	-2739.	-579.	-348.	-1384.	.0408	-.0005	-.0655	.0484	.1284	.0267	1038.		
.2070	2843.	-392.	-3214.	-518.	-338.	-1082.	.0490	.0015	-.0764	.0710	.1500	.0577	840.		
.2080	3121.	-618.	-3555.	-358.	-397.	-640.	.0567	.0028	-.0864	.0902	.1670	.0838	562.		
.2090	3238.	-819.	-3779.	-110.	-452.	-76.	.0637	.0036	-.0950	.1051	.1784	.1038	318.		
.2100	3201.	-1005.	-3858.	220.	-396.	583.	.0696	.0038	-.1014	.1147	.1847	.1173	498.		
.2110	2984.	-1165.	-3746.	608.	-284.	1339.	.0739	.0033	-.1053	.1177	.1874	.1234	1009.		
.2120	2640.	-1282.	-3509.	1001.	-188.	2107.	.0767	.0025	-.1069	.1160	.1858	.1235	1577.		
.2130	2281.	-1384.	-3234.	1364.	-69.	2758.	.0778	.0014	-.1062	.1121	.1787	.1197	2074.		
.2140	1918.	-1486.	-2886.	1682.	83.	3265.	.0770	.0001	-.1032	.1062	.1690	.1123	2476.		
.2150	1548.	-1576.	-2458.	1921.	208.	3621.	.0741	-.0013	-.0979	.0985	.1589	.1019	2766.		
.2160	1271.	-1652.	-2072.	2032.	279.	3728.	.0694	-.0027	-.0909	.0923	.1462	.0910	2868.		
.2170	1136.	-1710.	-1785.	2010.	319.	3546.	.0632	-.0040	-.0822	.0894	.1303	.0809	2755.		
.2180	1045.	-1713.	-1509.	1884.	326.	3167.	.0555	-.0051	-.0719	.0877	.1143	.0703	2493.		
.2190	934.	-1616.	-1223.	1667.	311.	2658.	.0462	-.0062	-.0600	.0861	.0990	.0586	2125.		
.2200	830.	-1401.	-1001.	1362.	322.	2001.	.0358	-.0071	-.0466	.0853	.0920	.0463	1646.		
.2210	698.	-1065.	-815.	1001.	358.	1242.	.0244	-.0078	-.0320	.0840	.0531	.0326	1102.		
.2220	483.	-645.	-564.	630.	377.	467.	.0120	-.0083	-.0163	.0794	.0442	.0164	587.		
.2230	239.	-216.	-244.	278.	399.	-318.	-.0009	-.0088	.0001	.0712	.0237	-.0020	392.		
.2240	18.	174.	111.	-40.	448.	-1129.	-.0140	-.0091	.0166	.0597	.0001	-.0219	819.		
.2250	-238.	526.	545.	-294.	486.	-1899.	-.0270	-.0093	.0328	.0436	-.0247	-.0440	1336.		
.2260	-540.	821.	1071.	-467.	485.	-2574.	-.0396	-.0096	.0483	.0229	-.0497	-.0682	1793.		
.2270	-805.	1011.	1616.	-564.	465.	-3164.	-.0511	-.0098	.0623	.0002	-.0762	-.0922	2189.		
.2280	-1026.	1101.	2152.	-577.	428.	-3633.	-.0609	-.0101	.0743	-.0229	-.1034	-.1150	2496.		
.2290	-1293.	1155.	2692.	-497.	367.	-3899.	-.0687	-.0105	.0842	-.0461	-.1280	-.1366	2661.		
.2300	-1612.	1216.	3179.	-344.	306.	-3950.	-.0744	-.0110	.0916	-.0672	-.1489	-.1558	2681.		
.2310	-1907.	1274.	3520.	-155.	242.	-3831.	-.0775	-.0116	.0961	-.0832	-.1567	-.1704	2589.		
.2320	-2143.	1306.	3707.	47.	126.	-3556.	-.0778	-.0122	.0974	-.0926	-.1807	-.1791	2398.		
.2330	-2306.	1292.	3762.	257.	-49.	-3147.	-.0757	-.0129	.0958	-.0951	-.1894	-.1814	2129.		
.2340	-2367.	1229.	3670.	462.	-231.	-2666.	-.0713	-.0134	.0914	-.0904	-.1929	-.1767	1830.		
.2350	-2334.	1132.	3440.	644.	-395.	-2153.	-.0654	-.0137	.0850	-.0792	-.1913	-.1656	1538.		

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

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LOADS

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INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING



.2240	-174.	174.	177.	-40.	486.	-1899.	-1270.	-0093.	.0328.	.0436.	-.0247.	-.0440.	1336.
.2250	-238.	526.	545.	-294.	486.	-1899.	-1270.	-0093.	.0328.	.0436.	-.0247.	-.0440.	1336.
.2260	-540.	821.	1071.	-467.	485.	-2574.	-0396.	-0096.	.0483.	.0229.	-.0497.	-.0682.	1793.
.2270	-805.	1011.	1616.	-564.	465.	-3164.	-0511.	-0098.	.0623.	.0002.	-.0762.	-.0922.	2189.
.2280	-1026.	1101.	2152.	-577.	428.	-3633.	-0609.	-0101.	.0743.	-.0229.	-.1034.	-.1150.	2496.
.2290	-1293.	1155.	2692.	-497.	367.	-3899.	-0687.	-0105.	.0842.	-.0461.	-.1280.	-.1366.	2661.
.2300	-1612.	1216.	3179.	-344.	306.	-3950.	-0744.	-0110.	.0916.	-.0672.	-.1489.	-.1558.	2681.
.2310	-1907.	1274.	3520.	-155.	242.	-3831.	-0775.	-0116.	.0961.	-.0832.	-.1567.	-.1704.	2589.
.2320	-2143.	1306.	3707.	47.	126.	-3556.	-0778.	-0122.	.0974.	-.0926.	-.1807.	-.1791.	2398.
.2330	-2306.	1292.	3762.	257.	-49.	-3147.	-0757.	-0129.	.0958.	-.0951.	-.1894.	-.1814.	2129.
.2340	-2367.	1229.	3670.	462.	-231.	-2666.	-0713.	-0134.	.0914.	-.0904.	-.1929.	-.1767.	1830.
.2350	-2334.	1132.	3440.	644.	-395.	-2153.	-0654.	-0137.	.0850.	-.0792.	-.1913.	-.1656.	1538.

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S/RV PIPING KEWAUNEE GKWOEF 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24  
LOADS

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INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	3	MEMBER	2	SEQUENCE	20	LOCATION	END	TYPE	RU						
TIME	FX	FY	FZ	MX	MY	MZ				DZ	RX	RY	RZ	STRESS	
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)	
.2360	-2238.	1004.	3137.	806.	-536.	-1620.	-.0584	-.0137	.0770	-.0636	-.1338	-.1492	1272.		
.2370	-2076.	826.	2808.	952.	-610.	-1099.	-.0510	-.0133	.0683	-.0451	-.1709	-.1284	1062.		
.2380	-1853.	612.	2463.	1069.	-589.	-623.	-.0435	-.0124	.0593	-.0252	-.1537	-.1041	924.		
.2390	-1616.	410.	2116.	1140.	-492.	-197.	-.0364	-.0110	.0507	-.0054	-.1329	-.0777	847.		
.2400	-1401.	248.	1789.	1157.	-318.	177.	-.0300	-.0092	.0427	.0124	-.1088	-.0509	818.		
.2410	-1205.	125.	1487.	1121.	-47.	486.	-.0243	-.0069	.0356	.0273	-.0824	-.0244	824.		
.2420	-1022.	44.	1204.	1027.	283.	726.	-.0194	-.0042	.0293	.0392	-.0547	.0012	869.		
.2430	-839.	4.	919.	869.	599.	889.	-.0150	-.0013	.0234	.0482	-.0268	.0256	930.		
.2440	-619.	-16.	611.	654.	873.	958.	-.0108	.0019	.0177	.0548	-.0003	.0487	979.		
.2450	-361.	-27.	283.	402.	1103.	947.	-.0067	.0051	.0119	.0588	.0246	.0702	1017.		
.2460	-103.	-10.	-44.	138.	1271.	901.	-.0025	.0083	.0057	.0598	.0480	.0890	1054.		
.2470	145.	37.	-371.	-116.	1363.	835.	.0020	.0113	-.0009	.0579	.0592	.1047	1080.		
.2480	409.	89.	-714.	-349.	1379.	743.	.0069	.0142	-.0081	.0536	.0871	.1174	1082.		
.2490	685.	137.	-1065.	-565.	1293.	652.	.0123	.0167	-.0160	.0468	.1011	.1268	1047.		
.2500	940.	191.	-1408.	-761.	1089.	592.	.0181	.0187	-.0244	.0371	.1111	.1324	980.		
.2510	1156.	251.	-1731.	-920.	818.	567.	.0242	.0203	-.0329	.0245	.1169	.1336	913.		
.2520	1314.	312.	-2006.	-1031.	526.	581.	.0303	.0215	-.0412	.0086	.1191	.1304	873.		
.2530	1403.	362.	-2212.	-1106.	194.	649.	.0360	.0221	-.0489	-.0105	.1179	.1226	874.		
.2540	1459.	372.	-2363.	-1162.	-190.	743.	.0414	.0222	-.0559	-.0314	.1128	.1114	939.		
.2550	1514.	316.	-2460.	-1193.	-578.	832.	.0461	.0219	-.0618	-.0530	.1038	.0978	1055.		
.2560	1519.	210.	-2459.	-1181.	-911.	940.	.0498	.0211	-.0663	-.0752	.0932	.0817	1189.		
.2570	1432.	89.	-2346.	-1137.	-1172.	1091.	.0522	.0199	-.0691	-.0974	.0831	.0634	1324.		
.2580	1312.	-55.	-2187.	-1093.	-1360.	1231.	.0534	.0184	-.0702	-.1169	.0727	.0450	1439.		
.2590	1222.	-245.	-2028.	-1076.	-1477.	1316.	.0537	.0165	-.0697	-.1316	.0620	.0282	1518.		
.2600	1137.	-464.	-1856.	-1099.	-1541.	1376.	.0529	.0144	-.0676	-.1410	.0530	.0135	1577.		
.2610	1042.	-676.	-1697.	-1182.	-1551.	1414.	.0510	.0120	-.0641	-.1445	.0466	.0014	1624.		
.2620	978.	-870.	-1615.	-1350.	-1507.	1383.	.0484	.0095	-.0594	-.1408	.0417	-.0073	1652.		
.2630	959.	-1050.	-1621.	-1611.	-1442.	1280.	.0451	.0070	-.0536	-.1304	.0382	-.0121	1693.		
.2640	967.	-1218.	-1677.	-1953.	-1389.	1135.	.0412	.0043	-.0470	-.1148	.0362	-.0139	1787.		
.2650	1007.	-1381.	-1771.	-2343.	-1336.	951.	.0368	.0018	-.0398	-.0951	.0347	-.0128	1928.		
.2660	1066.	-1526.	-1885.	-2740.	-1262.	731.	.0320	-.0006	-.0319	-.0733	.0325	-.0099	2092.		
.2670	1079.	-1627.	-1959.	-3097.	-1171.	523.	.0267	-.0027	-.0235	-.0522	.0298	-.0069	2259.		
.2680	1016.	-1680.	-1943.	-3373.	-1062.	365.	.0210	-.0046	-.0147	-.0343	.0260	-.0049	2396.		
.2690	899.	-1703.	-1828.	-3526.	-924.	248.	.0149	-.0060	-.0057	-.0204	.0197	-.0040	2463.		
.2700	727.	-1695.	-1598.	-3525.	-769.	178.	.0086	-.0069	.0032	-.0115	.0105	-.0048	2435.		
.2710	472.	-1637.	-1236.	-3360.	-617.	101.	.0023	-.0074	.0119	-.0085	-.0013	-.0076	2306.		
.2720	146.	-1517.	-772.	-3048.	-472.	246.	-.0040	-.0074	.0202	-.0108	-.0155	-.0122	2086.		
.2730	-218.	-1331.	-253.	-2614.	-336.	342.	-.0101	-.0068	.0279	-.0174	-.0323	-.0176	1791.		

ADLPIPE PAGE 207 DIS/ADLPIPE ADLPIPE STRESS ANALYSIS 83/12/02. 18.25.52.

S/RV PIPING KEWAUNEE GKWOEF 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24  
LOADS

SHOCK  
PRESSURE  
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

.2620	978.	-370.	-1415.	-1350.	-1507.	1383.	.0484	.0095	-.0594	-.1408	.0417	-.0073	1652.
.2630	959.	-1050.	-1621.	-1611.	-1442.	1280.	.0451	.0070	-.0536	-.1304	.0382	-.0121	1693.
.2640	967.	-1218.	-1677.	-1953.	-1389.	1135.	.0412	.0043	-.0470	-.1148	.0362	-.0139	1787.
.2650	1007.	-1381.	-1771.	-2343.	-1336.	951.	.0368	.0018	-.0398	-.0951	.0347	-.0128	1923.
.2660	1066.	-1526.	-1885.	-2740.	-1262.	731.	.0320	-.0006	-.0319	-.0733	.0325	-.0099	2092.
.2670	1079.	-1627.	-1959.	-3097.	-1171.	523.	.0267	-.0027	-.0235	-.0522	.0298	-.0069	2259.
.2680	1016.	-1680.	-1943.	-3373.	-1062.	365.	.0210	-.0046	-.0147	-.0343	.0260	-.0049	2396.
.2690	899.	-1703.	-1828.	-3526.	-924.	248.	.0149	-.0060	-.0057	-.0204	.0197	-.0040	2463.
.2700	727.	-1695.	-1598.	-3525.	-769.	178.	.0086	-.0069	.0032	-.0115	.0105	-.0048	2435.
.2710	472.	-1637.	-1236.	-3360.	-617.	131.	.0023	-.0074	.0119	-.0085	-.0013	-.0076	2306.
.2720	146.	-1517.	-772.	-2048.	-472.	246.	-.0040	-.0074	.0202	-.0108	-.0155	-.0122	2086.
.2730	-218.	-1331.	-253.	-2614.	-336.	342.	-.0101	-.0065	.0279	-.0174	-.0323	-.0176	1791.

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.25.52.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK

2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	3	MEMBER	2	SEQUENCE	20	LOCATION	END	TYPE	RU						
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	STRESS (PSI)		
.2740	-612.	-1073.	305.	-2078.	-231.	460.	-.0159	-.0056	.0349	-.0272	-.0507	-.0233	1443.		
.2750	-1023.	-749.	888.	-1472.	-144.	589.	-.0214	-.0040	.0411	-.0392	-.0692	-.0285	1073.		
.2760	-1425.	-359.	1454.	-843.	-46.	695.	-.0266	-.0018	.0468	-.0521	-.0869	-.0326	737.		
.2770	-1805.	102.	1964.	-244.	58.	749.	-.0317	.0008	.0519	-.0647	-.1027	-.0348	532.		
.2780	-2143.	618.	2398.	282.	158.	724.	-.0366	.0039	.0566	-.0760	-.1154	-.0348	535.		
.2790	-2395.	1140.	2739.	702.	261.	593.	-.0414	.0074	.0608	-.0849	-.1247	-.0319	644.		
.2800	-2527.	1630.	2973.	985.	369.	340.	-.0460	.0110	.0646	-.0910	-.1303	-.0256	745.		
.2810	-2552.	2083.	3093.	1111.	461.	-23.	-.0504	.0148	.0680	-.0942	-.1320	-.0165	811.		
.2820	-2488.	2499.	3095.	1084.	544.	-475.	-.0544	.0186	.0709	-.0945	-.1299	-.0051	878.		
.2830	-2346.	2858.	2996.	929.	633.	-978.	-.0579	.0222	.0732	-.0926	-.1244	.0080	1004.		
.2840	-2151.	3141.	2834.	686.	729.	-1473.	-.0605	.0256	.0749	-.0890	-.1159	.0219	1200.		
.2850	-1938.	3348.	2633.	398.	829.	-1901.	-.0622	.0285	.0755	-.0846	-.1048	.0357	1423.		
.2860	-1736.	3486.	2404.	107.	940.	-2222.	-.0626	.0308	.0750	-.0798	-.0921	.0486	1628.		
.2870	-1563.	3552.	2164.	-145.	1061.	-2397.	-.0616	.0325	.0732	-.0751	-.0782	.0599	1769.		
.2880	-1421.	3526.	1936.	-330.	1166.	-2398.	-.0589	.0335	.0696	-.0709	-.0637	.0694	1811.		
.2890	-1289.	3388.	1717.	-437.	1236.	-2229.	-.0544	.0337	.0642	-.0668	-.0493	.0770	1743.		
.2900	-1150.	3136.	1489.	-466.	1258.	-1905.	-.0481	.0332	.0569	-.0625	-.0357	.0832	1570.		
.2910	-1010.	2791.	1246.	-428.	1217.	-1441.	-.0401	.0319	.0477	-.0580	-.0229	.0876	1303.		
.2920	-868.	2365.	985.	-342.	1109.	-858.	-.0306	.0300	.0368	-.0531	-.0109	.0905	973.		
.2930	-711.	1870.	698.	-231.	950.	-194.	-.0199	.0275	.0247	-.0478	.0004	.0922	672.		
.2940	-544.	1334.	382.	-120.	756.	519.	-.0084	.0245	.0117	-.0420	.0111	.0929	623.		
.2950	-378.	792.	36.	-33.	526.	1244.	.0035	.0212	-.0015	-.0357	.0217	.0924	911.		
.2960	-202.	262.	-344.	5.	274.	1932.	.0152	.0178	-.0146	-.0290	.0320	.0913	1315.		
.2970	-1.	-252.	-753.	-24.	19.	2538.	.0263	.0144	-.0271	-.0219	.0419	.0898	1711.		
.2980	219.	-736.	-1170.	-125.	-231.	3035.	.0365	.0111	-.0385	-.0149	.0519	.0879	2054.		
.2990	457.	-1173.	-1584.	-297.	-475.	3395.	.0454	.0081	-.0485	-.0082	.0616	.0857	2319.		
.3000	723.	-1559.	-1997.	-536.	-709.	3590.	.0527	.0054	-.0570	-.0017	.0705	.0835	2493.		
.3010	1015.	-1890.	-2390.	-826.	-926.	3622.	.0584	.0031	-.0638	.0041	.0782	.0813	2581.		
.3020	1300.	-2149.	-2730.	-1140.	-1119.	3518.	.0624	.0013	-.0688	.0086	.0847	.0786	2604.		
.3030	1552.	-2317.	-3003.	-1444.	-1274.	3303.	.0646	-.0001	-.0719	.0114	.0898	.0752	2577.		
.3040	1754.	-2383.	-3203.	-1711.	-1378.	2999.	.0652	-.0009	-.0733	.0123	.0930	.0709	2506.		
.3050	1890.	-2347.	-3313.	-1918.	-1437.	2644.	.0643	-.0013	-.0730	.0112	.0942	.0656	2405.		
.3060	1947.	-2218.	-3322.	-2046.	-1454.	2272.	.0620	-.0013	-.0712	.0079	.0932	.0592	2282.		
.3070	1932.	-2008.	-3235.	-2080.	-1431.	1894.	.0586	-.0010	-.0682	.0028	.0899	.0519	2127.		
.3080	1853.	-1736.	-3061.	-2013.	-1374.	1521.	.0543	-.0004	-.0641	-.0037	.0843	.0439	1936.		
.3090	1717.	-1423.	-2799.	-1850.	-1291.	1171.	.0492	.0004	-.0592	-.0111	.0766	.0355	1713.		
.3100	1537.	-1091.	-2462.	-1602.	-1189.	851.	.0435	.0013	-.0537	-.0189	.0573	.0270	1462.		
.3110	1334.	-758.	-2073.	-1280.	-1071.	557.	.0374	.0022	-.0476	-.0260	.0566	.0190	1186.		

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK

2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING



.3010	1015.	-1890.	-2390.	-626.	-926.	3622.	.584	.0031	-.0638	.0041	.0782	.0813	2581.
.3020	1300.	-2149.	-2730.	-1140.	-1119.	3518.	.624	.0013	-.0688	.0086	.0847	.0786	2604.
.3030	1552.	-2317.	-3003.	-1444.	-1274.	3303.	.0646	-.0001	-.0719	.0114	.0898	.0752	2577.
.3040	1754.	-2383.	-3203.	-1711.	-1378.	2999.	.0652	-.0009	-.0733	.0123	.0730	.0709	2506.
.3050	1890.	-2347.	-3313.	-1918.	-1437.	2644.	.0643	-.0013	-.0730	.0112	.0942	.0656	2405.
.3060	1947.	-2218.	-3322.	-2046.	-1454.	2272.	.0620	-.0013	-.0712	.0079	.0732	.0592	2282.
.3070	1932.	-2008.	-3235.	-2080.	-1431.	1094.	.0586	-.0010	-.0682	.0028	.0899	.0519	2127.
.3080	1853.	-1736.	-3061.	-2013.	-1374.	1521.	.0543	-.0004	-.0641	-.0037	.0843	.0439	1936.
.3090	1717.	-1423.	-2799.	-1850.	-1291.	1171.	.0492	.0004	-.0592	-.0111	.0766	.0355	1713.
.3100	1537.	-1091.	-2462.	-1602.	-1189.	851.	.0435	.0013	-.0537	-.0189	.0573	.0270	1462.
.3110	1334.	-758.	-2073.	-1280.	-1071.	557.	.0374	.0022	-.0476	-.0260	.0566	.0190	1186.

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ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKW0RF 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	MEMBER	SEQUENCE	LOCATION	END	TYPE	RU								
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	STRESS (PSI)	
.3120	1113.	-433.	-1650.	-900.	-940.	293.	.0310	.0032	-.0412	-.0317	.0449	.0118	899.	
.3130	876.	-121.	-1204.	-402.	-796.	69.	.0245	.0040	-.0345	-.0355	.0330	.0056	629.	
.3140	628.	174.	-755.	-49.	-631.	-112.	.0180	.0047	-.0276	-.0367	.0215	.0007	433.	
.3150	376.	453.	-326.	377.	-448.	-257.	.0114	.0052	-.0204	-.0348	.0106	-.0028	431.	
.3160	125.	713.	68.	778.	-253.	-371.	.0050	.0054	-.0132	-.0295	.0007	-.0046	606.	
.3170	-112.	943.	420.	1137.	-52.	-461.	-.0012	.0054	-.0059	-.0207	-.0079	-.0050	828.	
.3180	-321.	1131.	725.	1441.	153.	-538.	-.0072	.0050	.0015	-.0087	-.0152	-.0038	1042.	
.3190	-500.	1273.	980.	1656.	357.	-610.	-.0130	.0044	.0087	.0060	-.0212	-.0015	1233.	
.3200	-651.	1371.	1195.	1876.	558.	-682.	-.0186	.0036	.0158	.0226	-.0260	.0014	1397.	
.3210	-779.	1421.	1378.	2017.	760.	-752.	-.0238	.0025	.0228	.0402	-.0297	.0045	1539.	
.3220	-881.	1421.	1542.	2121.	959.	-819.	-.0288	.0012	.0294	.0580	-.0325	.0073	1664.	
.3230	-964.	1379.	1693.	2200.	1148.	-879.	-.0333	-.0004	.0356	.0751	-.0347	.0093	1774.	
.3240	-1040.	1307.	1834.	2265.	1326.	-925.	-.0374	-.0020	.0412	.0908	-.0365	.0101	1876.	
.3250	-1119.	1222.	1973.	2328.	1497.	-950.	-.0409	-.0038	.0461	.1042	-.0380	.0091	1972.	
.3260	-1204.	1130.	2107.	2397.	1648.	-951.	-.0437	-.0057	.0502	.1152	-.0393	.0063	2063.	
.3270	-1281.	1031.	2230.	2472.	1765.	-938.	-.0458	-.0077	.0533	.1236	-.0406	.0018	2143.	
.3280	-1338.	927.	2330.	2551.	1840.	-920.	-.0470	-.0096	.0551	.1295	-.0423	-.0042	2209.	
.3290	-1374.	823.	2404.	2629.	1867.	-903.	-.0474	-.0116	.0558	.1329	-.0440	-.0116	2257.	
.3300	-1387.	726.	2446.	2700.	1841.	-895.	-.0470	-.0135	.0552	.1339	-.0455	-.0203	2284.	
.3310	-1365.	631.	2448.	2756.	1766.	-909.	-.0458	-.0153	.0535	.1328	-.0471	-.0301	2290.	
.3320	-1302.	533.	2409.	2788.	1645.	-954.	-.0439	-.0171	.0507	.1297	-.0484	-.0405	2273.	
.3330	-1201.	437.	2330.	2780.	1479.	-1029.	-.0413	-.0187	.0470	.1248	-.0492	-.0515	2233.	
.3340	-1071.	345.	2210.	2730.	1281.	-1134.	-.0383	-.0202	.0425	.1182	-.0493	-.0630	2172.	
.3350	-915.	258.	2051.	2631.	1069.	-1270.	-.0349	-.0216	.0375	.1102	-.0487	-.0748	2097.	
.3360	-735.	170.	1860.	2481.	848.	-1429.	-.0312	-.0228	.0321	.1009	-.0469	-.0866	2013.	
.3370	-542.	74.	1638.	2277.	616.	-1604.	-.0272	-.0240	.0264	.0908	-.0442	-.0983	1923.	
.3380	-320.	-38.	1383.	2021.	378.	-1792.	-.0230	-.0251	.0205	.0803	-.0406	-.1095	1839.	
.3390	-80.	-171.	1102.	1727.	145.	-1980.	-.0186	-.0261	.0143	.0699	-.0361	-.1197	1774.	
.3400	165.	-324.	808.	1411.	-80.	-2144.	-.0140	-.0271	.0081	.0600	-.0304	-.1290	1731.	
.3410	410.	-500.	506.	1090.	-292.	-2269.	-.0092	-.0281	.0016	.0509	-.0237	-.1369	1708.	
.3420	653.	-707.	197.	81.	-484.	-2347.	-.0040	-.0290	-.0051	.0434	-.0163	-.1431	1699.	
.3430	895.	-927.	-108.	503.	-653.	-2357.	.0014	-.0299	-.0119	.0376	-.0079	-.1474	1683.	
.3440	1110.	-1163.	-399.	272.	-793.	-2287.	.0071	-.0309	-.0189	.0339	.0014	-.1497	1642.	
.3450	1299.	-1408.	-676.	95.	-899.	-2137.	.0131	-.0318	-.0261	.0325	.0116	-.1500	1564.	
.3460	1467.	-1655.	-940.	-27.	-971.	-1914.	.0192	-.0326	-.0332	.0335	.0227	-.1480	1447.	
.3470	1611.	-1901.	-1188.	-100.	-1017.	-1627.	.0253	-.0334	-.0403	.0368	.0334	-.1438	1295.	
.3480	1735.	-2139.	-1421.	-133.	-1042.	-1294.	.0313	-.0340	-.0471	.0423	.0447	-.1375	1123.	
.3490	1840.	-2368.	-1641.	-137.	-1044.	-938.	.0370	-.0346	-.0534	.0498	.0559	-.1292	951.	

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.25.52.

S/RV PIPING KEWAUNEE GKW0RF 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING



.3390	-80.	-171.	1102.	1727.	145.	-1980.	-.0230	-.0261	.0143	.0699	-.0361	-.1197	1774.
.3400	165.	-324.	808.	1411.	-80.	-2144.	-.0140	-.0271	.0081	.0600	-.0304	-.1290	1731.
.3410	410.	-500.	506.	1090.	-292.	-2269.	-.0092	-.0281	.0016	.0509	-.0237	-.1369	1708.
.3420	659.	-703.	197.	781.	-484.	-2347.	-.0040	-.0290	-.0051	.0434	-.0163	-.1431	1699.
.3430	895.	-927.	-108.	503.	-653.	-2357.	.0014	-.0299	-.0119	.0376	-.0079	-.1474	1683.
.3440	1110.	-1163.	-399.	272.	-793.	-2287.	.0071	-.0309	-.0189	.0339	.0014	-.1497	1642.
.3450	1299.	-1408.	-676.	95.	-899.	-2137.	.0131	-.0318	-.0261	.0325	.0116	-.1500	1564.
.3460	1467.	-1655.	-940.	-27.	-971.	-1914.	.0192	-.0326	-.0332	.0335	.0222	-.1480	1447.
.3470	1611.	-1901.	-1188.	-100.	-1017.	-1627.	.0253	-.0334	-.0403	.0368	.0334	-.1438	1295.
.3480	1735.	-2179.	-1421.	-173.	-1042.	-1294.	.0313	-.0340	-.0471	.0423	.0447	-.1375	1123.
.3490	1848.	-2368.	-1641.	-137.	-1044.	-938.	.0370	-.0346	-.0534	.0498	.0559	-.1292	951.

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

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S/HV PIPING KEWAUNEE GKWOOF 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	MEMBER	SEQUENCE	LOCATION	END	TYPE	RU								
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	STRESS (PSI)	
.3500	1944.	-2576.	-1839.	-122.	-1021.	-578.	.0422	-.0349	-.0590	.0586	.0567	-.1193	795.	
.3510	2016.	-2752.	-2009.	-97.	-976.	-228.	.0466	-.0349	-.0637	.0679	.0770	-.1084	679.	
.3520	2066.	-2890.	-2149.	-71.	-910.	90.	.0501	-.0347	-.0673	.0773	.0863	-.0967	618.	
.3530	2098.	-2986.	-2253.	-47.	-822.	358.	.0525	-.0342	-.0696	.0862	.0942	-.0846	605.	
.3540	2102.	-3033.	-2309.	-25.	-713.	572.	.0537	-.0333	-.0705	.0939	.1007	-.0727	616.	
.3550	2070.	-3021.	-2311.	-1.	-584.	726.	.0536	-.0321	-.0698	.0998	.1054	-.0614	628.	
.3560	2004.	-2945.	-2262.	24.	-440.	814.	.0523	-.0305	-.0678	.1037	.1080	-.0510	624.	
.3570	1911.	-2808.	-2165.	53.	-290.	832.	.0497	-.0287	-.0644	.1054	.1083	-.0416	595.	
.3580	1790.	-2613.	-2017.	90.	-146.	785.	.0460	-.0265	-.0598	.1048	.1061	-.0336	542.	
.3590	1643.	-2365.	-1819.	140.	-7.	681.	.0413	-.0240	-.0540	.1019	.1014	-.0269	469.	
.3600	1469.	-2063.	-1580.	205.	125.	526.	.0357	-.0214	-.0474	.0968	.0943	-.0217	390.	
.3610	1269.	-1713.	-1305.	286.	244.	329.	.0294	-.0186	-.0400	.0895	.0850	-.0181	337.	
.3620	1047.	-1328.	-1000.	380.	346.	101.	.0226	-.0157	-.0320	.0804	.0737	-.0160	353.	
.3630	817.	-925.	-672.	482.	429.	-150.	.0154	-.0128	-.0237	.0698	.0607	-.0151	447.	
.3640	583.	-517.	-334.	588.	492.	-417.	.0081	-.0099	-.0152	.0582	.0463	-.0154	588.	
.3650	349.	-114.	6.	689.	530.	-690.	.0008	-.0071	-.0066	.0458	.0310	-.0168	748.	
.3660	119.	272.	336.	779.	546.	-957.	-.0064	-.0046	.0017	.0331	.0150	-.0190	910.	
.3670	-97.	624.	649.	850.	539.	-1211.	-.0132	-.0022	.0098	.0205	-.0012	-.0217	1061.	
.3680	-296.	933.	938.	899.	510.	-1440.	-.0196	-.0002	.0175	.0085	-.0174	-.0248	1194.	
.3690	-482.	1194.	1200.	925.	465.	-1631.	-.0254	.0015	.0247	-.0027	-.0330	-.0281	1302.	
.3700	-661.	1407.	1433.	929.	417.	-1773.	-.0305	.0029	.0313	-.0130	-.0477	-.0315	1378.	
.3710	-835.	1570.	1639.	910.	372.	-1856.	-.0350	.0039	.0374	-.0222	-.0611	-.0348	1416.	
.3720	-1004.	1681.	1816.	870.	333.	-1878.	-.0387	.0046	.0429	-.0303	-.0729	-.0380	1413.	
.3730	-1162.	1736.	1962.	807.	304.	-1841.	-.0416	.0050	.0477	-.0371	-.0830	-.0407	1370.	
.3740	-1305.	1734.	2078.	721.	288.	-1749.	-.0438	.0051	.0518	-.0426	-.0912	-.0427	1290.	
.3750	-1430.	1679.	2160.	609.	282.	-1608.	-.0452	.0050	.0551	-.0469	-.0972	-.0439	1174.	
.3760	-1532.	1576.	2203.	470.	285.	-1427.	-.0459	.0047	.0577	-.0500	-.1011	-.0440	1031.	
.3770	-1602.	1430.	2203.	304.	293.	-1219.	-.0458	.0044	.0594	-.0519	-.1028	-.0428	869.	
.3780	-1638.	1248.	2159.	112.	303.	-988.	-.0450	.0040	.0602	-.0526	-.1023	-.0401	701.	
.3790	-1637.	1040.	2070.	-102.	310.	-742.	-.0434	.0038	.0600	-.0524	-.0997	-.0358	547.	
.3800	-1603.	821.	1931.	-333.	312.	-497.	-.0410	.0036	.0588	-.0514	-.0950	-.0299	450.	
.3810	-1537.	605.	1745.	-573.	306.	-226.	-.0379	.0037	.0565	-.0496	-.0884	-.0224	463.	
.3820	-1439.	400.	1513.	-812.	282.	37.	-.0341	.0040	.0531	-.0474	-.0802	-.0133	580.	
.3830	-1307.	209.	1242.	-1040.	235.	296.	-.0296	.0046	.0485	-.0450	-.0707	-.0026	746.	
.3840	-1145.	41.	938.	-1246.	165.	549.	-.0244	.0055	.0428	-.0425	-.0605	.0093	925.	
.3850	-963.	-96.	613.	-1421.	71.	797.	-.0186	.0067	.0362	-.0406	-.0497	.0223	1099.	
.3860	-775.	-192.	261.	-1556.	-41.	1039.	-.0125	.0087	.0288	-.0396	-.0388	.0357	1262.	
.3870	-585.	-247.	-46.	-1645.	-167.	1273.	-.0062	.0101	.0207	-.0399	-.0280	.0494	1407.	

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.25.52.

S/HV PIPING KEWAUNEE GKWOOF 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

.3770	-1602.	1470.	203.	304.	293.	-1219.	-.0458	.0044	.0594	-.0519	-.1028	-.0428	869.
.3780	-1638.	1248.	2159.	112.	203.	-988.	-.0450	.0040	.0602	-.0526	-.1023	-.0401	701.
.3790	-1637.	1040.	2070.	-102.	310.	-742.	-.0434	.0038	.0600	-.0524	-.0997	-.0358	547.
.3800	-1603.	821.	1931.	-333.	312.	-437.	-.0410	.0036	.0588	-.0514	-.0950	-.0299	450.
.3810	-1537.	605.	1745.	-573.	306.	-226.	-.0379	.0037	.0565	-.0496	-.0884	-.0224	463.
.3820	-1439.	400.	1513.	-812.	282.	37.	-.0341	.0040	.0531	-.0474	-.0802	-.0133	580.
.3830	-1307.	209.	1242.	-1040.	235.	296.	-.0296	.0046	.0485	-.0450	-.0707	-.0026	746.
.3840	-1145.	41.	938.	-1246.	165.	549.	-.0244	.0055	.0428	-.0425	-.0605	.0093	925.
.3850	-963.	-96.	613.	-1421.	71.	797.	-.0186	.0067	.0362	-.0406	-.0497	.0223	1099.
.3860	-775.	-192.	251.	-1556.	-41.	1039.	-.0125	.0082	.0288	-.0396	-.0388	.0357	1262.
.3870	-585.	-247.	-46.	-1645.	-167.	1273.	-.0062	.0101	.0207	-.0399	-.0280	.0494	1407.

ADLPIPE PAGE 210 DIS/ADLPIPE ADLPIPE STRESS ANALYSIS 83/12/02. 18.25.52.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24  
LOADS  
SHOCK  
PRESSURE  
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	3	MEMBER	2	SEQUENCE	20	LOCATION	END	TYPE	RU						
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS		
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)		
.3880	-403.	-261.	-352.	-1687.	-298.	1497.	.0002	.0123	.0124	-.0419	-.0178	.0629	1533.		
.3890	-241.	-232.	-624.	-1684.	-423.	1709.	.0064	.0148	.0041	-.0459	-.0081	.0757	1642.		
.3900	-109.	-157.	-853.	-1642.	-531.	1905.	.0122	.0175	-.0040	-.0521	.0008	.0875	1733.		
.3910	-10.	-41.	-1036.	-1574.	-615.	2077.	.0175	.0204	-.0114	-.0604	.0091	.0981	1805.		
.3920	64.	105.	-1175.	-1492.	-674.	2216.	.0220	.0235	-.0181	-.0703	.0166	.1076	1857.		
.3930	121.	268.	-1273.	-1412.	-708.	2313.	.0257	.0266	-.0239	-.0814	.0234	.1160	1888.		
.3940	168.	438.	-1340.	-1349.	-718.	2362.	.0286	.0297	-.0286	-.0930	.0297	.1237	1896.		
.3950	208.	611.	-1386.	-1313.	-703.	2362.	.0307	.0327	-.0323	-.1042	.0356	.1306	1882.		
.3960	245.	781.	-1423.	-1310.	-669.	2319.	.0320	.0355	-.0349	-.1143	.0412	.1371	1851.		
.3970	287.	936.	-1459.	-1340.	-621.	2237.	.0327	.0381	-.0367	-.1225	.0468	.1434	1807.		
.3980	342.	1068.	-1502.	-1401.	-566.	2127.	.0328	.0404	-.0377	-.1280	.0520	.1497	1759.		
.3990	402.	1174.	-1553.	-1484.	-504.	2006.	.0326	.0423	-.0381	-.1307	.0571	.1560	1716.		
.4000	456.	1260.	-1611.	-1578.	-436.	1892.	.0321	.0436	-.0379	-.1304	.0620	.1621	1686.		

MAXIMUM VALUE OF STRESS OCCURS AT

TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS		
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)		
.0620	546.	5124.	-26.	7629.	263.	2866.	.0694	.0740	-.1336	-.1132	.1508	.2575	5496.		

SECTION	3	MEMBER	3	SEQUENCE	803	LOCATION	END	TYPE	EL						
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS		
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)		
0.0000	0.	0.	0.	0.	0.	0.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.		
.0010	-2.	2.	-1.	-2.	0.	3.	-.0000	-.0000	-.0000	-.0000	.0000	.0000	2.		
.0020	-9.	5.	-5.	-9.	2.	13.	-.0000	-.0000	-.0000	-.0000	.0001	-.0000	11.		
.0030	-11.	-7.	-4.	-15.	10.	23.	-.0000	-.0001	-.0001	-.0001	.0005	-.0000	20.		
.0040	-0.	-49.	8.	-17.	25.	30.	.0000	-.0001	-.0001	-.0002	.0011	-.0000	28.		
.0050	16.	-112.	19.	-31.	42.	47.	.0001	-.0003	-.0002	-.0003	.0021	.0002	48.		
.0060	28.	-183.	15.	-45.	63.	67.	.0004	-.0005	-.0005	-.0003	.0035	.0005	88.		
.0070	42.	-276.	-5.	-64.	91.	93.	.0008	-.0008	-.0009	-.0002	.0055	.0011	150.		
.0080	75.	-427.	-18.	-84.	144.	125.	.0016	-.0012	-.0015	.0003	.0084	.0020	231.		
.0090	128.	-660.	-3.	-104.	265.	199.	.0027	-.0018	-.0023	.0008	.0134	.0033	341.		
.0100	169.	-939.	38.	-124.	454.	289.	.0042	-.0026	-.0032	.0012	.0211	.0051	507.		
.0110	186.	-1207.	57.	-143.	650.	397.	.0064	-.0035	-.0046	.0021	.0306	.0075	716.		

ADLPIPE PAGE 211 DIS/ADLPIPE ADLPIPE STRESS ANALYSIS 83/12/02. 18.25.52.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24  
LOADS  
SHOCK  
PRESSURE  
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

.0010	-2.	2.	-1.	-2.	0.	3.	-0.000	-0.000	-0.000	-0.000	.0000	.0000	2.
.0020	-9.	5.	-5.	-9.	2.	13.	-0.000	-0.000	-0.000	-0.000	.0001	-0.000	11.
.0030	-11.	-7.	-4.	-15.	10.	23.	-0.000	-0.001	-0.001	-0.001	.0005	-0.000	20.
.0040	-0.	-49.	8.	-17.	25.	30.	.0000	-0.001	-0.001	-0.002	.0011	-0.000	28.
.0050	16.	-112.	19.	-71.	42.	47.	.0001	-0.003	-0.002	-0.002	.0021	.0002	48.
.0060	28.	-183.	15.	-75.	62.	87.	.0004	-0.005	-0.005	-0.003	.0035	.0005	88.
.0070	42.	-276.	-3.	-144.	91.	143.	.0008	-0.008	-0.009	-0.002	.0055	.0011	150.
.0080	75.	-427.	-18.	-224.	144.	215.	.0016	-0.012	-0.015	.0003	.0084	.0020	231.
.0090	128.	-660.	-3.	-291.	265.	319.	.0027	-0.018	-0.023	.0008	.0134	.0033	341.
.0100	169.	-979.	30.	-348.	454.	489.	.0042	-0.026	-0.032	.0012	.0211	.0051	507.
.0110	186.	-1207.	53.	-438.	650.	717.	.0064	-0.035	-0.046	.0021	.0306	.0075	716.

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.25.52.

S/RV PIPING KEWAUNEE GKWOBF 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	MEMBER	SEQUENCE	LOCATION	END	TYPE	EL								
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	STRESS (PSI)	
.0120	203.	-1434.	-13.	-607.	807.	959.	.0093	-0.0044	-0.0067	.0044	.0406	.0111	939.	
.0130	219.	-1601.	-158.	-852.	928.	1218.	.0129	-0.0053	-0.0097	.0080	.0512	.0160	1181.	
.0140	217.	-1709.	-349.	-1135.	1034.	1500.	.0171	-0.0061	-0.0135	.0121	.0633	.0216	1447.	
.0150	236.	-1790.	-580.	-1437.	1119.	1739.	.0216	-0.0068	-0.0181	.0169	.0763	.0277	1697.	
.0160	336.	-1910.	-850.	-1762.	1201.	1869.	.0265	-0.0073	-0.0235	.0224	.0893	.0343	1911.	
.0170	530.	-2130.	-1095.	-2067.	1227.	1900.	.0315	-0.0076	-0.0295	.0274	.1024	.0410	2066.	
.0180	827.	-2471.	-1283.	-2327.	1055.	1822.	.0370	-0.0078	-0.0362	.0312	.1141	.0473	2115.	
.0190	1231.	-2854.	-1496.	-2591.	646.	1612.	.0429	-0.0079	-0.0435	.0352	.1206	.0537	2102.	
.0200	1586.	-3072.	-1752.	-2818.	90.	1421.	.0490	-0.0077	-0.0509	.0389	.1216	.0600	2128.	
.0210	1586.	-2920.	-1853.	-2733.	-142.	1563.	.0536	-0.0071	-0.0562	.0389	.1260	.0636	2124.	
.0220	1090.	-2336.	-1635.	-2162.	216.	2089.	.0556	-0.0059	-0.0581	.0315	.1416	.0612	2032.	
.0230	457.	-1361.	-1500.	-1560.	598.	2500.	.0559	-0.0038	-0.0586	.0227	.1533	.0561	2027.	
.0240	84.	-187.	-1805.	-1358.	935.	2420.	.0552	-0.0011	-0.0598	.0196	.1505	.0530	1974.	
.0250	-76.	776.	-1949.	-1059.	1004.	1947.	.0525	.0021	-0.0607	.0145	.1452	.0472	1640.	
.0260	141.	1181.	-1637.	-462.	110.	868.	.0487	.0057	-0.0613	.0039	.1369	.0359	667.	
.0270	1140.	1208.	-1757.	-416.	-1188.	-1184.	.0450	.0094	-0.0631	.0012	.1055	.0281	1164.	
.0280	2149.	1508.	-2313.	-758.	-1742.	-3250.	.0386	.0126	-0.0634	.0046	.0644	.0224	2537.	
.0290	1985.	2188.	-1846.	52.	-1635.	-4137.	.0266	.0155	-0.0575	-0.0091	.0547	.0010	2998.	
.0300	1666.	2464.	-674.	1623.	-1135.	-4953.	.0131	.0179	-0.0468	-0.0303	.0597	-0.0304	3595.	
.0310	1999.	2486.	-427.	1971.	-926.	-6123.	.0026	.0181	-0.0387	-0.0369	.0362	-0.0517	4380.	
.0320	2432.	2574.	-849.	1333.	-1928.	-7001.	-0.0048	.0152	-0.0350	-0.0334	-0.0106	-0.0661	4977.	
.0330	2560.	2401.	-793.	1281.	-2889.	-7444.	-0.0111	.0111	-0.0299	-0.0300	-0.0449	-0.0860	5451.	
.0340	2400.	2055.	-429.	1642.	-2795.	-7407.	-0.0176	.0055	-0.0216	-0.0259	-0.0627	-0.1097	5450.	
.0350	1824.	2135.	-529.	1279.	-2837.	-6534.	-0.0237	-0.0026	-0.0141	-0.0196	-0.0862	-0.1301	4878.	
.0360	1243.	2253.	-974.	454.	-3812.	-5463.	-0.0278	-0.0122	-0.0092	-0.0069	-0.1260	-0.1472	4501.	
.0370	1217.	1489.	-1022.	287.	-4433.	-4931.	-0.0302	-0.0217	-0.0031	.0138	-0.1680	-0.1630	4474.	
.0380	1005.	309.	-333.	802.	-3945.	-3860.	-0.0351	-0.0320	.0073	.0291	-0.1910	-0.1801	3767.	
.0390	-89.	-258.	546.	1394.	-3568.	-1630.	-0.0437	-0.0433	.0202	.0322	-0.2044	-0.1998	2806.	
.0400	-927.	-716.	977.	1543.	-3755.	-94.	-0.0525	-0.0525	.0336	.0409	-0.2386	-0.2174	2737.	
.0410	-1105.	-1859.	1699.	2156.	-2757.	465.	-0.0621	-0.0592	.0521	.0520	-0.2689	-0.2327	2380.	
.0420	-2222.	-2780.	3536.	3514.	-701.	2357.	-0.0773	-0.0662	.0778	.0390	-0.2553	-0.2520	2891.	
.0430	-3983.	-2843.	5184.	4371.	750.	4796.	-0.0944	-0.0720	.1038	.0177	-0.2338	-0.2687	4403.	
.0440	-4492.	-2947.	5473.	4065.	1837.	5029.	-0.1073	-0.0729	.1257	.0194	-0.2436	-0.2717	4531.	
.0450	-4536.	-3284.	5767.	3627.	3490.	4486.	-0.1190	-0.0711	.1481	.0197	-0.2358	-0.2685	4545.	
.0460	-5533.	-3051.	6752.	3333.	5006.	5315.	-0.1322	-0.0694	.1695	-0.0022	-0.1807	-0.2638	5410.	
.0470	-5860.	-2496.	6607.	2018.	5265.	5136.	-0.1389	-0.0648	.1797	-0.0056	-0.1443	-0.2424	5141.	
.0480	-4249.	-2512.	4987.	-122.	4865.	2300.	-0.1350	-0.0554	.1772	.0285	-0.1491	-0.1988	3628.	
.0490	-2860.	-2621.	4086.	-1400.	4852.	75.	-0.1280	-0.0452	.1708	.0523	-0.1218	-0.1515	3406.	

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.25.52.

S/RV PIPING KEWAUNEE GKWOBF 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING



.0390	-89.	-258.	546.	1294.	-3568.	-1630.	-1437.	-0433.	.0202.	.0322.	-.2044.	-.1998.	2806.
.0400	-927.	-716.	977.	1543.	-3755.	-94.	-.525.	-.0525.	.0336.	.0409.	-.2386.	-.2174.	2737.
.0410	-1105.	-1859.	1699.	2156.	-2757.	465.	-.0621.	-.0592.	.0521.	.0520.	-.2589.	-.2327.	2380.
.0420	-2222.	-2780.	3536.	3514.	-701.	2357.	-.0773.	-.0662.	.0778.	.0390.	-.2553.	-.2520.	2891.
.0430	-3983.	-2843.	5184.	4371.	750.	4796.	-.0944.	-.0720.	.1038.	.0177.	-.2338.	-.2687.	4403.
.0440	-4492.	-2947.	5473.	4065.	1837.	5029.	-.1073.	-.0729.	.1257.	.0194.	-.2436.	-.2717.	4531.
.0450	-4536.	-3284.	5767.	3627.	3490.	4486.	-.1190.	-.0711.	.1481.	.0197.	-.2358.	-.2685.	4545.
.0460	-5533.	-3051.	6752.	3373.	5006.	5315.	-.1322.	-.0694.	.1695.	-.0022.	-.1807.	-.2638.	5410.
.0470	-5860.	-2496.	6607.	2018.	5265.	5135.	-.1389.	-.0648.	.1797.	-.0056.	-.1443.	-.2424.	5141.
.0480	-4249.	-2512.	4987.	-122.	4065.	2300.	-.1350.	-.0554.	.1772.	.0285.	-.1491.	-.1988.	3628.
.0490	-2860.	-2621.	4086.	-1408.	4852.	95.	-.1280.	-.0452.	.1708.	.0523.	-.1218.	-.1515.	3406.

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.25.52.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FRW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	3	MEMBER	3	SEQUENCE	803	LOCATION	END	TYPE	EL						
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS		
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)		
.0500	-2938.	-1846.	4092.	-1768.	4880.	118.	-.1208.	-.0358.	.1610.	.0516.	-.0515.	-.1072.	3505.		
.0510	-2485.	-651.	2975.	-2389.	4417.	-700.	-.1061.	-.0233.	.1402.	.0723.	-.0146.	-.0522.	3417.		
.0520	-958.	127.	1210.	-2738.	3808.	-2857.	-.0832.	-.0077.	.1108.	.1132.	-.0116.	.0115.	3702.		
.0530	-391.	837.	922.	-1625.	3490.	-3087.	-.0606.	.0057.	.0823.	.1236.	.0253.	.0664.	3326.		
.0540	-837.	2004.	1290.	61.	3233.	-1615.	-.0392.	.0173.	.0543.	.1085.	.0782.	.1126.	2436.		
.0550	-547.	3306.	389.	1068.	2697.	-1518.	-.0143.	.0313.	.0218.	.1089.	.0845.	.1586.	2207.		
.0560	71.	4333.	-662.	2164.	1976.	-2067.	.0111.	.0463.	-.0106.	.1076.	.0729.	.1966.	2417.		
.0570	-178.	5032.	-272.	4062.	1387.	-920.	.0316.	.0572.	-.0367.	.0724.	.0939.	.2202.	2959.		
.0580	-329.	5356.	265.	5691.	971.	445.	.0497.	.0656.	-.0597.	.0301.	.1128.	.2400.	3903.		
.0590	373.	5445.	-242.	6479.	551.	181.	.0680.	.0749.	-.0827.	.0093.	.0993.	.2583.	4384.		
.0600	637.	5614.	-519.	7324.	239.	61.	.0825.	.0830.	-.1016.	-.0140.	.1003.	.2648.	4940.		
.0610	178.	5670.	21.	8267.	201.	1225.	.0923.	.0863.	-.1153.	-.0486.	.1359.	.2644.	5635.		
.0620	546.	5124.	-26.	8255.	190.	1650.	.1031.	.0864.	-.1297.	-.0594.	.1595.	.2727.	5676.		
.0630	1780.	4228.	-1016.	7317.	-184.	675.	.1163.	.0853.	-.1465.	-.0373.	.1524.	.2863.	4954.		
.0640	2393.	3619.	-1865.	6210.	-759.	224.	.1269.	.0814.	-.1612.	-.0108.	.1860.	.2923.	4220.		
.0650	2543.	3158.	-2628.	4648.	-1189.	533.	.1346.	.0732.	-.1728.	.0176.	.2264.	.2953.	3253.		
.0660	3435.	2304.	-4094.	2172.	-1710.	10.	.1431.	.0626.	-.1844.	.0667.	.2444.	.3028.	1863.		
.0670	4653.	1167.	-5762.	-524.	-2650.	-1113.	.1509.	.0507.	-.1942.	.1258.	.2452.	.3052.	1970.		
.0680	5162.	157.	-6784.	-2761.	-3550.	-1431.	.1533.	.0364.	-.1976.	.1706.	.2545.	.2925.	3181.		
.0690	5225.	-800.	-7374.	-4736.	-3796.	-1140.	.1495.	.0202.	-.1931.	.2001.	.2620.	.2672.	4162.		
.0700	5274.	-1914.	-7715.	-6392.	-3544.	-996.	.1406.	.0038.	-.1810.	.2180.	.2525.	.2288.	4972.		
.0710	4899.	-3073.	-7335.	-7240.	-3154.	-601.	.1258.	-.0122.	-.1610.	.2138.	.2373.	.1719.	5338.		
.0720	4061.	-4190.	-6306.	-7490.	-2622.	318.	.1053.	-.0284.	-.1345.	.1863.	.2185.	.1004.	5353.		
.0730	3389.	-5389.	-5259.	-7738.	-2109.	1082.	.0823.	-.0442.	-.1048.	.1480.	.1786.	.0243.	5455.		
.0740	2924.	-6626.	-4197.	-7837.	-1883.	1449.	.0533.	-.0584.	-.0734.	.1022.	.1193.	-.0554.	5520.		
.0750	2098.	-7557.	-2762.	-7373.	-1621.	2034.	.0327.	-.0706.	-.0396.	.0439.	.0630.	-.1402.	5270.		
.0760	837.	-7910.	-1221.	-6596.	-1016.	3034.	.0062.	-.0810.	-.0054.	-.0204.	.0145.	-.2234.	4942.		
.0770	-340.	-7804.	-60.	-5922.	-589.	3851.	-.0179.	-.0891.	.0246.	-.0761.	-.0398.	-.2954.	4778.		
.0780	-1097.	-7565.	774.	-5246.	-785.	4054.	-.0372.	-.0942.	.0485.	-.1171.	-.1020.	-.3521.	4500.		
.0790	-1571.	-7232.	1570.	-4320.	-1054.	3940.	-.0527.	-.0966.	.0674.	-.1455.	-.1566.	-.3928.	4004.		
.0800	-2174.	-6465.	2344.	-3165.	-836.	3948.	-.0666.	-.0963.	.0826.	-.1643.	-.1913.	-.4183.	3457.		
.0810	-2880.	5172.	2895.	-1958.	-571.	3819.	-.0785.	-.0926.	.0932.	-.1709.	-.2117.	-.4298.	2918.		
.0820	-3096.	-3854.	3095.	-897.	-752.	2874.	-.0867.	-.0855.	.0980.	-.1607.	-.2310.	-.4246.	2092.		
.0830	-2590.	-2890.	3078.	-88.	-1089.	1185.	-.0914.	-.0762.	.0987.	-.1368.	-.2490.	-.4009.	1087.		
.0840	-1964.	-1945.	3076.	581.	-1252.	-495.	-.0951.	-.0656.	.0980.	-.1096.	-.2542.	-.3647.	988.		
.0850	-1656.	-611.	3034.	1221.	-1330.	-2028.	-.0991.	-.0529.	.0973.	-.0833.	-.2468.	-.3240.	1830.		
.0860	-1410.	925.	2807.	1777.	-1242.	-3769.	-.1028.	-.0380.	.0971.	-.0554.	-.2364.	-.2803.	2931.		
.0870	-1132.	2311.	2651.	2283.	-767.	-5351.	-.1059.	-.0228.	.0983.	-.0306.	-.2206.	-.2323.	3955.		

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.25.52.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FRW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

.0770	-348.	-7804.	-60.	-5922.	-589.	3851.	-.0179	-.0891	.0246	-.0761	-.0398	-.2954	4778.
.0780	-1097.	-7565.	774.	-5246.	-785.	4054.	-.0372	-.0942	.0485	-.1171	-.1020	-.3521	4500.
.0790	-1571.	-7232.	1570.	-4320.	-1054.	3940.	-.0527	-.0966	.0674	-.1455	-.1566	-.3928	4004.
.0800	-2174.	-6465.	2344.	-3165.	-836.	3948.	-.0666	-.0963	.0826	-.1643	-.1913	-.4183	3457.
.0810	-2880.	-5172.	1895.	-1958.	-571.	3819.	-.0785	-.0926	.0932	-.1709	-.2117	-.4298	2918.
.0820	-3096.	-3854.	3095.	-697.	-752.	2874.	-.0867	-.0855	.0980	-.1607	-.2310	-.4246	2092.
.0830	-2590.	-2890.	3078.	-88.	-1089.	1185.	-.0914	-.0762	.0987	-.1368	-.2490	-.4009	1087.
.0840	-1964.	-1945.	3076.	581.	-1252.	-495.	-.0951	-.0656	.0980	-.1096	-.2542	-.3647	988.
.0850	-1656.	-611.	3034.	1222.	-1330.	-2028.	-.0991	-.0529	.0973	-.0833	-.2468	-.3240	1830.
.0860	-1410.	925.	2807.	1777.	-1242.	-3769.	-.1028	-.0380	.0971	-.0554	-.2364	-.2803	2931.
.0870	-1132.	2311.	2651.	2283.	-767.	-5351.	-.1059	-.0228	.0983	-.0306	-.2206	-.2323	3955.

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.25.52.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSVCONDITION 24  
LOADS  
SHOCK  
PRESSURE  
ENGLISH UNITSINTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	MEMBER	SEQUENCE	LOCATION	END	TYPE	EL								
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	STRESS (PSI)	
.0880	-1089.	3539.	2838.	2920.	-95.	-6223.	-.1088	-.0089	.1005	-.0143	-.1941	-.1827	4634.	
.0890	-1166.	4660.	3081.	3688.	500.	-6806.	-.1102	.0047	.1015	.0012	-.1671	-.1337	5229.	
.0900	-1118.	5563.	3149.	4495.	1198.	-7462.	-.1090	.0180	.1004	.0218	-.1457	-.0851	5927.	
.0910	-1213.	6194.	3397.	5443.	2172.	-7507.	-.1062	.0292	.0981	.0391	-.1167	-.0382	6419.	
.0920	-1546.	6541.	3923.	6517.	3092.	-6714.	-.1013	.0374	.0935	.0512	-.0779	.0061	6642.	
.0930	-1567.	6506.	4132.	7354.	3554.	-6014.	-.0917	.0436	.0837	.0720	-.0494	.0506	6837.	
.0940	-1149.	6119.	3818.	7764.	3590.	-5621.	-.0773	.0479	.0688	.1048	-.0366	.0961	6899.	
.0950	-927.	5624.	3508.	7983.	3508.	-4594.	-.0608	.0490	.0518	.1342	-.0198	.1374	6644.	
.0960	-1129.	5179.	3355.	8130.	3520.	-2802.	-.0442	.0473	.0358	.1545	.0070	.1703	6263.	
.0970	-1355.	4756.	2947.	7995.	3608.	-1097.	-.0273	.0443	.0205	.1736	.0293	.1953	5958.	
.0980	-1522.	4307.	2299.	7508.	3610.	394.	-.0108	.0402	.0061	.1904	.0445	.2121	5622.	
.0990	-1755.	3704.	1815.	6801.	3439.	2040.	.0036	.0342	-.0059	.1956	.0513	.2199	5318.	
.1000	-1786.	2784.	1457.	5865.	3182.	3412.	.0154	.0271	-.0149	.1905	.0759	.2190	5051.	
.1010	-1482.	1660.	969.	4645.	2922.	4027.	.0246	.0203	-.0211	.1803	.0820	.2093	4588.	
.1020	-1217.	628.	493.	3275.	2623.	4304.	.0300	.0140	-.0242	.1604	.0867	.1892	4052.	
.1030	-1049.	-345.	211.	1881.	2247.	4524.	.0320	.0075	-.0245	.1295	.0935	.1610	3633.	
.1040	-573.	-1482.	-38.	440.	1831.	4262.	.0327	.0014	-.0232	.0955	.0938	.1301	3141.	
.1050	93.	-2571.	-355.	-986.	1404.	3558.	.0327	-.0038	-.0211	.0615	.0874	.0973	2663.	
.1060	356.	-3140.	-616.	-2243.	1008.	3091.	.0311	-.0083	-.0181	.0227	.0853	.0605	2662.	
.1070	253.	-3210.	-845.	-3313.	768.	2893.	.0285	-.0120	-.0148	-.0186	.0882	.0222	3010.	
.1080	710.	-3186.	-1177.	-4253.	533.	2445.	.0273	-.0147	-.0132	-.0541	.0863	-.0122	3326.	
.1090	599.	-3227.	-1490.	-4944.	194.	1772.	.0279	-.0166	-.0139	-.0830	.0804	-.0410	3542.	
.1100	608.	-3118.	-1514.	-5249.	291.	1492.	.0279	-.0180	-.0151	-.1143	.0910	-.0686	3683.	
.1110	554.	-2766.	-1736.	-5653.	-89.	1180.	.0291	-.0186	-.0199	-.1414	.1002	-.0928	3893.	
.1120	1259.	-2668.	-2581.	-6529.	-1307.	-80.	.0342	-.0178	-.0306	-.1521	.0854	-.1064	4489.	
.1130	2459.	-3048.	-3390.	-7337.	-2495.	-1650.	.0416	-.0169	-.0432	-.1560	.0668	-.1117	5340.	
.1140	3140.	-3355.	-3607.	-7568.	-3263.	-2333.	.0477	-.0165	-.0542	-.1674	.0683	-.1167	5773.	
.1150	3355.	-3203.	-3869.	-7628.	-3998.	-2584.	.0533	-.0154	-.0653	-.1770	.0712	-.1209	6060.	
.1160	3765.	-2925.	-4598.	-7851.	-4663.	-3207.	.0605	-.0131	-.0770	-.1740	.0575	-.1192	6524.	
.1170	3967.	-2730.	-4966.	-7732.	-5074.	-3289.	.0674	-.0114	-.0866	-.1727	.0492	-.1144	6616.	
.1180	3721.	-2571.	-4736.	-7111.	-5019.	-2497.	.0723	-.0110	-.0930	-.1773	.0567	-.1088	6103.	
.1190	3389.	-2211.	-4739.	-6595.	-5586.	-1717.	.0775	-.0102	-.1005	-.1734	.0570	-.0997	5939.	
.1200	3598.	-2011.	-5261.	-6381.	-6431.	-1752.	.0839	-.0084	-.1088	-.1518	.0203	-.0834	6220.	
.1210	3870.	-2223.	-5274.	-5707.	-6208.	-1631.	.0875	-.0071	-.1118	-.1304	.0008	-.0646	5789.	
.1220	3033.	-2135.	-4208.	-4232.	-5661.	-30.	.0853	-.0073	-.1083	-.1268	.0135	-.0531	4764.	
.1230	2301.	-1871.	-3532.	-3022.	-5243.	1073.	.0815	-.0064	-.1036	-.1115	.0126	-.0391	4143.	
.1240	2351.	-1797.	-3562.	-2415.	-5052.	920.	.0782	-.0041	-.0986	-.0765	-.0166	-.0175	3825.	
.1250	2151.	-1911.	-2936.	-1547.	-4517.	1249.	.0711	-.0031	-.0876	-.0511	-.0293	.0024	3326.	

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.25.53.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSVCONDITION 24  
LOADS  
SHOCK  
PRESSURE  
ENGLISH UNITS



.1150	3355.	-3202.	-5009.	-7628.	-3998.	-2584.	.0533	-.0154	-.0653	-.1770	.0583	-.1167	5773.
.1160	3765.	-2925.	-4598.	-7851.	-4663.	-3207.	.0605	-.0131	-.0770	-.1740	.0575	-.1192	6060.
.1170	3967.	-2730.	-4966.	-7732.	-5074.	-3289.	.0674	-.0114	-.0866	-.1727	.0492	-.1144	6616.
.1180	3721.	-2571.	-4730.	-7111.	-5019.	-2497.	.0723	-.0110	-.0930	-.1773	.0567	-.1088	6103.
.1190	3389.	-2211.	-4739.	-6595.	-5586.	-1717.	.0775	-.0102	-.1005	-.1734	.0510	-.0997	5939.
.1200	3598.	-2011.	-5261.	-6381.	-6431.	-1752.	.0839	-.0074	-.1088	-.1518	.0203	-.0834	6220.
.1210	3870.	-2223.	-5274.	-5707.	-6208.	-1631.	.0875	-.0071	-.1118	-.1304	.0008	-.0646	5789.
.1220	3033.	-2135.	-4208.	-4272.	-5661.	-30.	.0853	-.0073	-.1083	-.1268	.0135	-.0531	4764.
.1230	2301.	-1861.	-3532.	-3022.	-5243.	1073.	.0815	-.0064	-.1036	-.1115	.0126	-.0391	4143.
.1240	2351.	-1797.	-3562.	-2415.	-5052.	920.	.0782	-.0041	-.0986	-.0765	-.0166	-.0175	3825.
.1250	2151.	-1911.	-2936.	-1547.	-4517.	1249.	.0711	-.0031	-.0876	-.0511	-.0293	.0024	3326.

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	MEMBER	SEQUENCE	LOCATION	END	TYPE	EL								
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS	
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)	
.1260	1338.	-1868.	-1639.	-374.	-3268.	2327.	.0586	-.0030	-.0691	-.0397	-.0166	.0169	2716.	
.1270	441.	-1298.	-890.	288.	-2373.	2898.	.0441	-.0013	-.0489	-.0219	-.0171	.0299	2532.	
.1280	46.	-701.	-752.	428.	-1291.	2407.	.0290	.0020	-.0272	.0073	-.0344	.0450	1864.	
.1290	-743.	-220.	170.	929.	178.	2581.	.0101	.0042	-.0002	.0196	-.0268	.0549	1853.	
.1300	-1829.	255.	1569.	1554.	1537.	3222.	-.0111	.0054	.0290	-.0188	-.0042	.0605	2625.	
.1310	-2046.	633.	1997.	1440.	2718.	2387.	-.0301	.0087	.0549	.0343	-.0092	.0702	2625.	
.1320	-2057.	1110.	2057.	1070.	3366.	1034.	-.0477	.0131	.0776	.0522	-.0246	.0781	2481.	
.1330	-2407.	1467.	2776.	1168.	4094.	435.	-.0657	.0161	.1004	.0539	-.0201	.0807	2884.	
.1340	-2698.	1685.	3628.	1408.	4664.	76.	-.0815	.0184	.1204	.0499	-.0150	.0827	3285.	
.1350	-2522.	1978.	3759.	1365.	4852.	-960.	-.0926	.0218	.1343	.0565	-.0347	.0869	3460.	
.1360	-2508.	2496.	3784.	1572.	5249.	-1850.	-.1014	.0257	.1454	.0601	-.0550	.0868	3898.	
.1370	-3401.	3335.	4529.	2451.	5558.	-1285.	-.1101	.0281	.1557	.0413	-.0525	.0772	4185.	
.1380	-3987.	3959.	5087.	3265.	5816.	-791.	-.1150	.0299	.1621	.0215	-.0587	.0685	4527.	
.1390	-3937.	4361.	5000.	3696.	5588.	-1040.	-.1149	.0324	.1623	.0104	-.0884	.0626	4570.	
.1400	-4083.	4785.	5010.	4247.	4978.	-955.	-.1130	.0345	.1592	-.0085	-.1132	.0519	4457.	
.1410	-4322.	5013.	5264.	4921.	4597.	-486.	-.1103	.0356	.1548	-.0365	-.1252	.0382	4551.	
.1420	-4246.	5000.	5279.	5291.	3895.	-253.	-.1051	.0364	.1470	-.0632	-.1430	.0262	4432.	
.1430	-3705.	4715.	4915.	5340.	3098.	-587.	-.0970	.0374	.1360	-.0822	-.1581	.0170	4180.	
.1440	-3445.	4451.	4748.	5479.	2347.	-503.	-.0886	.0378	.1241	-.1053	-.1770	.0060	4032.	
.1450	-3381.	4209.	4649.	5507.	1672.	-28.	-.0794	.0370	.1113	-.1293	-.1718	-.0040	3879.	
.1460	-2782.	2735.	4004.	4950.	1117.	-144.	-.0671	.0362	.0959	-.1393	-.1727	-.0061	3422.	
.1470	-2162.	3294.	3144.	4070.	221.	-289.	-.0530	.0348	.0783	-.1424	-.1704	-.0044	2755.	
.1480	-1768.	2894.	389.	3163.	-392.	-88.	-.0386	.0326	.0608	-.1439	-.1506	-.0012	2149.	
.1490	-1397.	2488.	1538.	2045.	-898.	211.	-.0236	.0297	.0424	-.1397	-.1225	.0056	1512.	
.1500	-668.	1918.	322.	510.	-1738.	95.	-.0065	.0266	.0216	-.1241	-.1021	.0186	1222.	
.1510	376.	1065.	-998.	-1167.	-2482.	-328.	.0116	.0233	.0005	-.1012	-.0836	.0357	1862.	
.1520	1021.	280.	-1934.	-2562.	-3138.	-179.	.0279	.0193	-.0188	-.0841	-.0526	.0506	2733.	
.1530	1516.	-451.	-2761.	-3782.	-3436.	120.	.0427	.0153	-.0362	-.0674	-.0195	.0644	3445.	
.1540	2027.	-1160.	-3597.	-4885.	-3748.	314.	.0567	.0118	-.0522	-.0495	.0051	.0774	4156.	
.1550	2384.	-1898.	-4114.	-5630.	-3923.	711.	.0689	.0084	-.0651	-.0369	.0285	.0879	4650.	
.1560	2508.	-2631.	-4217.	-5930.	-3425.	1444.	.0781	.0051	-.0736	-.0326	.0581	.0948	4717.	
.1570	2194.	-3001.	-4121.	-5987.	-3068.	2534.	.0846	.0022	-.0794	-.0359	.0864	.0967	4843.	
.1580	2039.	-3271.	-4210.	-6081.	-2307.	3189.	.0902	.0007	-.0841	-.0370	.1004	.0983	5000.	
.1590	2083.	-3645.	-4249.	-6093.	-2373.	3552.	.0944	-.0002	-.0867	-.0390	.1085	.1003	5016.	
.1600	1807.	-3839.	-3902.	-5855.	-2175.	4293.	.0962	-.0010	-.0871	-.0507	.1219	.0997	5108.	
.1610	1581.	-3830.	-3682.	-5652.	-2212.	4740.	.0969	-.0007	-.0872	-.0589	.1268	.0998	5191.	
.1620	1799.	-3831.	-3793.	-5525.	-1880.	4358.	.0973	.0015	-.0866	-.0574	.1195	.1036	4910.	
.1630	1572.	-3527.	-3481.	-5014.	-1534.	4411.	.0950	.0040	-.0839	-.0631	.1235	.1047	4627.	

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.1530	1516.	-451.	-2761.	-3782.	-3436.	120.	.0427	.0153	-.0362	-.0674	-.0195	.0644	3445.
.1540	2023.	-1160.	-3597.	-4835.	-3748.	314.	.0567	.0118	-.0522	-.0495	.0051	.0774	4156.
.1550	2384.	-1898.	-4114.	-5630.	-3923.	711.	.0689	.0084	-.0651	-.0369	.0285	.0879	4650.
.1560	2508.	-2631.	-4217.	-5930.	-3425.	1444.	.0781	.0051	-.0736	-.0326	.0581	.0948	4717.
.1570	2194.	-3001.	-4121.	-5972.	-7068.	2534.	.0846	.0022	-.0794	-.0359	.0864	.0967	4843.
.1580	2039.	-3271.	-4218.	-6080.	-2007.	3189.	.0902	.0007	-.0841	-.0370	.1004	.0983	5000.
.1590	2083.	-3645.	-4249.	-6093.	-2373.	3552.	.0944	-.0002	-.0867	-.0390	.1085	.1003	5016.
.1600	1807.	-3839.	-3902.	-5855.	-2175.	4293.	.0962	-.0010	-.0871	-.0502	.1219	.0997	5108.
.1610	1581.	-3830.	-3682.	-5652.	-2212.	4740.	.0969	-.0007	-.0872	-.0589	.1268	.0998	5191.
.1620	1799.	-3831.	-3793.	-5525.	-1880.	4358.	.0973	.0015	-.0866	-.0574	.1195	.1036	4910.
.1630	1572.	-3537.	-3481.	-5014.	-1534.	4411.	.0950	.0040	-.0839	-.0631	.1235	.1047	4627.

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INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	MEMBER	SEQUENCE	LOCATION	END	TYPE	EL								
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	STRESS (PSI)	
.1640	1120.	-3050.	-2921.	-4304.	-1279.	4630.	.0907	.0067	-.0795	-.0722	.1345	.1053	4371.	
.1650	1180.	-2614.	-2795.	-3874.	-920.	4114.	.0869	.0107	-.0760	-.0691	.1310	.1114	3859.	
.1660	1304.	-2038.	-2805.	-3546.	-950.	3272.	.0827	.0154	-.0729	-.0617	.1214	.1186	3315.	
.1670	1256.	-1386.	-2593.	-3089.	-927.	2626.	.0769	.0199	-.0684	-.0576	.1191	.1245	2803.	
.1680	1176.	-686.	-2354.	-2667.	-933.	2001.	.0701	.0241	-.0630	-.0535	.1163	.1303	2334.	
.1690	1401.	-54.	-2409.	-2440.	-850.	879.	.0634	.0287	-.0574	-.0422	.1020	.1374	1840.	
.1700	1471.	642.	-2366.	-2098.	-834.	-110.	.0555	.0331	-.0508	-.0325	.0872	.1414	1524.	
.1710	1100.	1451.	-1941.	-1464.	-1038.	-462.	.0460	.0362	-.0427	-.0305	.0781	.1404	1249.	
.1720	1026.	1954.	-1560.	-705.	-654.	-1062.	.0362	.0388	-.0331	-.0237	.0625	.1397	986.	
.1730	802.	2435.	-1049.	127.	-196.	-1467.	.0256	.0407	-.0224	-.0182	.0461	.1350	1002.	
.1740	200.	3000.	-284.	1250.	225.	-1382.	.0137	.0410	-.0106	-.0173	.0352	.1245	1269.	
.1750	-317.	3387.	451.	2343.	789.	-1276.	.0020	.0413	.0013	-.0150	.0219	.1130	1875.	
.1760	-672.	3553.	1106.	2281.	1146.	-1216.	-.0087	.0357	.0122	-.0089	.0032	.1014	2481.	
.1770	-902.	3500.	1727.	4119.	1551.	-1206.	-.0183	.0371	.0227	-.0001	-.0150	.0890	3076.	
.1780	-1334.	3507.	2352.	4834.	1765.	-918.	-.0287	.0333	.0328	.0072	-.0283	.0737	3524.	
.1790	-1630.	3455.	2707.	5201.	2049.	-763.	-.0377	.0287	.0421	.0188	-.0431	.0586	3803.	
.1800	-1772.	3261.	2881.	5284.	2334.	-752.	-.0455	.0233	.0505	.0337	-.0585	.0441	3926.	
.1810	-2063.	3067.	3135.	5265.	2196.	-473.	-.0528	.0168	.0580	.0453	-.0686	.0274	3858.	
.1820	-2110.	2696.	3198.	5008.	2247.	-439.	-.0589	.0099	.0646	.0602	-.0794	.0118	3712.	
.1830	-2110.	2307.	3133.	4576.	2332.	-462.	-.0644	.0029	.0704	.0750	-.0390	-.0044	3476.	
.1840	-2213.	1932.	3127.	4139.	2364.	-361.	-.0696	-.0043	.0757	.0854	-.0929	-.0230	3222.	
.1850	-2228.	1448.	3120.	3667.	2355.	-325.	-.0739	-.0114	.0799	.0933	-.0950	-.0423	2946.	
.1860	-2081.	874.	3002.	3068.	2113.	-415.	-.0767	-.0183	.0820	.1004	-.1005	-.0606	2527.	
.1870	-1734.	203.	2759.	2390.	1914.	-689.	-.0780	-.0249	.0824	.1070	-.1084	-.0776	2116.	
.1880	-1560.	-331.	2591.	1809.	1485.	-742.	-.0783	-.0310	.0813	.1072	-.1132	-.0963	1655.	
.1890	-1383.	-779.	2362.	1265.	1046.	-792.	-.0774	-.0363	.0789	.1043	-.1191	-.1146	1229.	
.1900	-1133.	-1173.	2040.	767.	766.	-895.	-.0750	-.0407	.0754	.0998	-.1274	-.1312	948.	
.1910	-1150.	-1346.	1894.	510.	347.	-644.	-.0721	-.0445	.0711	.0884	-.1315	-.1423	601.	
.1920	-1207.	-1436.	1805.	457.	44.	-348.	-.0683	-.0471	.0662	.0738	-.1341	-.1643	388.	
.1930	-1199.	-1481.	1700.	509.	-130.	-153.	-.0639	-.0484	.0606	.0581	-.1372	-.1778	369.	
.1940	-1263.	-1431.	1685.	690.	-241.	108.	-.0593	-.0486	.0547	.0387	-.1360	-.1895	498.	
.1950	-1366.	-1329.	1767.	987.	-268.	374.	-.0548	-.0477	.0491	.0168	-.1289	-.1991	734.	
.1960	-1305.	-1270.	1790.	1245.	-249.	377.	-.0498	-.0454	.0424	-.0030	-.1197	-.2042	893.	
.1970	-1049.	-1259.	1691.	1340.	-327.	114.	-.0438	-.0422	.0346	-.0191	-.1098	-.2036	933.	
.1980	-710.	-1239.	1514.	1270.	-498.	-250.	-.0372	-.0383	.0258	-.0324	-.0958	-.1974	935.	
.1990	-336.	-1168.	1246.	1070.	-603.	-683.	-.0299	-.0337	.0164	-.0417	-.0764	-.1861	947.	
.2000	40.	-1008.	852.	754.	-613.	-1161.	-.0217	-.0285	.0063	-.0454	-.0521	-.1695	1021.	
.2010	388.	-767.	358.	334.	-643.	-1584.	-.0126	-.0232	-.0050	-.0435	-.0239	-.1478	1174.	

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.1910	-1150.	-1346.	1894.	510.	347.	-644.	-.0721	-.0445	.0711	.0884	-.1315	-.1483	601.
.1920	-1207.	-1436.	1805.	457.	44.	-348.	-.0683	-.0471	.0662	.0738	-.1341	-.1643	388.
.1930	-1199.	-1481.	1700.	509.	-130.	-153.	-.0639	-.0484	.0606	.0581	-.1372	-.1778	369.
.1940	-1263.	-1471.	1611.	690.	-241.	108.	-.0593	-.0486	.0549	.0787	-.1360	-.1895	498.
.1950	-1366.	-1329.	1767.	987.	-268.	374.	-.0548	-.0477	.0491	.0168	-.1289	-.1991	734.
.1960	-1305.	-1270.	1790.	1245.	-249.	377.	-.0498	-.0454	.0424	-.0030	-.1197	-.2042	893.
.1970	-1049.	-1259.	1691.	1340.	-327.	114.	-.0438	-.0422	.0346	-.0191	-.1098	-.2036	933.
.1980	-710.	-1239.	1514.	1270.	-498.	-250.	-.0372	-.0383	.0258	-.0324	-.0958	-.1974	935.
.1990	-336.	-1168.	1246.	1070.	-603.	-683.	-.0299	-.0337	.0164	-.0417	-.0764	-.1861	947.
.2000	40.	-1008.	852.	754.	-613.	-1161.	-.0217	-.0285	.0063	-.0454	-.0521	-.1695	1021.
.2010	388.	-767.	358.	334.	-643.	-1584.	-.0126	-.0232	-.0050	-.0435	-.0239	-.1478	1174.

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INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	3	MEMBER	3	SEQUENCE	803	LOCATION	END	TYPE	EL						
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS		
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)		
.2020	776.	-542.	-216.	-177.	-712.	-1955.	-.0022	-.0180	-.0175	-.0357	.0062	-.1209	1408.		
.2030	1233.	-389.	-856.	-731.	-777.	-2306.	.0093	-.0131	-.0311	-.0220	.0368	-.0896	1713.		
.2040	1664.	-260.	-1515.	-1253.	-874.	-2550.	.0215	-.0085	-.0456	-.0040	.0675	-.0561	2003.		
.2050	2041.	-166.	-2153.	-1703.	-1015.	-2643.	.0340	-.0044	-.0606	.0167	.0970	-.0219	2227.		
.2060	2442.	-206.	-2739.	-2057.	-1148.	-2642.	.0466	-.0010	-.0756	.0392	.1228	.0122	2386.		
.2070	2843.	-392.	-3214.	-2271.	-1274.	-2518.	.0589	.0017	-.0898	.0612	.1442	.0447	2442.		
.2080	3121.	-618.	-3555.	-2320.	-1429.	-2184.	.0702	.0035	-.1027	.0806	.1610	.0734	2354.		
.2090	3238.	-819.	-3779.	-2217.	-1539.	-1646.	.0799	.0047	-.1134	.0966	.1725	.0972	2130.		
.2100	3201.	-1005.	-3858.	-1952.	-1493.	-933.	.0877	.0052	-.1213	.1081	.1796	.1154	1771.		
.2110	2984.	-1165.	-3746.	-1524.	-1334.	-33.	.0931	.0051	-.1258	.1138	.1837	.1274	1366.		
.2120	2640.	-1282.	-3509.	-1020.	-1152.	938.	.0961	.0043	-.1273	.1151	.1836	.1336	1215.		
.2130	2281.	-1384.	-3234.	-524.	-938.	1798.	.0969	.0033	-.1261	.1142	.1781	.1352	1412.		
.2140	1918.	-1486.	-2806.	-34.	-678.	2516.	.0952	.0019	-.1222	.1111	.1700	.1322	1757.		
.2150	1548.	-1576.	-2458.	421.	-430.	3084.	.0910	.0003	-.1157	.1058	.1613	.1251	2118.		
.2160	1271.	-1652.	-2072.	727.	-255.	3353.	.0848	-.0013	-.1076	.1011	.1494	.1155	2319.		
.2170	1136.	-1710.	-1785.	849.	-146.	3252.	.0771	-.0029	-.0980	.0987	.1338	.1044	2268.		
.2180	1045.	-1713.	-1509.	869.	-78.	2922.	.0676	-.0045	-.0869	.0968	.1178	.0913	2055.		
.2190	934.	-1616.	-1223.	817.	-27.	2454.	.0564	-.0060	-.0741	.0944	.1022	.0761	1744.		
.2200	830.	-1401.	-1001.	656.	38.	1814.	.0439	-.0074	-.0598	.0922	.0848	.0594	1301.		
.2210	692.	-1065.	-815.	475.	123.	1064.	.0302	-.0086	-.0442	.0890	.0656	.0406	779.		
.2220	483.	-645.	-564.	251.	215.	328.	.0152	-.0098	-.0271	.0827	.0462	.0191	314.		
.2230	239.	-216.	-244.	121.	325.	-406.	-.0006	-.0108	-.0089	.0730	.0254	-.0045	360.		
.2240	18.	174.	111.	41.	466.	-1170.	-.0168	-.0117	.0099	.0604	.0017	-.0298	849.		
.2250	-238.	526.	545.	61.	614.	-1868.	-.0333	-.0124	.0290	.0437	-.0232	-.0570	1326.		
.2260	-540.	821.	1071.	203.	746.	-2436.	-.0495	-.0131	.0478	.0230	-.0483	-.0855	1723.		
.2270	-805.	1011.	1616.	420.	858.	-2920.	-.0645	-.0138	.0654	.0009	-.0749	-.1133	2071.		
.2280	-1026.	1101.	2152.	702.	945.	-3288.	-.0777	-.0144	.0811	-.0211	-.1021	-.1390	2354.		
.2290	-1293.	1155.	2692.	1075.	1015.	-3422.	-.0888	-.0151	.0944	-.0427	-.1266	-.1621	2513.		
.2300	-1612.	1216.	3179.	1494.	1082.	-3315.	-.0971	-.0158	.1049	-.0618	-.1473	-.1812	2557.		
.2310	-1907.	1274.	3520.	1871.	1117.	-3050.	-.1023	-.0165	.1118	-.0759	-.1649	-.1945	2526.		
.2320	-2143.	1306.	3707.	2176.	1063.	-2655.	-.1038	-.0172	.1146	-.0837	-.1789	-.2009	2422.		
.2330	-2306.	1292.	3762.	2414.	919.	-2158.	-.1020	-.0179	.1135	-.0850	-.1879	-.2001	2269.		
.2340	-2367.	1229.	3670.	2567.	728.	-1633.	-.0971	-.0183	.1088	-.0793	-.1919	-.1920	2106.		
.2350	-2334.	1132.	3440.	2610.	518.	-1120.	-.0897	-.0184	.1009	-.0676	-.1908	-.1774	1946.		
.2360	-2238.	1004.	3137.	2595.	311.	-614.	-.0806	-.0180	.0909	-.0517	-.1838	-.1574	1809.		
.2370	-2076.	826.	2808.	2544.	157.	-147.	-.0703	-.0172	.0796	-.0331	-.1711	-.1332	1721.		
.2380	-1853.	612.	2463.	2452.	87.	249.	-.0594	-.0159	.0677	-.0132	-.1537	-.1058	1662.		
.2390	-1616.	410.	2116.	2313.	92.	586.	-.0487	-.0140	.0560	.0063	-.1325	-.0768	1610.		

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

.2290	-1257.	1155.	2892.	1075.	1015.	-3422.	-888.	-0151	.0944	-.0427	-.1266	-.1621	2513.
.2300	-1612.	1216.	3179.	1494.	1082.	-3315.	-0971	-.0158	.1049	-.0618	-.1473	-.1812	2557.
.2310	-1907.	1274.	3320.	1671.	1117.	-3050.	-1023	-.0165	.1118	-.0759	-.1649	-.1945	2526.
.2320	-2143.	1306.	3707.	2176.	1063.	-2653.	-1078	-.0172	.1146	-.0837	-.1789	-.2009	2422.
.2330	-2306.	1292.	3762.	2414.	919.	-2158.	-1020	-.0179	.1135	-.0850	-.1879	-.2001	2269.
.2340	-2367.	1229.	3670.	2562.	728.	-1633.	-0971	-.0183	.1088	-.0793	-.1919	-.1920	2106.
.2350	-2334.	1132.	3449.	2610.	518.	-1120.	-0897	-.0184	.1009	-.0676	-.1908	-.1774	1946.
.2360	-2238.	1004.	3137.	2595.	311.	-614.	-0806	-.0180	.0909	-.0517	-.1838	-.1574	1809.
.2370	-2076.	826.	2802.	2544.	157.	-147.	-0703	-.0172	.0796	-.0331	-.1711	-.1332	1721.
.2380	-1853.	612.	2463.	2452.	87.	249.	-0594	-.0159	.0677	-.0132	-.1577	-.1058	1662.
.2390	-1616.	410.	2116.	2313.	92.	586.	-0487	-.0140	.0560	.0063	-.132.	-.0768	1610.

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DIS/ADLPIPE

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2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	3	MEMBER	3	SEQUENCE	803	LOCATION	END	TYPE	EL						
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS		
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)		
.2400	-1401.	248.	1789.	2137.	180.	876.	-.0385	-.0115	.0451	.0236	-.1076	-.0475	1561.		
.2410	-1205.	125.	1487.	1926.	372.	1102.	-.0290	-.0086	.0353	.0378	-.0801	-.0190	1516.		
.2420	-1022.	44.	1204.	1671.	628.	1260.	-.0204	-.0052	.0266	.0487	-.0509	.0082	1473.		
.2430	-839.	4.	919.	1357.	870.	1333.	-.0125	-.0015	.0187	.0562	-.0219	.0337	1410.		
.2440	-619.	-16.	611.	976.	1061.	1289.	-.0050	.0024	.0113	.0609	.0056	.0571	1304.		
.2450	-361.	-27.	283.	549.	1199.	1143.	.0022	.0063	.0041	.0628	.0311	.0782	1176.		
.2460	-103.	-10.	-44.	113.	1276.	958.	.0091	.0102	-.0030	.0615	.0547	.0963	1078.		
.2470	145.	37.	-371.	-308.	1278.	752.	.0159	.0140	-.0101	.0573	.0759	.1111	1021.		
.2480	409.	89.	-714.	-716.	1199.	510.	.0226	.0174	-.0175	.0507	.0933	.1227	1002.		
.2490	685.	137.	-1065.	-1113.	1015.	263.	.0294	.0205	-.0250	.0418	.1063	.1310	1030.		
.2500	940.	191.	-1408.	-1434.	717.	59.	.0361	.0230	-.0326	.0299	.1148	.1355	1111.		
.2510	1156.	251.	-1731.	-1806.	361.	-92.	.0425	.0250	-.0399	.0154	.1189	.1360	1243.		
.2520	1314.	312.	-2006.	-2056.	-0.	-173.	.0482	.0265	-.0463	-.0020	.1193	.1324	1391.		
.2530	1403.	362.	-2212.	-2234.	-380.	-160.	.0530	.0273	-.0518	-.0223	.1164	.1248	1531.		
.2540	1459.	372.	-2363.	-2369.	-799.	-98.	.0570	.0276	-.0562	-.0443	.1094	.1139	1686.		
.2550	1514.	316.	-2460.	-2458.	-1212.	-28.	.0599	.0273	-.0594	-.0666	.0984	.1007	1847.		
.2560	1519.	210.	-2459.	-2459.	-1545.	97.	.0616	.0265	-.0610	-.0890	.0863	.0852	1958.		
.2570	1432.	89.	-2346.	-2370.	-1775.	315.	.0617	.0252	-.0609	-.1109	.0751	.0681	2007.		
.2580	1312.	-55.	-2187.	-2260.	-1919.	545.	.0607	.0235	-.0594	-.1301	.0641	.0508	2032.		
.2590	1222.	-245.	-2028.	-2182.	-1996.	713.	.0588	.0214	-.0568	-.1445	.0530	.0348	2051.		
.2600	1137.	-464.	-1856.	-2142.	-2018.	857.	.0561	.0190	-.0534	-.1539	.0439	.0208	2066.		
.2610	1042.	-676.	-1697.	-2166.	-1988.	983.	.0528	.0162	-.0492	-.1577	.0375	.0092	2090.		
.2620	978.	-870.	-1615.	-2315.	-1921.	1022.	.0491	.0133	-.0446	-.1551	.0328	.0006	2142.		
.2630	959.	-1050.	-1621.	-2601.	-1854.	961.	.0451	.0103	-.0398	-.1465	.0293	-.0048	2249.		
.2640	967.	-1218.	-1677.	-2994.	-1812.	843.	.0409	.0072	-.0348	-.1333	.0272	-.0073	2426.		
.2650	1007.	-1381.	-1771.	-3454.	-1782.	667.	.0366	.0042	-.0295	-.1165	.0255	-.0075	2658.		
.2660	1066.	-1526.	-1885.	-3930.	-1736.	441.	.0319	.0014	-.0230	-.0976	.0231	-.0060	2911.		
.2670	1079.	-1627.	-1959.	-4339.	-1660.	245.	.0268	-.0012	-.0176	-.0790	.0203	-.0043	3136.		
.2680	1016.	-1680.	-1943.	-4613.	-1540.	129.	.0211	-.0034	-.0105	-.0629	.0168	-.0031	3279.		
.2690	899.	-1703.	-1828.	-4708.	-1367.	78.	.0149	-.0052	-.0028	-.0497	.0112	-.0028	3305.		
.2700	727.	-1695.	-1598.	-4584.	-1148.	99.	.0084	-.0064	.0055	-.0402	.0028	-.0036	3186.		
.2710	472.	-1637.	-1236.	-4220.	-900.	227.	.0014	-.0071	.0143	-.0352	-.0077	-.0060	2912.		
.2720	146.	-1517.	-772.	-3647.	-630.	442.	-.0057	-.0072	.0232	-.0344	-.0205	-.0095	2513.		
.2730	-210.	-1331.	-253.	-2914.	-355.	698.	-.0128	-.0066	.0321	-.0368	-.0359	-.0136	2034.		
.2740	-612.	-1073.	705.	-2050.	-100.	979.	-.0196	-.0055	.0406	-.0416	-.0528	-.0179	1533.		
.2750	-1023.	-749.	888.	-1094.	144.	1266.	-.0262	-.0030	.0487	-.0482	-.0598	-.0217	1132.		
.2760	-1425.	-359.	1454.	-117.	394.	1515.	-.0323	-.0015	.0562	-.0555	-.0859	-.0245	1058.		
.2770	-1805.	102.	1964.	810.	639.	1667.	-.0380	.0014	.0631	-.0628	-.1002	-.0260	1332.		

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2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

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ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING



.2660	1066.	-1526.	-885.	-3930.	-1736.	441.	.0319	.0014	-.0238	-.0976	.0231	-.0060	2911.
.2670	1079.	-1627.	-1959.	-4379.	-1660.	245.	.0268	-.0012	-.0176	-.0790	.0203	-.0043	3136.
.2680	1016.	-1680.	-1943.	-4613.	-1540.	129.	.0211	-.0034	-.0105	-.0629	.0168	-.0031	3279.
.2690	899.	-1703.	-1828.	-4708.	-1367.	78.	.0149	-.0052	-.0028	-.0497	.0112	-.0028	3305.
.2700	727.	-1695.	-1598.	-4584.	-1148.	99.	.0084	-.0064	.0055	-.0402	.0028	-.0036	3186.
.2710	472.	-1637.	-1236.	-4220.	-900.	227.	.0014	-.0071	.0143	-.0352	-.0077	-.0060	2912.
.2720	146.	-1517.	-772.	-7647.	-630.	442.	-.0057	-.0072	.0232	-.0344	-.0205	-.0095	2513.
.2730	-218.	-1331.	-253.	-2914.	-355.	698.	-.0128	-.0066	.0321	-.0368	-.0359	-.0136	2034.
.2740	-612.	-1073.	305.	-2050.	-100.	979.	-.0196	-.0055	.0406	-.0416	-.0528	-.0179	1533.
.2750	-1023.	-749.	888.	-1094.	144.	1266.	-.0262	-.0038	.0487	-.0482	-.0598	-.0217	1132.
.2760	-1425.	-359.	1454.	-117.	394.	1515.	-.0323	-.0015	.0562	-.0555	-.0559	-.0245	1058.
.2770	-1805.	102.	1964.	810.	639.	1667.	-.0380	.0014	.0631	-.0628	-.1002	-.0260	1333.

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CONDITION 24  
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ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	MEMBER	SEQUENCE	LOCATION	END	TYPE	EL								STRESS
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	(PSI)	
.2780	-2143.	618.	2398.	1631.	859.	1749.	-.0433	.0047	.0693	-.0693	-.1117	-.0258	1713.	
.2790	-2395.	1140.	2739.	2297.	1055.	1657.	-.0480	.0084	.0747	-.0745	-.1199	-.0236	2037.	
.2800	-2527.	1630.	2973.	2765.	1221.	1386.	-.0522	.0124	.0793	-.0778	-.1248	-.0191	2241.	
.2810	-2552.	2083.	3093.	3011.	1339.	954.	-.0557	.0166	.0831	-.0795	-.1260	-.0127	2312.	
.2820	-2488.	2499.	3095.	3037.	1414.	393.	-.0585	.0207	.0859	-.0798	-.1238	-.0048	2273.	
.2830	-2346.	2858.	2996.	2875.	1467.	-250.	-.0606	.0248	.0879	-.0787	-.1184	.0044	2182.	
.2840	-2151.	3141.	2834.	2581.	1510.	-899.	-.0617	.0285	.0889	-.0769	-.1100	.0144	2105.	
.2850	-1938.	3348.	2633.	2212.	1547.	-1478.	-.0617	.0317	.0887	-.0746	-.0992	.0248	2074.	
.2860	-1736.	3486.	2404.	1817.	1592.	-1931.	-.0604	.0344	.0873	-.0721	-.0865	.0350	2085.	
.2870	-1563.	3552.	2164.	1446.	1647.	-2210.	-.0578	.0365	.0845	-.0694	-.0726	.0449	2098.	
.2880	-1421.	3526.	1936.	1137.	1694.	-2282.	-.0537	.0377	.0800	-.0668	-.0579	.0542	2063.	
.2890	-1289.	3388.	1717.	897.	1707.	-2157.	-.0479	.0381	.0736	-.0639	-.0433	.0629	1950.	
.2900	-1150.	3136.	1489.	716.	1671.	-1862.	-.0404	.0378	.0653	-.0604	-.0297	.0712	1754.	
.2910	-1010.	2791.	1246.	581.	1568.	-1409.	-.0314	.0366	.0550	-.0563	-.0170	.0788	1474.	
.2920	-868.	2365.	985.	476.	1395.	-825.	-.0210	.0347	.0431	-.0518	-.0353	.0857	1139.	
.2930	-711.	1870.	698.	372.	1165.	-154.	-.0096	.0323	.0300	-.0467	.0054	.0920	831.	
.2940	-544.	1334.	382.	249.	893.	566.	.0025	.0293	.0159	-.0412	.0154	.0975	732.	
.2950	-378.	792.	36.	85.	580.	1301.	.0148	.0259	.0016	-.0356	.0250	.1020	962.	
.2960	-202.	262.	-344.	-145.	237.	1992.	.0269	.0224	-.0127	-.0299	.0342	.1055	1356.	
.2970	-1.	-252.	-753.	-455.	-117.	2584.	.0384	.0189	-.0263	-.0243	.0430	.1080	1771.	
.2980	219.	-736.	-1170.	-837.	-470.	3052.	.0488	.0154	-.0388	-.0193	.0515	.1094	2157.	
.2990	457.	-1173.	-1584.	-1284.	-818.	3365.	.0578	.0121	-.0498	-.0149	.0598	.1094	2489.	
.3000	723.	-1559.	-1997.	-1789.	-1160.	3488.	.0652	.0093	-.0593	-.0113	.0672	.1082	2756.	
.3010	1015.	-1890.	-2390.	-2329.	-1485.	3425.	.0708	.0068	-.0669	-.0085	.0732	.1057	2966.	
.3020	1300.	-2149.	-2730.	-2856.	-1775.	3217.	.0746	.0048	-.0725	-.0070	.0782	.1018	3137.	
.3030	1552.	-2317.	-3003.	-3326.	-2010.	2899.	.0765	.0032	-.0760	-.0070	.0819	.0965	3268.	
.3040	1754.	-2383.	-3203.	-3707.	-2176.	2499.	.0765	.0022	-.0774	-.0083	.0840	.0897	3351.	
.3050	1890.	-2347.	-3313.	-3968.	-2271.	2066.	.0749	.0016	-.0770	-.0110	.0844	.0816	3382.	
.3060	1947.	-2218.	-3322.	-4085.	-2297.	1640.	.0718	.0013	-.0747	-.0151	.0830	.0724	3347.	
.3070	1932.	-2008.	-3235.	-4046.	-2257.	1232.	.0673	.0014	-.0710	-.0201	.0797	.0624	3232.	
.3080	1853.	-1736.	-3061.	-3853.	-2158.	852.	.0618	.0018	-.0660	-.0255	.0743	.0518	3032.	
.3090	1717.	-1423.	-2799.	-3512.	-2011.	517.	.0555	.0024	-.0601	-.0311	.0672	.0410	2750.	
.3100	1537.	-1091.	-2462.	-3044.	-1826.	233.	.0485	.0031	-.0534	-.0362	.0587	.0304	2398.	
.3110	1334.	-758.	-2073.	-2474.	-1612.	-13.	.0411	.0039	-.0463	-.0401	.0489	.0205	1990.	
.3120	1113.	-433.	-1650.	-1828.	-1377.	-219.	.0336	.0046	-.0390	-.0421	.0384	.0116	1550.	
.3130	876.	-121.	-1204.	-1135.	-1123.	-373.	.0260	.0052	-.0316	-.0419	.0277	.0042	1105.	
.3140	628.	174.	-755.	-428.	-846.	-476.	.0185	.0057	-.0242	-.0389	.0176	-.0017	715.	
.3150	376.	453.	-326.	261.	-554.	-538.	.0113	.0059	-.0170	-.0330	.0082	-.0059	549.	

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24  
LOADS  
SHOCK  
PRESSURE  
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

.3050	1890.	-2347.	3313.	-3968.	-2271.	2066.	7749.	.0016	-.0770	-.0110	.0844	.0816	3351.
.3060	1947.	-2218.	-3322.	-4085.	-2297.	1640.	.0718	.0013	-.0747	-.0151	.0830	.0724	3347.
.3070	1932.	-2008.	-3235.	-4046.	-2257.	1232.	.0673	.0014	-.0710	-.0201	.0797	.0624	3232.
.3080	1853.	-1736.	-3061.	-3853.	-2158.	852.	.0618	.0018	-.0660	-.0255	.0743	.0518	3032.
.3090	1717.	-1423.	-2799.	-3512.	-2011.	517.	.0555	.0024	-.0601	-.0311	.0572	.0410	2750.
.3100	1537.	-1091.	-2462.	-3044.	-1826.	233.	.0495	.0031	-.0534	-.0362	.0587	.0304	2398.
.3110	1334.	-758.	-2073.	-2474.	-1612.	-13.	.0411	.0039	-.0463	-.0401	.0489	.0205	1990.
.3120	1113.	-433.	-1650.	-1828.	-1377.	-219.	.0336	.0046	-.0390	-.0421	.0384	.0116	1550.
.3130	876.	-121.	-1204.	-1135.	-1123.	-373.	.0260	.0052	-.0316	-.0419	.0277	.0042	1105.
.3140	628.	174.	-755.	-428.	-846.	-476.	.0185	.0057	-.0242	-.0389	.0176	-.0017	715.
.3150	376.	453.	-326.	261.	-554.	-538.	.0113	.0050	-.0170	-.0330	.0082	-.0059	549.

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2 SAFETY COLD FKW24F--2 PSV

CONDITION 24  
LOADS  
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INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	MEMBER	SEQUENCE	LOCATION	END	TYPE	EL								STRESS
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	(PSI)	
.3160	125.	713.	68.	903.	-257.	-567.	.0044	.0058	-.0102	-.0239	-.0001	-.0082	739.	
.3170	-112.	943.	420.	1478.	38.	-573.	-.0021	.0055	-.0037	-.0117	-.0072	-.0088	1069.	
.3180	-321.	1131.	725.	1967.	324.	-572.	-.0082	.0049	.0025	.0032	-.0130	-.0078	1398.	
.3190	-500.	1273.	980.	2365.	596.	-576.	-.0139	.0039	.0082	.0204	-.0177	-.0057	1689.	
.3200	-651.	1371.	1195.	2680.	856.	-585.	-.0193	.0027	.0135	.0389	-.0212	-.0030	1937.	
.3210	-779.	1421.	1378.	2926.	1107.	-596.	-.0243	.0013	.0186	.0581	-.0237	-.0001	2146.	
.3220	-881.	1421.	1542.	3117.	1348.	-608.	-.0290	-.0005	.0233	.0771	-.0253	.0025	2326.	
.3230	-964.	1379.	1693.	3270.	1574.	-616.	-.0334	-.0024	.0276	.0952	-.0265	.0043	2481.	
.3240	-1040.	1307.	1834.	3401.	1787.	-610.	-.0374	-.0045	.0315	.1117	-.0273	.0050	2622.	
.3250	-1119.	1222.	1973.	3527.	1993.	-577.	-.0411	-.0067	.0349	.1260	-.0278	.0041	2758.	
.3260	-1204.	1130.	2107.	3655.	2180.	-517.	-.0443	-.0089	.0378	.1377	-.0282	.0016	2890.	
.3270	-1281.	1031.	2230.	3783.	2328.	-445.	-.0469	-.0113	.0399	.1469	-.0288	-.0025	3009.	
.3280	-1338.	927.	2330.	3902.	2428.	-378.	-.0488	-.0136	.0412	.1536	-.0299	-.0082	3108.	
.3290	-1374.	823.	2404.	4007.	2473.	-323.	-.0501	-.0160	.0415	.1577	-.0314	-.0154	3181.	
.3300	-1387.	726.	2446.	4088.	2456.	-290.	-.0506	-.0183	.0409	.1592	-.0330	-.0241	3220.	
.3310	-1365.	631.	2448.	4133.	2379.	-299.	-.0506	-.0204	.0393	.1584	-.0348	-.0340	3221.	
.3320	-1392.	533.	2409.	4130.	2242.	-360.	-.0498	-.0225	.0369	.1554	-.0368	-.0449	3177.	
.3330	-1261.	437.	2330.	4070.	2050.	-470.	-.0486	-.0244	.0337	.1501	-.0385	-.0567	3088.	
.3340	-1071.	345.	2210.	3945.	1815.	-629.	-.0469	-.0262	.0300	.1428	-.0398	-.0692	2957.	
.3350	-915.	258.	2051.	3751.	1554.	-832.	-.0448	-.0278	.0260	.1337	-.0405	-.0823	2794.	
.3360	-739.	170.	1860.	3488.	1277.	-1068.	-.0425	-.0293	.0216	.1228	-.0403	-.0957	2605.	
.3370	-542.	74.	1638.	3155.	980.	-1330.	-.0399	-.0307	.0171	.1106	-.0391	-.1091	2400.	
.3380	-320.	-38.	1383.	2750.	668.	-1616.	-.0369	-.0319	.0123	.0977	-.0372	-.1219	2197.	
.3390	-80.	-171.	1102.	2290.	354.	-1907.	-.0336	-.0331	.0073	.0846	-.0344	-.1340	2023.	
.3400	165.	-324.	808.	1799.	45.	-2173.	-.0300	-.0341	.0020	.0717	-.0305	-.1449	1901.	
.3410	410.	-500.	506.	1295.	-252.	-2396.	-.0259	-.0352	-.0035	.0597	-.0254	-.1541	1844.	
.3420	658.	-703.	197.	797.	-531.	-2568.	-.0213	-.0361	-.0095	.0492	-.0194	-.1612	1848.	
.3430	895.	-927.	-108.	330.	-784.	-2665.	-.0161	-.0370	-.0159	.0408	-.0124	-.1660	1885.	
.3440	1110.	-1163.	-399.	-85.	-1004.	-2665.	-.0104	-.0379	-.0265	.0347	-.0041	-.1682	1921.	
.3450	1299.	-1408.	-676.	-439.	-1184.	-2572.	-.0042	-.0387	-.0301	.0313	.0052	-.1676	1931.	
.3460	1467.	-1655.	-940.	-732.	-1324.	-2393.	.0025	-.0395	-.0377	.0307	.0153	-.1643	1908.	
.3470	1611.	-1901.	-1188.	-967.	-1433.	-2138.	.0095	-.0401	-.0455	.0329	.0261	-.1582	1853.	
.3480	1735.	-2139.	-1421.	-1154.	-1516.	-1827.	.0166	-.0406	-.0533	.0376	.0373	-.1497	1779.	
.3490	1848.	-2368.	-1641.	-1303.	-1572.	-1490.	.0237	-.0410	-.0609	.0444	.0485	-.1390	1704.	
.3500	1944.	-2576.	-1839.	-1419.	-1597.	-1144.	.0304	-.0411	-.0679	.0528	.0594	-.1266	1633.	
.3510	2016.	-2752.	-2009.	-1506.	-1591.	-800.	.0364	-.0409	-.0741	.0618	.0700	-.1132	1572.	
.3520	2066.	-2890.	-2149.	-1572.	-1557.	-483.	.0416	-.0405	-.0791	.0711	.0798	-.0992	1526.	
.3530	2098.	-2986.	-2253.	-1615.	-1491.	-215.	.0457	-.0397	-.0827	.0799	.0882	-.0852	1489.	

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
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.3430	895.	-927.	-108.	330.	-784.	-2665.	-.0161	-.0370	-.0159	.0408	-.0124	-.1660	1885.
.3440	1110.	-1163.	-399.	-85.	-1004.	-2665.	-.0104	-.0379	-.0225	.0347	-.0041	-.1632	1921.
.3450	1299.	-1408.	-676.	-439.	-1184.	-2572.	-.0042	-.0387	-.0301	.0313	.0052	-.1676	1931.
.3460	1467.	-1655.	-940.	-772.	-1324.	-2393.	.0025	-.0395	-.0377	.0207	.0153	-.1643	1908.
.3470	1611.	-1901.	-1188.	-967.	-1433.	-2178.	.0095	-.0401	-.0455	.0329	.0261	-.1582	1853.
.3480	1735.	-2139.	-1421.	-1154.	-1516.	-1827.	.0166	-.0406	-.0533	.0376	.0373	-.1497	1779.
.3490	1848.	-2368.	-1641.	-1303.	-1572.	-1490.	.0237	-.0410	-.0609	.0444	.0485	-.1390	1704.
.3500	1944.	-2576.	-1839.	-1419.	-1597.	-1144.	.0304	-.0411	-.0679	.0528	.0594	-.1266	1633.
.3510	2016.	-2752.	-2009.	-1506.	-1591.	-800.	.0364	-.0409	-.0741	.0618	.0700	-.1132	1572.
.3520	2066.	-2890.	-2149.	-1572.	-1557.	-483.	.0416	-.0405	-.0791	.0711	.0798	-.0992	1526.
.3530	2098.	-2986.	-2253.	-1615.	-1491.	-215.	.0457	-.0397	-.0827	.0799	.0882	-.0852	1489.

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INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	3	MEMBER	3	SEQUENCE	803	LOCATION	END	TYPE	EL						
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)		DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	STRESS (PSI)	
.3540	2102.	-3033.	-2309.	-1628.	-1393.	5.		.0485	-.0385	-.0847	.0877	.0953	-.0717	1444.	
.3550	2070.	-3021.	-2311.	-1604.	-1260.	175.		.0498	-.0370	-.0849	.0938	.1007	-.0592	1380.	
.3560	2004.	-2945.	-2262.	-1544.	-1099.	284.		.0497	-.0351	-.0834	.0981	.1042	-.0480	1291.	
.3570	1911.	-2808.	-2165.	-1446.	-920.	326.		.0482	-.0329	-.0803	.1004	.1053	-.0383	1176.	
.3580	1790.	-2613.	-2017.	-1306.	-734.	309.		.0454	-.0304	-.0755	.1005	.1039	-.0304	1031.	
.3590	1643.	-2365.	-1819.	-1120.	-541.	238.		.0412	-.0277	-.0693	.0985	.1001	-.0242	853.	
.3600	1469.	-2063.	-1580.	-890.	-344.	120.		.0360	-.0247	-.0619	.0945	.0938	-.0199	648.	
.3610	1269.	-1713.	-1305.	-620.	-151.	-34.		.0298	-.0216	-.0533	.0886	.0853	-.0174	431.	
.3620	1047.	-1328.	-1000.	-316.	34.	-214.		.0228	-.0185	-.0440	.0810	.0747	-.0166	258.	
.3630	817.	-925.	-672.	10.	206.	-416.		.0153	-.0153	-.0340	.0720	.0624	-.0173	313.	
.3640	583.	-517.	-334.	346.	358.	-633.		.0075	-.0122	-.0237	.0619	.0485	-.0192	543.	
.3650	349.	-114.	6.	678.	488.	-854.		-.0005	-.0092	-.0132	.0511	.0335	-.0222	805.	
.3660	119.	272.	336.	991.	592.	-1069.		-.0084	-.0064	-.0029	.0399	.0179	-.0261	1061.	
.3670	-97.	624.	649.	1272.	668.	-1272.		-.0161	-.0039	.0072	.0286	.0018	-.0304	1294.	
.3680	-296.	933.	938.	1513.	716.	-1451.		-.0233	-.0017	.0168	.0176	-.0143	-.0349	1493.	
.3690	-482.	1194.	1200.	1711.	742.	-1591.		-.0299	.0002	.0259	.0072	-.0300	-.0393	1652.	
.3700	-661.	1407.	1433.	1865.	758.	-1677.		-.0359	.0016	.0342	-.0025	-.0448	-.0435	1766.	
.3710	-835.	1570.	1639.	1976.	772.	-1697.		-.0411	.0028	.0418	-.0115	-.0582	-.0472	1831.	
.3720	-1004.	1681.	1816.	2042.	786.	-1649.		-.0455	.0035	.0487	-.0195	-.0701	-.0502	1847.	
.3730	-1162.	1736.	1962.	2064.	804.	-1538.		-.0490	.0040	.0546	-.0264	-.0802	-.0524	1818.	
.3740	-1305.	1734.	2078.	2039.	826.	-1370.		-.0516	.0042	.0597	-.0324	-.0884	-.0535	1747.	
.3750	-1430.	1679.	2160.	1964.	851.	-1153.		-.0532	.0042	.0638	-.0374	-.0944	-.0534	1639.	
.3760	-1532.	1576.	2203.	1835.	874.	-900.		-.0540	.0041	.0669	-.0414	-.0982	-.0519	1498.	
.3770	-1602.	1430.	2203.	1651.	891.	-627.		-.0537	.0039	.0690	-.0446	-.0999	-.0489	1333.	
.3780	-1638.	1248.	2159.	1413.	898.	-345.		-.0525	.0037	.0699	-.0469	-.0993	-.0444	1152.	
.3790	-1637.	1040.	2070.	1125.	889.	-62.		-.0502	.0037	.0697	-.0484	-.0967	-.0382	967.	
.3800	-1603.	821.	1931.	794.	862.	214.		-.0470	.0038	.0682	-.0494	-.0922	-.0304	803.	
.3810	-1537.	605.	1745.	428.	813.	479.		-.0428	.0042	.0656	-.0498	-.0858	-.0210	698.	
.3820	-1439.	400.	1513.	41.	735.	728.		-.0377	.0049	.0617	-.0498	-.0779	-.0100	698.	
.3830	-1307.	209.	1242.	-355.	623.	951.		-.0316	.0058	.0566	-.0496	-.0690	.0023	803.	
.3840	-1145.	41.	938.	-744.	477.	1149.		-.0247	.0072	.0503	-.0494	-.0594	.0159	977.	
.3850	-963.	-96.	613.	-1108.	302.	1325.		-.0172	.0089	.0431	-.0495	-.0493	.0303	1182.	
.3860	-775.	-192.	281.	-1431.	106.	1485.		-.0092	.0110	.0352	-.0502	-.0391	.0451	1392.	
.3870	-585.	-247.	-46.	-1700.	-102.	-1628.		-.0010	.0135	.0269	-.0520	-.0292	.0601	1588.	
.3880	-403.	-261.	-352.	-1907.	-311.	1758.		.0073	.0163	.0184	-.0550	-.0198	.0747	1761.	
.3890	-241.	-232.	-624.	-2044.	-506.	1878.		.0152	.0194	.0102	-.0597	-.0109	.0887	1902.	
.3900	-109.	-157.	-853.	-2114.	-672.	1991.		.0226	.0227	.0025	-.0661	-.0024	.1015	2009.	
.3910	-10.	-41.	-1036.	-2128.	-801.	2090.		.0293	.0263	-.0044	-.0743	.0054	.1131	2082.	

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.3810	-1537.	605.	1745.	428.	813.	479.	-1428.	.0042	.0656	-.0498	-.0858	-.0304	698.
.3820	-1439.	400.	1513.	41.	735.	728.	-.377	.0049	.0617	-.0498	-.0779	-.0100	692.
.3830	-1307.	209.	1242.	-355.	623.	951.	-.0316	.0058	.0566	-.0496	-.0590	.0023	803.
.3840	-1145.	41.	938.	-744.	477.	1149.	-.0247	.0072	.0503	-.0494	-.0594	.0159	977.
.3850	-967.	-96.	613.	-1108.	307.	1325.	-.0172	.0089	.0431	-.0495	-.0493	.0303	1182.
.3860	-775.	-192.	281.	-1431.	106.	1485.	-.0092	.0110	.0352	-.0502	-.0391	.0451	1392.
.3870	-585.	-247.	-46.	-1700.	-102.	1628.	-.0010	.0135	.0269	-.0520	-.0292	.0601	1588.
.3880	-403.	-261.	-352.	-1907.	-311.	1758.	.0073	.0163	.0184	-.0550	-.0198	.0747	1761.
.3890	-241.	-232.	-624.	-2044.	-506.	1878.	.0152	.0194	.0102	-.0597	-.0109	.0887	1902.
.3900	-109.	-157.	-853.	-2114.	-672.	1991.	.0226	.0227	.0025	-.0661	-.0024	.1015	2009.
.3910	-10.	-41.	-1036.	-2128.	-801.	2090.	.0293	.0263	-.0044	-.0743	.0354	.1131	2082.

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INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	3	MEMBER	3	SEQUENCE	803	LOCATION	END	TYPE	EL					
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS	
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)	
.3920	64.	105.	-1175.	-2102.	-894.	2163.	.0352	.0300	-.0103	-.0840	.0127	.1233	2120.	
.3930	121.	268.	-1273.	-2054.	-953.	2201.	.0401	.0337	-.0151	-.0948	.0193	.1322	2129.	
.3940	168.	438.	-1340.	-2005.	-981.	2194.	.0440	.0374	-.0188	-.1060	.0256	.1400	2110.	
.3950	208.	611.	-1386.	-1972.	-980.	2141.	.0470	.0410	-.0215	-.1169	.0315	.1468	2070.	
.3960	245.	781.	-1423.	-1967.	-956.	2048.	.0492	.0443	-.0232	-.1270	.0373	.1528	2019.	
.3970	287.	936.	-1459.	-1997.	-921.	1915.	.0506	.0474	-.0243	-.1354	.0429	.1584	1966.	
.3980	342.	1068.	-1502.	-2065.	-880.	1753.	.0516	.0500	-.0249	-.1413	.0483	.1638	1919.	
.3990	402.	1174.	-1553.	-2161.	-834.	1580.	.0522	.0522	-.0251	-.1446	.0535	.1692	1890.	
.4000	456.	1260.	-1611.	-2275.	-784.	1423.	.0525	.0538	-.0251	-.1449	.0585	.1744	1884.	

MAXIMUM VALUE OF STRESS OCCURS AT

TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)
.0940	-1149.	6119.	3818.	7764.	3590.	-5621.	-.0773	.0479	.0686	.1048	-.0366	.0961	6899.

SECTION	4	MEMBER	1	SEQUENCE	803	LOCATION	BEG	TYPE	EL					
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS	
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)	
0.0000	0.	0.	0.	0.	0.	0.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.	
.0010	-2.	-4.	-2.	2.	-0.	-3.	-.0000	-.0000	-.0000	-.0000	.0000	.0000	2.	
.0020	-13.	-14.	-10.	9.	-2.	-13.	-.0000	-.0000	-.0000	-.0000	.0001	-.0000	11.	
.0030	-32.	-4.	-19.	15.	-10.	-23.	-.0000	-.0001	-.0001	-.0001	.0005	-.0000	20.	
.0040	-59.	41.	-24.	17.	-25.	-30.	.0000	-.0001	-.0001	-.0002	.0011	-.0000	28.	
.0050	-99.	97.	-28.	31.	-42.	-47.	.0001	-.0003	-.0002	-.0003	.0021	.0002	48.	
.0060	-155.	152.	-28.	75.	-63.	-87.	.0004	-.0005	-.0005	-.0003	.0035	.0005	88.	
.0070	-223.	239.	-28.	144.	-91.	-143.	.0008	-.0008	-.0009	-.0002	.0055	.0011	150.	
.0080	-286.	398.	-37.	224.	-144.	-215.	.0016	-.0012	-.0015	.0003	.0084	.0020	231.	
.0090	-339.	644.	-23.	291.	-265.	-319.	.0027	-.0018	-.0023	.0008	.0134	.0033	341.	
.0100	-394.	930.	50.	348.	-454.	-489.	.0042	-.0026	-.0032	.0012	.0211	.0051	507.	
.0110	-428.	1212.	160.	438.	-650.	-717.	.0064	-.0035	-.0046	.0021	.0306	.0075	716.	
.0120	-401.	1464.	276.	607.	-807.	-959.	.0093	-.0044	-.0067	.0044	.0406	.0111	939.	
.0130	-345.	1634.	427.	852.	-928.	-1218.	.0129	-.0053	-.0097	.0080	.0512	.0160	1181.	
.0140	-332.	1711.	671.	1135.	-1034.	-1500.	.0171	-.0061	-.0135	.0121	.0633	.0216	1447.	
.0150	-396.	1776.	993.	1437.	-1119.	-1739.	.0216	-.0068	-.0181	.0169	.0763	.0277	1697.	

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.0050	-99.	77.	-28.	31.	-42.	-47.	.0001	-.0003	-.0002	-.0003	.0021	.0002	48.
.0060	-155.	152.	-28.	75.	-63.	-87.	.0004	-.0005	-.0005	-.0003	.0035	.0005	88.
.0070	-227.	239.	-28.	144.	-91.	-143.	.0008	-.0008	-.0009	-.0002	.0055	.0011	150.
.0080	-286.	398.	-37.	224.	-144.	-215.	.0016	-.0012	-.0015	.0003	.0084	.0020	231.
.0090	-339.	644.	-23.	291.	-265.	-319.	.0027	-.0018	-.0027	.0008	.0134	.0033	341.
.0100	-394.	930.	50.	348.	-454.	-489.	.0042	-.0026	-.0032	.0012	.0211	.0051	507.
.0110	-428.	1212.	160.	438.	-650.	-717.	.0064	-.0035	-.0046	.0021	.0306	.0075	716.
.0120	-401.	1464.	276.	607.	-807.	-959.	.0093	-.0044	-.0067	.0044	.0406	.0111	939.
.0130	-345.	1634.	427.	852.	-928.	-1218.	.0129	-.0053	-.0097	.0080	.0512	.0160	1181.
.0140	-332.	1711.	671.	1135.	-1034.	-1500.	.0171	-.0061	-.0135	.0121	.0633	.0216	1447.
.0150	-356.	1776.	993.	1437.	-1119.	-1739.	.0216	-.0068	-.0181	.0169	.0763	.0277	1697.

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2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	MEMBER	SEQUENCE	LOCATION	BEG	TYPE	EL	DX	DY	DZ	RX	RY	RZ	STRESS
TIME	FX	FY	FZ	MX	MY	MZ	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)							
.0160	-545.	1912.	1336.	1762.	-1201.	-1869.	.0265	-.0073	-.0235	.0224	.0893	.0343	1911.
.0170	-812.	2138.	1653.	2067.	-1227.	-1900.	.0315	-.0076	-.0295	.0274	.1024	.0410	2066.
.0180	-1132.	2473.	1845.	2327.	-1055.	-1822.	.0370	-.0078	-.0362	.0312	.1141	.0473	2115.
.0190	-1290.	2865.	1736.	2591.	-646.	-1612.	.0429	-.0079	-.0435	.0352	.1206	.0537	2102.
.0200	-1085.	3065.	1201.	2818.	-90.	-1421.	.0490	-.0077	-.0509	.0389	.1216	.0600	2128.
.0210	-601.	2838.	629.	2733.	142.	-1563.	.0536	-.0071	-.0562	.0389	.1260	.0636	2124.
.0220	-236.	2210.	875.	2162.	-216.	-2089.	.0556	-.0059	-.0581	.0315	.1416	.0612	2032.
.0230	157.	1289.	1425.	1560.	-598.	-2500.	.0559	-.0038	-.0586	.0227	.1533	.0561	2027.
.0240	658.	163.	1568.	1358.	-935.	-2420.	.0552	-.0011	-.0598	.0196	.1505	.0530	1974.
.0250	702.	-812.	1576.	1059.	-1004.	-1947.	.0525	.0021	-.0607	.0145	.1452	.0472	1640.
.0260	148.	-1178.	1589.	462.	-110.	-868.	.0487	.0057	-.0613	.0039	.1369	.0359	667.
.0270	-341.	-1113.	1229.	416.	1188.	1184.	.0450	.0094	-.0631	.0012	.1055	.0281	1164.
.0280	-633.	-1494.	427.	758.	1742.	3250.	.0386	.0126	-.0634	.0046	.0544	.0224	2537.
.0290	-1550.	-2236.	393.	-52.	1635.	4137.	.0266	.0155	-.0575	-.0091	.0547	.0010	2998.
.0300	-2644.	-1965.	1550.	-1623.	1135.	4953.	.0131	.0179	-.0468	-.0303	.0597	-.0304	3595.
.0310	-3010.	-1784.	1841.	-1971.	926.	6123.	.0026	.0181	-.0387	-.0369	.0362	-.0517	4380.
.0320	-2821.	-2332.	657.	-1333.	1928.	7001.	-.0048	.0152	-.0350	-.0334	-.0106	-.0661	4977.
.0330	-2630.	-2149.	27.	-1281.	2889.	7444.	-.0111	.0111	-.0299	-.0300	-.0449	-.0860	5451.
.0340	-2540.	-1376.	791.	-1642.	2795.	7407.	-.0176	.0055	-.0216	-.0259	-.0627	-.1097	5450.
.0350	-2379.	-1743.	1381.	-1279.	2837.	6534.	-.0237	-.0026	-.0141	-.0196	-.0862	-.1301	4878.
.0360	-1763.	-2344.	773.	-454.	3812.	5463.	-.0278	-.0122	-.0092	-.0069	-.1260	-.1472	4501.
.0370	-693.	-1256.	-58.	-287.	4433.	4931.	-.0302	-.0217	-.0031	.0138	-.1680	-.1630	4474.
.0380	-91.	5.	-143.	-882.	3945.	3860.	-.0351	-.0320	.0073	.0291	-.1910	-.1801	3767.
.0390	-44.	-301.	-446.	-1394.	3568.	1630.	-.0437	-.0433	.0202	.0322	-.2044	-.1998	2806.
.0400	1049.	24.	-2358.	-1543.	3755.	94.	-.0525	-.0525	.0336	.0409	-.2386	-.2174	2737.
.0410	2671.	2030.	-3862.	-2156.	2757.	-465.	-.0621	-.0592	.0521	.0520	-.2689	-.2327	2380.
.0420	2910.	2586.	-3745.	-3514.	701.	-2357.	-.0773	-.0662	.0778	.0390	-.2553	-.2520	2891.
.0430	2846.	1563.	-4206.	-4371.	-750.	-4796.	-.0944	-.0720	.1038	.0177	-.2338	-.2687	4403.
.0440	4310.	2239.	-5904.	-4065.	-1837.	-5029.	-.1073	-.0729	.1257	.0194	-.2436	-.2717	4531.
.0450	5319.	3490.	-6034.	-3627.	-3490.	-4486.	-.1190	-.0711	.1481	.0197	-.2358	-.2685	4545.
.0460	4086.	2400.	-4085.	-3333.	-5006.	-5315.	-.1322	-.0694	.1695	-.0022	-.1807	-.2638	5410.
.0470	3067.	1168.	-3399.	-2018.	-5265.	-5136.	-.1389	-.0648	.1797	-.0056	-.1443	-.2424	5141.
.0480	3670.	2348.	-4364.	122.	-4865.	-2300.	-.1350	-.0554	.1772	.0285	-.1491	-.1988	3628.
.0490	3207.	2934.	-3615.	1408.	-4852.	-95.	-.1280	-.0452	.1708	.0523	-.1218	-.1515	3406.
.0500	1046.	1010.	-1282.	1768.	-4888.	-118.	-.1208	-.0358	.1610	.0516	-.0515	-.1072	3505.
.0510	280.	-240.	-732.	2389.	-4417.	700.	-.1061	-.0233	.1402	.0723	-.0146	-.0522	3417.
.0520	1179.	479.	-1659.	2738.	-3808.	2857.	-.0832	-.0077	.1108	.1132	-.0116	.0115	3702.
.0530	888.	-262.	-1168.	1625.	-3490.	3087.	-.0606	.0057	.0823	.1236	.0253	.0664	3326.

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/31/02.

18.25.53.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING



.0430	2046.	1563.	-4206.	-4371.	-750.	-4796.	-.0944	-.0720	.1038	.0177	-.2338	-.2687	4403.
.0440	4310.	2219.	-5904.	-4065.	-1837.	-5029.	-.1073	-.0729	.1257	.0194	-.2436	-.2717	4531.
.0450	5719.	3490.	-6034.	-3627.	-3490.	-4486.	-.1190	-.0711	.1481	.0197	-.2358	-.2685	4545.
.0460	4086.	2400.	-4085.	-3333.	-5006.	-5315.	-.1322	-.0694	.1695	-.0022	-.1807	-.2638	5410.
.0470	3067.	1168.	-3399.	-2018.	-5265.	-5136.	-.1389	-.0648	.1797	-.0056	-.1443	-.2424	5141.
.0480	3670.	2348.	-4364.	122.	-4865.	-2300.	-.1350	-.0554	.1772	.0285	-.1491	-.1988	3628.
.0490	3207.	2984.	-3615.	1408.	-4852.	-95.	-.1280	-.0452	.1708	.0523	-.1218	-.1515	3406.
.0500	1046.	1010.	-1282.	1768.	-4888.	-118.	-.1208	-.0358	.1610	.0516	-.0515	-.1072	3505.
.0510	280.	-240.	-732.	2389.	-4417.	700.	-.1061	-.0233	.1402	.0723	-.0146	-.0522	3417.
.0520	1179.	479.	-1659.	2738.	-3808.	2857.	-.0832	-.0077	.1108	.1132	-.0116	.0115	3702.
.0530	888.	-262.	-1168.	1625.	-3490.	3087.	-.0606	.0057	.0823	.1236	.0253	.0664	3326.

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.25.53.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	4	MEMBER	1	SEQUENCE	803	LOCATION	BEG	TYPE	EL						
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS		
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)		
.0540	-228.	-2764.	59.	-61.	-3233.	1615.	-.0392	.0173	.0543	.1085	.0782	.1126	2436.		
.0550	274.	-3649.	-292.	-1068.	-2697.	1518.	-.0143	.0313	.0218	.1089	.0845	.1586	2207.		
.0560	1315.	-3254.	-1071.	-2164.	-1976.	2067.	.0111	.0463	-.0106	.1076	.0729	.1966	2417.		
.0570	771.	-4341.	-484.	-4062.	-1387.	920.	.0316	.0572	-.0367	.0724	.0939	.2202	2959.		
.0580	31.	-5756.	5.	-5691.	-971.	-445.	.0497	.0656	-.0597	.0301	.1128	.2400	3903.		
.0590	579.	-5224.	-768.	-6479.	-551.	-181.	.0680	.0749	-.0827	.0093	.0993	.2583	4384.		
.0600	678.	-4363.	-909.	-7324.	-239.	-61.	.0825	.0830	-.1016	-.0140	.1003	.2648	4940.		
.0610	-562.	-4889.	259.	-8267.	-201.	-1225.	.0923	.0863	-.1153	-.0486	.1359	.2644	5635.		
.0620	-1303.	-4978.	826.	-8255.	-190.	-1650.	.1031	.0864	-.1297	-.0594	.1595	.2727	5676.		
.0630	-1102.	-3546.	493.	-7317.	184.	-675.	.1163	.0853	-.1465	-.0373	.1624	.2863	4954.		
.0640	-1661.	-2528.	1139.	-6210.	759.	-224.	.1269	.0814	-.1612	-.0108	.1860	.2923	4220.		
.0650	-2948.	-2594.	2823.	-4648.	1189.	-533.	.1346	.0732	-.1728	.0176	.2264	.2953	3253.		
.0660	-3430.	-2028.	3884.	-2172.	1710.	-10.	.1431	.0626	-.1844	.0667	.2444	.3028	1863.		
.0670	-3310.	-572.	4226.	524.	2650.	1113.	.1509	.0507	-.1942	.1258	.2452	.3052	1970.		
.0680	-3674.	374.	4873.	2761.	3550.	1431.	.1533	.0364	-.1976	.1706	.2545	.2925	3181.		
.0690	-4076.	831.	5609.	4736.	3796.	1140.	.1495	.0202	-.1931	.2001	.2620	.2672	4162.		
.0700	-3793.	1836.	5741.	6392.	3544.	996.	.1406	.0038	-.1810	.2180	.2525	.2288	4972.		
.0710	-3413.	3181.	5617.	7240.	3154.	601.	.1258	-.0122	-.1610	.2138	.2373	.1719	5338.		
.0720	-3402.	4146.	5510.	7490.	2622.	-318.	.1053	-.0284	-.1345	.1863	.2185	.1004	5353.		
.0730	-3169.	5008.	4820.	7738.	2109.	-1082.	.0823	-.0442	-.1048	.1480	.1786	.0243	5455.		
.0740	-2441.	6181.	3507.	7837.	1883.	-1449.	.0583	-.0584	-.0734	.1022	.1193	-.0554	5520.		
.0750	-1787.	7162.	2542.	7373.	1621.	-2034.	.0327	-.0706	-.0396	.0439	.0530	-.1402	5270.		
.0760	-1412.	7365.	2194.	6596.	1016.	-3034.	.0062	-.0810	-.0054	-.0204	.0145	-.2234	4942.		
.0770	-840.	7096.	1617.	5922.	589.	-3851.	-.0179	-.0891	.0246	-.0761	-.0398	-.2954	4778.		
.0780	173.	6922.	407.	5246.	785.	-4054.	-.0372	-.0942	.0485	-.1171	-.1020	-.3521	4500.		
.0790	1211.	6634.	-751.	4320.	1054.	-3940.	-.0527	-.0966	.0674	-.1455	-.1566	-.3928	4004.		
.0800	1771.	5668.	-1237.	3165.	836.	-3948.	-.0666	-.0963	.0826	-.1643	-.1913	-.4183	3457.		
.0810	1953.	4301.	-1460.	1958.	571.	-3819.	-.0785	-.0926	.0932	-.1709	-.2117	-.4298	2918.		
.0820	2185.	3323.	-2034.	897.	752.	-2874.	-.0867	-.0855	.0980	-.1607	-.2310	-.4246	2092.		
.0830	2375.	2608.	-2746.	88.	1089.	-1185.	-.0914	-.0762	.0987	-.1368	-.2490	-.4009	1087.		
.0840	2094.	1430.	-3074.	-581.	1252.	495.	-.0951	-.0656	.0980	-.1096	-.2542	-.3647	988.		
.0850	1549.	5.	-3120.	-1222.	1330.	2028.	-.0991	-.0529	.0973	-.0833	-.2468	-.3240	1830.		
.0860	1281.	-1003.	-3145.	-1777.	1242.	3769.	-.1028	-.0380	.0971	-.0554	-.2364	-.2803	2931.		
.0870	1133.	-1992.	-2954.	-2283.	767.	5351.	-.1059	-.0228	.0983	-.0306	-.2206	-.2323	3955.		
.0880	751.	-3473.	-2566.	-2920.	95.	6223.	-.1088	-.0089	.1005	-.0143	-.1941	-.1827	4634.		
.0890	532.	-4687.	-2542.	-3688.	-500.	6806.	-.1102	.0047	.1015	.0012	-.1671	-.1337	5229.		
.0900	756.	-5065.	-2910.	-4495.	-1198.	7462.	-.1090	.0180	.1004	.0218	-.1457	-.0851	5927.		
.0910	795.	-5431.	-2944.	-5443.	-2172.	7507.	-.1062	.0292	.0981	.0391	-.1167	-.0382	6419.		

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.25.53.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

.0810	1953.	4301.	-1460.	1958.	571.	-3819.	-10785	-0926	.0932	-1709	-2117	-4298	2918.
.0820	2185.	3323.	-2034.	897.	752.	-2874.	-0867	-0855	.0980	-1607	-2310	-4246	2092.
.0830	2375.	2608.	-2746.	88.	1089.	-1185.	-0914	-0762	.0987	-1368	-2490	-4009	1087.
.0840	2094.	1430.	-3074.	-581.	1252.	495.	-0951	-0656	.0980	-1096	-2542	-3647	988.
.0850	1549.	5.	-3120.	-1222.	1330.	2028.	-0991	-0529	.0973	-0833	-2468	-3240	1830.
.0860	1281.	-1003.	-3145.	-1777.	1242.	3789.	-1028	-0380	.0971	-0554	-2364	-2803	2931.
.0870	1133.	-1992.	-2954.	-2283.	767.	5351.	-1059	-0228	.0983	-0306	-2206	-2323	3955.
.0880	751.	-3473.	-2566.	-2920.	95.	6223.	-1088	-0089	.1005	-0143	-1941	-1827	4634.
.0890	532.	-4687.	-2542.	-3688.	-500.	6806.	-1102	.0047	.1015	.0012	-1571	-1337	5229.
.0900	756.	-5065.	-2910.	-4495.	-1198.	7462.	-1090	.0180	.1004	.0218	-1457	-0851	5927.
.0910	795.	-5431.	-2944.	-5443.	-2172.	7507.	-1062	.0292	.0981	.0391	-1167	-0382	6419.

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.25.53.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24  
LOADS

SHOCK  
PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	MEMBER	SEQUENCE	LOCATION	BEG	TYPE	EL								
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	STRESS (PSI)	
.0920	385.	-6114.	-2593.	-6517.	-3092.	6714.	-1013	.0374	.0935	.0512	-0779	.0061	6642.	
.0930	258.	-6121.	-2699.	-7354.	-3554.	6014.	-0917	.0436	.0837	.0720	-0494	.0506	6837.	
.0940	652.	-5329.	-3369.	-7764.	-3590.	5621.	-0773	.0479	.0686	.1048	-0366	.0961	6899.	
.0950	914.	-4885.	-3720.	-7983.	-3508.	4594.	-0608	.0490	.0518	.1342	-0198	.1374	6644.	
.0960	971.	-4918.	-3440.	-8130.	-3520.	2802.	-0442	.0473	.0358	.1545	.0070	.1703	6263.	
.0970	1394.	-4520.	-3082.	-7995.	-3608.	1097.	-0273	.0443	.0205	.1736	.0293	.1953	5958.	
.0980	2044.	-3792.	-2869.	-7508.	-3610.	-394.	-0108	.0402	.0061	.1904	.0445	.2121	5622.	
.0990	2341.	-3391.	-2535.	-6801.	-3439.	-2040.	.0036	.0342	-0059	.1956	.0613	.2199	5318.	
.1000	2384.	-2892.	-2111.	-5865.	-3182.	-3412.	.0154	.0271	-0149	.1905	.0759	.2190	5051.	
.1010	2421.	-1754.	-1739.	-4645.	-2922.	-4027.	.0246	.0203	-0211	.1803	.0820	.2093	4588.	
.1020	2115.	-553.	-1238.	-3275.	-2623.	-4304.	.0300	.0140	-0242	.1604	.0867	.1892	4052.	
.1030	1369.	286.	-601.	-1881.	-2247.	-4524.	.0320	.0075	-0245	.1295	.0935	.1610	3633.	
.1040	718.	1263.	-161.	-440.	-1831.	-4262.	.0327	.0014	-0232	.0955	.0938	.1301	3141.	
.1050	361.	2407.	66.	986.	-1404.	-3558.	.0327	-0038	-0211	.0615	.0874	.0973	2663.	
.1060	-56.	2980.	471.	2243.	-1008.	-3091.	.0311	-0083	-0181	.0227	.0853	.0605	2662.	
.1070	-521.	2976.	1157.	3313.	-768.	-2893.	.0285	-0120	-0148	-0186	.0882	.0222	3010.	
.1080	-596.	3034.	1567.	4253.	-533.	-2445.	.0273	-0147	-0132	-0541	.0863	-0122	3326.	
.1090	-262.	3200.	1392.	4944.	-194.	-1772.	.0279	-0166	-0139	-0830	.0804	-0410	3542.	
.1100	-727.	2932.	2313.	5249.	-291.	-1492.	.0279	-0180	-0151	-1143	.0910	-0686	3683.	
.1110	-1537.	2437.	3228.	5653.	89.	-1180.	.0291	-0186	-0199	-1414	.1002	-0928	3893.	
.1120	-1772.	2651.	3022.	6529.	1307.	80.	.0342	-0178	-0306	-1521	.0854	-1064	4489.	
.1130	-2001.	3245.	2821.	7337.	2495.	1650.	.0416	-0169	-0432	-1560	.0668	-1117	5340.	
.1140	-2965.	3170.	3529.	7568.	3263.	2333.	.0477	-0165	-0542	-1674	.0683	-1167	5773.	
.1150	-3792.	2841.	4124.	7628.	3998.	2584.	.0533	-0154	-0653	-1770	.0712	-1209	6660.	
.1160	-3659.	3115.	4039.	7851.	4663.	3207.	.0605	-0131	-0770	-1740	.0575	-1192	6524.	
.1170	-3462.	3098.	4172.	7732.	5074.	3289.	.0674	-0114	-0866	-1727	.0492	-1144	6616.	
.1180	-3860.	2465.	5187.	7111.	5019.	2497.	.0723	-0110	-0930	-1773	.0567	-1088	6103.	
.1190	-3899.	1852.	5204.	6595.	5586.	1717.	.0775	-0102	-1005	-1734	.0510	-0997	5939.	
.1200	-2983.	2157.	3946.	6381.	6431.	1752.	.0839	-0084	-1088	-1518	.0203	-0834	6220.	
.1210	-2267.	2685.	3512.	5707.	6208.	1631.	.0875	-0071	-1118	-1304	.0008	-0646	5789.	
.1220	-2702.	1850.	4063.	4232.	5661.	30.	.0853	-0073	-1083	-1268	.0135	-0531	4764.	
.1230	-2632.	1442.	3752.	3022.	5243.	-1073.	.0815	-0064	-1036	-1115	.0126	-0391	4143.	
.1240	-1452.	2129.	2062.	2415.	5052.	-920.	.0782	-0041	-0986	-0765	-0166	-0175	3825.	
.1250	-789.	2211.	1058.	1547.	4517.	-1249.	.0711	-0031	-0876	-0511	-0293	.0024	3326.	
.1260	-926.	1430.	1347.	374.	3268.	-2327.	.0586	-0030	-0691	-0397	-0166	.0169	2716.	
.1270	-381.	811.	651.	-288.	2373.	-2898.	.0441	-0013	-0489	-0219	-0171	.0299	2532.	
.1280	998.	1081.	-692.	-428.	1291.	-2407.	.0290	.0020	-0272	.0073	-0344	.0450	1864.	
.1290	1443.	514.	-897.	-929.	-178.	-2581.	.0101	.0042	-0002	.0196	-0268	.0549	1853.	

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

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.1190	-3899.	1352.	5204.	6595.	5586.	1717.	.0775	-.0102	-.1005	-.1734	.0510	-.0997	6105.
.1200	-2983.	2157.	3946.	6381.	6431.	1752.	.0839	-.0084	-.1088	-.1518	.0203	-.0834	6220.
.1210	-2267.	2685.	3512.	5707.	6208.	1631.	.0875	-.0071	-.1118	-.1304	.0908	-.0646	5789.
.1220	-2702.	1850.	4063.	4232.	5661.	30.	.0853	-.0073	-.1053	-.1268	.0135	-.0531	4764.
.1230	-2632.	1442.	3752.	3022.	5243.	-1073.	.0215	-.0064	-.1036	-.1115	.0126	-.0391	4143.
.1240	-1452.	2129.	2062.	2415.	5052.	-920.	.0762	-.0041	-.0986	-.0765	-.0166	-.0175	3825.
.1250	-789.	2211.	1058.	1547.	4517.	-1249.	.0711	-.0031	-.0876	-.0511	-.0293	.0024	3326.
.1260	-926.	1430.	1347.	374.	3268.	-2327.	.0586	-.0030	-.0691	-.0397	-.0166	.0169	2716.
.1270	-381.	811.	651.	-288.	2373.	-2898.	.0441	-.0013	-.0489	-.0219	-.0171	.0299	2532.
.1280	998.	1081.	-692.	-428.	1291.	-2407.	.0290	.0020	-.0272	.0073	-.0344	.0450	1864.
.1290	1443.	514.	-897.	-929.	-178.	-2581.	.0101	.0042	-.0002	.0196	-.0268	.0549	1853.

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CONDITION 24

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ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	MEMBER	SEQUENCE	LOCATION	BEG	TYPE	EL	TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	STRESS (PSI)
4	1	803					.1300	1147.	-847.	-584.	-1554.	-1537.	-3222.	-.0111	.0054	.0290	.0188	-.0042	.0605	2625.
							.1310	1667.	-955.	-1161.	-1440.	-2718.	-2387.	-.0301	.0087	.0549	.0343	-.0092	.0702	2625.
							.1320	2297.	-708.	-2205.	-1070.	-3366.	-1034.	-.0477	.0131	.0776	.0522	-.0246	.0781	2481.
							.1330	1936.	-1233.	-2169.	-1168.	-4094.	-435.	-.0657	.0161	.1004	.0539	-.0201	.0807	2884.
							.1340	1451.	-2061.	-2066.	-1408.	-4664.	-76.	-.0815	.0184	.1204	.0499	-.0150	.0827	3285.
							.1350	1970.	-2138.	-3063.	-1365.	-4852.	969.	-.0926	.0218	.1343	.0565	-.0347	.0869	3460.
							.1360	2640.	-2039.	-3772.	-1572.	-5249.	1850.	-.1014	.0257	.1454	.0601	-.0550	.0868	3898.
							.1370	2478.	-3205.	-3541.	-2451.	-5558.	1285.	-.1101	.0281	.1557	.0413	-.0525	.0772	4185.
							.1380	2639.	-4178.	-3433.	-3265.	-5816.	791.	-.1150	.0299	.1621	.0215	-.0587	.0685	4527.
							.1390	3534.	-4276.	-4223.	-3696.	-5588.	1040.	-.1149	.0324	.1623	.0104	-.0884	.0626	4570.
							.1400	3948.	-4514.	-4760.	-4247.	-4978.	955.	-.1130	.0345	.1592	-.0085	-.1132	.0519	4457.
							.1410	3643.	-4939.	-4379.	-4921.	-4597.	486.	-.1103	.0356	.1548	-.0365	-.1252	.0382	4551.
							.1420	3469.	-5109.	-4365.	-5291.	-3895.	253.	-.1051	.0364	.1470	-.0632	-.1430	.0262	4432.
							.1430	3652.	-4529.	-4729.	-5340.	-3098.	587.	-.0970	.0374	.1360	-.0822	-.1681	.0170	4180.
							.1440	3307.	-4179.	-4565.	-5479.	-2347.	503.	-.0886	.0378	.1241	-.1053	-.1770	.0060	4032.
							.1450	2548.	-4201.	-3914.	-5507.	-1672.	28.	-.0794	.0370	.1113	-.1293	-.1718	-.0040	3879.
							.1460	2273.	-3638.	-3423.	-4950.	-1117.	144.	-.0671	.0362	.0959	-.1393	-.1727	-.0061	3422.
							.1470	2160.	-3061.	-3167.	-4070.	-221.	289.	-.0530	.0348	.0783	-.1424	-.1704	-.0044	2755.
							.1480	1600.	-2712.	-2170.	-3163.	392.	88.	-.0386	.0326	.0608	-.1439	-.1506	-.0012	2149.
							.1490	815.	-2467.	-878.	-2045.	898.	-211.	-.0236	.0297	.0424	-.1397	-.1225	.0056	1512.
							.1500	368.	-1873.	-149.	-510.	1738.	-95.	-.0065	.0266	.0216	-.1241	-.1021	.0186	1222.
							.1510	63.	-847.	538.	1167.	2482.	328.	.0116	.0233	.0005	-.1012	-.0336	.0357	1862.
							.1520	-667.	-276.	1520.	2562.	3138.	179.	.0279	.0193	-.0188	-.0841	-.0526	.0506	2733.
							.1530	-1389.	314.	2545.	3782.	3436.	-120.	.0427	.0153	-.0362	-.0674	-.0195	.0644	3445.
							.1540	-1639.	1142.	2907.	4885.	3748.	-314.	.0567	.0118	-.0522	-.0495	.0051	.0774	4156.
							.1550	-1675.	1917.	2999.	5630.	3923.	-711.	.0689	.0084	-.0651	-.0369	.0285	.0879	4650.
							.1560	-1847.	2519.	3591.	5930.	3425.	-1444.	.0781	.0051	-.0736	-.0326	.0581	.0948	4717.
							.1570	-2031.	2660.	3934.	5982.	3068.	-2534.	.0846	.0022	-.0794	-.0359	.0364	.0967	4843.
							.1580	-1764.	3112.	3762.	6080.	2807.	-3189.	.0902	.0007	-.0841	-.0370	.1004	.0983	5000.
							.1590	-1437.	3700.	3700.	6093.	2373.	-3552.	.0944	-.0002	-.0867	-.0390	.1085	.1003	5016.
							.1600	-1579.	3550.	3848.	5855.	2175.	-4293.	.0962	-.0010	-.0871	-.0502	.1219	.0997	5108.
							.1610	-1571.	3335.	3601.	5652.	2212.	-4740.	.0969	-.0007	-.0872	-.0589	.1268	.0998	5191.
							.1620	-1075.	3791.	3163.	5525.	1880.	-4358.	.0973	.0015	-.0866	-.0574	.1195	.1036	4910.
							.1630	-1026.	3528.	3049.	5014.	1584.	-4411.	.0950	.0040	-.0839	-.0631	.1235	.1047	4627.
							.1640	-1305.	2707.	3195.	4304.	1279.	-4680.	.0907	.0067	-.0795	-.0722	-.1345	.1053	4371.
							.1650	-1119.	2429.	2974.	3874.	920.	-4114.	.0869	.0107	-.0760	-.0691	.1310	.1114	3859.
							.1660	-853.	2123.	2415.	3546.	950.	-3272.	.0827	.0154	-.0729	-.0617	.1214	.1186	3315.
							.1670	-1012.	1433.	2355.	3089.	927.	-2626.	.0769	.0199	-.0684	-.0576	.1191	.1245	2803.

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CONDITION 24

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ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING



.1570	-2031.	2660.	2924.	5982.	3068.	-2534.	.846	.0022	-.0794	-.0359	.0364	.0967	4843.
.1580	-1764.	3112.	3762.	6080.	2807.	-3189.	.902	.0097	-.0841	-.0370	.1004	.0983	5000.
.1590	-1437.	3700.	3700.	6093.	2373.	-3552.	.0944	-.0002	-.0867	-.0390	.1085	.1003	5016.
.1600	-1579.	3550.	3848.	5855.	2175.	-4293.	.0962	-.0010	-.0871	-.0502	.1219	.0997	5108.
.1610	-1571.	3335.	3601.	5652.	2212.	-4740.	.0969	-.0007	-.0872	-.0589	.1268	.0998	5191.
.1620	-1075.	3791.	3163.	5525.	1880.	-4358.	.0973	.0015	-.0866	-.0574	.1195	.1036	4910.
.1630	-1026.	3528.	3049.	5014.	1584.	-4411.	.0950	.0040	-.0839	-.0631	.1235	.1047	4627.
.1640	-1305.	2707.	3195.	4304.	1279.	-4680.	.0907	.0067	-.0795	-.0722	.1345	.1053	4371.
.1650	-1119.	2429.	2974.	3874.	920.	-4114.	.0869	.0107	-.0760	-.0691	.1310	.1114	3859.
.1660	-853.	2123.	2415.	3546.	950.	-3272.	.0827	.0154	-.0729	-.0617	.1214	.1186	3315.
.1670	-1012.	1433.	2355.	3089.	927.	-2626.	.0769	.0199	-.0684	-.0576	.1191	.1245	2803.

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ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	MEMBER	SEQUENCE	LOCATION	BEG	TYPE	EL	DX	DY	DZ	RX	RY	RZ	STRESS
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)
.1680	-1262.	538.	2392.	2667.	933.	-2001.	.0701	.0241	-.0630	-.0535	.1163	.1303	2334.
.1690	-1119.	129.	2195.	2440.	850.	-879.	.0634	.0287	-.0574	-.0422	.1020	.1374	1840.
.1700	-1004.	-329.	1974.	2098.	834.	110.	.0555	.0331	-.0508	-.0325	.0872	.1414	1524.
.1710	-1119.	-1356.	1645.	1464.	1038.	462.	.0460	.0362	-.0427	-.0305	.0781	.1404	1249.
.1720	-851.	-1820.	1285.	765.	654.	1062.	.0362	.0388	-.0331	-.0237	.0625	.1397	986.
.1730	-442.	-2169.	744.	-127.	196.	1467.	.0256	.0407	-.0224	-.0182	.0461	.1350	1002.
.1740	-227.	-2731.	287.	-1258.	-225.	1382.	.0137	.0416	-.0106	-.0178	.0352	.1245	1269.
.1750	53.	-3098.	-183.	-2343.	-789.	1276.	.0020	.0413	.0013	-.0150	.0219	.1130	1875.
.1760	494.	-3294.	-1004.	-3281.	-1146.	1216.	-.0087	.0397	.0122	-.0089	.0032	.1014	2481.
.1770	904.	-3214.	-1660.	-4119.	-1551.	1206.	-.0188	.0371	.0227	-.0001	-.0150	.0890	3076.
.1780	1090.	-3328.	-2132.	-4834.	-1765.	918.	-.0287	.0333	.0328	.0072	-.0283	.0737	3524.
.1790	1346.	-3258.	-2458.	-5201.	-2049.	763.	-.0377	.0287	.0421	.0188	-.0431	.0586	3803.
.1800	1653.	-2982.	-2660.	-5284.	-2334.	752.	-.0455	.0233	.0505	.0337	-.0585	.0441	3926.
.1810	1762.	-2980.	-2906.	-5265.	-2196.	473.	-.0528	.0168	.0580	.0453	-.0586	.0274	3858.
.1820	1931.	-2659.	-2994.	-5008.	-2247.	439.	-.0589	.0099	.0646	.0602	-.0794	.0118	3712.
.1830	2076.	-2259.	-3021.	-4576.	-2332.	462.	-.0644	.0029	.0704	.0750	-.0890	-.0044	3476.
.1840	2007.	-1926.	-2850.	-4139.	-2364.	361.	-.0696	-.0043	.0757	.0854	-.0929	-.0230	3222.
.1850	1832.	-1478.	-2583.	-3667.	-2355.	325.	-.0739	-.0114	.0799	.0933	-.0950	-.0423	2946.
.1860	1682.	-975.	-2548.	-3068.	-2113.	415.	-.0767	-.0183	.0820	.1004	-.1005	-.0606	2527.
.1870	1530.	-292.	-2434.	-2390.	-1914.	689.	-.0780	-.0249	.0824	.1070	-.1084	-.0776	2116.
.1880	1214.	142.	-2247.	-1809.	-1485.	742.	-.0783	-.0310	.0813	.1072	-.1132	-.0963	1655.
.1890	1004.	563.	-2045.	-1265.	-1046.	792.	-.0774	-.0363	.0789	.1043	-.1191	-.1146	1229.
.1900	999.	1027.	-1840.	-767.	-766.	895.	-.0750	-.0407	.0754	.0998	-.1274	-.1312	948.
.1910	951.	1084.	-1727.	-510.	-347.	644.	-.0721	-.0445	.0711	.0884	-.1315	-.1483	601.
.1920	986.	1117.	-1633.	-457.	-44.	348.	-.0683	-.0471	.0662	.0738	-.1341	-.1643	388.
.1930	1173.	1219.	-1655.	-509.	130.	153.	-.0639	-.0484	.0606	.0581	-.1372	-.1778	369.
.1940	1285.	1157.	-1670.	-690.	241.	-108.	-.0593	-.0486	.0549	.0387	-.1360	-.1895	498.
.1950	1214.	1009.	-1570.	-987.	268.	-374.	-.0548	-.0477	.0491	.0168	-.1289	-.1991	734.
.1960	1074.	1020.	-1474.	-1245.	249.	-377.	-.0498	-.0454	.0424	-.0030	-.1197	-.2042	893.
.1970	877.	1100.	-1453.	-1340.	327.	-114.	-.0438	-.0422	.0346	-.0191	-.1098	-.2036	933.
.1980	548.	1075.	-1358.	-1270.	498.	250.	-.0372	-.0383	.0258	-.0324	-.0958	-.1974	935.
.1990	131.	1013.	-1048.	-1070.	603.	683.	-.0299	-.0337	.0164	-.0417	-.0764	-.1861	947.
.2000	-289.	955.	-571.	-754.	613.	1161.	-.0217	-.0285	.0063	-.0454	-.0521	-.1695	1021.
.2010	-700.	801.	-39.	-334.	643.	1584.	-.0126	-.0232	-.0050	-.0435	-.0239	-.1478	1174.
.2020	-1079.	595.	514.	177.	712.	1955.	-.0022	-.0180	-.0175	-.0357	.0062	-.1209	1408.
.2030	-1413.	459.	1096.	731.	777.	2306.	.0093	-.0131	-.0311	-.0220	.0368	-.0896	1713.
.2040	-1751.	372.	1673.	1253.	874.	2550.	.0215	-.0085	-.0456	-.0040	.0575	-.0561	2003.
.2050	-2096.	318.	2182.	1703.	1015.	2643.	.0340	-.0044	-.0606	.0167	.0970	-.0219	2227.

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INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

.1940	1285.	1157.	-1670.	-690.	241.	-108.	-.0593	-.0486	.0549	.0287	-.1360	-.1895	498.
.1950	1214.	1009.	-1570.	-987.	268.	-374.	-.0548	-.0477	.0491	.0168	-.1289	-.1991	734.
.1960	1074.	1020.	-1474.	-1245.	249.	-377.	-.0498	-.0454	.0424	-.0030	-.1197	-.2042	893.
.1970	877.	1100.	-1453.	-1340.	327.	-114.	-.0438	-.0422	.0346	-.0191	-.1098	-.2036	933.
.1980	548.	1075.	-1358.	-1270.	498.	250.	-.0372	-.0383	.0258	-.0324	-.0958	-.1974	935.
.1990	131.	1013.	-1048.	-1070.	603.	683.	-.0299	-.0337	.0164	-.0417	-.0764	-.1861	947.
.2000	-289.	955.	-571.	-754.	613.	1161.	-.0217	-.0285	.0063	-.0454	-.0521	-.1695	1021.
.2010	-700.	801.	-39.	-334.	643.	1584.	-.0126	-.0232	-.0050	-.0435	-.0239	-.1478	1174.
.2020	-1079.	595.	514.	177.	712.	1955.	-.0022	-.0180	-.0175	-.0357	.0062	-.1209	1408.
.2030	-1413.	459.	1096.	731.	777.	2306.	.0093	-.0131	-.0311	-.0220	.0368	-.0896	1713.
.2040	-1751.	372.	1673.	1253.	874.	2550.	.0215	-.0085	-.0456	-.0040	.0575	-.0561	2003.
.2050	-2096.	318.	2132.	1703.	1015.	2643.	.0340	-.0044	-.0606	.0167	.0970	-.0219	2227.

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CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	4	MEMBER	1	SEQUENCE	803	LOCATION	BEG	TYPE	EL						
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	STRESS (PSI)		
.2060	-2392.	388.	2601.	2057.	1148.	2642.	.0466	-.0010	-.0756	.0392	.1228	.0122	2386.		
.2070	-2624.	578.	2920.	2271.	1274.	2518.	.0589	.0017	-.0898	.0612	.1442	.0447	2442.		
.2080	-2779.	779.	3089.	2320.	1429.	2184.	.0702	.0035	-.1027	.0806	.1510	.0734	2354.		
.2090	-2786.	975.	3102.	2217.	1539.	1646.	.0799	.0047	-.1134	.0966	.1725	.0972	2130.		
.2100	-2642.	1178.	3068.	1952.	1493.	933.	.0877	.0052	-.1213	.1081	.1796	.1154	1771.		
.2110	-2418.	1304.	3028.	1524.	1334.	33.	.0931	.0051	-.1258	.1138	.1837	.1274	1366.		
.2120	-2105.	1361.	2876.	1020.	1152.	-938.	.0961	.0043	-.1273	.1151	.1936	.1336	1215.		
.2130	-1692.	1455.	2575.	524.	938.	-1798.	.0969	.0033	-.1261	.1142	.1781	.1352	1412.		
.2140	-1309.	1558.	2268.	34.	678.	-2516.	.0952	.0019	-.1222	.1111	.1700	.1322	1757.		
.2150	-1063.	1597.	2027.	-421.	430.	-3084.	.0910	.0003	-.1157	.1058	.1513	.1251	2118.		
.2160	-880.	1634.	1743.	-727.	255.	-3353.	.0848	-.0013	-.1076	.1011	.1494	.1155	2319.		
.2170	-711.	1715.	1393.	-849.	146.	-3252.	.0771	-.0029	-.0980	.0987	.1338	.1044	2268.		
.2180	-626.	1722.	1094.	-869.	78.	-2922.	.0676	-.0045	-.0869	.0968	.1178	.0913	2055.		
.2190	-605.	1580.	874.	-817.	27.	-2454.	.0564	-.0060	-.0741	.0944	.1022	.0761	1744.		
.2200	-525.	1354.	661.	-656.	-38.	-1814.	.0439	-.0074	-.0598	.0922	.0848	.0594	1301.		
.2210	-384.	1051.	453.	-435.	-123.	-1064.	.0302	-.0086	-.0442	.0890	.0656	.0406	779.		
.2220	-259.	631.	280.	-251.	-215.	-328.	.0152	-.0098	-.0271	.0827	.0462	.0191	314.		
.2230	-119.	177.	76.	-121.	-325.	406.	-.0006	-.0108	-.0089	.0730	.0254	-.0045	360.		
.2240	68.	-205.	-211.	-41.	-466.	1170.	-.0168	-.0117	.0099	.0604	.0017	-.0298	849.		
.2250	218.	-538.	-516.	-61.	-614.	1868.	-.0333	-.0124	.0290	.0437	-.0232	-.0570	1326.		
.2260	295.	-830.	-815.	-203.	-746.	2436.	-.0495	-.0131	.0478	.0230	-.0483	-.0855	1723.		
.2270	390.	-1009.	-1186.	-420.	-858.	2920.	-.0645	-.0138	.0654	.0009	-.0749	-.1133	2071.		
.2280	539.	-1084.	-1631.	-702.	-945.	3288.	-.0777	-.0144	.0811	-.0211	-.1021	-.1390	2354.		
.2290	689.	-1149.	-2035.	-1075.	-1015.	3422.	-.0888	-.0151	.0944	-.0427	-.1266	-.1621	2513.		
.2300	849.	-1222.	-2335.	-1494.	-1082.	3315.	-.0971	-.0158	.1049	-.0618	-.1473	-.1812	2557.		
.2310	1073.	-1271.	-2571.	-1871.	-1117.	3050.	-.1023	-.0165	.1118	-.0759	-.1549	-.1945	2526.		
.2320	1331.	-1310.	-2763.	-2176.	-1063.	2655.	-.1038	-.0172	.1146	-.0837	-.1789	-.2009	2422.		
.2330	1563.	-1338.	-2882.	-2414.	-919.	2158.	-.1020	-.0179	.1135	-.0850	-.1879	-.2001	2269.		
.2340	1757.	-1309.	-2922.	-2562.	-728.	1633.	-.0971	-.0183	.1088	-.0793	-.1919	-.1920	2106.		
.2350	1899.	-1225.	-2896.	-2610.	-518.	1120.	-.0897	-.0184	.1009	-.0676	-.1908	-.1774	1946.		
.2360	1955.	-1112.	-2805.	-2595.	-311.	614.	-.0806	-.0180	.0909	-.0517	-.1838	-.1574	1809.		
.2370	1929.	-953.	-2655.	-2544.	-157.	147.	-.0703	-.0172	.0796	-.0331	-.1711	-.1332	1721.		
.2380	1853.	-747.	-2481.	-2452.	-87.	-249.	-.0594	-.0159	.0677	-.0132	-.1537	-.1058	1662.		
.2390	1734.	-544.	-2291.	-2313.	-92.	-586.	-.0487	-.0140	.0560	.0063	-.1325	-.0768	1610.		
.2400	1576.	-374.	-2055.	-2137.	-180.	-876.	-.0385	-.0115	.0451	.0236	-.1076	-.0475	1561.		
.2410	1391.	-227.	-1746.	-1926.	-372.	-1102.	-.0290	-.0086	.0353	.0378	-.0801	-.0190	1516.		
.2420	1178.	-121.	-1388.	-1671.	-628.	-1260.	-.0204	-.0052	.0266	.0487	-.0509	.0082	1473.		
.2430	937.	-62.	-1025.	-1357.	-870.	-1333.	-.0125	-.0015	.0187	.0562	-.0219	.0337	1410.		

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ADLPIPE STRESS ANALYSIS

83/12/02. 18.25.53.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK

2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING



.2330	1563.	-1338.	-2882.	-2414.	-919.	2158.	-.1020	-.0179	.1135	-.0850	-.1879	-.2001	2422.
.2340	1757.	-1309.	-2922.	-2562.	-728.	1633.	-.0971	-.0183	.1088	-.0793	-.1919	-.1920	2106.
.2350	1899.	-1225.	-2896.	-2610.	-518.	1120.	-.0897	-.0184	.1009	-.0676	-.1908	-.1774	1946.
.2360	1955.	-1112.	-2805.	-2595.	-311.	614.	-.0806	-.0180	.0909	-.0517	-.1838	-.1574	1809.
.2370	1929.	-953.	-2655.	-2544.	-157.	147.	-.0703	-.0172	.0796	-.0331	-.1711	-.1332	1721.
.2380	1853.	-747.	-2481.	-2452.	-87.	-249.	-.0594	-.0159	.0677	-.0132	-.1537	-.1058	1662.
.2390	1734.	-544.	-2291.	-2313.	-92.	-536.	-.0487	-.0140	.0560	.0063	-.1325	-.0768	1610.
.2400	1576.	-374.	-2055.	-2137.	-180.	-876.	-.0385	-.0115	.0451	.0236	-.1076	-.0475	1561.
.2410	1391.	-227.	-1746.	-1926.	-372.	-1102.	-.0290	-.0086	.0353	.0378	-.0801	-.0190	1516.
.2420	1178.	-121.	-1388.	-1671.	-628.	-1260.	-.0204	-.0052	.0266	.0487	-.0509	.0082	1473.
.2430	937.	-62.	-1025.	-1357.	-370.	-1333.	-.0125	-.0015	.0187	.0562	-.0219	.0337	1410.

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ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
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CONDITION 24

LOADS

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PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	4	MEMBER	1	SEQUENCE	803	LOCATION	BEG	TYPE	EL						
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS		
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)		
.2440	686.	-9.	-670.	-976.	-1061.	-1289.	-.0050	.0024	.0113	.0609	.0056	.0571	1304.		
.2450	424.	38.	-309.	-549.	-1199.	-1143.	.0022	.0063	.0041	.0628	.0311	.0782	1176.		
.2460	136.	42.	66.	-113.	-1276.	-958.	.0091	.0102	-.0030	.0615	.0547	.0963	1078.		
.2470	-160.	16.	430.	308.	-1278.	-752.	.0159	.0140	-.0101	.0573	.0759	.1111	1021.		
.2480	-431.	2.	770.	716.	-1199.	-510.	.0226	.0174	-.0175	.0507	.0933	.1227	1002.		
.2490	-672.	-17.	1079.	1113.	-1015.	-263.	.0294	.0205	-.0250	.0418	.1063	.1310	1030.		
.2500	-873.	-74.	1338.	1484.	-717.	-59.	.0361	.0230	-.0326	.0299	.1148	.1355	1111.		
.2510	-1015.	-131.	1554.	1806.	-361.	92.	.0425	.0250	-.0399	.0154	.1189	.1360	1243.		
.2520	-1111.	-171.	1763.	2056.	0.	173.	.0482	.0265	-.0463	-.0020	.1193	.1324	1391.		
.2530	-1192.	-219.	1961.	2234.	380.	160.	.0530	.0273	-.0518	-.0223	.1164	.1248	1531.		
.2540	-1231.	-245.	2076.	2369.	799.	98.	.0570	.0276	-.0562	-.0443	.1094	.1139	1686.		
.2550	-1203.	-192.	2078.	2458.	1212.	28.	.0599	.0273	-.0594	-.0666	.0984	.1007	1847.		
.2560	-1160.	-90.	2038.	2459.	1545.	-97.	.0616	.0265	-.0610	-.0890	.0863	.0852	1958.		
.2570	-1147.	5.	2003.	2370.	1775.	-315.	.0617	.0252	-.0609	-.1109	.0751	.0681	2007.		
.2580	-1116.	133.	1930.	2260.	1919.	-545.	.0607	.0235	-.0594	-.1301	.0641	.0508	2032.		
.2590	-1039.	334.	1798.	2182.	1996.	-713.	.0588	.0214	-.0568	-.1445	.0530	.0348	2051.		
.2600	-977.	538.	1670.	2142.	2018.	-857.	.0561	.0190	-.0534	-.1539	.0439	.0208	2066.		
.2610	-955.	707.	1588.	2166.	1988.	-983.	.0528	.0162	-.0492	-.1577	.0375	.0092	2090.		
.2620	-933.	885.	1548.	2315.	1921.	-1022.	.0491	.0133	-.0446	-.1551	.0328	.0006	2142.		
.2630	-915.	1069.	1556.	2601.	1854.	-961.	.0451	.0103	-.0398	-.1465	.0293	-.0048	2249.		
.2640	-935.	1209.	1616.	2994.	1812.	-843.	.0409	.0072	-.0348	-.1333	.0272	-.0073	2426.		
.2650	-962.	1328.	1683.	3454.	1782.	-667.	.0366	.0042	-.0295	-.1165	.0255	-.0075	2658.		
.2660	-958.	1455.	1726.	3930.	1736.	-441.	.0319	.0014	-.0238	-.0976	.0231	-.0060	2911.		
.2670	-940.	1544.	1759.	4339.	1660.	-245.	.0268	-.0012	-.0176	-.0790	.0203	-.0043	3136.		
.2680	-906.	1571.	1769.	4613.	1540.	-129.	.0211	-.0034	-.0105	-.0629	.0168	-.0031	3279.		
.2690	-809.	1574.	1685.	4708.	1367.	-78.	.0149	-.0052	-.0028	-.0497	.0112	-.0028	3305.		
.2700	-638.	1563.	1474.	4584.	1148.	-99.	.0084	-.0064	.0055	-.0402	.0028	-.0036	3186.		
.2710	-421.	1496.	1165.	4220.	900.	-227.	.0014	-.0071	.0143	-.0352	-.0077	-.0060	2912.		
.2720	-159.	1363.	784.	3647.	630.	-442.	-.0057	-.0072	.0232	-.0344	-.0205	-.0095	2513.		
.2730	166.	1180.	325.	2914.	355.	-698.	-.0128	-.0066	.0321	-.0368	-.0359	-.0136	2034.		
.2740	539.	933.	-208.	2050.	100.	-979.	-.0196	-.0055	.0406	-.0416	-.0528	-.0179	1533.		
.2750	932.	610.	-773.	1094.	-144.	-1266.	-.0262	-.0038	.0487	-.0482	-.0598	-.0217	1132.		
.2760	1330.	222.	-1318.	117.	-394.	-1515.	-.0323	-.0015	.0562	-.0555	-.0859	-.0245	1058.		
.2770	1707.	-225.	-1809.	-810.	-639.	-1687.	-.0380	.0014	.0631	-.0628	-.1002	-.0260	1333.		
.2780	2024.	-716.	-2225.	-1631.	-859.	-1749.	-.0433	.0047	.0693	-.0693	-.1117	-.0258	1713.		
.2790	2256.	-1208.	-2552.	-2297.	-1055.	-1657.	-.0480	.0084	.0747	-.0745	-.1199	-.0236	2037.		
.2800	2386.	-1672.	-2778.	-2765.	-1221.	-1386.	-.0522	.0124	.0793	-.0778	-.1248	-.0191	2241.		
.2810	2400.	-2100.	-2891.	-3011.	-1339.	-954.	-.0557	.0166	.0831	-.0795	-.1260	-.0127	2312.		

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ADLPIPE STRESS ANALYSIS

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18.25.53.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

.2710	-421.	1496.	1165.	4220.	900.	-227.	.0014	-.0071	.0143	-.0352	-.0077	-.0060	2912.
.2720	-159.	1363.	784.	3647.	630.	-442.	-.0057	-.0072	.0232	-.0344	-.0205	-.0095	2513.
.2730	166.	1180.	325.	2914.	355.	-698.	-.0128	-.0066	.0321	-.0368	-.0359	-.0136	2034.
.2740	539.	933.	-208.	2050.	100.	-479.	-.0196	-.0055	.0406	-.0416	-.0528	-.0179	1533.
.2750	932.	610.	-77.	1094.	-144.	-1266.	-.0262	-.0038	.0487	-.0482	-.0698	-.0217	1132.
.2760	1330.	222.	-1318.	117.	-394.	-1515.	-.0323	-.0015	.0562	-.0555	-.0859	-.0245	1058.
.2770	1707.	-225.	-1809.	-810.	-639.	-1687.	-.0380	.0014	.0631	-.0628	-.1002	-.0260	1333.
.2780	2024.	-716.	-2225.	-1631.	-859.	-1749.	-.0433	.0047	.0693	-.0693	-.1117	-.0258	1713.
.2790	2256.	-1208.	-2552.	-2297.	-1055.	-1657.	-.0480	.0084	.0747	-.0745	-.1199	-.0236	2037.
.2800	2386.	-1672.	-2778.	-2765.	-1221.	-1386.	-.0522	.0124	.0793	-.0778	-.1248	-.0191	2241.
.2810	2400.	-2100.	-2891.	-3011.	-1339.	-954.	-.0557	.0166	.0831	-.0795	-.1260	-.0127	2312.

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FORCES AND MOMENTS ACT ON THE PIPING

SECTION	4	MEMBER	1	SEQUENCE	803	LOCATION	BEG	TYPE	EL						
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS		
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)		
.2820	2305.	-2480.	-2885.	-3037.	-1414.	-393.	-.0585	.0207	.0859	-.0798	-.1238	-.0048	2273.		
.2830	2127.	-2790.	-2772.	-2875.	-1467.	250.	-.0606	.0248	.0879	-.0787	-.1184	.0044	2182.		
.2840	1897.	-3035.	-2580.	-2581.	-1510.	899.	-.0617	.0285	.0889	-.0769	-.1100	.0144	2105.		
.2850	1647.	-3221.	-2337.	-2212.	-1547.	1478.	-.0617	.0317	.0887	-.0746	-.0992	.0248	2074.		
.2860	1412.	-3336.	-2066.	-1817.	-1592.	1931.	-.0604	.0344	.0873	-.0721	-.0865	.0350	2085.		
.2870	1203.	-3372.	-1777.	-1446.	-1647.	2210.	-.0578	.0365	.0845	-.0694	-.0726	.0449	2098.		
.2880	1022.	-3332.	-1493.	-1137.	-1694.	2282.	-.0537	.0377	.0800	-.0668	-.0579	.0542	2063.		
.2890	878.	-3197.	-1241.	-897.	-1707.	2157.	-.0479	.0381	.0736	-.0639	-.0433	.0629	1950.		
.2900	770.	-2954.	-1028.	-716.	-1671.	1862.	-.0404	.0378	.0653	-.0604	-.0297	.0712	1754.		
.2910	679.	-2620.	-839.	-581.	-1568.	1409.	-.0314	.0366	.0550	-.0563	-.0170	.0788	1474.		
.2920	597.	-2214.	-659.	-476.	-1395.	825.	-.0210	.0347	.0431	-.0518	-.0053	.0857	1139.		
.2930	532.	-1748.	-477.	-372.	-1165.	154.	-.0096	.0323	.0300	-.0467	.0054	.0920	831.		
.2940	474.	-1247.	-277.	-249.	-893.	-566.	.0025	.0293	.0159	-.0412	.0154	.0975	732.		
.2950	406.	-743.	-46.	-85.	-580.	-1301.	.0148	.0259	.0016	-.0356	.0250	.1020	962.		
.2960	328.	-246.	217.	145.	-237.	-1992.	.0269	.0224	-.0127	-.0299	.0342	.1055	1356.		
.2970	234.	237.	512.	455.	117.	-2584.	.0384	.0189	-.0263	-.0243	.0430	.1080	1771.		
.2980	98.	685.	848.	837.	470.	-3052.	.0488	.0154	-.0388	-.0193	.0515	.1094	2157.		
.2990	-93.	1090.	1211.	1284.	818.	-3365.	.0578	.0121	-.0498	-.0149	.0598	.1094	2489.		
.3000	-322.	1463.	1574.	1789.	1160.	-3488.	.0652	.0093	-.0593	-.0113	.0672	.1082	2756.		
.3010	-578.	1788.	1918.	2329.	1485.	-3425.	.0708	.0068	-.0669	-.0085	.0732	.1057	2966.		
.3020	-855.	2035.	2241.	2856.	1775.	-3217.	.0746	.0048	-.0725	-.0070	.0782	.1018	3137.		
.3030	-1126.	2197.	2523.	3326.	2010.	-2899.	.0765	.0032	-.0760	-.0070	.0819	.0965	3268.		
.3040	-1355.	2277.	2741.	3707.	2176.	-2499.	.0765	.0022	-.0774	-.0083	.0840	.0897	3351.		
.3050	-1527.	2257.	2888.	3968.	2271.	-2066.	.0749	.0016	-.0770	-.0110	.0844	.0816	3382.		
.3060	-1637.	2133.	2957.	4085.	2297.	-1640.	.0718	.0013	-.0747	-.0151	.0830	.0724	3347.		
.3070	-1675.	1934.	2934.	4046.	2257.	-1232.	.0673	.0014	-.0710	-.0201	.0797	.0624	3232.		
.3080	-1642.	1685.	2814.	3853.	2158.	-852.	.0618	.0018	-.0660	-.0255	.0743	.0518	3032.		
.3090	-1559.	1393.	2614.	3512.	2011.	-517.	.0555	.0024	-.0601	-.0311	.0672	.0410	2750.		
.3100	-1439.	1073.	2346.	3044.	1826.	-233.	.0485	.0031	-.0534	-.0362	.0587	.0304	2398.		
.3110	-1283.	757.	2012.	2474.	1612.	13.	.0411	.0039	-.0463	-.0401	.0489	.0205	1990.		
.3120	-1098.	455.	1622.	1828.	1377.	219.	.0336	.0046	-.0390	-.0421	.0384	.0116	1550.		
.3130	-896.	159.	1205.	1135.	1123.	373.	.0260	.0052	-.0316	-.0419	.0277	.0042	1105.		
.3140	-680.	-127.	790.	428.	846.	476.	.0185	.0057	-.0242	-.0389	.0176	-.0017	715.		
.3150	-450.	-397.	387.	-261.	554.	538.	.0113	.0059	-.0170	-.0330	.0082	-.0059	549.		
.3160	-214.	-646.	9.	-903.	257.	567.	.0044	.0058	-.0102	-.0239	-.0001	-.0082	739.		
.3170	14.	-871.	-334.	-1478.	-38.	573.	-.0021	.0055	-.0037	-.0117	-.0072	-.0088	1069.		
.3180	227.	-1063.	-638.	-1967.	-324.	572.	-.0082	.0049	.0025	.0032	-.0130	-.0078	1398.		
.3190	418.	-1211.	-900.	-2365.	-596.	576.	-.0139	.0039	.0082	.0204	-.0177	-.0057	1689.		

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

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ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING



.3090	-1559.	1393.	614.	3512.	2011.	-517.	.0555	.0024	-.0601	-.0311	.0672	.0410	2750.
.3100	-1439.	1073.	2346.	3044.	1826.	-233.	.0485	.0031	-.0534	-.0362	.0587	.0304	2398.
.3110	-1283.	757.	2012.	2474.	1612.	13.	.0411	.0039	-.0463	-.0401	.0489	.0205	1990.
.3120	-1098.	455.	1622.	1828.	1377.	219.	.0336	.0046	-.0390	-.0421	.0384	.0116	1550.
.3130	-896.	159.	1205.	1135.	1123.	373.	.0260	.0052	-.0316	-.0419	.0277	.0042	1105.
.3140	-680.	-127.	790.	428.	846.	476.	.0185	.0057	-.0242	-.0389	.0176	-.0017	715.
.3150	-450.	-397.	387.	-261.	554.	538.	.0113	.0059	-.0170	-.0330	.0082	-.0059	549.
.3160	-214.	-646.	9.	-903.	257.	567.	.0044	.0058	-.0102	-.0239	-.0001	-.0082	739.
.3170	14.	-871.	-334.	-1478.	-58.	573.	-.0021	.0055	-.0037	-.0117	-.0072	-.0088	1069.
.3180	227.	-1063.	-638.	-1967.	-324.	572.	-.0082	.0049	.0025	.0032	-.0130	-.0078	1398.
.3190	418.	-1211.	-900.	-2365.	-596.	576.	-.0139	.0039	.0082	.0204	-.0177	-.0057	1689.

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CONDITION 24

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ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	4	MEMBER	1	SEQUENCE	803	LOCATION	BEG	TYPE	EL					
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS	
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)	
.3200	578.	-1311.	-1121.	-2680.	-856.	585.	-.0193	.0027	.0135	.0389	-.0212	-.0030	1937.	
.3210	704.	-1365.	-1304.	-2926.	-1107.	596.	-.0243	.0013	.0186	.0581	-.0237	-.0001	2146.	
.3220	800.	-1374.	-1460.	-3117.	-1348.	608.	-.0290	-.0005	.0233	.0771	-.0253	.0025	2326.	
.3230	880.	-1342.	-1603.	-3270.	-1574.	616.	-.0334	-.0024	.0276	.0952	-.0265	.0043	2481.	
.3240	950.	-1279.	-1734.	-3401.	-1787.	610.	-.0374	-.0045	.0315	.1117	-.0273	.0050	2622.	
.3250	1011.	-1201.	-1843.	-3527.	-1993.	577.	-.0411	-.0067	.0349	.1260	-.0278	.0041	2758.	
.3260	1066.	-1118.	-1936.	-3655.	-2180.	517.	-.0443	-.0089	.0378	.1377	-.0282	.0016	2890.	
.3270	1121.	-1029.	-2027.	-3783.	-2328.	445.	-.0469	-.0113	.0399	.1469	-.0288	-.0025	3009.	
.3280	1174.	-933.	-2113.	-3902.	-2428.	378.	-.0488	-.0136	.0412	.1536	-.0299	-.0082	3108.	
.3290	1211.	-839.	-2180.	-4007.	-2473.	323.	-.0501	-.0160	.0415	.1577	-.0314	-.0154	3181.	
.3300	1222.	-751.	-2223.	-4088.	-2456.	290.	-.0506	-.0183	.0409	.1592	-.0330	-.0241	3220.	
.3310	1208.	-660.	-2243.	-4133.	-2379.	299.	-.0506	-.0204	.0393	.1584	-.0348	-.0340	3221.	
.3320	1165.	-565.	-2236.	-4130.	-2242.	360.	-.0498	-.0225	.0369	.1554	-.0368	-.0449	3177.	
.3330	1087.	-474.	-2195.	-4070.	-2050.	470.	-.0486	-.0244	.0337	.1501	-.0385	-.0567	3088.	
.3340	977.	-386.	-2115.	-3945.	-1815.	629.	-.0469	-.0262	.0300	.1428	-.0398	-.0692	2957.	
.3350	837.	-295.	-1987.	-3751.	-1554.	832.	-.0448	-.0278	.0260	.1337	-.0405	-.0823	2794.	
.3360	663.	-203.	-1808.	-3488.	-1277.	1068.	-.0425	-.0293	.0216	.1228	-.0403	-.0957	2605.	
.3370	458.	-106.	-1584.	-3155.	-980.	1330.	-.0399	-.0307	.0171	.1106	-.0391	-.1091	2400.	
.3380	232.	9.	-1330.	-2750.	-668.	1616.	-.0369	-.0319	.0123	.0977	-.0372	-.1219	2197.	
.3390	-12.	149.	-1045.	-2290.	-354.	1907.	-.0336	-.0331	.0073	.0846	-.0344	-.1340	2023.	
.3400	-277.	306.	-731.	-1799.	-45.	2173.	-.0300	-.0341	.0020	.0717	-.0305	-.1449	1901.	
.3410	-546.	484.	-405.	-1295.	252.	2396.	-.0259	-.0352	-.0035	.0597	-.0254	-.1541	1844.	
.3420	-801.	689.	-87.	-797.	531.	2568.	-.0213	-.0361	-.0095	.0492	-.0194	-.1612	1848.	
.3430	-1036.	914.	217.	-330.	784.	2665.	-.0161	-.0370	-.0159	.0408	-.0124	-.1660	1885.	
.3440	-1247.	1146.	504.	85.	1004.	2665.	-.0104	-.0379	-.0228	.0347	-.0041	-.1682	1921.	
.3450	-1423.	1385.	765.	439.	1184.	2572.	-.0042	-.0387	-.0301	.0313	.0052	-.1676	1931.	
.3460	-1558.	1629.	997.	732.	1324.	2393.	.0025	-.0395	-.0377	.0307	.0153	-.1643	1908.	
.3470	-1663.	1866.	1202.	967.	1433.	2138.	.0095	-.0401	-.0455	.0329	.0261	-.1582	1853.	
.3480	-1738.	2092.	1377.	1154.	1516.	1827.	.0166	-.0406	-.0533	.0376	.0373	-.1497	1779.	
.3490	-1784.	2310.	1520.	1303.	1572.	1490.	.0237	-.0410	-.0609	.0444	.0485	-.1390	1704.	
.3500	-1810.	2510.	1640.	1419.	1597.	1144.	.0304	-.0411	-.0679	.0528	.0594	-.1266	1633.	
.3510	-1826.	2675.	1746.	1506.	1591.	800.	.0364	-.0409	-.0741	.0618	.0700	-.1132	1572.	
.3520	-1827.	2805.	1828.	1572.	1557.	483.	.0416	-.0405	-.0791	.0711	.0798	-.0992	1526.	
.3530	-1809.	2899.	1878.	1615.	1491.	215.	.0457	-.0397	-.0827	.0799	.0882	-.0852	1489.	
.3540	-1777.	2944.	1899.	1628.	1393.	-5.	.0485	-.0385	-.0847	.0877	.0953	-.0717	1444.	
.3550	-1734.	2929.	1895.	1604.	1260.	-175.	.0498	-.0370	-.0849	.0938	.1007	-.0592	1380.	
.3560	-1675.	2858.	1860.	1544.	1099.	-284.	.0497	-.0351	-.0834	.0981	.1042	-.0480	1291.	
.3570	-1595.	2732.	1785.	1446.	920.	-326.	.0482	-.0329	-.0803	.1004	.1053	-.0383	1176.	

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2 SAFETY COLD FKW24F--2 PSV

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ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

.3470	-1663.	1866.	1202.	967.	1433.	2138.	.0095	-.0401	-.0455	.0329	.0261	-.1582	1853.
.3480	-1738.	2092.	1377.	1154.	1516.	1827.	.0166	-.0406	-.0533	.0376	.0373	-.1497	1779.
.3490	-1784.	2310.	1520.	1303.	1572.	1490.	.0237	-.0410	-.0609	.0444	.0485	-.1390	1704.
.3500	-1810.	2510.	1640.	1419.	1597.	1144.	.0304	-.0411	-.0679	.0528	.0594	-.1266	1633.
.3510	-1826.	2675.	1746.	1506.	1591.	800.	.0364	-.0409	-.0741	.0618	.0700	-.1132	1572.
.3520	-1827.	2805.	1828.	1572.	1557.	483.	.0416	-.0405	-.0791	.0711	.0798	-.0992	1526.
.3530	-1809.	2899.	1878.	1615.	1491.	215.	.0457	-.0397	-.0827	.0799	.0882	-.0852	1489.
.3540	-1777.	2944.	1899.	1628.	1393.	-5.	.0485	-.0385	-.0847	.0877	.0953	-.0717	1444.
.3550	-1734.	2929.	1895.	1604.	1260.	-175.	.0498	-.0370	-.0849	.0938	.1007	-.0592	1380.
.3560	-1675.	2858.	1860.	1544.	1099.	-284.	.0497	-.0351	-.0834	.0981	.1042	-.0480	1291.
.3570	-1595.	2732.	1765.	1446.	920.	-326.	.0482	-.0329	-.0803	.1004	.1053	-.0383	1176.

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ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	MEMBER	SEQUENCE	LOCATION	BEG	TYPE	EL							STRESS
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	(PSI)
.3580	-1496.	2547.	1667.	1306.	734.	-309.	.0454	-.0304	-.0755	.1005	.1039	-.0304	1031.
.3590	-1379.	2307.	1510.	1120.	541.	-238.	.0412	-.0277	-.0693	.0985	.1001	-.0242	853.
.3600	-1241.	2018.	1316.	890.	344.	-120.	.0360	-.0247	-.0619	.0945	.0938	-.0199	648.
.3610	-1085.	1686.	1092.	620.	151.	34.	.0298	-.0216	-.0533	.0886	.0853	-.0174	431.
.3620	-915.	1319.	844.	316.	-34.	214.	.0228	-.0185	-.0440	.0810	.0747	-.0166	258.
.3630	-734.	932.	574.	-10.	-206.	416.	.0153	-.0153	-.0340	.0720	.0624	-.0173	313.
.3640	-545.	540.	288.	-346.	-358.	633.	.0075	-.0122	-.0237	.0619	.0485	-.0192	543.
.3650	-358.	153.	-1.	-678.	-488.	854.	-.0005	-.0092	-.0132	.0511	.0335	-.0222	805.
.3660	-178.	-217.	-281.	-991.	-592.	1069.	-.0084	-.0064	-.0029	.0399	.0179	-.0261	1061.
.3670	-6.	-556.	-550.	-1272.	-668.	1272.	-.0161	-.0039	.0072	.0286	.0018	-.0304	1294.
.3680	161.	-856.	-809.	-1513.	-716.	1451.	-.0233	-.0017	.0168	.0176	-.0143	-.0349	1493.
.3690	324.	-1113.	-1052.	-1711.	-742.	1591.	-.0299	.0002	.0259	.0072	-.0300	-.0393	1652.
.3700	484.	-1324.	-1270.	-1865.	-758.	1677.	-.0359	.0016	.0342	-.0025	-.0448	-.0435	1766.
.3710	640.	-1491.	-1458.	-1976.	-772.	1697.	-.0411	.0028	.0418	-.0115	-.0582	-.0472	1831.
.3720	794.	-1609.	-1619.	-2042.	-786.	1649.	-.0455	.0035	.0487	-.0195	-.0701	-.0502	1847.
.3730	945.	-1674.	-1754.	-2064.	-804.	1538.	-.0490	.0040	.0546	-.0264	-.0802	-.0524	1818.
.3740	1084.	-1686.	-1860.	-2039.	-826.	1370.	-.0516	.0042	.0597	-.0324	-.0884	-.0535	1747.
.3750	1204.	-1650.	-1928.	-1964.	-851.	1153.	-.0532	.0042	.0638	-.0374	-.0944	-.0534	1639.
.3760	1299.	-1565.	-1955.	-1835.	-874.	900.	-.0540	.0041	.0669	-.0414	-.0982	-.0519	1498.
.3770	1365.	-1436.	-1942.	-1651.	-891.	627.	-.0537	.0039	.0690	-.0446	-.0999	-.0489	1333.
.3780	1398.	-1271.	-1887.	-1413.	-898.	345.	-.0525	.0037	.0699	-.0469	-.0993	-.0444	1152.
.3790	1398.	-1081.	-1787.	-1125.	-889.	62.	-.0502	.0037	.0697	-.0484	-.0967	-.0382	967.
.3800	1367.	-878.	-1640.	-794.	-862.	-214.	-.0470	.0038	.0682	-.0494	-.0922	-.0304	803.
.3810	1305.	-674.	-1448.	-428.	-813.	-479.	-.0428	.0042	.0656	-.0498	-.0858	-.0210	698.
.3820	1215.	-477.	-1218.	-41.	-735.	-728.	-.0377	.0049	.0617	-.0498	-.0779	-.0100	698.
.3830	1105.	-293.	-966.	355.	-623.	-951.	-.0316	.0058	.0566	-.0496	-.0690	.0023	803.
.3840	980.	-129.	-702.	744.	-477.	-1149.	-.0247	.0072	.0503	-.0494	-.0594	.0159	977.
.3850	845.	5.	-430.	1108.	-302.	-1325.	-.0172	.0089	.0431	-.0495	-.0493	.0303	1182.
.3860	705.	104.	-161.	1431.	-106.	-1485.	-.0092	.0110	.0352	-.0502	-.0391	.0451	1392.
.3870	572.	166.	90.	1700.	102.	-1628.	-.0010	.0135	.0269	-.0520	-.0292	.0601	1588.
.3880	455.	188.	312.	1907.	311.	-1758.	.0073	.0163	.0184	-.0550	-.0198	.0747	1761.
.3890	356.	167.	504.	2044.	506.	-1878.	.0152	.0194	.0102	-.0597	-.0109	.0887	1902.
.3900	275.	105.	670.	2114.	672.	-1991.	.0226	.0227	.0025	-.0661	-.0024	.1015	2009.
.3910	209.	6.	810.	2128.	801.	-2090.	.0293	.0263	-.0044	-.0743	.0054	.1131	2082.
.3920	155.	-120.	925.	2102.	894.	-2163.	.0352	.0300	-.0103	-.0840	.0127	.1233	2120.
.3930	105.	-264.	1016.	2054.	953.	-2201.	.0401	.0337	-.0151	-.0948	.0193	.1322	2129.
.3940	54.	-413.	1094.	2005.	981.	-2194.	.0440	.0374	-.0188	-.1060	.0256	.1400	2110.
.3950	-7.	-563.	1171.	1972.	980.	-2141.	.0470	.0410	-.0215	-.1169	.0315	.1468	2070.

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LOADS

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ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING



.3850	845.	5.	-430.	1108.	-302.	-1325.	-.0172	.0089	.0431	-.0495	-.0493	.0303	1182.
.3860	705.	104.	-161.	1431.	-106.	-1485.	-.0092	.0110	.0352	-.0502	-.0391	.0451	1392.
.3870	572.	166.	90.	1700.	102.	-1628.	-.0010	.0135	.0269	-.0520	-.0292	.0601	1588.
.3880	455.	188.	312.	1907.	311.	-1758.	.0073	.0163	.0184	-.0550	-.0198	.0747	1761.
.3890	356.	167.	504.	2044.	506.	-1878.	.0152	.0194	.0102	-.0597	-.0109	.0887	1902.
.3900	275.	105.	670.	2114.	672.	-1991.	.0226	.0227	.0025	-.0661	-.0024	.1015	2009.
.3910	209.	6.	810.	2128.	801.	-2090.	.0293	.0263	-.0044	-.0743	.0054	.1131	2082.
.3920	155.	-120.	925.	2102.	894.	-2163.	.0352	.0300	-.0103	-.0840	.0127	.1233	2120.
.3930	105.	-264.	1016.	2054.	953.	-2201.	.0401	.0337	-.0151	-.0948	.0193	.1322	2129.
.3940	54.	-413.	1094.	2005.	981.	-2194.	.0440	.0374	-.0188	-.1060	.0256	.1400	2110.
.3950	-7.	-563.	1171.	1972.	980.	-2141.	.0470	.0410	-.0215	-.1169	.0315	.1468	2070.

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
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LOADS

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PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	4	MEMBER	1	SEQUENCE	803	LOCATION	BEG	TYPE	EL					
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS	
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)	
.3960	-81.	-710.	1255.	1967.	956.	-2048.	.0492	.0443	-.0232	-.1270	.0373	.1528	2019.	
.3970	-164.	-842.	1339.	1997.	921.	-1915.	.0506	.0474	-.0243	-.1354	.0429	.1584	1966.	
.3980	-248.	-954.	1421.	2065.	880.	-1753.	.0516	.0500	-.0249	-.1413	.0483	.1638	1919.	
.3990	-329.	-1046.	1503.	2161.	834.	-1580.	.0522	.0522	-.0251	-.1446	.0535	.1692	1890.	
.4000	-405.	-1120.	1588.	2275.	784.	-1423.	.0525	.0538	-.0251	-.1449	.0585	.1744	1884.	

MAXIMUM VALUE OF STRESS OCCURS AT

TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)
.0940	-652.	5329.	3369.	7764.	3590.	-5621.	-.0773	.0479	.0686	.1048	-.0366	.0961	6899.

SECTION	4	MEMBER	1	SEQUENCE	21	LOCATION	END	TYPE	EL					
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS	
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)	
0.0000	0.	0.	0.	0.	0.	0.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.	
.0010	2.	4.	2.	-0.	0.	1.	-.0000	-.0000	-.0000	-.0000	.0000	.0000	0.	
.0020	13.	14.	10.	-3.	2.	4.	-.0000	-.0000	-.0000	-.0001	.0001	.0001	4.	
.0030	32.	4.	19.	-9.	8.	14.	-.0000	-.0000	-.0001	-.0002	.0005	.0001	13.	
.0040	59.	-41.	24.	-24.	17.	35.	.0001	-.0001	-.0002	-.0003	.0013	.0002	31.	
.0050	99.	-97.	28.	-54.	25.	68.	.0003	-.0002	-.0004	-.0006	.0024	.0006	61.	
.0060	155.	-152.	28.	-114.	29.	119.	.0007	-.0004	-.0008	-.0009	.0038	.0013	113.	
.0070	223.	-239.	28.	-210.	36.	198.	.0013	-.0006	-.0014	-.0013	.0059	.0023	196.	
.0080	286.	-398.	37.	-336.	74.	325.	.0023	-.0010	-.0024	-.0015	.0091	.0040	319.	
.0090	339.	-644.	23.	-480.	173.	525.	.0038	-.0014	-.0036	-.0016	.0148	.0065	493.	
.0100	394.	-930.	-50.	-639.	313.	809.	.0060	-.0020	-.0053	-.0019	.0236	.0100	726.	
.0110	428.	-1212.	-160.	-839.	451.	1152.	.0089	-.0026	-.0076	-.0020	.0344	.0145	1008.	
.0120	401.	-1464.	-276.	-1109.	565.	1510.	.0126	-.0032	-.0108	-.0012	.0453	.0203	1319.	
.0130	345.	-1634.	-427.	-1438.	638.	1856.	.0172	-.0037	-.0150	.0005	.0565	.0275	1640.	
.0140	332.	-1711.	-671.	-1798.	641.	2173.	.0225	-.0042	-.0201	.0025	.0688	.0355	1950.	
.0150	396.	-1776.	-993.	-2191.	566.	2427.	.0282	-.0044	-.0261	.0050	.0817	.0437	2236.	
.0160	545.	-1912.	-1336.	-2631.	454.	2583.	.0342	-.0045	-.0329	.0081	.0944	.0517	2504.	
.0170	812.	-2138.	-1653.	-3075.	261.	2655.	.0404	-.0045	-.0403	.0109	.1066	.0590	2744.	
.0180	1132.	-2473.	-1845.	-3478.	-91.	2652.	.0468	-.0043	-.0482	.0128	.1163	.0652	2949.	
.0190	1290.	-2865.	-1736.	-3836.	-500.	2579.	.0533	-.0041	-.0561	.0148	.1198	.0708	3134.	

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

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PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

.0090	339.	-644.	-23.	-480.	173.	525.	.0038	-.0014	-.0036	-.0016	.0148	.0065	493.
.0100	394.	-930.	-50.	-639.	313.	809.	.0060	-.0020	-.0053	-.0019	.0236	.0100	726.
.0110	428.	-1212.	-160.	-839.	451.	1152.	.0089	-.0026	-.0076	-.0020	.0344	.0145	1008.
.0120	401.	-1464.	-276.	-1109.	565.	1510.	.0126	-.0032	-.0108	-.0012	.0453	.0203	1319.
.0130	345.	-1634.	-427.	-1438.	638.	1856.	.0172	-.0037	-.0150	.0005	.0565	.0275	1640.
.0140	332.	-1711.	-671.	-1798.	641.	2173.	.0225	-.0042	-.0201	.0025	.0688	.0355	1950.
.0150	396.	-1776.	-993.	-2191.	566.	2427.	.0282	-.0044	-.0261	.0050	.0817	.0437	2236.
.0160	545.	-1912.	-1336.	-2631.	454.	2583.	.0342	-.0045	-.0329	.0081	.0944	.0517	2504.
.0170	812.	-2138.	-1653.	-3075.	261.	2655.	.0404	-.0045	-.0403	.0109	.1066	.0590	2744.
.0180	1132.	-2473.	-1845.	-3478.	-91.	2652.	.0468	-.0043	-.0482	.0128	.1163	.0652	2949.
.0190	1290.	-2865.	-1736.	-3836.	-500.	2579.	.0533	-.0041	-.0561	.0148	.1198	.0708	3134.

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ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	4	MEMBER	1	SEQUENCE	21	LOCATION	END	TYPE	EL						
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS		
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)		
.0200	1085.	-3065.	-1201.	-4005.	-761.	2520.	.0596	-.0035	-.0635	.0173	.1178	.0763	3231.		
.0210	601.	-2838.	-629.	-3727.	-598.	2669.	.0646	-.0026	-.0692	.0182	.1221	.0806	3116.		
.0220	236.	-2210.	-875.	-3020.	-236.	3002.	.0676	-.0011	-.0723	.0140	.1409	.0806	2875.		
.0230	-157.	-1289.	-1425.	-2262.	23.	3097.	.0686	.0011	-.0738	.0089	.1555	.0767	2585.		
.0240	-658.	-163.	-1568.	-1752.	450.	2636.	.0676	.0037	-.0747	.0083	.1553	.0719	2155.		
.0250	-702.	812.	-1576.	-1161.	528.	1747.	.0643	.0065	-.0748	.0065	.1505	.0613	1458.		
.0260	-148.	1178.	-1589.	-457.	-538.	387.	.0592	.0092	-.0740	.0001	.1354	.0407	543.		
.0270	341.	1113.	-1229.	-351.	-1827.	-1744.	.0526	.0116	-.0723	-.0006	.0942	.0184	1719.		
.0280	633.	1494.	-427.	-401.	-2119.	-4041.	.0429	.0135	-.0688	.0040	.0489	-.0016	3087.		
.0290	1550.	2236.	-393.	640.	-2274.	-5453.	.0293	.0147	-.0614	-.0032	.0392	-.0317	4005.		
.0300	2644.	1965.	-1550.	1875.	-2608.	-6391.	.0147	.0150	-.0506	-.0154	.0454	-.0705	4821.		
.0310	3010.	1784.	-1841.	2104.	-2637.	-7563.	.0016	.0130	-.0402	-.0189	.0221	-.0998	5582.		
.0320	2821.	2332.	-657.	1892.	-3065.	-8638.	-.0097	.0085	-.0319	-.0172	-.0304	-.1204	6308.		
.0330	2630.	2149.	-27.	1923.	-3694.	-8959.	-.0193	.0022	-.0235	-.0139	-.0703	-.1433	6659.		
.0340	2540.	1376.	-791.	1883.	-3906.	-8565.	-.0280	-.0059	-.0139	-.0094	-.0383	-.1658	6471.		
.0350	2379.	1743.	-1381.	1501.	-4157.	-7817.	-.0365	-.0158	-.0045	-.0063	-.1126	-.1804	6053.		
.0360	1763.	2344.	-773.	991.	-4681.	-6873.	-.0440	-.0272	.0040	.0009	-.1574	-.1905	5645.		
.0370	693.	1256.	58.	679.	-4616.	-5632.	-.0499	-.0392	.0131	.0190	-.2010	-.2004	4930.		
.0380	91.	-5.	143.	912.	-3910.	-3877.	-.0568	-.0519	.0247	.0355	-.2189	-.2085	3762.		
.0390	44.	301.	446.	1583.	-3387.	-1771.	-.0668	-.0645	.0385	.0399	-.2276	-.2145	2788.		
.0400	-1049.	-24.	2358.	2054.	-2411.	147.	-.0784	-.0754	.0546	.0487	-.2580	-.2210	2137.		
.0410	-2671.	-2030.	3862.	2393.	-267.	1938.	-.0904	-.0842	.0749	.0625	-.2768	-.2284	2083.		
.0420	-2910.	-2586.	3745.	3558.	1810.	4125.	-.1049	-.0918	.0992	.0558	-.2471	-.2348	3869.		
.0430	-2846.	-1563.	4206.	4824.	3443.	6104.	-.1208	-.0971	.1235	.0392	-.2131	-.2375	5734.		
.0440	-4310.	-2239.	5904.	4687.	5712.	6952.	-.1342	-.0983	.1460	.0404	-.2116	-.2358	6838.		
.0450	-5319.	-3490.	6034.	3901.	7726.	7177.	-.1450	-.0962	.1671	.0390	-.1919	-.2317	7579.		
.0460	-4086.	-2400.	4085.	3507.	8020.	7260.	-.1540	-.0923	.1840	.0151	-.1307	-.2231	7666.		
.0470	-3067.	-1168.	3399.	2413.	7673.	6319.	-.1574	-.0853	.1911	.0055	-.0958	-.2040	6895.		
.0480	-3670.	-2348.	4364.	129.	7876.	4131.	-.1523	-.0746	.1880	.0302	-.1045	-.1744	5995.		
.0490	-3207.	-2984.	3615.	-1513.	7396.	2102.	-.1417	-.0621	.1782	.0480	-.0312	-.1393	5282.		
.0500	-1046.	-1010.	1282.	-1790.	5763.	789.	-.1279	-.0484	.1620	.0454	-.0168	-.0992	4102.		
.0510	-280.	240.	732.	-2155.	4821.	-743.	-.1085	-.0323	.1371	.0641	.0144	-.0517	3595.		
.0520	-1179.	-479.	1659.	-2518.	4887.	-2389.	-.0830	-.0142	.1059	.1051	.0142	-.0001	4040.		
.0530	-888.	262.	1168.	-1290.	4267.	-3006.	-.0555	.0033	.0735	.1220	.0486	.0505	3624.		
.0540	228.	2764.	-59.	882.	3139.	-2871.	-.0285	.0202	.0411	.1161	.0988	.0994	2928.		
.0550	-274.	3649.	292.	2232.	2907.	-3051.	-.0012	.0382	.0080	.1228	.1035	.1438	3214.		
.0560	-1315.	3254.	1071.	3380.	2840.	-3198.	.0250	.0563	-.0231	.1280	.0899	.1781	3674.		
.0570	-771.	4341.	484.	5477.	1830.	-2645.	.0480	.0716	-.0496	.1022	.1076	.2045	4281.		

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FORCES AND MOMENTS ACT ON THE PIPING



.0470	-3067.	-1168.	3399.	2413.	7673.	6319.	-1574.	-0853.	.1911	.0055	-.0958	-.2040	6895.
.0480	-3670.	-2348.	4364.	129.	7876.	4131.	-1523.	-0746	.1880	.0302	-.1045	-.1744	5995.
.0490	-3207.	-2984.	3615.	-1513.	7396.	2102.	-1417	-0621	.1782	.0480	-.0812	-.1393	5282.
.0500	-1046.	-1010.	1282.	-1790.	5763.	789.	-1279	-0484	.1620	.0454	-.0168	-.0992	4102.
.0510	-280.	240.	732.	-2155.	4821.	-743.	-1085	-0323	.1371	.0641	.0144	-.0517	3595.
.0520	-1179.	-479.	1659.	-2518.	4887.	-2389.	-0830	-0142	.1059	.1051	.0142	-.0001	4040.
.0530	-888.	262.	1168.	-1290.	4267.	-3006.	-0555	.0033	.0735	.1220	.0486	.0505	3624.
.0540	228.	2764.	-59.	882.	3139.	-2871.	-0285	.0202	.0411	.1161	.0986	.0994	2928.
.0550	-274.	3649.	292.	2232.	2907.	-3051.	-0012	.0382	.0080	.1228	.1035	.1438	3214.
.0560	-1315.	3254.	1071.	3380.	2840.	-3198.	.0250	.0563	-.0231	.1280	.0899	.1781	3674.
.0570	-771.	4341.	484.	5477.	1830.	-2645.	.0480	.0716	-.0496	.1022	.1076	.2045	4281.

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ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	4	MEMBER	1	SEQUENCE	21	LOCATION	END	TYPE	EL					
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS	
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)	
.0580	-31.	5756.	-5.	7425.	978.	-2060.	.0683	.0845	-.0724	.0683	.1242	.2281	5236.	
.0590	-579.	5224.	768.	8222.	1061.	-1972.	.0865	.0966	-.0933	.0520	.1101	.2449	5744.	
.0600	-678.	4363.	909.	8839.	840.	-1694.	.1013	.1064	-.1112	.0326	.1099	.2509	6093.	
.0610	562.	4889.	-259.	9684.	-82.	-1032.	.1134	.1120	-.1267	.0015	.1435	.2549	6565.	
.0620	1303.	4978.	-826.	9574.	-563.	-808.	.1263	.1137	-.1428	-.0102	.1556	.2652	6487.	
.0630	1102.	3546.	-493.	8278.	-732.	-1115.	.1400	.1124	-.1606	.0062	.1654	.2757	5651.	
.0640	1661.	2528.	-1139.	6722.	-1756.	-1244.	.1521	.1074	-.1783	.0250	.1825	.2808	4738.	
.0650	2948.	2594.	-2823.	4809.	-3309.	-1247.	.1625	.0982	-.1947	.0426	.2148	.2862	4024.	
.0660	3430.	2028.	-3884.	1930.	-4439.	-1629.	.1723	.0856	-.2096	.0764	.2249	.2933	3442.	
.0670	3310.	572.	-4226.	-1280.	-5492.	-2090.	.1798	.0704	-.2215	.1191	.2163	.2934	4054.	
.0680	3674.	-374.	-4873.	-3945.	-6784.	-2075.	.1818	.0525	-.2273	.1495	.2162	.2820	5471.	
.0690	4076.	-831.	-5609.	-6218.	-7471.	-1673.	.1773	.0327	-.2244	.1663	.2190	.2610	6648.	
.0700	3793.	-1836.	-5741.	-8206.	-7192.	-1028.	.1661	.0121	-.2122	.1737	.2101	.2275	7388.	
.0710	3413.	-3181.	-5617.	-9433.	-6633.	37.	.1478	-.0085	-.1906	.1633	.1977	.1767	7773.	
.0720	3402.	-4146.	-5510.	-9950.	-6051.	1380.	.1231	-.0292	-.1613	.1328	.1829	.1132	7905.	
.0730	3169.	-5008.	-4820.	-10307.	-5167.	2571.	.0942	-.0492	-.1263	.0924	.1480	.0440	7962.	
.0740	2441.	-6181.	-3507.	-10471.	-4149.	3610.	.0629	-.0676	-.0874	.0457	.0932	-.0306	7972.	
.0750	1787.	-7162.	-2542.	-10090.	-3269.	4767.	.0299	-.0839	-.0460	-.0107	.0415	-.1100	7838.	
.0760	1412.	-7365.	-2194.	-9298.	-2399.	5937.	-.0032	-.0977	-.0047	-.0712	-.0008	-.1866	7610.	
.0770	840.	-7096.	-1617.	-8416.	-1547.	6762.	-.0338	-.1086	.0326	-.1231	-.0498	-.2538	7351.	
.0780	-173.	-6922.	-407.	-7422.	-910.	7112.	-.0596	-.1164	.0640	-.1595	-.1096	-.3095	6956.	
.0790	-1211.	-6634.	751.	-6154.	-361.	7100.	-.0806	-.1210	.0892	-.1815	-.1626	-.3517	6338.	
.0800	-1771.	-5668.	1237.	-4602.	238.	6810.	-.0978	-.1221	.1083	-.1923	-.1935	-.3793	5543.	
.0810	-1953.	-4301.	1460.	-2934.	655.	6125.	-.1114	-.1194	.1208	-.1902	-.2106	-.3947	4599.	
.0820	-2185.	-3323.	2034.	-1452.	794.	4804.	-.1207	-.1130	.1269	-.1715	-.2297	-.3983	3425.	
.0830	-2375.	-2608.	2746.	-271.	825.	2845.	-.1257	-.1039	.1282	-.1400	-.2490	-.3877	2005.	
.0840	-2094.	-1430.	3074.	826.	721.	589.	-.1283	-.0924	.1267	-.1057	-.2555	-.3653	839.	
.0850	-1549.	-5.	3120.	1906.	499.	-1685.	-.1302	-.0783	.1241	-.0725	-.2494	-.3381	1748.	
.0860	-1281.	1003.	3145.	2770.	516.	-3925.	-.1313	-.0618	.1216	-.0383	-.2392	-.3081	3257.	
.0870	-1133.	1992.	2954.	3532.	863.	-5971.	-.1313	-.0445	.1200	-.0076	-.2211	-.2723	4712.	
.0880	-751.	3473.	2566.	4530.	1251.	-7574.	-.1302	-.0275	.1187	.0152	-.1911	-.2314	6008.	
.0890	-532.	4687.	2542.	5659.	1770.	-8734.	-.1275	-.0108	.1163	.0374	-.1500	-.1887	7116.	
.0900	-756.	5065.	2910.	6661.	2695.	-9505.	-.1227	.0053	.1120	.0645	-.1328	-.1453	8032.	
.0910	-795.	5431.	2944.	7727.	3696.	-9702.	-.1156	.0194	.1057	.0883	-.0965	-.0998	8724.	
.0920	-385.	6114.	2593.	8970.	4340.	-9297.	-.1059	.0309	.0966	.1067	-.0511	-.0525	9168.	
.0930	-258.	6121.	2699.	9792.	4809.	-8628.	-.0923	.0399	.0829	.1319	-.0185	-.0043	9375.	
.0940	-652.	5329.	3369.	10110.	5257.	-7803.	-.0749	.0463	.0650	.1663	-.0034	.0448	9309.	
.0950	-914.	4885.	3720.	10273.	5407.	-6525.	-.0553	.0496	.0454	.1956	.0144	.0933	8977.	

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

.0850	-1549.	-5.	3120.	1902.	499.	-1685.	-1302.	-0783	.1241	-0725	-2494	-3381	1748.
.0860	-1281.	1003.	3145.	2770.	516.	-3925.	-1313	-0618	.1216	-0383	-2392	-3081	3257.
.0870	-1133.	1992.	2954.	3532.	863.	-5971.	-1313	-0445	.1200	-0076	-2211	-2723	4712.
.0880	-751.	3473.	2506.	4570.	1251.	-7574.	-1302	-0275	.1187	.0152	-1911	-2314	6008.
.0890	-532.	4687.	2542.	5659.	1770.	-8734.	-1275	-0108	.1163	.0374	-1600	-1887	7116.
.0900	-756.	5015.	2910.	6661.	2605.	-9505.	-1227	.0053	.1120	.0645	-1328	-1453	8032.
.0910	-775.	5431.	2944.	7727.	3696.	-9702.	-1156	.0194	.1057	.0883	-0965	-0998	8724.
.0920	-385.	6114.	2593.	8930.	4340.	-9297.	-1059	.0309	.0966	.1067	-0511	-0525	9168.
.0930	-258.	6121.	2699.	9792.	4809.	-8628.	-0923	.0399	.0829	.1319	-0185	-0043	9375.
.0940	-652.	5329.	3369.	10110.	5257.	-7803.	-0749	.0463	.0650	.1663	-0034	.0448	9309.
.0950	-914.	4885.	3720.	10273.	5407.	-6525.	-0553	.0496	.0454	.1956	.0144	.0933	8977.

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DIS/ADLPIPE

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

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PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	MEMBER	SEQUENCE	LOCATION	END	TYPE	EL								STRESS
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	(PSI)	
.0960	-971.	4918.	3440.	10368.	5313.	-4734.	-0353	.0502	.0260	.2143	.0420	.1378	8476.	
.0970	-1394.	4520.	3082.	10034.	5373.	-2763.	-0156	.0489	.0077	.2300	.0556	.1751	7895.	
.0980	-2044.	3792.	2869.	9281.	5477.	-812.	.0028	.0460	-0089	.2413	.0816	.2039	7285.	
.0990	-2341.	3391.	2535.	8380.	5251.	1075.	.0187	.0411	-0225	.2397	.0775	.2241	6705.	
.1000	-2384.	2892.	2111.	7201.	4821.	2674.	.0315	.0349	-0324	.2267	.1097	.2339	6113.	
.1010	-2421.	1754.	1739.	5556.	4411.	3793.	.0406	.0284	-0385	.2071	.1129	.2312	5422.	
.1020	-2115.	553.	1238.	3714.	3801.	4528.	.0454	.0219	-0409	.1774	.1135	.2159	4706.	
.1030	-1369.	-286.	601.	1926.	2922.	4950.	.0464	.0152	-0400	.1367	.1150	.1912	4086.	
.1040	-718.	-1263.	161.	95.	2118.	4971.	.0455	.0086	-0369	.0933	.1099	.1609	3643.	
.1050	-361.	-2407.	-56.	-1726.	1484.	4688.	.0434	.0026	-0324	.0503	.0983	.1263	3513.	
.1060	56.	-2980.	-471.	-3245.	785.	4378.	.0398	-0026	-0271	.0037	.0912	.0882	3711.	
.1070	521.	-2976.	-1157.	-4464.	106.	4077.	.0356	-0070	-0219	-0441	.0900	.0494	4076.	
.1080	596.	-3034.	-1567.	-5512.	-330.	3638.	.0325	-0106	-0182	-0850	.0848	.0130	4457.	
.1090	262.	-3200.	-1392.	-6214.	-492.	3110.	.0312	-0133	-0168	-1172	.0763	-0189	4696.	
.1100	727.	-2932.	-2313.	-6641.	-937.	2611.	.0306	-0153	-0176	-1503	.0852	-0487	4851.	
.1110	1537.	-2437.	-3228.	-7097.	-1961.	1906.	.0312	-0164	-0219	-1799	.0891	-0761	5126.	
.1120	1772.	-2651.	-3022.	-7992.	-3160.	687.	.0343	-0164	-0301	-1951	.0548	-0975	5811.	
.1130	2001.	-3245.	-2821.	-8935.	-4329.	-673.	.0398	-0161	-0403	-2030	.0367	-1120	6707.	
.1140	2965.	-3170.	-3529.	-9299.	-5696.	-1601.	.0455	-0157	-0507	-2160	.0304	-1226	7429.	
.1150	3792.	-2841.	-4124.	-9390.	-6940.	-2177.	.0510	-0144	-0613	-2263	.0263	-1301	8006.	
.1160	3659.	-3115.	-4039.	-9678.	-7528.	-2652.	.0571	-0123	-0717	-2246	.0079	-1319	8455.	
.1170	3462.	-3098.	-4172.	-9582.	-7938.	-2698.	.0635	-0103	-0805	-2230	-0031	-1278	8582.	
.1180	3860.	-2465.	-5187.	-8994.	-8445.	-2269.	.0694	-0090	-0875	-2252	.0037	-1190	8455.	
.1190	3899.	-1852.	-5204.	-8296.	-9032.	-1765.	.0746	-0074	-0945	-2191	-0051	-1068	8352.	
.1200	2983.	-2157.	-3946.	-7898.	-9052.	-1466.	.0796	-0055	-1007	-1963	-0384	-0901	8158.	
.1210	2267.	-2685.	-3512.	-7288.	-8423.	-957.	.0829	-0040	-1031	-1713	-0543	-0698	7536.	
.1220	2702.	-1850.	-4063.	-5682.	-8248.	183.	.0824	-0031	-1014	-1603	-0372	-0509	6752.	
.1230	2632.	-1442.	-3752.	-4281.	-7673.	1124.	.0795	-0018	-0976	-1385	-0332	-0315	5971.	
.1240	1452.	-2129.	-2062.	-3509.	-6390.	1530.	.0753	-0000	-0917	-0991	-0569	-0095	5021.	
.1250	789.	-2211.	-1058.	-2446.	-5216.	2040.	.0685	.0011	-0809	-0680	-0528	.0125	4120.	
.1260	926.	-1430.	-1347.	-1101.	-4135.	2747.	.0579	.0019	-0648	-0497	-0407	.0320	3428.	
.1270	381.	-811.	-651.	-99.	-2771.	3168.	.0442	.0037	-0457	-0269	-0327	.0480	2838.	
.1280	-998.	-1081.	692.	255.	-688.	3098.	.0289	.0064	-0240	.0053	-0393	.0620	2146.	
.1290	-1443.	-514.	897.	971.	1005.	3122.	.0113	.0086	.0011	.0221	-0205	.0728	2306.	
.1300	-1147.	847.	584.	1938.	2137.	3105.	-0079	.0105	.0278	.0263	.0113	.0803	2857.	
.1310	-1067.	955.	1161.	1983.	3728.	2337.	-0265	.0135	.0530	.0436	.0152	.0856	3253.	
.1320	-2297.	708.	2205.	1768.	5021.	1230.	-0448	.0170	.0762	.0622	.0053	.0864	3682.	
.1330	-1936.	1233.	2169.	2016.	5624.	322.	-0622	.0200	.0983	.0663	.0141	.0842	4033.	

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INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING



.1230	2632.	-1442.	-3752.	-4281.	-7673.	1124.	.0795	-.0018	-.0976	-.1385	-.0332	-.0315	5971.
.1240	1452.	-2129.	-2062.	-3509.	-6390.	1530.	.0753	-.0000	-.0917	-.0991	-.0569	-.0095	5021.
.1250	789.	-2211.	-1058.	-2446.	-5216.	2040.	.0685	.0011	-.0809	-.0680	-.0628	.0125	4120.
.1260	926.	-1430.	-1347.	-1101.	-4135.	2747.	.0579	.0019	-.0648	-.0497	-.0407	.0320	3428.
.1270	381.	-811.	-651.	-99.	-2771.	3168.	.0442	.0037	-.0457	-.0269	-.0327	.0480	2838.
.1280	-998.	-1081.	692.	255.	-688.	3098.	.0289	.0064	-.0240	.0053	-.0393	.0620	2146.
.1290	-1443.	-514.	897.	971.	1005.	3122.	.0113	.0086	.0011	.0221	-.0205	.0728	2306.
.1300	-1147.	847.	584.	1938.	2137.	3105.	-.0079	.0105	.0278	.0263	.0113	.0803	2857.
.1310	-1667.	955.	1161.	1983.	3728.	2337.	-.0265	.0135	.0530	.0436	.0152	.0856	3253.
.1320	-2297.	708.	2205.	1768.	5021.	1230.	-.0448	.0170	.0762	.0622	.0053	.0864	3682.
.1330	-1936.	1233.	2169.	2016.	5624.	322.	-.0622	.0200	.0983	.0663	.0141	.0842	4033.

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INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	4	MEMBER	1	SEQUENCE	21	LOCATION	END	TYPE	EL	DZ	RX	RY	RZ	STRESS
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS	
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)	
.1340	-1451.	2061.	2066.	2483.	6003.	-504.	-.0775	.0225	.1178	.0653	.0223	.0823	4392.	
.1350	-1970.	2138.	3063.	2682.	6782.	-1469.	-.0898	.0256	.1332	.0740	.0054	.0801	5015.	
.1360	-2640.	2039.	3772.	3015.	7690.	-2160.	-.0999	.0289	.1459	.0806	-.0108	.0750	5755.	
.1370	-2478.	3205.	3541.	4196.	7850.	-2139.	-.1087	.0315	.1566	.0673	-.0056	.0663	6170.	
.1380	-2639.	4178.	3433.	5279.	8109.	-2034.	-.1143	.0339	.1643	.0526	-.0092	.0588	6665.	
.1390	-3534.	4276.	4223.	5913.	8496.	-2129.	-.1164	.0363	.1677	.0447	-.0381	.0513	7123.	
.1400	-3948.	4514.	4760.	6653.	8245.	-2057.	-.1167	.0385	.1679	.0291	-.0652	.0401	7274.	
.1410	-3643.	4939.	4379.	7372.	7606.	-1841.	-.1155	.0402	.1659	.0040	-.0799	.0276	7247.	
.1420	-3469.	5109.	4365.	7790.	6845.	-1720.	-.1120	.0415	.1611	-.0212	-.1022	.0158	7085.	
.1430	-3652.	4529.	4729.	7744.	6262.	-1761.	-.1062	.0428	.1535	-.0405	-.1321	.0050	6817.	
.1440	-3307.	4179.	4565.	7742.	5336.	-1600.	-.0989	.0436	.1438	-.0639	-.1465	-.0059	6429.	
.1450	-2548.	4201.	3914.	7633.	4148.	-1302.	-.0900	.0436	.1318	-.0893	-.1475	-.0139	5921.	
.1460	-2273.	3638.	3423.	6798.	3296.	-1232.	-.0780	.0432	.1171	-.1037	-.1536	-.0157	5160.	
.1470	-2160.	3061.	3167.	5689.	2253.	-1150.	-.0639	.0424	.0999	-.1132	-.1586	-.0137	4197.	
.1480	-1600.	2712.	2170.	4457.	1037.	-920.	-.0483	.0409	.0809	-.1217	-.1457	-.0084	3146.	
.1490	-815.	2467.	878.	2982.	-269.	-687.	-.0312	.0387	.0600	-.1259	-.1246	.0011	2070.	
.1500	-368.	1873.	149.	1107.	-1562.	-641.	-.0124	.0361	.0372	-.1206	-.1127	.0152	1361.	
.1510	-63.	847.	-538.	-1030.	-2698.	-683.	.0073	.0332	.0138	-.1090	-.1022	.0324	2001.	
.1520	667.	276.	-1520.	-2813.	-4003.	-446.	.0261	.0298	-.0087	-.1018	-.0790	.0498	3311.	
.1530	1389.	-314.	-2545.	-4436.	-4965.	-48.	.0437	.0264	-.0297	-.0940	-.0510	.0670	4488.	
.1540	1639.	-1142.	-2907.	-5868.	-5511.	452.	.0598	.0233	-.0485	-.0839	-.0302	.0835	5435.	
.1550	1675.	-1917.	-2999.	-6867.	-5737.	1180.	.0739	.0204	-.0641	-.0770	-.0084	.0984	6083.	
.1560	1847.	-2519.	-3591.	-7478.	-5549.	2137.	.0855	.0177	-.0756	-.0760	.0235	.1115	6440.	
.1570	2031.	-2660.	-3934.	-7648.	-5397.	3249.	.0941	.0156	-.0840	-.0811	.0541	.1208	6678.	
.1580	1764.	-3112.	-3762.	-7845.	-4980.	4159.	.1007	.0145	-.0900	-.0835	.0707	.1279	6862.	
.1590	1437.	-3700.	-3700.	-8021.	-4421.	4851.	.1057	.0141	-.0934	-.0863	.0824	.1337	6986.	
.1600	1579.	-3550.	-3848.	-7770.	-4330.	5495.	.1085	.0141	-.0946	-.0968	.0973	.1374	7048.	
.1610	1571.	-3335.	-3601.	-7448.	-4257.	5850.	.1095	.0152	-.0947	-.1045	.1028	.1398	6999.	
.1620	1075.	-3791.	-3163.	-7363.	-3584.	5776.	.1096	.0174	-.0937	-.1017	.0988	.1423	6755.	
.1630	1026.	-3528.	-3049.	-6748.	-3224.	5725.	.1077	.0203	-.0912	-.1040	.1055	.1429	6348.	
.1640	1305.	-2707.	-3195.	-5821.	-3067.	5574.	.1043	.0236	-.0877	-.1084	.1187	.1432	5813.	
.1650	1119.	-2429.	-2974.	-5260.	-2555.	4928.	.1005	.0276	-.0841	-.1014	.1182	.1450	5154.	
.1660	853.	-2123.	-2415.	-4716.	-2260.	4011.	.0960	.0321	-.0805	-.0905	.1094	.1460	4443.	
.1670	1012.	-1433.	-2355.	-4038.	-2259.	3029.	.0903	.0365	-.0760	-.0822	.1071	.1460	3728.	
.1680	1262.	-538.	-2392.	-3354.	-2357.	1958.	.0835	.0407	-.0706	-.0742	.1039	.1457	3063.	
.1690	1119.	-129.	-2195.	-2961.	-2145.	690.	.0761	.0449	-.0643	-.0596	.0902	.1448	2508.	
.1700	1004.	329.	-1974.	-2433.	-1998.	-474.	.0673	.0485	-.0568	-.0462	.0757	.1414	2146.	
.1710	1119.	1356.	-1645.	-1417.	-2093.	-1299.	.0571	.0512	-.0479	-.0390	.0659	.1355	1915.	

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INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

.1610	1571.	-3335.	-1101.	-7448.	-4257.	5850.	.1095	.0152	-.0947	-.1045	.1028	.1398	6999.
.1620	1075.	-3791.	-3163.	-7363.	-3584.	5776.	.1096	.0174	-.0937	-.1017	.0988	.1423	6755.
.1630	1026.	-3528.	-3049.	-6748.	-3224.	5725.	.1077	.0203	-.0912	-.1040	.1055	.1429	6348.
.1640	1305.	-2707.	-3195.	-5821.	-3067.	5574.	.1043	.0236	-.0877	-.1084	.1187	.1432	5813.
.1650	1119.	-2429.	-2974.	-5260.	-2555.	4928.	.1005	.0276	-.0841	-.1014	.1182	.1450	5154.
.1660	853.	-2123.	-2415.	-4716.	-2260.	4011.	.0960	.0321	-.0805	-.0905	.1094	.1460	4443.
.1670	1012.	-1433.	-2355.	-4038.	-2259.	3029.	.0903	.0365	-.0760	-.0822	.1071	.1460	3728.
.1680	1262.	-538.	-2392.	-3354.	-2357.	1958.	.0835	.0407	-.0706	-.0742	.1039	.1457	3063.
.1690	1119.	-129.	-2195.	-2961.	-2145.	690.	.0761	.0449	-.0643	-.0596	.0902	.1448	2508.
.1700	1004.	329.	-1974.	-2433.	-1998.	-474.	.0673	.0485	-.0568	-.0462	.0757	.1414	2146.
.1710	1119.	1356.	-1645.	-1417.	-2093.	-1299.	.0571	.0512	-.0479	-.0390	.0659	.1355	1915.

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INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	MEMBER	SEQUENCE	LOCATION	END	TYPE	EL								STRESS
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	(PSI)	
.1720	51.	1820.	-1285.	-499.	-1471.	-2043.	.0463	.0529	-.0374	-.0265	.0540	.1299	1730.	
.1730	442.	2169.	-744.	618.	-654.	-2511.	.0345	.0537	-.0257	-.0143	.0424	.1216	1798.	
.1740	227.	2731.	-287.	2018.	31.	-2624.	.0216	.0533	-.0132	-.0063	.0363	.1099	2231.	
.1750	-53.	3098.	183.	3317.	885.	-2616.	.0087	.0516	-.0005	.0036	.0287	.0977	2909.	
.1760	-494.	3294.	1004.	4494.	1733.	-2545.	-.0037	.0484	.0116	.0162	.0150	.0858	3672.	
.1770	-904.	3214.	1660.	5453.	2548.	-2410.	-.0153	.0439	.0231	.0304	.0016	.0731	4370.	
.1780	-1090.	3328.	2132.	6306.	3024.	-2130.	-.0267	.0381	.0339	.0421	-.0086	.0589	4928.	
.1790	-1346.	3258.	2458.	6724.	3528.	-1889.	-.0373	.0314	.0439	.0561	-.0204	.0449	5274.	
.1800	-1653.	2982.	2660.	6767.	3993.	-1690.	-.0467	.0237	.0529	.0715	-.0331	.0312	5417.	
.1810	-1762.	2980.	2906.	6802.	3996.	-1386.	-.0553	.0150	.0608	.0827	-.0435	.0164	5399.	
.1820	-1931.	2659.	2994.	6468.	4135.	-1175.	-.0628	.0059	.0678	.0959	-.0538	.0020	5235.	
.1830	-2076.	2259.	3021.	5921.	4276.	-992.	-.0696	-.0034	.0738	.1080	-.0630	-.0131	4968.	
.1840	-2007.	1926.	2850.	5346.	4213.	-761.	-.0760	-.0128	.0790	.1153	-.0673	-.0301	4616.	
.1850	-1832.	1478.	2583.	4680.	4034.	-567.	-.0814	-.0221	.0831	.1199	-.0704	-.0481	4182.	
.1860	-1682.	975.	2548.	3922.	3732.	-471.	-.0854	-.0311	.0856	.1229	-.0783	-.0658	3663.	
.1870	-1530.	292.	2434.	3013.	3437.	-480.	-.0880	-.0395	.0865	.1251	-.0886	-.0830	3098.	
.1880	-1214.	-142.	2247.	2260.	2831.	-414.	-.0897	-.0473	.0861	.1212	-.0974	-.1012	2458.	
.1890	-1004.	-563.	2045.	1544.	2241.	-326.	-.0900	-.0540	.0846	.1144	-.1073	-.1190	1848.	
.1900	-999.	-1027.	1840.	862.	1871.	-228.	-.0890	-.0595	.0822	.1063	-.1182	-.1351	1397.	
.1910	-951.	-1054.	1727.	563.	1387.	38.	-.0872	-.0640	.0789	.0926	-.1255	-.1505	1009.	
.1920	-986.	-1117.	1633.	479.	1053.	356.	-.0844	-.0670	.0750	.0770	-.1301	-.1646	816.	
.1930	-1173.	-1219.	1655.	505.	946.	636.	-.0808	-.0685	.0705	.0611	-.1340	-.1767	840.	
.1940	-1285.	-1157.	1670.	708.	875.	895.	-.0767	-.0685	.0656	.0424	-.1331	-.1869	969.	
.1950	-1214.	-1009.	1570.	1028.	783.	1081.	-.0722	-.0670	.0600	.0219	-.1260	-.1954	1136.	
.1960	-1074.	-1020.	1474.	1262.	718.	1058.	-.0667	-.0641	.0534	.0036	-.1168	-.2009	1210.	
.1970	-877.	-1100.	1453.	1328.	571.	787.	-.0602	-.0599	.0455	-.0119	-.1077	-.2022	1109.	
.1980	-548.	-1075.	1358.	1245.	260.	339.	-.0525	-.0547	.0361	-.0253	-.0956	-.1988	887.	
.1990	-131.	-1013.	1048.	994.	-106.	-213.	-.0435	-.0486	.0254	-.0355	-.0782	-.1905	689.	
.2000	289.	-955.	571.	592.	-451.	-808.	-.0331	-.0418	.0132	-.0408	-.0557	-.1772	740.	
.2010	700.	-801.	39.	101.	-837.	-1388.	-.0212	-.0346	-.0006	-.0410	-.0295	-.1583	1095.	
.2020	1079.	-595.	-514.	-469.	-1261.	-1933.	-.0078	-.0275	-.0161	-.0360	-.0017	-.1339	1587.	
.2030	1413.	-459.	-1096.	-1110.	-1682.	-2416.	.0071	-.0206	-.0331	-.0253	.0265	-.1048	2120.	
.2040	1751.	-372.	-1673.	-1733.	-2131.	-2772.	.0227	-.0140	-.0511	-.0105	.0548	-.0727	2630.	
.2050	2096.	-318.	-2182.	-2278.	-2599.	-2965.	.0386	-.0080	-.0697	.0074	.0817	-.0391	3069.	
.2060	2392.	-388.	-2601.	-2746.	-3004.	-2998.	.0544	-.0028	-.0880	.0272	.1054	-.0047	3407.	
.2070	2624.	-578.	-2920.	-3087.	-3339.	-2843.	.0695	.0015	-.1051	.0474	.1251	.0288	3615.	
.2080	2779.	-779.	-3089.	-3234.	-3614.	-2454.	.0832	.0049	-.1204	.0657	.1406	.0598	3664.	
.2090	2786.	-975.	-3102.	-3192.	-3732.	-1832.	.0948	.0074	-.1329	.0813	.1517	.0872	3533.	

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ADLPIPE STRESS ANALYSIS

83/12/02. 18.25.54.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24  
LOADS  
SHOCK  
PRESSURE  
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING



.1990	-131.	-1013.	1048.	994.	-106.	-213.	-0.435	-0.0486	.0254	-0.0355	-0.0782	-0.1905	689.
.2000	289.	-955.	571.	592.	-451.	-808.	-0.331	-0.0418	.0132	-0.0408	-0.0557	-0.1772	740.
.2010	700.	-801.	39.	101.	-837.	-1388.	-0.0212	-0.0346	-0.0006	-0.0410	-0.0295	-0.1583	1095.
.2020	1079.	-595.	-514.	-469.	-1261.	-1933.	-0.0078	-0.0275	-0.0161	-0.0360	-0.0017	-0.1339	1587.
.2030	1413.	-459.	-1096.	-1110.	-1682.	-2416.	.0071	-0.0206	-0.0331	-0.0253	.0265	-0.1048	2120.
.2040	1751.	-372.	-1673.	-1733.	-2131.	-2772.	.0227	-0.0140	-0.0511	-0.0105	.0548	-0.0727	2630.
.2050	2096.	-318.	-2182.	-2278.	-2599.	-2965.	.0386	-0.0080	-0.0697	.0074	.0817	-0.0391	3069.
.2060	2392.	-388.	-2601.	-2746.	-3004.	-2998.	.0544	-0.0028	-0.0880	.0272	.1054	-0.0047	3407.
.2070	2624.	-578.	-2920.	-3087.	-3339.	-2643.	.0695	.0015	-0.1051	.0474	.1251	.0288	3615.
.2080	2779.	-779.	-3029.	-3234.	-3614.	-2454.	.0832	.0049	-0.1204	.0657	.1406	.0598	3664.
.2090	2786.	-975.	-3102.	-3192.	-3732.	-1832.	.0948	.0074	-0.1329	.0813	.1517	.0872	3533.

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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18.25.54.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24  
LOADS  
SHOCK  
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ENGLISH UNITS

INTERNAL FORCES IN THE PIPING  
FORCES AND MOMENTS ACT ON THE PIPING

SECTION	MEMBER	SEQUENCE	LOCATION	END	TYPE	EL								STRESS
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	(PSI)	
.2100	2642.	-1178.	-3068.	-2980.	-3628.	-999.	.1039	.0091	-0.1420	.0933	.1599	.1103	3236.	
.2110	2418.	-1304.	-3028.	-2583.	-3384.	5.	.1103	.0098	-0.1473	.1004	.1663	.1281	2869.	
.2120	2105.	-1361.	-2876.	-2062.	-3041.	1070.	.1138	.0098	-0.1490	.1035	.1589	.1406	2580.	
.2130	1692.	-1455.	-2575.	-1528.	-2572.	2061.	.1144	.0091	-0.1473	.1047	.1565	.1477	2449.	
.2140	1309.	-1558.	-2268.	-1002.	-2062.	2909.	.1122	.0078	-0.1427	.1039	.1619	.1495	2496.	
.2150	1063.	-1597.	-2027.	-506.	-1634.	3548.	.1072	.0060	-0.1354	.1008	.1561	.1460	2655.	
.2160	880.	-1634.	-1743.	-149.	-1281.	3873.	.1000	.0038	-0.1260	.0979	.1465	.1381	2751.	
.2170	711.	-1715.	-1393.	26.	-968.	3844.	.0907	.0013	-0.1150	.0966	.1324	.1265	2672.	
.2180	626.	-1722.	-1094.	110.	-743.	3536.	.0796	-0.0015	-0.1023	.0955	.1172	.1113	2436.	
.2190	605.	-1580.	-874.	148.	-591.	3011.	.0667	-0.0044	-0.0879	.0937	.1020	.0930	2071.	
.2200	525.	-1354.	-661.	103.	-409.	2290.	.0522	-0.0074	-0.0720	.0918	.0849	.0920	1569.	
.2210	384.	-1051.	-453.	19.	-190.	1438.	.0363	-0.0103	-0.0544	.0889	.0562	.0483	978.	
.2220	259.	-631.	-280.	-1.	15.	546.	.0191	-0.0132	-0.0352	.0830	.0473	.0218	368.	
.2230	119.	-177.	-76.	51.	256.	-355.	.0008	-0.0160	-0.0147	.0742	.0272	-0.0069	297.	
.2240	-68.	205.	211.	149.	578.	-1245.	-0.0181	-0.0187	.0068	.0627	.0046	-0.0374	931.	
.2250	-218.	538.	516.	337.	905.	-2055.	-0.0374	-0.0211	.0289	.0477	-0.0191	-0.0695	1530.	
.2260	-295.	830.	815.	632.	1191.	-2733.	-0.0566	-0.0233	.0509	.0292	-0.0429	-0.1022	2054.	
.2270	-390.	1009.	1186.	984.	1492.	-3275.	-0.0746	-0.0253	.0719	.0094	-0.0581	-0.1336	2515.	
.2280	-539.	1084.	1631.	1387.	1819.	-3643.	-0.0908	-0.0271	.0911	-0.0101	-0.0939	-0.1619	2899.	
.2290	-689.	1149.	2035.	1868.	2111.	-3772.	-0.1044	-0.0287	.1076	-0.0289	-0.1169	-0.1863	3174.	
.2300	-849.	1222.	2335.	2375.	2356.	-3662.	-0.1149	-0.0300	.1208	-0.0454	-0.1361	-0.2051	3343.	
.2310	-1073.	1271.	2571.	2819.	2562.	-3369.	-0.1217	-0.0310	.1298	-0.0574	-0.1524	-0.2170	3427.	
.2320	-1331.	1310.	2763.	3178.	2670.	-2935.	-0.1245	-0.0317	.1343	-0.0638	-0.1658	-0.2210	3426.	
.2330	-1563.	1338.	2882.	3450.	2648.	-2398.	-0.1231	-0.0321	.1341	-0.0643	-0.1749	-0.2171	3348.	
.2340	-1757.	1309.	2922.	3598.	2532.	-1818.	-0.1181	-0.0320	.1295	-0.0586	-0.1795	-0.2057	3209.	
.2350	-1899.	1225.	2896.	3616.	2354.	-1237.	-0.1100	-0.0313	.1211	-0.0475	-0.1794	-0.1877	3025.	
.2360	-1955.	1112.	2805.	3546.	2124.	-670.	-0.0994	-0.0300	.1097	-0.0326	-0.1736	-0.1643	2822.	
.2370	-1929.	953.	2655.	3415.	1897.	-139.	-0.0872	-0.0280	.0964	-0.0153	-0.1619	-0.1368	2635.	
.2380	-1853.	747.	2481.	3222.	1728.	330.	-0.0740	-0.0252	.0821	.0032	-0.1453	-0.1065	2474.	
.2390	-1734.	544.	2291.	2981.	1614.	729.	-0.0605	-0.0218	.0675	.0212	-0.1243	-0.0749	2337.	
.2400	-1576.	374.	2055.	2701.	1552.	1059.	-0.0473	-0.0176	.0535	.0368	-0.0994	-0.0434	2218.	
.2410	-1391.	227.	1746.	2378.	1554.	1309.	-0.0347	-0.0128	.0405	.0493	-0.0712	-0.0130	2108.	
.2420	-1178.	121.	1388.	2012.	1589.	1465.	-0.0229	-0.0075	.0286	.0584	-0.0413	.0156	1991.	
.2430	-937.	62.	1025.	1601.	1600.	1513.	-0.0119	-0.0018	.0176	.0639	-0.0116	.0419	1835.	
.2440	-686.	9.	670.	1126.	1560.	1436.	-0.0016	.0040	.0074	.0663	.0160	.0655	1618.	
.2450	-424.	-38.	309.	605.	1461.	1253.	.0082	.0098	-0.0021	.0657	.0412	.0860	1360.	
.2460	-136.	-42.	-66.	86.	1288.	1006.	.0174	.0155	-0.0113	.0619	.0540	.1033	1103.	
.2470	160.	-16.	-430.	-407.	1042.	723.	.0262	.0208	-0.0201	.0553	.0838	.1170	898.	

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK  
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CONDITION 24  
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