

50-305

RESPONSE TO NUREG-0737 ITEM II.D.1

Docket # *50-305*

Control # *8403280048*

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

.1000	-258.	95.	53.	-215.	-191.	-139.	-.0078	.0009	-.0242	.0333	.0471	-.0787	2226.
.1010	-195.	75.	92.	-260.	-92.	-124.	-.0165	.0057	-.0450	.0257	.0360	-.0800	2107.
.1020	-169.	42.	96.	-270.	-40.	-131.	-.0225	.0094	-.0584	.0190	.0235	-.0808	2104.
.1030	-196.	4.	59.	-246.	-56.	-145.	-.0255	.0125	-.0621	.0129	.0105	-.0806	2024.
.1040	-217.	-31.	5.	-202.	-84.	-149.	-.0246	.0158	-.0580	.0073	-.0041	-.0783	1840.
.1050	-202.	-63.	-52.	-144.	-91.	-153.	-.0205	.0185	-.0497	.0019	-.0220	-.0743	1597.
.1060	-150.	-91.	-105.	-85.	-79.	-162.	-.0148	.0205	-.0405	-.0039	-.0424	-.0690	1388.
.1070	-65.	-102.	-127.	-47.	-22.	-148.	-.0090	.0229	-.0333	-.0098	-.0630	-.0611	1089.
.1080	82.	-94.	-107.	-36.	82.	-93.	-.0036	.0264	-.0293	-.0165	-.0819	-.0496	898.
.1090	240.	-87.	-73.	-30.	199.	-31.	.0012	.0293	-.0270	-.0241	-.0995	-.0356	1419.

ADLPIPE PAGE 2867

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02. 18.30.00.

S/RV PIPING KEWAUNEE GKW00F 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	71	MEMBER	1	SEQUENCE	106	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)	
.1100	364.	-96.	-73.	1.	298.	-10.	.0058	.0302	-.0242	-.0277	-.1165	-.0212	2072.		
.1110	457.	-115.	-85.	48.	366.	12.	.0101	.0300	-.0197	-.0302	-.1301	-.0030	2571.		
.1120	495.	-145.	-101.	103.	388.	51.	.0135	.0289	-.0135	-.0340	-.1398	.0198	2815.		
.1130	476.	-191.	-145.	179.	360.	56.	.0159	.0263	-.0069	-.0354	-.1470	.0412	2826.		
.1140	450.	-234.	-192.	252.	338.	30.	.0177	.0236	-.0029	-.0327	-.1521	.0570	2945.		
.1150	466.	-245.	-192.	279.	359.	45.	.0181	.0239	-.0036	-.0289	-.1529	.0693	3178.		
.1160	487.	-224.	-154.	257.	383.	106.	.0165	.0268	-.0080	-.0262	-.1487	.0788	3298.		
.1170	493.	-199.	-109.	222.	395.	141.	.0138	.0293	-.0141	-.0233	-.1412	.0821	3304.		
.1180	554.	-159.	-46.	180.	461.	144.	.0129	.0316	-.0200	-.0165	-.1326	.0785	3587.		
.1190	631.	-89.	33.	113.	523.	185.	.0142	.0357	-.0211	-.0106	-.1215	.0722	3937.		
.1200	623.	-8.	79.	45.	484.	251.	.0174	.0406	-.0131	-.0072	-.1065	.0646	3805.		
.1210	532.	47.	63.	31.	372.	249.	.0233	.0432	.0035	-.0004	-.0880	.0517	3123.		
.1220	400.	75.	17.	60.	226.	181.	.0308	.0435	.0246	.0088	-.0674	.0355	2056.		
.1230	256.	111.	-34.	74.	75.	139.	.0373	.0454	.0445	.0178	-.0460	.0151	1214.		
.1240	76.	155.	-81.	53.	-100.	142.	.0396	.0489	.0579	.0231	-.0238	-.0011	1264.		
.1250	-78.	184.	-88.	11.	-225.	123.	.0372	.0516	.0592	.0270	-.0007	-.0180	1788.		
.1260	-111.	215.	-19.	-59.	-209.	84.	.0321	.0542	.0465	.0323	.0216	-.0362	1620.		
.1270	-98.	271.	94.	-186.	-148.	111.	.0245	.0593	.0255	.0351	.0425	-.0510	1827.		
.1280	-120.	333.	183.	-329.	-122.	188.	.0163	.0655	.0046	.0299	.0613	-.0603	2770.		
.1290	-192.	345.	226.	-405.	-142.	199.	.0102	.0674	-.0100	.0263	.0792	-.0665	3292.		
.1300	-280.	304.	226.	-325.	-192.	126.	.0076	.0638	-.0151	.0242	.0953	-.0694	3179.		
.1310	-426.	249.	169.	-345.	-296.	64.	.0033	.0586	-.0100	.0215	.1071	-.0645	3195.		
.1320	-637.	186.	58.	-201.	-489.	47.	.0101	.0530	.0020	.0155	.1152	-.0506	3940.		
.1330	-817.	95.	-43.	-109.	-650.	-5.	.0123	.0446	.0124	.0047	.1209	-.0333	4712.		
.1340	-892.	-4.	-85.	-98.	-701.	-95.	.0137	.0349	.0146	-.0027	.1241	-.0164	4969.		
.1350	-894.	-64.	-79.	-73.	-681.	-112.	.0124	.0290	.0074	-.0118	.1231	.0022	4832.		
.1360	-854.	-82.	-46.	-112.	-624.	-36.	.0082	.0276	-.0073	-.0234	.1178	.0242	4423.		
.1370	-782.	-115.	15.	-147.	-539.	19.	.0024	.0250	-.0255	-.0356	.1106	.0463	3892.		
.1380	-658.	-173.	85.	-137.	-405.	-1.	-.0016	.0193	-.0425	-.0444	.1005	.0662	2979.		
.1390	-555.	-228.	108.	-109.	-307.	-10.	-.0021	.0141	-.0517	-.0534	.0853	.0859	2268.		
.1400	-526.	-271.	63.	-71.	-301.	26.	.0010	.0110	-.0498	-.0651	.0669	.1053	2160.		
.1410	-521.	-325.	-9.	5.	-325.	19.	.0074	.0069	-.0395	-.0744	.0494	.1192	2269.		
.1420	-503.	-386.	-70.	107.	-347.	-54.	.0152	.0011	-.0255	-.0815	.0328	.1251	2557.		
.1430	-443.	-413.	-120.	171.	-338.	-89.	.0232	-.0019	-.0125	-.0893	.0122	.1271	2706.		
.1440	-346.	-404.	-159.	176.	-297.	-49.	.0297	-.0009	-.0041	-.1007	-.0127	.1275	2430.		
.1450	-209.	-395.	-158.	164.	-206.	-30.	.0340	.0003	-.0029	-.1119	-.0357	.1228	1849.		
.1460	-23.	-391.	-103.	151.	-50.	-67.	.0363	.0007	-.0082	-.1194	-.0535	.1112	1203.		
.1470	160.	-363.	-31.	101.	99.	-63.	.0370	.0036	-.0155	-.1283	-.0689	.0971	1083.		

ADLPIPE PAGE 2868

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02. 18.30.01.

S/RV PIPING KEWAUNEE GKW00F 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

.1370	-782.	-115.	15.	-147.	-539.	19.	.0024	.0250	-.0255	-.0356	.1106	.0463	3892.
.1380	-658.	-173.	85.	-137.	-405.	-1.	-.0016	.0193	-.0425	-.0444	.1005	.0662	2979.
.1390	-555.	-228.	108.	-109.	-307.	-10.	-.0021	.0141	-.0517	-.0534	.0853	.0859	2268.
.1400	-526.	-271.	63.	-71.	-301.	26.	.0010	.0110	-.0498	-.0651	.0669	.1053	2160.
.1410	-521.	-325.	-0.	5.	-325.	19.	.0074	.0069	-.0395	-.0744	.0494	.1192	2269.
.1420	-507.	-386.	-70.	107.	-347.	-54.	.0152	.0011	-.0255	-.0815	.0328	.1251	2557.
.1430	-443.	-413.	-120.	171.	-338.	-89.	.0232	-.0019	-.0125	-.0893	.0122	.1271	2706.
.1440	-346.	-404.	-159.	176.	-297.	-49.	.0297	-.0009	-.0041	-.1007	-.0127	.1275	2430.
.1450	-299.	-395.	-158.	164.	-206.	-30.	.0340	.0003	-.0029	-.1119	-.0357	.1228	1849.
.1460	-23.	-391.	-103.	151.	-50.	-67.	.0363	.0007	-.0082	-.1194	-.0535	.1112	1203.
.1470	160.	-363.	-31.	101.	99.	-63.	.0370	.0036	-.0155	-.1283	-.0689	.0971	1083.

ADLPIPE PAGE 2860

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.01.

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	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)	
.1480	318.	-308.	14.	24.	220.	1.	.0378	.0094	-.0203	-.1384	-.0858	.0828	1537.	
.1490	440.	-270.	28.	-20.	305.	19.	.0396	.0134	-.0196	-.1462	-.1011	.0652	2128.	
.1500	521.	-260.	30.	-11.	353.	-46.	.0424	.0140	-.0125	-.1494	-.1102	.0437	2479.	
.1510	550.	-240.	8.	8.	354.	-89.	.0459	.0157	.0003	-.1496	-.1139	.0234	2542.	
.1520	495.	-203.	-51.	13.	277.	-65.	.0482	.0198	.0165	-.1501	-.1136	.0079	1986.	
.1530	423.	-181.	-109.	35.	202.	-66.	.0485	.0226	.0303	-.1469	-.1093	-.0055	1500.	
.1540	392.	-179.	-122.	72.	187.	-123.	.0457	.0233	.0369	-.1385	-.1006	-.0192	1636.	
.1550	381.	-153.	-101.	69.	205.	-133.	.0390	.0269	.0359	-.1271	-.0888	-.0307	1771.	
.1560	340.	-85.	-78.	12.	209.	-49.	.0281	.0356	.0294	-.1152	-.0737	-.0382	1498.	
.1570	250.	-23.	-43.	-46.	176.	37.	.0137	.0447	.0198	-.0971	-.0523	-.0433	1294.	
.1580	172.	6.	8.	-59.	169.	58.	-.0012	.0505	.0093	-.0762	-.0271	-.0460	1312.	
.1590	89.	21.	32.	-43.	161.	77.	-.0148	.0551	.0016	-.0532	-.0032	-.0426	1277.	
.1600	-72.	37.	2.	-22.	65.	145.	-.0278	.0602	.0002	-.0330	.0194	-.0317	1116.	
.1610	-264.	42.	-36.	22.	-71.	205.	-.0398	.0639	.0038	-.0134	.0441	-.0169	1519.	
.1620	-401.	31.	-49.	96.	-157.	213.	-.0496	.0650	.0091	.0084	.0698	-.0021	1956.	
.1630	-523.	21.	-66.	163.	-241.	228.	-.0579	.0659	.0154	.0263	.0913	.0135	2572.	
.1640	-625.	29.	-95.	197.	-322.	297.	-.0648	.0683	.0211	.0378	.1057	.0313	3342.	
.1650	-659.	32.	-99.	222.	-344.	361.	-.0702	.0700	.0239	.0458	.1158	.0494	3798.	
.1660	-657.	9.	-72.	262.	-334.	369.	-.0748	.0685	.0240	.0499	.1245	.0657	3918.	
.1670	-651.	-28.	-56.	302.	-328.	365.	-.0784	.0657	.0233	.0493	.1285	.0810	4008.	
.1680	-646.	-62.	-68.	323.	-333.	390.	-.0805	.0632	.0224	.0419	.1247	.0964	4216.	
.1690	-609.	-110.	-86.	348.	-310.	390.	-.0805	.0591	.0207	.0306	.1151	.1089	4251.	
.1700	-555.	-183.	-97.	392.	-273.	322.	-.0791	.0517	.0180	.0166	.1031	.1153	4011.	
.1710	-508.	-256.	-107.	421.	-251.	246.	-.0767	.0436	.0145	-.0024	.0889	.1167	3813.	
.1720	-419.	-300.	-115.	410.	-193.	213.	-.0726	.0376	.0095	-.0237	.0701	.1149	3484.	
.1730	-308.	-338.	-116.	383.	-119.	174.	-.0672	.0310	.0033	-.0471	.0487	.1085	3044.	
.1740	-182.	-387.	-105.	367.	-33.	76.	-.0610	.0217	-.0033	-.0696	.0276	.0956	2619.	
.1750	-36.	-421.	-85.	340.	68.	-27.	-.0537	.0125	-.0093	-.0895	.0067	.0780	2423.	
.1760	95.	-418.	-70.	280.	144.	-79.	-.0454	.0057	-.0127	-.1082	-.0135	.0578	2258.	
.1770	208.	-392.	-60.	210.	198.	-123.	-.0363	-.0001	-.0132	-.1225	-.0315	.0338	2185.	
.1780	306.	-365.	-45.	157.	238.	-207.	-.0265	-.0072	-.0113	-.1308	-.0451	.0051	2450.	
.1790	407.	-320.	-23.	104.	283.	-290.	-.0162	-.0136	-.0075	-.1321	-.0552	-.0260	2910.	
.1800	479.	-237.	-7.	26.	300.	-318.	-.0067	-.0170	-.0020	-.1280	-.0619	-.0561	3052.	
.1810	498.	-136.	8.	-61.	271.	-318.	.0006	-.0190	.0045	-.1194	-.0630	-.0848	2941.	
.1820	527.	-35.	42.	-133.	266.	-340.	.0063	-.0213	.0097	-.1025	-.0586	-.1127	3146.	
.1830	552.	70.	85.	-199.	272.	-359.	.0101	-.0230	.0134	-.0796	-.0498	-.1377	3428.	
.1840	534.	189.	117.	-276.	246.	-328.	.0114	-.0222	.0166	-.0537	-.0378	-.1570	3439.	
.1850	478.	309.	141.	-349.	194.	-269.	.0104	-.0202	.0194	-.0251	-.0221	-.1706	3352.	

ADLPIPE PAGE 2860

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.01.

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

.1760	95.	-418.	-70.	280.	144.	-79.	-.0454	.0057	-.0127	-.1082	-.0135	.0578	2258.
.1770	208.	-392.	-60.	210.	198.	-123.	-.0363	-.0001	-.0132	-.1225	-.0315	.0338	2185.
.1780	306.	-365.	-45.	157.	236.	-207.	-.0265	-.0072	-.0113	-.1308	-.0451	.0051	2450.
.1790	407.	-320.	-23.	104.	283.	-290.	-.0162	-.0136	-.0075	-.1321	-.0552	-.0260	2910.
.1800	470.	-237.	-7.	76.	300.	-318.	-.0067	-.0170	-.0020	-.1280	-.0619	-.0561	3052.
.1810	498.	-136.	8.	-61.	271.	-318.	.0006	-.0190	.0045	-.1194	-.0630	-.0848	2941.
.1820	527.	-35.	42.	-133.	266.	-340.	.0063	-.0213	.0097	-.1025	-.0586	-.1127	3146.
.1830	552.	70.	85.	-199.	272.	-359.	.0101	-.0230	.0134	-.0796	-.0498	-.1377	3428.
.1840	534.	189.	117.	-276.	246.	-328.	.0114	-.0222	.0166	-.0537	-.0378	-.1570	3439.
.1850	478.	309.	141.	-349.	194.	-269.	.0104	-.0202	.0194	-.0251	-.0221	-.1706	3352.

ADLPIPE PAGE 2869

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.30.01.

S/RV PIPING KEWAUNEE CKW08F 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)	FX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	STRESS (PSI)	
.1860	402.	407.	168.	-391.	139.	-234.	.0074	-.0190	.0213	.0066	-.0028	-.1795	3314.	
.1870	311.	402.	184.	-404.	85.	-213.	.0028	-.0182	.0224	.0403	.0175	-.1832	3232.	
.1880	181.	547.	174.	-410.	-0.	-162.	-.0037	-.0163	.0231	.0716	.0366	-.1800	3070.	
.1890	48.	598.	160.	-410.	-84.	-91.	-.0116	-.0135	.0222	.0999	.0543	-.1705	2980.	
.1900	-55.	623.	161.	-389.	-128.	-43.	-.0203	-.0116	.0186	.1259	.0709	-.1568	2864.	
.1910	-138.	625.	168.	-355.	-155.	-7.	-.0295	-.0103	.0131	.1463	.0847	-.1398	2699.	
.1920	-197.	620.	169.	-327.	-161.	52.	-.0381	-.0079	.0070	.1600	.0930	-.1192	2561.	
.1930	-217.	605.	166.	-297.	-144.	122.	-.0453	-.0051	.0017	.1670	.0965	-.0960	2451.	
.1940	-227.	562.	159.	-242.	-124.	158.	-.0511	-.0039	-.0011	.1683	.0970	-.0726	2191.	
.1950	-237.	491.	135.	-160.	-114.	162.	-.0552	-.0043	-.0006	.1638	.0941	-.0492	1773.	
.1960	-245.	408.	87.	-69.	-112.	167.	-.0574	-.0050	.0030	.1533	.0864	-.0251	1480.	
.1970	-248.	313.	25.	27.	-112.	168.	-.0582	-.0059	.0078	.1376	.0745	-.0019	1421.	
.1980	-239.	204.	-33.	129.	-105.	137.	-.0588	-.0079	.0115	.1187	.0608	.0177	1498.	
.1990	-204.	97.	-70.	216.	-73.	92.	-.0537	-.0098	.0120	.0980	.0463	.0325	1714.	
.2000	-138.	14.	-84.	264.	-16.	75.	-.0613	-.0096	.0086	.0757	.0303	.0431	1912.	
.2010	-45.	-45.	-78.	275.	62.	78.	-.0632	-.0079	.0020	.0527	.0129	.0488	2032.	
.2020	71.	-93.	-55.	272.	159.	63.	-.0647	-.0063	-.0060	.0314	-.0041	.0486	2239.	
.2030	193.	-131.	-25.	267.	257.	31.	-.0648	-.0053	-.0125	.0133	-.0194	.0432	2590.	
.2040	288.	-149.	-6.	255.	319.	10.	-.0631	-.0040	-.0145	-.0019	-.0326	.0343	2845.	
.2050	344.	-149.	-9.	241.	334.	-5.	-.0594	-.0026	-.0108	-.0138	-.0436	.0224	2868.	
.2060	378.	-142.	-23.	238.	324.	-40.	-.0537	-.0026	-.0025	-.0207	-.0522	.0070	2811.	
.2070	401.	-127.	-39.	241.	302.	-93.	-.0469	-.0037	.0081	-.0227	-.0581	-.0113	2766.	
.2080	408.	-92.	-51.	225.	267.	-128.	-.0401	-.0044	.0186	-.0213	-.0612	-.0307	2587.	
.2090	409.	-36.	-50.	184.	228.	-136.	-.0346	-.0043	.0263	-.0170	-.0613	-.0503	2248.	
.2100	413.	28.	-26.	127.	213.	-143.	-.0304	-.0044	.0293	-.0094	-.0585	-.0699	1992.	
.2110	434.	93.	18.	61.	226.	-156.	-.0277	-.0052	.0276	.0008	-.0536	-.0891	1957.	
.2120	452.	162.	66.	-15.	245.	-156.	-.0260	-.0061	.0229	.0121	-.0477	-.1063	2024.	
.2130	454.	233.	109.	-97.	255.	-139.	-.0247	-.0068	.0177	.0239	-.0408	-.1206	2129.	
.2140	433.	294.	140.	-163.	248.	-129.	-.0231	-.0086	.0141	.0364	-.0324	-.1324	2254.	
.2150	384.	376.	151.	-201.	220.	-140.	-.0204	-.0119	.0134	.0488	-.0233	-.1413	2292.	
.2160	310.	362.	135.	-217.	170.	-155.	-.0167	-.0160	.0156	.0601	-.0150	-.1465	2201.	
.2170	222.	379.	101.	-220.	110.	-163.	-.0123	-.0202	.0194	.0697	-.0080	-.1479	2052.	
.2180	136.	386.	66.	-216.	52.	-170.	-.0081	-.0244	.0226	.0778	-.0017	-.1464	1949.	
.2190	64.	384.	44.	-210.	15.	-180.	-.0049	-.0284	.0232	.0841	.0040	-.1427	1928.	
.2200	19.	381.	35.	-215.	3.	-175.	-.0028	-.0310	.0203	.0881	.0078	-.1369	1928.	
.2210	2.	381.	38.	-233.	18.	-149.	-.0015	-.0321	.0141	.0897	.0091	-.1291	1929.	
.2220	6.	375.	50.	-252.	50.	-121.	-.0006	-.0323	.0062	.0892	.0086	-.1202	1975.	
.2230	16.	360.	65.	-261.	84.	-100.	.0004	-.0321	-.0012	.0872	.0073	-.1104	2030.	

ADLPIPE PAGE 2870

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.30.01.

S/RV PIPING KEWAUNEE CKW08F 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

.2140	433.	294.	140.	-163.	240.	-129.	-.0231	-.0086	.0141	.0364	-.0324	-.1324	2129.
.2150	384.	336.	151.	-201.	220.	-140.	-.0204	-.0119	.0134	.0488	-.0233	-.1413	2292.
.2160	310.	362.	135.	-217.	170.	-155.	-.0167	-.0160	.0156	.0601	-.0150	-.1465	2201.
.2170	222.	379.	101.	-220.	110.	-163.	-.0123	-.0202	.0194	.0697	-.0080	-.1479	2052.
.2180	136.	386.	66.	-216.	53.	-170.	-.0081	-.0244	.0226	.0778	-.0017	-.1464	1949.
.2190	64.	384.	44.	-210.	15.	-180.	-.0049	-.0284	.0232	.0841	.0040	-.1427	1928.
.2200	19.	381.	35.	-215.	3.	-175.	-.0028	-.0310	.0203	.0881	.0078	-.1369	1928.
.2210	2.	381.	38.	-233.	18.	-149.	-.0015	-.0321	.0141	.0897	.0091	-.1291	1929.
.2220	6.	375.	50.	-252.	50.	-121.	-.0006	-.0323	.0062	.0892	.0086	-.1202	1975.
.2230	16.	360.	65.	-261.	84.	-100.	.0004	-.0321	-.0012	.0872	.0073	-.1104	2030.

ADLPIPE PAGE 2870

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.01.

S/RV PIPING KEWAUNEE CKWOOD 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	71	MEMBER	1	SEQUENCE	106	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)
.2240	10.	338.	68.	-257.	101.	-80.		.0021	-.0316	-.0059	.0836	.0050	-.0994	2003.
.2250	6.	308.	52.	-239.	94.	-59.		.0048	-.0307	-.0069	.0782	.0008	-.0873	1837.
.2260	-14.	268.	20.	-203.	70.	-52.		.0085	-.0301	-.0048	.0716	-.0048	-.0750	1538.
.2270	-32.	219.	-15.	-155.	40.	-59.		.0125	-.0297	-.0012	.0642	-.0109	-.0634	1190.
.2280	-45.	173.	-42.	-114.	11.	-62.		.0161	-.0285	.0020	.0557	-.0170	-.0526	904.
.2290	-44.	136.	-54.	-90.	-9.	-49.		.0188	-.0260	.0029	.0460	-.0231	-.0427	717.
.2300	-21.	105.	-49.	-62.	-8.	-33.		.0203	-.0228	.0008	.0356	-.0291	-.0343	617.
.2310	21.	75.	-27.	-82.	13.	-23.		.0208	-.0195	-.0041	.0254	-.0347	-.0274	600.
.2320	66.	47.	2.	-88.	36.	-14.		.0206	-.0161	-.0099	.0153	-.0392	-.0215	670.
.2330	97.	23.	28.	-97.	46.	-1.		.0201	-.0126	-.0147	.0055	-.0421	-.0162	745.
.2340	112.	1.	45.	-100.	39.	7.		.0200	-.0095	-.0170	-.0032	-.0430	-.0118	747.
.2350	113.	-23.	54.	-91.	18.	2.		.0208	-.0072	-.0161	-.0103	-.0419	-.0084	645.
.2360	101.	-44.	53.	-75.	-16.	-9.		.0225	-.0054	-.0120	-.0160	-.0390	-.0059	537.
.2370	76.	-56.	46.	-60.	-61.	-14.		.0246	-.0033	-.0056	-.0199	-.0341	-.0042	605.
.2380	46.	-59.	40.	-50.	-108.	-13.		.0267	-.0008	.0018	-.0217	-.0268	-.0034	833.
.2390	14.	-54.	40.	-44.	-149.	-11.		.0282	.0019	.0088	-.0212	-.0170	-.0034	1086.
.2400	-17.	-44.	47.	-44.	-182.	-4.		.0288	.0050	.0146	-.0185	-.0053	-.0036	1303.
.2410	-50.	-28.	56.	-51.	-206.	12.		.0285	.0087	.0188	-.0140	.0075	-.0036	1482.
.2420	-90.	-10.	64.	-60.	-228.	33.		.0273	.0129	.0217	-.0078	.0216	-.0034	1654.
.2430	-144.	6.	69.	-66.	-252.	51.		.0253	.0171	.0237	-.0002	.0370	-.0031	1850.
.2440	-215.	18.	67.	-67.	-284.	69.		.0225	.0215	.0254	.0084	.0531	-.0022	2087.
.2450	-299.	25.	55.	-63.	-321.	89.		.0194	.0258	.0268	.0169	.0686	-.0002	2361.
.2460	-388.	24.	33.	-53.	-359.	105.		.0159	.0297	.0278	.0246	.0828	.0031	2630.
.2470	-474.	12.	9.	-36.	-391.	114.		.0124	.0329	.0279	.0308	.0951	.0077	2844.
.2480	-557.	-8.	-16.	-17.	-413.	121.		.0089	.0356	.0268	.0350	.1051	.0133	2997.
.2490	-621.	-32.	-42.	0.	-426.	130.		.0054	.0382	.0243	.0364	.1122	.0201	3101.
.2500	-672.	-65.	-67.	16.	-428.	138.		.0023	.0402	.0205	.0347	.1156	.0278	3133.
.2510	-702.	-107.	-90.	35.	-415.	139.		-.0003	.0412	.0157	.0296	.1147	.0363	3054.
.2520	-711.	-158.	-113.	57.	-389.	131.		-.0020	.0412	.0102	.0212	.1091	.0453	2886.
.2530	-701.	-215.	-139.	80.	-357.	119.		-.0024	.0404	.0046	.0095	.0988	.0546	2675.
.2540	-672.	-276.	-165.	103.	-318.	104.		-.0015	.0390	-.0006	-.0054	.0844	.0638	2437.
.2550	-624.	-341.	-188.	128.	-272.	82.		.0007	.0366	-.0055	-.0228	.0666	.0725	2172.
.2560	-556.	-407.	-210.	153.	-219.	53.		.0042	.0334	-.0100	-.0422	.0453	.0805	1900.
.2570	-466.	-471.	-228.	175.	-159.	24.		.0088	.0296	-.0141	-.0632	.0209	.0878	1652.
.2580	-358.	-529.	-241.	192.	-91.	-5.		.0144	.0255	-.0180	-.0846	-.0055	.0943	1476.
.2590	-238.	-581.	-246.	204.	-20.	-35.		.0205	.0210	-.0216	-.1053	-.0322	.0998	1446.
.2600	-114.	-625.	-244.	212.	47.	-63.		.0270	.0164	-.0248	-.1247	-.0581	.1045	1574.
.2610	9.	-660.	-239.	217.	109.	-86.		.0336	.0117	-.0275	-.1420	-.0827	.1087	1793.

ADLPIPE PAGE 2871

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.01.

S/RV PIPING KEWAUNEE CKWOOD 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

.2510	-702.	-107.	-90.	35.	-415.	139.	-.0003	.0412	.0157	.0296	.1147	.0363	3054.
.2520	-711.	-198.	-113.	57.	-389.	131.	-.0020	.0412	.0102	.0212	.1091	.0453	2886.
.2530	-701.	-215.	-139.	80.	-357.	119.	-.0024	.0404	.0046	.0095	.0988	.0546	2675.
.2540	-672.	-276.	-165.	103.	-318.	104.	-.0015	.0390	-.0006	-.0054	.0844	.0638	2437.
.2550	-624.	-341.	-188.	128.	-272.	82.	.0007	.0366	-.0055	-.0228	.0666	.0725	2172.
.2560	-556.	-407.	-210.	153.	-219.	53.	.0042	.0334	-.0100	-.0422	.0453	.0805	1900.
.2570	-466.	-471.	-228.	175.	-159.	24.	.0088	.0296	-.0141	-.0632	.0209	.0878	1652.
.2580	-358.	-529.	-241.	192.	-91.	-5.	.0144	.0255	-.0180	-.0846	-.0055	.0943	1476.
.2590	-238.	-581.	-246.	204.	-20.	-35.	.0205	.0210	-.0216	-.1053	-.0322	.0998	1446.
.2600	-114.	-625.	-244.	212.	47.	-63.	.0270	.0164	-.0248	-.1247	-.0581	.1045	1574.
.2610	0.	-660.	-238.	217.	109.	-86.	.0336	.0117	-.0275	-.1420	-.0827	.1087	1793.

ADLPIPE PAGE 2871

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.01.

S/RV PIPING KEWAUNEE CKNODE 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	71	MEMBER	1	SEQUENCE	106	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)	
.2620	127.	-685.	-230.	218.	166.	-107.		.0402	.0071	-.0295	-.1564	-.1054	.1121	2048.	
.2630	235.	-698.	-219.	217.	212.	-125.		.0464	.0027	-.0309	-.1668	-.1250	.1145	2286.	
.2640	324.	-698.	-203.	211.	244.	-135.		.0519	-.0011	-.0316	-.1730	-.1403	.1159	2437.	
.2650	392.	-682.	-183.	199.	260.	-135.		.0565	-.0041	-.0317	-.1748	-.1506	.1164	2465.	
.2660	440.	-653.	-161.	182.	264.	-128.		.0601	-.0063	-.0316	-.1719	-.1561	.1160	2404.	
.2670	472.	-613.	-136.	163.	261.	-115.		.0629	-.0079	-.0312	-.1645	-.1569	.1147	2287.	
.2680	484.	-561.	-109.	139.	248.	-96.		.0646	-.0086	-.0307	-.1527	-.1527	.1124	2092.	
.2690	471.	-498.	-81.	110.	222.	-67.		.0652	-.0083	-.0298	-.1372	-.1433	.1094	1787.	
.2700	435.	-426.	-52.	79.	182.	-31.		.0647	-.0072	-.0285	-.1186	-.1291	.1057	1399.	
.2710	379.	-351.	-26.	49.	134.	5.		.0635	-.0056	-.0268	-.0975	-.1113	.1010	997.	
.2720	308.	-273.	-7.	21.	81.	40.		.0617	-.0035	-.0247	-.0746	-.0907	.0952	649.	
.2730	219.	-193.	0.	-7.	22.	78.		.0593	-.0009	-.0226	-.0506	-.0678	.0890	564.	
.2740	116.	-114.	21.	-36.	-44.	119.		.0562	.0020	-.0205	-.0266	-.0426	.0830	921.	
.2750	4.	-42.	33.	-61.	-111.	157.		.0525	.0047	-.0190	-.0034	-.0164	.0774	1404.	
.2760	-102.	23.	43.	-82.	-168.	186.		.0485	.0070	-.0184	.0186	.0090	.0719	1834.	
.2770	-199.	83.	50.	-104.	-212.	213.		.0445	.0092	-.0187	.0390	.0327	.0665	2213.	
.2780	-290.	140.	58.	-128.	-250.	244.		.0404	.0114	-.0196	.0569	.0551	.0616	2590.	
.2790	-378.	187.	67.	-149.	-289.	269.		.0363	.0130	-.0206	.0719	.0761	.0572	2933.	
.2800	-456.	222.	72.	-162.	-320.	279.		.0327	.0136	-.0216	.0842	.0943	.0529	3165.	
.2810	-517.	248.	71.	-169.	-341.	281.		.0298	.0134	-.0222	.0936	.1083	.0487	3289.	
.2820	-566.	267.	64.	-173.	-357.	280.		.0275	.0128	-.0224	.1000	.1185	.0450	3380.	
.2830	-610.	277.	54.	-173.	-376.	274.		.0254	.0115	-.0223	.1036	.1258	.0418	3458.	
.2840	-644.	277.	47.	-166.	-393.	256.		.0234	.0094	-.0224	.1049	.1302	.0388	3463.	
.2850	-652.	271.	44.	-158.	-393.	231.		.0216	.0069	-.0233	.1040	.1304	.0356	3360.	
.2860	-631.	265.	43.	-156.	-375.	210.		.0202	.0047	-.0253	.1010	.1258	.0321	3179.	
.2870	-588.	260.	48.	-159.	-344.	190.		.0188	.0026	-.0282	.0960	.1176	.0281	2953.	
.2880	-527.	253.	63.	-164.	-305.	166.		.0174	.0006	-.0313	.0896	.1070	.0232	2675.	
.2890	-445.	247.	83.	-170.	-256.	140.		.0166	-.0012	-.0342	.0820	.0935	.0175	2351.	
.2900	-346.	243.	99.	-177.	-199.	119.		.0167	-.0025	-.0358	.0729	.0763	.0114	2032.	
.2910	-236.	239.	107.	-179.	-142.	97.		.0178	-.0037	-.0356	.0626	.0557	.0048	1730.	
.2920	-122.	230.	111.	-174.	-87.	67.		.0199	-.0051	-.0336	.0514	.0335	-.0021	1429.	
.2930	-7.	219.	113.	-162.	-34.	35.		.0224	-.0063	-.0301	.0395	.0106	-.0090	1177.	
.2940	100.	209.	110.	-150.	17.	9.		.0252	-.0070	-.0258	.0265	-.0136	-.0153	1055.	
.2950	226.	196.	102.	-139.	74.	-13.		.0279	-.0073	-.0219	.0126	-.0390	-.0210	1097.	
.2960	352.	178.	97.	-125.	144.	-40.		.0302	-.0076	-.0192	-.0019	-.0645	-.0262	1356.	
.2970	479.	158.	97.	-114.	223.	-65.		.0316	-.0076	-.0181	-.0164	-.0889	-.0307	1802.	
.2980	595.	139.	99.	-109.	302.	-77.		.0319	-.0067	-.0184	-.0312	-.1112	-.0336	2297.	
.2990	697.	120.	99.	-105.	377.	-81.		.0314	-.0056	-.0193	-.0458	-.1313	-.0346	2779.	

ADLPIPE PAGE 2872

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.01.

S/RV PIPING KEWAUNEE CKNODE 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

.2890	-44.	247.	83.	-170.	-256.	140.	.0166	-.0012	-.0342	.0820	.0935	.0175	2351.
.2900	-346.	243.	99.	-177.	-199.	119.	.0167	-.0025	-.0358	.0729	.0763	.0114	2032.
.2910	-216.	239.	107.	-179.	-142.	97.	.0178	-.0037	-.0356	.0626	.0557	.0048	1730.
.2920	-122.	230.	111.	-174.	-87.	67.	.0199	-.0051	-.0336	.0514	.0335	-.0021	1429.
.2930	-7.	219.	113.	-162.	-34.	35.	.0224	-.0063	-.0301	.0395	.0106	-.0090	1177.
.2940	100.	209.	110.	-150.	17.	9.	.0252	-.0070	-.0258	.0265	-.0136	-.0153	1055.
.2950	226.	196.	102.	-139.	74.	-13.	.0279	-.0073	-.0219	.0126	-.0390	-.0210	1097.
.2960	352.	178.	97.	-125.	144.	-40.	.0302	-.0076	-.0192	-.0019	-.0645	-.0262	1356.
.2970	479.	158.	97.	-114.	223.	-65.	.0316	-.0076	-.0181	-.0164	-.0889	-.0307	1802.
.2980	595.	139.	99.	-109.	302.	-77.	.0319	-.0067	-.0184	-.0312	-.1112	-.0336	2297.
.2990	697.	120.	99.	-105.	377.	-81.	.0314	-.0056	-.0193	-.0458	-.1315	-.0346	2779.

ADLPIPE PAGE 2072

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.01.

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	71	MEMBER	1	SEQUENCE	106	LOCATION	END	TYPE	RU						
TIME	FX	FY	FZ	FX	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)	
.3000	787.	93.	95.	-92.	450.	-91.		.0303	-.0048	-.0204	-.0594	-.1494	-.0341	3259.	
.3010	858.	61.	84.	-70.	516.	-106.		.0289	-.0043	-.0210	-.0713	-.1644	-.0320	3700.	
.3020	900.	31.	65.	-44.	562.	-113.		.0270	-.0035	-.0203	-.0812	-.1755	-.0281	4002.	
.3030	910.	6.	41.	-18.	585.	-107.		.0245	-.0022	-.0183	-.0887	-.1818	-.0224	4141.	
.3040	890.	-19.	17.	14.	595.	-102.		.0215	-.0009	-.0156	-.0931	-.1836	-.0156	4202.	
.3050	875.	-39.	-6.	49.	601.	-100.		.0180	.0003	-.0128	-.0941	-.1813	-.0083	4253.	
.3060	840.	-49.	-24.	76.	600.	-85.		.0138	.0022	-.0102	-.0916	-.1751	-.0004	4253.	
.3070	785.	-46.	-37.	94.	586.	-54.		.0087	.0051	-.0076	-.0858	-.1642	.0081	4145.	
.3080	712.	-34.	-40.	108.	557.	-18.		.0027	.0083	-.0052	-.0766	-.1483	.0168	3950.	
.3090	620.	-19.	-38.	122.	519.	15.		-.0037	.0113	-.0026	-.0642	-.1288	.0252	3713.	
.3100	534.	3.	-37.	135.	472.	49.		-.0101	.0143	.0004	-.0493	-.1073	.0333	3432.	
.3110	427.	31.	-39.	144.	409.	89.		-.0164	.0176	.0042	-.0329	-.0840	.0410	3083.	
.3120	307.	60.	-38.	153.	331.	125.		-.0227	.0206	.0086	-.0156	-.0587	.0477	2682.	
.3130	184.	90.	-32.	162.	244.	153.		-.0286	.0232	.0132	.0020	-.0322	.0529	2299.	
.3140	69.	119.	-23.	166.	158.	177.		-.0340	.0254	.0175	.0184	-.0068	.0568	2018.	
.3150	-33.	147.	-14.	164.	79.	200.		-.0387	.0273	.0210	.0324	.0161	.0735	1882.	
.3160	-118.	169.	-1.	158.	9.	213.		-.0426	.0284	.0235	.0456	.0365	.0607	1846.	
.3170	-187.	183.	18.	151.	-52.	212.		-.0457	.0286	.0250	.0513	.0546	.0602	1849.	
.3180	-241.	189.	39.	141.	-105.	206.		-.0479	.0281	.0257	.0548	.0694	.0587	1882.	
.3190	-278.	186.	56.	129.	-150.	193.		-.0489	.0267	.0258	.0555	.0796	.0562	1922.	
.3200	-296.	169.	67.	122.	-182.	163.		-.0485	.0240	.0255	.0478	.0851	.0528	1901.	
.3210	-294.	139.	75.	121.	-200.	116.		-.0468	.0201	.0247	.0380	.0865	.0482	1816.	
.3220	-280.	101.	81.	119.	-210.	65.		-.0441	.0154	.0237	.0244	.0845	.0430	1742.	
.3230	-256.	58.	84.	115.	-214.	15.		-.0405	.0104	.0223	.0074	.0794	.0379	1697.	
.3240	-217.	8.	84.	114.	-204.	-41.		-.0363	.0045	.0203	-.0118	.0713	.0327	1648.	
.3250	-160.	-49.	84.	117.	-175.	-106.		-.0313	-.0021	.0177	-.0321	.0607	.0274	1639.	
.3260	-96.	-104.	83.	119.	-138.	-168.		-.0261	-.0088	.0149	-.0523	.0487	.0224	1723.	
.3270	-37.	-153.	79.	117.	-102.	-217.		-.0210	-.0151	.0121	-.0716	.0367	.0181	1836.	
.3280	15.	-196.	73.	116.	-70.	-259.		-.0161	-.0212	.0097	-.0886	.0256	.0142	2032.	
.3290	63.	-236.	67.	120.	-35.	-301.		-.0114	-.0272	.0076	-.1022	.0154	.0107	2270.	
.3300	104.	-267.	56.	125.	-3.	-336.		-.0070	-.0328	.0060	-.1118	.0065	.0077	2494.	
.3310	131.	-284.	44.	126.	22.	-352.		-.0034	-.0375	.0050	-.1170	-.0004	.0055	2608.	
.3320	144.	-287.	35.	124.	38.	-354.		-.0007	-.0412	.0045	-.1174	-.0040	.0041	2624.	
.3330	144.	-279.	30.	123.	47.	-348.		.0011	-.0444	.0043	-.1128	-.0044	.0031	2591.	
.3340	137.	-260.	27.	120.	55.	-333.		.0020	-.0470	.0043	-.1036	-.0026	.0027	2491.	
.3350	122.	-229.	24.	113.	58.	-303.		.0022	-.0486	.0047	-.0905	.0009	.0030	2284.	
.3360	96.	-188.	21.	105.	53.	-263.		.0018	-.0496	.0054	-.0740	.0064	.0035	2004.	
.3370	60.	-143.	21.	99.	39.	-222.		.0006	-.0501	.0066	-.0547	.0141	.0040	1710.	

ADLPIPE PAGE 2073

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.01.

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

.3270	-37.	-153.	79.	117.	-102.	-217.	-.0221	-.0088	.0149	-.0523	.0487	.0224	1723.
.3280	15.	-196.	73.	116.	-70.	-259.	-.0161	-.0212	.0097	-.0886	.0256	.0142	2032.
.3290	63.	-236.	67.	120.	-35.	-301.	-.0114	-.0272	.0076	-.1022	.0154	.0107	2270.
.3300	104.	-267.	56.	125.	-3.	-336.	-.0070	-.0328	.0060	-.1118	.0065	.0077	2494.
.3310	131.	-284.	44.	126.	22.	-352.	-.0074	-.0375	.0050	-.1170	-.0004	.0055	2608.
.3320	144.	-287.	35.	124.	38.	-354.	-.0007	-.0412	.0045	-.1174	-.0040	.0041	2624.
.3330	144.	-279.	30.	123.	47.	-348.	.0011	-.0444	.0045	-.1128	-.0044	.0031	2591.
.3340	137.	-260.	27.	120.	55.	-333.	.0020	-.0470	.0043	-.1036	-.0026	.0027	2491.
.3350	122.	-229.	24.	113.	58.	-303.	.0022	-.0486	.0047	-.0905	.0009	.0030	2284.
.3360	96.	-188.	21.	105.	53.	-263.	.0018	-.0496	.0054	-.0740	.0064	.0035	2004.
.3370	60.	-143.	21.	99.	39.	-222.	.0006	-.0501	.0066	-.0547	.0141	.0040	1710.

ADLPIPE PAGE 2873

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.01.

S/RV PIPING KEWAUNEE GKWOSE 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	TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS
71	(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)
.3380	16.	-95.	21.	94.	20.	-178.	-.0010	-.0503	.0081	-.0338	.0227	.0045	1404.	
.3390	-20.	-44.	18.	88.	-1.	-128.	-.0028	-.0500	.0097	-.0124	.0308	.0052	1084.	
.3400	-60.	5.	14.	83.	-20.	-80.	-.0047	-.0496	.0109	.0083	.0378	.0057	815.	
.3410	-102.	48.	12.	80.	-35.	-38.	-.0066	-.0493	.0116	.0278	.0438	.0058	665.	
.3420	-126.	86.	14.	76.	-44.	-0.	-.0086	-.0489	.0115	.0449	.0486	.0055	614.	
.3430	-139.	120.	18.	70.	-47.	39.	-.0103	-.0484	.0108	.0588	.0510	.0051	644.	
.3440	-137.	145.	20.	64.	-41.	72.	-.0116	-.0481	.0096	.0690	.0505	.0044	727.	
.3450	-120.	158.	22.	63.	-26.	91.	-.0122	-.0483	.0081	.0755	.0473	.0031	791.	
.3460	-92.	161.	22.	65.	-6.	100.	-.0121	-.0489	.0067	.0782	.0418	.0014	835.	
.3470	-60.	156.	20.	69.	12.	107.	-.0114	-.0495	.0056	.0772	.0343	-.0004	889.	
.3480	-21.	143.	14.	75.	31.	108.	-.0101	-.0503	.0048	.0728	.0250	-.0022	940.	
.3490	26.	120.	8.	86.	55.	97.	-.0082	-.0516	.0040	.0658	.0141	-.0043	981.	
.3500	81.	91.	2.	99.	84.	79.	-.0060	-.0532	.0030	.0569	.0023	-.0066	1056.	
.3510	138.	61.	-2.	107.	114.	62.	-.0036	-.0545	.0017	.0466	-.0097	-.0089	1172.	
.3520	194.	34.	-3.	111.	142.	50.	-.0014	-.0554	.0001	.0360	-.0210	-.0114	1299.	
.3530	248.	8.	1.	113.	169.	35.	.0007	-.0561	-.0017	.0258	-.0309	-.0142	1433.	
.3540	298.	-16.	6.	114.	194.	18.	.0028	-.0568	-.0035	.0170	-.0393	-.0173	1571.	
.3550	338.	-36.	9.	113.	212.	3.	.0048	-.0571	-.0049	.0099	-.0459	-.0206	1675.	
.3560	362.	-48.	11.	109.	220.	-6.	.0066	-.0570	-.0056	.0052	-.0500	-.0239	1707.	
.3570	368.	-54.	12.	104.	214.	-15.	.0082	-.0568	-.0057	.0032	-.0509	-.0273	1660.	
.3580	357.	-55.	13.	100.	198.	-24.	.0095	-.0565	-.0053	.0043	-.0487	-.0309	1550.	
.3590	333.	-49.	14.	92.	174.	-29.	.0105	-.0561	-.0048	.0080	-.0440	-.0344	1386.	
.3600	298.	-36.	14.	79.	146.	-30.	.0112	-.0554	-.0043	.0144	-.0370	-.0380	1173.	
.3610	253.	-16.	18.	61.	114.	-28.	.0115	-.0546	-.0043	.0231	-.0275	-.0419	919.	
.3620	199.	11.	26.	37.	79.	-25.	.0113	-.0536	-.0046	.0339	-.0157	-.0461	630.	
.3630	138.	43.	35.	9.	41.	-18.	.0110	-.0525	-.0052	.0460	-.0024	-.0505	319.	
.3640	74.	79.	44.	-23.	3.	-9.	.0106	-.0514	-.0058	.0588	.0115	-.0549	176.	
.3650	9.	115.	51.	-55.	-35.	-4.	.0105	-.0506	-.0060	.0718	.0255	-.0596	455.	
.3660	-60.	150.	56.	-85.	-76.	-3.	.0107	-.0500	-.0056	.0847	.0395	-.0644	795.	
.3670	-132.	184.	57.	-115.	-121.	-2.	.0111	-.0494	-.0046	.0968	.0531	-.0692	1159.	
.3680	-202.	217.	55.	-144.	-166.	-2.	.0118	-.0488	-.0031	.1076	.0656	-.0738	1531.	
.3690	-268.	244.	51.	-170.	-208.	-6.	.0127	-.0484	-.0015	.1167	.0763	-.0782	1870.	
.3700	-323.	265.	46.	-193.	-242.	-16.	.0137	-.0481	-.0002	.1240	.0849	-.0824	2156.	
.3710	-368.	282.	42.	-216.	-268.	-26.	.0144	-.0474	.0003	.1291	.0914	-.0863	2403.	
.3720	-403.	295.	40.	-241.	-287.	-32.	.0148	-.0462	.0001	.1319	.0958	-.0894	2620.	
.3730	-426.	303.	39.	-264.	-298.	-37.	.0149	-.0447	-.0008	.1324	.0979	-.0916	2785.	
.3740	-434.	301.	40.	-282.	-299.	-46.	.0148	-.0431	-.0023	.1306	.0972	-.0926	2875.	
.3750	-429.	292.	38.	-293.	-290.	-57.	.0147	-.0413	-.0038	.1264	.0938	-.0923	2898.	

ADLPIPE PAGE 2874

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.01.

S/RV PIPING KEWAUNEE GKWOSE 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

.3640	74.	79.	44.	-23.	3.	-9.	.110	-.0514	-.0052	.0480	-.0024	-.0505	319.
.3650	9.	115.	51.	-35.	-35.	-4.	.105	-.0506	-.0060	.0718	.0255	-.0596	455.
.3660	-60.	150.	56.	-25.	-76.	-3.	.107	-.0500	-.0056	.0847	.0395	-.0644	795.
.3670	-132.	184.	57.	-115.	-121.	-2.	.111	-.0494	-.0046	.0968	.0531	-.0692	1159.
.3680	-207.	217.	55.	-144.	-166.	-2.	.118	-.0488	-.0031	.1076	.0656	-.0738	1531.
.3690	-267.	244.	51.	-170.	-208.	-6.	.127	-.0484	-.0015	.1167	.0763	-.0782	1870.
.3700	-323.	265.	46.	-193.	-242.	-16.	.137	-.0481	-.0002	.1240	.0849	-.0824	2156.
.3710	-368.	282.	42.	-216.	-268.	-26.	.144	-.0474	.0003	.1291	.0914	-.0863	2403.
.3720	-403.	295.	40.	-241.	-287.	-32.	.148	-.0462	.0001	.1319	.0958	-.0894	2620.
.3730	-426.	303.	39.	-264.	-298.	-37.	.149	-.0447	-.0008	.1324	.0979	-.0916	2785.
.3740	-434.	301.	40.	-282.	-299.	-46.	.148	-.0431	-.0023	.1306	.0972	-.0926	2875.
.3750	-429.	292.	38.	-293.	-290.	-57.	.147	-.0413	-.0038	.1264	.0938	-.0923	2898.

ADLPIPE PAGE 2874

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.01.

S/RV 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)	
.3760	-415.	277.	35.	-299.	-270.	-64.	.0146	-.0391	-.0049	.1201	.0880	-.0904	2880.	
.3770	-394.	256.	29.	-299.	-265.	-69.	.0145	-.0366	-.0053	.1117	.0801	-.0867	2823.	
.3780	-365.	228.	21.	-289.	-250.	-75.	.0146	-.0340	-.0048	.1015	.0704	-.0812	2712.	
.3790	-327.	191.	9.	-270.	-230.	-83.	.0148	-.0315	-.0036	.0895	.0586	-.0737	2539.	
.3800	-280.	148.	-5.	-244.	-206.	-89.	.0152	-.0289	-.0018	.0758	.0449	-.0643	2308.	
.3810	-224.	101.	-19.	-214.	-177.	-92.	.0154	-.0263	.0001	.0607	.0301	-.0531	2035.	
.3820	-169.	49.	-33.	-180.	-145.	-94.	.0154	-.0236	.0020	.0445	.0149	-.0404	1737.	
.3830	-110.	-6.	-45.	-143.	-111.	-95.	.0150	-.0210	.0036	.0275	-.0005	-.0266	1422.	
.3840	-49.	-64.	-57.	-104.	-72.	-95.	.0144	-.0186	.0048	.0099	-.0160	-.0117	1100.	
.3850	17.	-124.	-69.	-63.	-31.	-95.	.0134	-.0164	.0056	-.0080	-.0313	.0038	821.	
.3860	68.	-186.	-83.	-22.	8.	-96.	.0122	-.0146	.0063	-.0257	-.0454	.0194	684.	
.3870	112.	-246.	-97.	20.	40.	-97.	.0106	-.0130	.0070	-.0425	-.0575	.0350	743.	
.3880	144.	-304.	-112.	61.	67.	-97.	.0087	-.0117	.0078	-.0582	-.0676	.0502	924.	
.3890	165.	-359.	-129.	102.	87.	-100.	.0066	-.0109	.0086	-.0725	-.0757	.0646	1162.	
.3900	175.	-411.	-148.	141.	102.	-107.	.0044	-.0104	.0095	-.0848	-.0816	.0771	1422.	
.3910	175.	-453.	-164.	174.	113.	-114.	.0020	-.0098	.0102	-.0947	-.0846	.0870	1643.	
.3920	160.	-481.	-177.	195.	114.	-116.	-.0008	-.0088	.0107	-.1018	-.0844	.0940	1769.	
.3930	132.	-498.	-186.	207.	107.	-115.	-.0040	-.0076	.0110	-.1062	-.0811	.0979	1810.	
.3940	95.	-504.	-193.	213.	96.	-116.	-.0074	-.0063	.0110	-.1075	-.0751	.0986	1815.	
.3950	52.	-499.	-196.	211.	82.	-120.	-.0108	-.0050	.0108	-.1058	-.0669	.0961	1785.	
.3960	-0.	-481.	-197.	200.	61.	-120.	-.0144	-.0033	.0106	-.1012	-.0564	.0904	1679.	
.3970	-66.	-451.	-196.	181.	29.	-115.	-.0180	-.0012	.0107	-.0939	-.0434	.0820	1505.	
.3980	-137.	-411.	-192.	156.	-10.	-111.	-.0216	.0011	.0110	-.0843	-.0287	.0709	1334.	
.3990	-208.	-364.	-186.	128.	-48.	-110.	-.0250	.0032	.0113	-.0729	-.0134	.0575	1220.	
.4000	-274.	-311.	-179.	95.	-85.	-107.	-.0280	.0055	.0116	-.0603	.0015	.0422	1161.	

MAXIMUM VALUE OF STRESS OCCURS AT

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)
.1340	-892.	-4.	-85.	-98.	-701.	-95.	.0137	.0349	.0146	-.0027	.1241	-.0164	4969.

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)

ADLPIPE PAGE 2875

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.01.

S/RV 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

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)
.1340	-892.	-4.	-85.	-88.	-701.	-95.	.0137	.0349	.0146	-.0027	.1241	-.0164	4969.

SECTION	72	MEMBER	1	SEQUENCE	106	LOCATION	BEG	TYPE	EL	DZ	RX	RY	RZ	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)	STRESS (PSI)	

ADLPIPE PAGE 2075

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02. 18.30.01.

S/RV PIPING KEWAUNEE CKN00F 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	72	MEMBER	1	SEQUENCE	106	LOCATION	BEG	TYPE	EL	DZ	RX	RY	RZ	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)	STRESS (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	-0.	0.	-0.	0.	-0.	-0.	.0000	.0000	-.0000	-.0000	-.0000	.0000	.0000	0.
.0020	-0.	0.	-0.	0.	-0.	-0.	.0000	.0000	-.0000	-.0000	-.0000	.0000	.0000	1.
.0030	0.	0.	-0.	0.	-0.	-0.	.0000	.0000	.0000	-.0000	.0000	.0000	.0000	1.
.0040	1.	0.	-0.	0.	0.	-0.	-.0000	.0000	.0000	-.0000	.0000	.0000	.0000	2.
.0050	2.	1.	1.	-0.	1.	0.	-.0000	-.0000	.0000	-.0000	.0000	.0000	.0000	8.
.0060	5.	1.	2.	-1.	3.	0.	-.0001	-.0000	-.0000	-.0000	.0001	.0001	.0001	20.
.0070	10.	2.	4.	-1.	5.	1.	-.0003	-.0000	-.0001	.0000	.0003	.0002	.0002	38.
.0080	15.	4.	6.	-1.	9.	1.	-.0006	-.0001	-.0003	-.0000	.0005	.0004	.0004	63.
.0090	22.	6.	8.	-2.	13.	1.	-.0010	-.0002	-.0007	-.0001	.0008	.0006	.0006	92.
.0100	34.	10.	12.	-3.	18.	3.	-.0016	-.0003	-.0013	-.0001	.0013	.0009	.0009	132.
.0110	50.	16.	18.	-6.	26.	5.	-.0026	-.0004	-.0021	-.0001	.0021	.0013	.0013	189.
.0120	69.	24.	24.	-9.	35.	8.	-.0040	-.0006	-.0033	.0000	.0034	.0021	.0021	260.
.0130	89.	34.	30.	-14.	45.	11.	-.0058	-.0009	-.0048	.0002	.0051	.0034	.0034	337.
.0140	108.	43.	34.	-19.	54.	15.	-.0080	-.0014	-.0069	.0004	.0069	.0054	.0054	410.
.0150	123.	50.	34.	-25.	59.	19.	-.0105	-.0019	-.0093	.0008	.0086	.0077	.0077	466.
.0160	131.	55.	28.	-28.	61.	20.	-.0129	-.0023	-.0120	.0013	.0101	.0099	.0099	486.
.0170	126.	57.	15.	-28.	56.	19.	-.0149	-.0023	-.0145	.0018	.0110	.0114	.0114	453.
.0180	106.	57.	-4.	-23.	43.	12.	-.0162	-.0019	-.0164	.0022	.0112	.0120	.0120	350.
.0190	70.	55.	-27.	-17.	20.	4.	-.0162	-.0011	-.0171	.0024	.0101	.0114	.0114	185.
.0200	21.	48.	-47.	-13.	-11.	-5.	-.0146	-.0002	-.0158	.0021	.0077	.0097	.0097	123.
.0210	-32.	38.	-52.	-12.	-44.	-11.	-.0114	.0005	-.0121	.0016	.0043	.0070	.0070	329.
.0220	-68.	29.	-38.	-22.	-78.	-9.	-.0067	.0010	-.0061	.0019	.0003	.0036	.0036	570.
.0230	-90.	23.	-3.	-37.	-103.	-4.	-.0014	.0010	.0016	.0025	-.0035	.0006	.0006	762.
.0240	-112.	13.	49.	-52.	-109.	1.	.0038	.0005	.0099	.0027	-.0070	-.0011	-.0011	841.
.0250	-152.	-6.	88.	-62.	-115.	5.	.0085	-.0004	.0167	.0016	-.0118	-.0021	-.0021	909.
.0260	-201.	-25.	84.	-65.	-150.	9.	.0133	-.0011	.0203	-.0004	-.0187	-.0043	-.0043	1139.
.0270	-225.	-35.	60.	-61.	-199.	18.	.0175	-.0012	.0208	-.0007	-.0255	-.0090	-.0090	1452.
.0280	-257.	-46.	53.	-39.	-207.	17.	.0196	-.0004	.0194	-.0005	-.0284	-.0144	-.0144	1472.
.0290	-345.	-62.	17.	6.	-202.	-6.	.0200	.0006	.0162	-.0032	-.0297	-.0187	-.0187	1407.
.0300	-429.	-73.	-105.	51.	-277.	-22.	.0223	.0012	.0112	-.0050	-.0353	-.0233	-.0233	1968.
.0310	-461.	-104.	-182.	78.	-351.	-11.	.0259	.0007	.0082	-.0051	-.0423	-.0293	-.0293	2501.
.0320	-463.	-131.	-162.	94.	-332.	-2.	.0285	-.0003	.0100	-.0064	-.0422	-.0338	-.0338	2401.
.0330	-430.	-113.	-126.	100.	-264.	-12.	.0304	-.0014	.0156	-.0073	-.0350	-.0343	-.0343	1970.
.0340	-328.	-93.	-49.	79.	-185.	-1.	.0324	-.0039	.0230	-.0051	-.0284	-.0325	-.0325	1401.
.0350	-187.	-128.	103.	36.	-83.	49.	.0334	-.0080	.0292	-.0018	-.0256	-.0311	-.0311	716.
.0360	-72.	-164.	189.	9.	1.	88.	.0318	-.0108	.0302	.0017	-.0215	-.0306	-.0306	614.
.0370	15.	-138.	139.	26.	44.	75.	.0268	-.0095	.0241	.0084	-.0110	-.0304	-.0304	634.

ADLPIPE PAGE 2076

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02. 18.30.01.

S/RV PIPING KEWAUNEE CKN00F 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

.0270	-225.	-35.	60.	-61.	-190.	18.	.0175	-.0012	.0208	-.0007	-.0255	-.0090	1452.
.0280	-257.	-46.	53.	-79.	-207.	17.	.0196	-.0004	.0194	-.0005	-.0284	-.0144	1472.
.0290	-345.	-62.	17.	6.	-207.	-6.	.0200	.0006	.0162	-.0032	-.0297	-.0187	1407.
.0300	-420.	-73.	-105.	51.	-277.	-22.	.0223	.0012	.0112	-.0050	-.0355	-.0233	1968.
.0310	-461.	-104.	-182.	78.	-351.	-11.	.0259	.0007	.0082	-.0051	-.0423	-.0293	2501.
.0320	-467.	-131.	-162.	94.	-332.	-2.	.0285	-.0003	.0100	-.0064	-.0422	-.0338	2401.
.0330	-430.	-113.	-126.	100.	-264.	-12.	.0304	-.0014	.0156	-.0073	-.0350	-.0343	1970.
.0340	-320.	-93.	-49.	79.	-185.	-1.	.0324	-.0039	.0230	-.0051	-.0284	-.0325	1401.
.0350	-187.	-128.	103.	36.	-83.	49.	.0334	-.0080	.0292	-.0018	-.0256	-.0311	716.
.0360	-72.	-164.	189.	9.	1.	38.	.0318	-.0108	.0302	.0017	-.0215	-.0306	614.
.0370	15.	-138.	138.	26.	44.	75.	.0268	-.0095	.0241	.0084	-.0110	-.0304	634.

ADLPIPE PAGE 2876

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.30.01.

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	72	MEMBER	1	SEQUENCE	106	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)			
.0380	87.	-100.	70.	70.	105.	39.	.0178	-.0057	.0124	.0177	.0045	-.0307	920.			
.0390	101.	-118.	19.	123.	165.	8.	.0066	-.0022	-.0032	.0252	.0181	-.0302	1431.			
.0400	35.	-160.	-181.	181.	113.	-27.	-.0025	.0008	-.0209	.0300	.0254	-.0282	1499.			
.0410	5.	-180.	-414.	229.	1.	-62.	-.0077	.0044	-.0342	.0369	.0290	-.0268	1648.			
.0420	67.	-184.	-422.	247.	30.	-89.	-.0114	.0083	-.0356	.0442	.0384	-.0265	1839.			
.0430	160.	-167.	-279.	231.	179.	-115.	-.0139	.0114	-.0249	.0488	.0551	-.0240	2182.			
.0440	275.	-118.	-169.	169.	282.	-123.	-.0125	.0121	-.0078	.0519	.0678	-.0166	2443.			
.0450	440.	-108.	27.	56.	357.	-71.	-.0083	.0090	.0112	.0534	.0686	-.0074	2565.			
.0460	612.	-146.	104.	-61.	459.	9.	-.0059	.0050	.0268	.0518	.0651	.0005	3226.			
.0470	652.	-124.	364.	-105.	501.	18.	-.0077	.0052	.0323	.0471	.0688	.0081	3564.			
.0480	575.	-20.	188.	-69.	451.	-52.	-.0134	.0100	.0262	.0401	.0767	.0161	3196.			
.0490	471.	49.	57.	-23.	383.	-103.	-.0210	.0143	.0129	.0298	.0765	.0223	2764.			
.0500	351.	39.	-41.	-7.	271.	-92.	-.0275	.0150	-.0033	.0165	.0658	.0271	1996.			
.0510	209.	50.	-247.	-5.	89.	-73.	-.0314	.0145	-.0176	.0026	.0540	.0334	801.			
.0520	111.	132.	-358.	-13.	-11.	-79.	-.0336	.0146	-.0225	-.0116	.0479	.0413	562.			
.0530	108.	225.	-194.	-56.	53.	-73.	-.0338	.0135	-.0149	-.0272	.0447	.0485	736.			
.0540	159.	279.	17.	-146.	109.	-17.	-.0294	.0092	-.0001	-.0423	.0368	.0544	1276.			
.0550	215.	305.	129.	-257.	73.	71.	-.0211	.0030	.0156	-.0550	.0229	.0591	1925.			
.0560	265.	329.	296.	-346.	78.	141.	-.0145	-.0022	.0299	-.0673	.0091	.0618	2658.			
.0570	269.	370.	477.	-303.	137.	164.	-.0125	-.0042	.0384	-.0789	.0015	.0619	3050.			
.0580	177.	416.	424.	-364.	93.	153.	-.0135	-.0033	.0360	-.0865	-.0026	.0590	2827.			
.0590	9.	418.	197.	-313.	-60.	141.	-.0156	-.0017	.0240	-.0907	-.0096	.0532	2427.			
.0600	-171.	372.	34.	-250.	-201.	134.	-.0180	-.0003	.0092	-.0947	-.0218	.0448	2419.			
.0610	-328.	332.	-93.	-183.	-317.	115.	-.0190	.0018	-.0025	-.0967	-.0329	.0341	2673.			
.0620	-443.	312.	-246.	-124.	-420.	90.	-.0173	.0049	-.0071	-.0934	-.0369	.0209	3108.			
.0630	-479.	284.	-257.	-92.	-423.	79.	-.0129	.0071	-.0005	-.0867	-.0364	.0062	3066.			
.0640	-424.	247.	-64.	-104.	-327.	90.	-.0058	.0070	.0161	-.0797	-.0383	-.0071	2469.			
.0650	-310.	209.	152.	-153.	-242.	125.	.0038	.0043	.0360	-.0714	-.0437	-.0170	2177.			
.0660	-187.	148.	310.	-713.	-180.	182.	.0124	.0003	.0525	-.0602	-.0475	-.0257	2316.			
.0670	-85.	82.	453.	-258.	-84.	218.	.0160	-.0020	.0608	-.0484	-.0450	-.0347	2316.			
.0680	-57.	70.	482.	-197.	-21.	190.	.0143	-.0005	.0564	-.0370	-.0399	-.0429	1910.			
.0690	-115.	79.	300.	-107.	-80.	128.	.0092	.0030	.0381	-.0250	-.0371	-.0495	1286.			
.0700	-235.	27.	30.	-7.	-201.	86.	.0021	.0053	.0116	-.0128	-.0375	-.0547	1521.			
.0710	-362.	-53.	-193.	82.	-294.	55.	-.0055	.0062	-.0146	-.0019	-.0377	-.0570	2162.			
.0720	-432.	-65.	-760.	152.	-354.	2.	-.0103	.0072	-.0333	.0085	-.0354	-.0547	2681.			
.0730	-410.	-40.	-415.	176.	-353.	-43.	-.0107	.0068	-.0397	.0198	-.0304	-.0490	2759.			
.0740	-309.	-64.	-290.	176.	-256.	-36.	-.0071	.0028	-.0326	.0307	-.0252	-.0416	2035.			
.0750	-164.	-111.	-72.	54.	-126.	1.	.0001	-.0035	-.0167	.0406	-.0230	-.0324	958.			

ADLPIPE PAGE 2877

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.30.01.

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

.0650	-310.	209.	152.	-153.	-242.	125.	.0038	.0070	.0161	-.0797	-.0383	-.0071	2469.
.0660	-187.	148.	310.	-213.	-180.	148.	.0124	.0003	.0525	-.0602	-.0473	-.0257	2316.
.0670	-85.	82.	453.	-218.	-84.	218.	.0160	-.0020	.0608	-.0484	-.0450	-.0347	2316.
.0680	-57.	70.	482.	-197.	-21.	190.	.0143	-.0005	.0564	-.0370	-.0399	-.0429	1910.
.0690	-115.	79.	300.	-107.	-80.	128.	.0092	.0030	.0381	-.0250	-.0371	-.0495	1286.
.0700	-235.	27.	30.	-7.	-201.	86.	.0021	.0053	.0116	-.0128	-.0373	-.0547	1521.
.0710	-362.	-53.	-193.	82.	-294.	55.	-.0055	.0062	-.0146	-.0019	-.0377	-.0570	2162.
.0720	-432.	-65.	-360.	152.	-354.	2.	-.0103	.0072	-.0333	.0035	-.0354	-.0547	2681.
.0730	-410.	-40.	-415.	176.	-352.	-43.	-.0107	.0068	-.0397	.0198	-.0304	-.0490	2759.
.0740	-309.	-64.	-290.	136.	-256.	-36.	-.0071	.0028	-.0326	.0307	-.0252	-.0416	2035.
.0750	-164.	-111.	-72.	54.	-126.	1.	.0001	-.0035	-.0167	.0406	-.0230	-.0324	958.

ADLPIPE PAGE 2877

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.30.01.

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	FX	FY	FZ	FX	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)	
.0760	-4.	-115.	125.	-27.	-23.	19.	.0091	-.0090	.0012	.0502	-.0234	-.0217	279.	
.0770	132.	-109.	294.	-83.	79.	18.	.0159	-.0126	.0150	.0595	-.0215	-.0123	811.	
.0780	195.	-130.	380.	-101.	166.	7.	.0181	-.0143	.0194	.0678	-.0152	-.0055	1352.	
.0790	167.	-143.	280.	-73.	154.	-29.	.0165	-.0139	.0115	.0755	-.0082	.0005	1202.	
.0800	80.	-135.	60.	-10.	57.	-87.	.0124	-.0119	-.0058	.0819	-.0042	.0067	731.	
.0810	-27.	-153.	-136.	59.	-32.	-136.	.0064	-.0102	-.0256	.0867	-.0011	.0119	1051.	
.0820	-126.	-193.	-300.	112.	-90.	-162.	.0007	-.0093	-.0414	.0908	.0051	.0150	1510.	
.0830	-166.	-200.	-423.	144.	-124.	-183.	-.0019	-.0082	-.0485	.0956	.0141	.0160	1834.	
.0840	-114.	-180.	-389.	142.	-82.	-191.	-.0006	-.0075	-.0438	.0998	.0228	.0151	1754.	
.0850	-3.	-188.	-201.	104.	34.	-166.	.0040	-.0087	-.0290	.1022	.0296	.0119	1384.	
.0860	105.	-226.	-32.	48.	130.	-114.	.0110	-.0112	-.0103	.1041	.0348	.0066	1250.	
.0870	180.	-253.	60.	8.	179.	-72.	.0183	-.0125	.0066	.1058	.0395	-.0008	1344.	
.0880	204.	-264.	133.	11.	224.	-61.	.0232	-.0116	.0185	.1054	.0444	-.0105	1616.	
.0890	149.	-280.	116.	56.	220.	-73.	.0253	-.0089	.0228	.1027	.0495	-.0220	1709.	
.0900	24.	-310.	-61.	127.	137.	-87.	.0260	-.0057	.0192	.0992	.0531	-.0344	1433.	
.0910	-102.	-345.	-259.	199.	27.	-95.	.0260	-.0029	.0129	.0946	.0542	-.0465	1545.	
.0920	-171.	-361.	-334.	255.	-23.	-97.	.0255	-.0008	.0095	.0884	.0551	-.0570	1907.	
.0930	-167.	-344.	-323.	277.	-8.	-86.	.0252	-.0000	.0113	.0819	.0581	-.0645	2018.	
.0940	-89.	-315.	-254.	252.	45.	-44.	.0255	-.0014	.0176	.0764	.0621	-.0690	1807.	
.0950	52.	-295.	-75.	190.	148.	29.	.0254	-.0047	.0262	.0705	.0636	-.0712	1690.	
.0960	207.	-269.	136.	126.	261.	102.	.0239	-.0080	.0320	.0635	.0619	-.0719	2141.	
.0970	308.	-223.	220.	95.	309.	148.	.0200	-.0091	.0296	.0565	.0593	-.0723	2476.	
.0980	331.	-176.	170.	108.	298.	165.	.0127	-.0076	.0176	.0495	.0574	-.0739	2484.	
.0990	292.	-140.	71.	155.	263.	160.	.0027	-.0039	-.0017	.0417	.0543	-.0765	2398.	
.1000	218.	-98.	-69.	215.	191.	139.	-.0078	.0009	-.0242	.0333	.0471	-.0787	2226.	
.1010	145.	-58.	-221.	260.	92.	124.	-.0165	.0057	-.0450	.0257	.0360	-.0800	2107.	
.1020	108.	-36.	-274.	270.	40.	131.	-.0225	.0094	-.0584	.0190	.0235	-.0808	2104.	
.1030	118.	-12.	-200.	246.	56.	145.	-.0255	.0125	-.0621	.0129	.0105	-.0806	2024.	
.1040	150.	38.	-84.	202.	84.	149.	-.0246	.0158	-.0580	.0073	-.0041	-.0783	1840.	
.1050	172.	79.	34.	144.	91.	153.	-.0205	.0185	-.0497	.0019	-.0220	-.0743	1597.	
.1060	152.	79.	147.	85.	79.	162.	-.0148	.0205	-.0405	-.0039	-.0424	-.0690	1388.	
.1070	72.	77.	192.	47.	22.	148.	-.0090	.0229	-.0333	-.0098	-.0630	-.0611	1089.	
.1080	-70.	106.	139.	36.	-82.	93.	-.0036	.0264	-.0293	-.0165	-.0819	-.0496	898.	
.1090	-240.	131.	60.	30.	-199.	31.	.0012	.0293	-.0270	-.0241	-.0995	-.0356	1419.	
.1100	-357.	117.	40.	-1.	-298.	10.	.0058	.0302	-.0242	-.0277	-.1163	-.0212	2072.	
.1110	-432.	126.	49.	-48.	-366.	-12.	.0101	.0300	-.0197	-.0302	-.1301	-.0030	2571.	
.1120	-477.	101.	86.	-103.	-388.	-51.	.0135	.0289	-.0135	-.0340	-.1398	.0198	2815.	
.1130	-467.	199.	193.	-179.	-360.	-56.	.0159	.0263	-.0069	-.0354	-.1470	.0412	2826.	

ADLPIPE PAGE 2878

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83.12/02.

18.30.01.

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

.1030	118.	-12.	-200.	246.	118.	56.	145.	-.0255	.0125	-.0621	.0129	.0105	-.0806	2024.
.1040	150.	38.	-84.	202.	84.	149.	-.0246	.0158	-.0580	.0073	-.0041	-.0783	1840.	
.1050	172.	79.	34.	144.	91.	153.	-.0205	.0185	-.0497	.0019	-.0220	-.0743	1597.	
.1060	152.	79.	147.	85.	79.	162.	-.0148	.0205	-.0405	-.0039	-.0424	-.0690	1388.	
.1070	72.	77.	192.	47.	22.	148.	-.0090	.0229	-.0533	-.0098	-.0630	-.0611	1089.	
.1080	-70.	106.	139.	36.	-82.	93.	-.0036	.0264	-.0293	-.0165	-.0819	-.0496	898.	
.1090	-240.	131.	60.	30.	-199.	31.	.0012	.0293	-.0270	-.0241	-.0995	-.0356	1419.	
.1100	-357.	117.	40.	-1.	-295.	10.	.0058	.0302	-.0242	-.0277	-.1165	-.0212	2072.	
.1110	-432.	126.	49.	-48.	-366.	-12.	.0101	.0300	-.0197	-.0302	-.1501	-.0030	2571.	
.1120	-477.	181.	86.	-103.	-388.	-51.	.0135	.0289	-.0135	-.0340	-.1598	.0198	2815.	
.1130	-467.	199.	193.	-179.	-360.	-56.	.0159	.0263	-.0069	-.0354	-.1470	.0412	2826.	

ADLPIPE PAGE 2879

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.30.01.

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	72	MEMBER	1	SEQUENCE	106	LOCATION	BEG	TYPE	EL	DX	DY	DZ	RX	RY	RZ	STRESS
TIME	(SEC)	FX	FY	FZ	MX	MY	MZ	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)		
.1140	-430.	172.	287.	-252.	-338.	-30.	.0177	.0236	-.0029	-.0327	-.1521	.0570	2945.			
.1150	-424.	188.	267.	-279.	-359.	-45.	.0181	.0239	-.0036	-.0289	-.1529	.0693	3178.			
.1160	-461.	236.	187.	-257.	-383.	-106.	.0165	.0268	-.0080	-.0262	-.1487	.0788	3298.			
.1170	-527.	208.	113.	-222.	-395.	-141.	.0138	.0293	-.0141	-.0233	-.1412	.0821	3304.			
.1180	-595.	116.	-35.	-180.	-461.	-144.	.0129	.0316	-.0200	-.0165	-.1326	.0785	3587.			
.1190	-667.	64.	-207.	-113.	-523.	-185.	.0142	.0357	-.0211	-.0106	-.1215	.0722	3937.			
.1200	-678.	57.	-247.	-45.	-484.	-251.	.0174	.0406	-.0131	-.0072	-.1063	.0646	3805.			
.1210	-568.	7.	-155.	-31.	-372.	-249.	.0233	.0432	.0035	-.0004	-.0880	.0517	3123.			
.1220	-385.	-109.	-2.	-60.	-226.	-181.	.0308	.0435	.0246	.0088	-.0674	.0335	2056.			
.1230	-174.	-152.	147.	-74.	-75.	-139.	.0373	.0454	.0445	.0178	-.0460	.0151	1214.			
.1240	13.	-174.	309.	-53.	100.	-142.	.0396	.0489	.0579	.0231	-.0238	-.0011	1264.			
.1250	130.	-178.	368.	-11.	225.	-123.	.0372	.0516	.0592	.0270	-.0007	-.0180	1788.			
.1260	160.	-273.	188.	59.	209.	-84.	.0321	.0542	.0465	.0323	.0216	-.0362	1620.			
.1270	114.	-303.	-89.	186.	140.	-111.	.0245	.0593	.0255	.0331	.0425	-.0510	1827.			
.1280	85.	-246.	-299.	329.	122.	-188.	.0163	.0655	.0046	.0299	.0613	-.0603	2770.			
.1290	121.	-233.	-403.	405.	142.	-199.	.0102	.0674	-.0100	.0263	.0792	-.0665	3292.			
.1300	225.	-281.	-423.	395.	192.	-126.	.0076	.0638	-.0151	.0242	.0953	-.0694	3179.			
.1310	409.	-247.	-312.	345.	296.	-64.	.0083	.0586	-.0100	.0215	.1071	-.0645	3195.			
.1320	629.	-128.	-36.	281.	489.	-47.	.0101	.0530	.0020	.0135	.1152	-.0506	3940.			
.1330	828.	-58.	203.	189.	650.	5.	.0123	.0446	.0124	.0047	.1209	-.0333	4712.			
.1340	941.	-74.	262.	70.	701.	25.	.0137	.0349	.0146	-.0027	.1241	-.0164	4969.			
.1350	955.	-34.	222.	73.	681.	112.	.0124	.0290	.0074	-.0118	.1231	.0022	4832.			
.1360	891.	107.	122.	112.	624.	36.	.0082	.0276	-.0073	-.0234	.1178	.0242	4423.			
.1370	759.	187.	-20.	147.	539.	-19.	.0024	.0250	-.0255	-.0356	.1106	.0463	3892.			
.1380	593.	161.	-229.	137.	405.	1.	-.0016	.0193	-.0425	-.0444	.1005	.0662	2979.			
.1390	487.	177.	-322.	109.	307.	10.	-.0021	.0141	-.0517	-.0534	.0853	.0859	2268.			
.1400	461.	292.	-226.	71.	301.	-26.	.0010	.0110	-.0498	-.0651	.0669	.1053	2160.			
.1410	491.	368.	-65.	-5.	325.	-19.	.0074	.0069	-.0395	-.0744	.0494	.1192	2269.			
.1420	501.	331.	84.	-107.	347.	54.	.0152	.0011	-.0255	-.0815	.0328	.1251	2557.			
.1430	469.	325.	203.	-171.	338.	39.	.0232	-.0019	-.0125	-.0893	.0122	.1271	2706.			
.1440	380.	403.	296.	-176.	297.	49.	.0297	-.0009	-.0041	-.1007	-.0127	.1275	2430.			
.1450	246.	421.	292.	-164.	206.	30.	.0340	.0003	-.0029	-.1119	-.0357	.1228	1849.			
.1460	56.	338.	147.	-151.	50.	67.	.0363	.0007	-.0082	-.1194	-.0535	.1112	1203.			
.1470	-160.	293.	-17.	-101.	-99.	63.	.0370	.0036	-.0155	-.1283	-.0689	.0971	1083.			
.1480	-338.	347.	-115.	-74.	-220.	-1.	.0378	.0094	-.0203	-.1384	-.0858	.0828	1537.			
.1490	-463.	346.	-146.	20.	-305.	-19.	.0396	.0134	-.0196	-.1462	-.1011	.0652	2128.			
.1500	-536.	235.	-143.	11.	-353.	46.	.0424	.0140	-.0125	-.1494	-.1102	.0437	2479.			
.1510	-530.	181.	-81.	-8.	-354.	89.	.0459	.0157	.0003	-.1496	-.1139	.0234	2542.			

ADLPIPE PAGE 2879

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.30.01.

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

.1400	401.	368.	-65.	-5.	325.	-19.	.0074	.0069	-.0395	-.0744	.0494	.1192	2269.
.1410	401.	331.	84.	-107.	347.	54.	.152	.0011	-.0255	-.0815	.0328	.1251	2557.
.1420	501.	325.	203.	-171.	338.	89.	.0232	-.0019	-.0125	-.0893	.0122	.1271	2706.
.1430	460.	403.	296.	-176.	297.	49.	.0297	-.0009	-.0041	-.1007	-.0127	.1275	2430.
.1440	780.	421.	292.	-164.	206.	30.	.0340	.0003	-.0029	-.1119	-.0357	.1228	1849.
.1450	247.	338.	147.	-151.	50.	67.	.0363	.0007	-.0082	-.1194	-.0535	.1112	1203.
.1460	56.	293.	-17.	-101.	-99.	63.	.0370	.0036	-.0155	-.1283	-.0689	.0971	1083.
.1470	-160.	347.	-115.	-24.	-220.	-1.	.0378	.0094	-.0203	-.1384	-.0858	.0828	1537.
.1480	-338.	346.	-146.	20.	-305.	-19.	.0396	.0134	-.0196	-.1462	-.1011	.0652	2128.
.1490	-463.	235.	-143.	11.	-353.	46.	.0424	.0140	-.0125	-.1494	-.1102	.0437	2479.
.1500	-536.	181.	-81.	-8.	-354.	89.	.0459	.0157	.0003	-.1496	-.1139	.0234	2542.

ADLPIPE PAGE 2079

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/3/12/02.

18.30.01.

S/RV 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	BEG	TYPE	EL	TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	FX	RY	RZ	STRESS
72	1	106					(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)
.1520	-450.	231.	91.	-13.	-277.	65.	.0482	.0198	.0165	-.1501	-.1136	.0079	1986.							
.1530	-760.	234.	247.	-35.	-202.	66.	.0485	.0226	.0305	-.1469	-.1093	-.0055	1500.							
.1540	-310.	120.	272.	-72.	-187.	123.	.0457	.0233	.0369	-.1385	-.1006	-.0192	1636.							
.1550	-301.	38.	208.	-69.	-205.	133.	.0390	.0269	.0359	-.1271	-.0888	-.0307	1771.							
.1560	-260.	77.	130.	-12.	-209.	49.	.0281	.0356	.0294	-.1132	-.0737	-.0382	1498.							
.1570	-239.	93.	72.	46.	-176.	-37.	.0137	.0447	.0198	-.0971	-.0523	-.0433	1294.							
.1580	-196.	15.	-58.	59.	-169.	-58.	-.0012	.0505	.0093	-.0762	-.0271	-.0460	1312.							
.1590	-90.	-41.	-157.	43.	-161.	-77.	-.0148	.0551	.0016	-.0532	-.0032	-.0426	1277.							
.1600	56.	-11.	-98.	22.	-65.	-145.	-.0278	.0602	.0002	-.0330	.0194	-.0317	1116.							
.1610	221.	13.	8.	-22.	71.	-205.	-.0398	.0639	.0038	-.0134	.0441	-.0169	1519.							
.1620	375.	-26.	29.	-96.	157.	-213.	-.0496	.0650	.0091	.0084	.0698	-.0021	1956.							
.1630	499.	-61.	72.	-163.	241.	-228.	-.0579	.0659	.0154	.0263	.0913	.0135	2572.							
.1640	596.	-17.	152.	-197.	322.	-297.	-.0648	.0683	.0211	.0378	.1057	.0313	3342.							
.1650	647.	76.	151.	-222.	344.	-361.	-.0702	.0700	.0239	.0458	.1158	.0494	3798.							
.1660	641.	17.	89.	-262.	334.	-369.	-.0748	.0685	.0240	.0499	.1245	.0657	3918.							
.1670	621.	11.	56.	-302.	320.	-365.	-.0784	.0657	.0233	.0493	.1285	.0810	4008.							
.1680	605.	92.	86.	-323.	333.	-390.	-.0805	.0632	.0224	.0419	.1247	.0964	4216.							
.1690	584.	182.	106.	-348.	310.	-390.	-.0805	.0591	.0207	.0306	.1151	.1089	4231.							
.1700	541.	196.	111.	-392.	273.	-322.	-.0791	.0517	.0180	.0166	.1031	.1153	4011.							
.1710	470.	208.	139.	-421.	251.	-246.	-.0767	.0436	.0145	-.0024	.0889	.1167	3813.							
.1720	395.	308.	141.	-410.	193.	-213.	-.0726	.0376	.0095	-.0237	.0701	.1149	3484.							
.1730	293.	397.	129.	-383.	119.	-174.	-.0672	.0310	.0033	-.0471	.0487	.1085	3044.							
.1740	159.	390.	96.	-367.	33.	-76.	-.0610	.0217	-.0033	-.0696	.0276	.0956	2619.							
.1750	19.	366.	39.	-340.	-68.	27.	-.0537	.0125	-.0093	-.0855	.0067	.0780	2423.							
.1760	-114.	398.	15.	-280.	-144.	79.	-.0454	.0057	-.0127	-.1082	-.0135	.0578	2258.							
.1770	-227.	423.	16.	-210.	-190.	123.	-.0363	-.0001	-.0132	-.1225	-.0315	.0338	2185.							
.1780	-320.	354.	13.	-157.	-230.	207.	-.0265	-.0072	-.0113	-.1308	-.0451	.0051	2450.							
.1790	-392.	257.	-14.	-104.	-283.	290.	-.0162	-.0136	-.0075	-.1321	-.0552	-.0260	2910.							
.1800	-435.	207.	-15.	-26.	-300.	318.	-.0067	-.0170	-.0020	-.1280	-.0619	-.0561	3052.							
.1810	-471.	147.	20.	61.	-271.	315.	.0006	-.0190	.0045	-.1194	-.0630	-.0848	2941.							
.1820	-495.	25.	-10.	133.	-266.	340.	.0063	-.0213	.0097	-.1025	-.0586	-.1127	3146.							
.1830	-505.	-121.	-78.	199.	-272.	359.	.0101	-.0230	.0134	-.0796	-.0498	-.1377	3428.							
.1840	-480.	-219.	-110.	276.	-246.	328.	.0114	-.0222	.0166	-.0537	-.0378	-.1570	3439.							
.1850	-440.	-290.	-123.	349.	-194.	269.	.0104	-.0202	.0194	-.0251	-.0221	-.1706	3352.							
.1860	-374.	-397.	-151.	391.	-139.	234.	.0074	-.0190	.0213	.0066	-.0028	-.1795	3314.							
.1870	-274.	-510.	-177.	404.	-85.	213.	.0028	-.0182	.0224	.0403	.0175	-.1832	3232.							
.1880	-154.	-567.	-142.	410.	0.	162.	-.0037	-.0163	.0231	.0716	.0366	-.1800	3070.							
.1890	-37.	-580.	-104.	410.	84.	91.	-.0116	-.0135	.0222	.0999	.0543	-.1705	2980.							

ADLPIPE PAGE 2080

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/3/12/02.

18.30.01.

S/RV 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

.1790	-392.	257.	-14.	-104.	-283.	290.	-.0162	-.0136	-.0075	-.1321	-.0552	-.0260	2910.
.1800	-435.	207.	-15.	-26.	-300.	318.	-.0067	-.0170	-.0020	-.1280	-.0619	-.0561	3052.
.1810	-471.	147.	20.	61.	-271.	318.	.0006	-.0190	.0045	-.1194	-.0630	-.0848	2941.
.1820	-495.	25.	-10.	133.	-266.	340.	.0063	-.0213	.0097	-.1025	-.0586	-.1127	3146.
.1830	-505.	-121.	-78.	120.	-272.	359.	.0101	-.0230	.0134	-.0796	-.0498	-.1377	3428.
.1840	-488.	-219.	-110.	276.	-246.	328.	.0114	-.0222	.0166	-.0537	-.0378	-.1570	3439.
.1850	-440.	-290.	-123.	349.	-194.	269.	.0104	-.0202	.0194	-.0251	-.0221	-.1706	3352.
.1860	-374.	-397.	-151.	301.	-139.	234.	.0074	-.0190	.0215	.0066	-.0028	-.1795	3314.
.1870	-274.	-510.	-177.	404.	-85.	213.	.0028	-.0182	.0224	.0403	.0175	-.1832	3232.
.1880	-154.	-567.	-142.	410.	0.	162.	-.0037	-.0163	.0231	.0716	.0366	-.1800	3070.
.1890	-37.	-580.	-104.	410.	84.	91.	-.0116	-.0135	.0222	.0999	.0543	-.1705	2980.

ADLPIPE PAGE 2880

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.01.

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	72	MEMBER	1	SEQUENCE	106	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)	
.1900	66.	-610.	-122.	389.	128.	43.	-.0203	-.0116	.0186	.1259	.0709	-.1568	2864.	
.1910	120.	-651.	-152.	355.	155.	7.	-.0295	-.0103	.0131	.1463	.0847	-.1398	2699.	
.1920	160.	-635.	-180.	327.	161.	-52.	-.0381	-.0079	.0070	.1600	.0930	-.1192	2561.	
.1930	189.	-573.	-207.	297.	144.	-122.	-.0453	-.0051	.0017	.1670	.0965	-.0960	2451.	
.1940	194.	-529.	-220.	242.	124.	-158.	-.0511	-.0039	-.0011	.1683	.0970	-.0726	2191.	
.1950	200.	-402.	-192.	160.	114.	-162.	-.0552	-.0043	-.0006	.1638	.0941	-.0492	1773.	
.1960	218.	-407.	-113.	69.	112.	-167.	-.0574	-.0050	.0030	.1533	.0864	-.0251	1480.	
.1970	240.	-291.	-3.	-27.	113.	-168.	-.0582	-.0059	.0078	.1376	.0745	-.0019	1421.	
.1980	245.	-205.	96.	-129.	105.	-137.	-.0588	-.0079	.0115	.1187	.0608	.0177	1498.	
.1990	216.	-140.	148.	-216.	73.	-92.	-.0597	-.0098	.0120	.0980	.0465	.0325	1714.	
.2000	145.	-50.	150.	-264.	16.	-75.	-.0613	-.0096	.0086	.0757	.0303	.0431	1912.	
.2010	36.	49.	112.	-275.	-62.	-78.	-.0632	-.0079	.0020	.0527	.0129	.0488	2032.	
.2020	-97.	103.	34.	-272.	-159.	-63.	-.0647	-.0063	-.0060	.0314	-.0041	.0486	2239.	
.2030	-228.	120.	-57.	-267.	-257.	-31.	-.0648	-.0053	-.0125	.0133	-.0194	.0432	2590.	
.2040	-327.	145.	-102.	-255.	-319.	-10.	-.0631	-.0040	-.0145	-.0019	-.0326	.0343	2845.	
.2050	-384.	175.	-78.	-241.	-334.	5.	-.0594	-.0026	-.0108	-.0138	-.0436	.0224	2868.	
.2060	-404.	165.	-21.	-238.	-324.	40.	-.0537	-.0026	-.0025	-.0207	-.0522	.0070	2811.	
.2070	-401.	117.	40.	-241.	-302.	93.	-.0469	-.0037	.0081	-.0227	-.0581	-.0113	2766.	
.2080	-388.	72.	102.	-225.	-267.	128.	-.0401	-.0044	.0186	-.0213	-.0612	-.0307	2587.	
.2090	-380.	40.	143.	-184.	-228.	136.	-.0346	-.0043	.0265	-.0170	-.0615	-.0503	2248.	
.2100	-388.	-13.	122.	-127.	-213.	143.	-.0304	-.0044	.0293	-.0094	-.0585	-.0699	1992.	
.2110	-414.	-95.	43.	-61.	-226.	156.	-.0277	-.0052	.0276	.0008	-.0536	-.0891	1957.	
.2120	-445.	-169.	-53.	15.	-245.	156.	-.0260	-.0061	.0229	.0121	-.0477	-.1063	2024.	
.2130	-462.	-216.	-135.	27.	-255.	139.	-.0247	-.0068	.0177	.0239	-.0408	-.1206	2129.	
.2140	-453.	-262.	-192.	163.	-248.	129.	-.0231	-.0086	.0141	.0364	-.0324	-.1324	2254.	
.2150	-407.	-321.	-207.	201.	-220.	140.	-.0204	-.0119	.0134	.0488	-.0233	-.1413	2292.	
.2160	-325.	-264.	-167.	217.	-170.	155.	-.0167	-.0160	.0156	.0601	-.0150	-.1465	2201.	
.2170	-219.	-379.	-91.	220.	-110.	163.	-.0123	-.0202	.0194	.0697	-.0080	-.1479	2052.	
.2180	-110.	-390.	-17.	216.	-53.	170.	-.0081	-.0244	.0226	.0778	-.0017	-.1464	1949.	
.2190	-44.	-409.	26.	210.	-15.	180.	-.0049	-.0284	.0232	.0841	.0040	-.1427	1928.	
.2200	-4.	-414.	30.	215.	-3.	175.	-.0028	-.0310	.0203	.0881	.0078	-.1369	1928.	
.2210	6.	-398.	-0.	213.	-18.	149.	-.0015	-.0321	.0141	.0897	.0091	-.1291	1929.	
.2220	-9.	-300.	-55.	252.	-50.	121.	-.0006	-.0723	.0062	.0892	.0086	-.1202	1975.	
.2230	-28.	-370.	-112.	261.	-84.	100.	.0004	-.0321	-.0012	.0872	.0073	-.1104	2030.	
.2240	-38.	-346.	-130.	257.	-101.	80.	.0021	-.0316	-.0059	.0836	.0050	-.0994	2003.	
.2250	-26.	-303.	-113.	239.	-94.	59.	.0048	-.0307	-.0069	.0782	.0008	-.0873	1837.	
.2260	4.	-263.	-49.	203.	-70.	52.	.0085	-.0301	-.0048	.0716	-.0048	-.0750	1538.	
.2270	39.	-234.	23.	155.	-40.	59.	.0125	-.0297	-.0012	.0642	-.0109	-.0634	1190.	

ADLPIPE PAGE 2881

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.01.

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

.2170	-210.	-379.	-91.	220.	-110.	163.	-.0123	-.0202	.0194	.0697	-.0080	-.1479	2052.
.2180	-110.	-390.	-17.	216.	-53.	170.	-.0081	-.0244	.0226	.0778	-.0017	-.1464	1949.
.2190	-44.	-409.	26.	210.	-15.	180.	-.0049	-.0284	.0232	.0841	.0040	-.1427	1928.
.2200	-4.	-414.	30.	215.	-7.	175.	-.0028	-.0310	.0203	.0881	.0078	-.1369	1928.
.2210	6.	-398.	-0.	213.	-18.	149.	-.0015	-.0321	.0141	.0897	.0091	-.1291	1929.
.2220	-0.	-300.	-55.	252.	-50.	121.	-.0006	-.0323	.0062	.0892	.0086	-.1202	1975.
.2230	-20.	-370.	-112.	261.	-84.	100.	.0004	-.0321	-.0012	.0872	.0073	-.1104	2030.
.2240	-30.	-346.	-138.	257.	-101.	80.	.0021	-.0316	-.0059	.0836	.0050	-.0994	2003.
.2250	-26.	-303.	-113.	239.	-94.	59.	.0048	-.0307	-.0069	.0782	.0008	-.0873	1837.
.2260	4.	-263.	-49.	203.	-70.	52.	.0085	-.0301	-.0048	.0716	-.0048	-.0750	1538.
.2270	30.	-234.	23.	155.	-40.	59.	.0125	-.0297	-.0012	.0642	-.0109	-.0634	1190.

ADLPIPE PAGE 2981

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.01.

S/RV PIPING KEWAUNEE GKW00F 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								STRESS
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	(PSI)	
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)		
.2280	63.	-200.	83.	114.	-11.	62.	.0161	-.0285	.0020	.0557	-.0170	-.0526	904.	
.2290	65.	-151.	116.	90.	9.	49.	.0188	-.0260	.0029	.0460	-.0231	-.0427	717.	
.2300	40.	-106.	104.	22.	8.	33.	.0203	-.0228	.0008	.0356	-.0291	-.0343	617.	
.2310	-6.	-78.	49.	82.	-13.	23.	.0208	-.0195	-.0041	.0254	-.0347	-.0274	600.	
.2320	-61.	-52.	-19.	88.	-36.	14.	.0206	-.0161	-.0099	.0153	-.0392	-.0215	670.	
.2330	-105.	-17.	-73.	97.	-46.	1.	.0201	-.0126	-.0147	.0055	-.0421	-.0162	745.	
.2340	-129.	16.	-104.	100.	-39.	-7.	.0200	-.0095	-.0170	-.0032	-.0430	-.0118	747.	
.2350	-130.	32.	-114.	91.	-18.	-2.	.0208	-.0072	-.0161	-.0103	-.0419	-.0084	645.	
.2360	-111.	38.	-98.	75.	16.	9.	.0225	-.0054	-.0120	-.0160	-.0390	-.0059	537.	
.2370	-76.	48.	-66.	60.	61.	14.	.0246	-.0033	-.0056	-.0199	-.0341	-.0042	605.	
.2380	-36.	54.	-33.	50.	108.	13.	.0267	-.0008	.0018	-.0217	-.0268	-.0034	833.	
.2390	1.	46.	-17.	44.	149.	11.	.0282	.0019	.0088	-.0212	-.0170	-.0034	1086.	
.2400	34.	31.	-17.	44.	182.	4.	.0288	.0050	.0146	-.0185	-.0053	-.0036	1303.	
.2410	67.	19.	-30.	51.	206.	-12.	.0285	.0087	.0188	-.0140	.0075	-.0036	1482.	
.2420	106.	7.	-48.	60.	228.	-33.	.0273	.0129	.0217	-.0078	.0216	-.0034	1654.	
.2430	157.	-8.	-63.	66.	252.	-51.	.0253	.0171	.0237	-.0002	.0370	-.0031	1850.	
.2440	223.	-19.	-64.	67.	284.	-69.	.0225	.0215	.0254	.0084	.0531	-.0022	2087.	
.2450	303.	-17.	-47.	63.	321.	-89.	.0194	.0258	.0268	.0169	.0686	-.0002	2361.	
.2460	390.	-10.	-17.	53.	359.	-105.	.0159	.0297	.0278	.0246	.0828	.0031	2630.	
.2470	475.	-3.	14.	56.	391.	-114.	.0124	.0329	.0279	.0308	.0951	.0077	2844.	
.2480	552.	11.	41.	17.	413.	-121.	.0089	.0356	.0268	.0350	.1051	.0133	2997.	
.2490	617.	42.	67.	-0.	426.	-130.	.0054	.0382	.0243	.0364	.1122	.0201	3101.	
.2500	662.	84.	88.	-16.	428.	-138.	.0023	.0402	.0205	.0347	.1156	.0278	3133.	
.2510	685.	127.	101.	-35.	415.	-139.	-.0003	.0412	.0157	.0296	.1147	.0363	3054.	
.2520	689.	173.	113.	-57.	386.	-131.	-.0020	.0412	.0102	.0212	.1091	.0453	2886.	
.2530	676.	229.	133.	-80.	357.	-119.	-.0024	.0404	.0046	.0095	.0988	.0546	2675.	
.2540	647.	294.	157.	-103.	310.	-104.	-.0015	.0390	-.0006	-.0054	.0844	.0638	2437.	
.2550	601.	359.	179.	-128.	272.	-82.	.0007	.0366	-.0055	-.0228	.0666	.0725	2172.	
.2560	534.	419.	202.	-153.	219.	-53.	.0042	.0334	-.0100	-.0422	.0453	.0805	1900.	
.2570	449.	479.	221.	-175.	159.	-24.	.0088	.0296	-.0141	-.0632	.0209	.0878	1652.	
.2580	346.	537.	233.	-192.	91.	5.	.0144	.0255	-.0180	-.0846	-.0055	.0943	1476.	
.2590	232.	597.	236.	-204.	20.	35.	.0205	.0210	-.0216	-.1053	-.0322	.0998	1446.	
.2600	111.	629.	231.	-212.	-47.	63.	.0270	.0164	-.0248	-.1247	-.0581	.1045	1574.	
.2610	-9.	663.	223.	-217.	-109.	86.	.0336	.0117	-.0275	-.1420	-.0827	.1087	1793.	
.2620	-121.	684.	214.	-218.	-166.	107.	.0402	.0071	-.0293	-.1564	-.1054	.1121	2048.	
.2630	-221.	691.	202.	-217.	-212.	125.	.0464	.0027	-.0309	-.1668	-.1250	.1145	2286.	
.2640	-307.	686.	188.	-211.	-244.	135.	.0519	-.0011	-.0316	-.1730	-.1403	.1159	2437.	
.2650	-375.	671.	173.	-199.	-260.	135.	.0565	-.0041	-.0317	-.1748	-.1506	.1164	2465.	

ADLPIPE PAGE 2982

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.01.

S/RV PIPING KEWAUNEE GKW00F 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

.2550	601.	359.	179.	-128.	272.	359.	-82.	.0007	.0366	-.0055	-.0228	.0666	.0725	2172.
.2560	534.	419.	202.	-153.	219.	419.	-53.	.0042	.0334	-.0100	-.0422	.0453	.0805	1900.
.2570	449.	479.	221.	-175.	159.	479.	-24.	.0088	.0296	-.0141	-.0632	.0209	.0878	1652.
.2580	346.	577.	233.	-190.	91.	577.	5.	.0144	.0255	-.0180	-.0846	-.0055	.0943	1476.
.2590	232.	577.	236.	-204.	20.	577.	35.	.0205	.0110	-.0216	-.1053	-.0322	.0998	1446.
.2600	111.	629.	231.	-212.	47.	629.	63.	.0270	.0164	-.0248	-.1247	-.0581	.1045	1574.
.2610	-9.	663.	223.	-117.	-109.	663.	86.	.0336	.0117	-.0275	-.1420	-.0827	.1087	1793.
.2620	-121.	684.	214.	-218.	-166.	684.	107.	.0402	.0071	-.0295	-.1564	-.1054	.1121	2048.
.2630	-221.	691.	202.	-217.	-212.	691.	125.	.0464	.0027	-.0309	-.1668	-.1250	.1145	2286.
.2640	-307.	686.	189.	-211.	-244.	686.	135.	.0519	-.0011	-.0316	-.1730	-.1403	.1159	2437.
.2650	-375.	671.	173.	-199.	-260.	671.	135.	.0565	-.0041	-.0317	-.1748	-.1506	.1164	2465.

ADLPIPE PAGE 2882

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.01.

S/RV 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	72	MEMBER	1	SEQUENCE	106	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)										
.2660	-424.	644.	155.	-182.	-264.	128.	.0601	-.0063	-.0316	-.1719	-.1561	.1160	2404.			
.2670	-457.	600.	129.	-163.	-261.	115.	.0629	-.0079	-.0312	-.1645	-.1569	.1147	2287.			
.2680	-462.	544.	99.	-139.	-248.	96.	.0646	-.0086	-.0307	-.1527	-.1527	.1124	2092.			
.2690	-451.	484.	69.	-110.	-222.	67.	.0652	-.0083	-.0298	-.1372	-.1433	.1094	1787.			
.2700	-421.	419.	42.	-79.	-182.	31.	.0647	-.0072	-.0285	-.1186	-.1291	.1057	1399.			
.2710	-369.	344.	18.	-49.	-134.	-5.	.0635	-.0056	-.0268	-.0975	-.1113	.1010	997.			
.2720	-296.	263.	2.	-21.	-81.	-40.	.0617	-.0035	-.0247	-.0746	-.0907	.0952	649.			
.2730	-205.	197.	-7.	7.	-22.	-78.	.0593	-.0009	-.0226	-.0506	-.0678	.0890	564.			
.2740	-103.	119.	-12.	36.	44.	-119.	.0562	.0020	-.0205	-.0266	-.0426	.0830	921.			
.2750	1.	51.	-17.	61.	111.	-157.	.0525	.0047	-.0190	-.0034	-.0164	.0774	1404.			
.2760	107.	-21.	-26.	82.	168.	-186.	.0485	.0070	-.0184	.0186	.0090	.0719	1834.			
.2770	201.	-84.	-40.	104.	212.	-213.	.0445	.0092	-.0187	.0390	.0327	.0665	2213.			
.2780	291.	-129.	-56.	128.	250.	-244.	.0404	.0114	-.0196	.0567	.0551	.0616	2590.			
.2790	370.	-167.	-60.	149.	289.	-269.	.0363	.0130	-.0206	.0719	.0761	.0572	2933.			
.2800	441.	-207.	-77.	162.	320.	-279.	.0327	.0136	-.0216	.0842	.0943	.0529	3165.			
.2810	506.	-240.	-80.	169.	341.	-281.	.0298	.0134	-.0222	.0936	.1083	.0487	3289.			
.2820	567.	-255.	-72.	173.	357.	-280.	.0275	.0128	-.0224	.1000	.1185	.0450	3380.			
.2830	609.	-260.	-51.	173.	376.	-274.	.0254	.0115	-.0223	.1036	.1258	.0418	3458.			
.2840	639.	-269.	-31.	166.	392.	-256.	.0234	.0094	-.0224	.1049	.1302	.0388	3463.			
.2850	646.	-276.	-23.	158.	393.	-231.	.0216	.0069	-.0233	.1040	.1304	.0356	3360.			
.2860	630.	-270.	-27.	156.	375.	-210.	.0202	.0047	-.0253	.1010	.1258	.0321	3179.			
.2870	588.	-259.	-41.	153.	344.	-190.	.0188	.0026	-.0282	.0960	.1176	.0281	2953.			
.2880	519.	-256.	-68.	164.	307.	-166.	.0174	.0006	-.0313	.0896	.1070	.0232	2675.			
.2890	427.	-255.	-105.	170.	256.	-140.	.0166	-.0012	-.0342	.0820	.0935	.0175	2351.			
.2900	325.	-246.	-133.	177.	199.	-119.	.0167	-.0025	-.0358	.0729	.0763	.0114	2032.			
.2910	220.	-235.	-143.	179.	142.	-97.	.0178	-.0037	-.0356	.0626	.0557	.0048	1730.			
.2920	111.	-232.	-141.	174.	87.	-67.	.0199	-.0051	-.0336	.0514	.0535	-.0021	1429.			
.2930	2.	-230.	-129.	162.	34.	-35.	.0224	-.0063	-.0301	.0395	.0106	-.0090	1177.			
.2940	-107.	-215.	-105.	150.	-17.	-9.	.0252	-.0070	-.0258	.0265	-.0136	-.0153	1055.			
.2950	-219.	-195.	-79.	139.	-74.	13.	.0279	-.0073	-.0219	.0126	-.0390	-.0210	1097.			
.2960	-336.	-183.	-67.	125.	-144.	40.	.0302	-.0076	-.0192	-.0019	-.0645	-.0262	1356.			
.2970	-459.	-173.	-73.	114.	-223.	65.	.0316	-.0076	-.0181	-.0164	-.0889	-.0307	1802.			
.2980	-578.	-147.	-85.	109.	-302.	77.	.0319	-.0067	-.0184	-.0312	-.1112	-.0336	2297.			
.2990	-688.	-111.	-96.	105.	-377.	81.	.0314	-.0056	-.0193	-.0458	-.1315	-.0346	2779.			
.3000	-780.	-85.	-106.	92.	-450.	91.	.0303	-.0048	-.0204	-.0594	-.1494	-.0341	3259.			
.3010	-849.	-68.	-108.	70.	-516.	106.	.0289	-.0043	-.0210	-.0713	-.1644	-.0320	3700.			
.3020	-888.	-40.	-90.	44.	-562.	113.	.0270	-.0035	-.0203	-.0812	-.1755	-.0281	4002.			
.3030	-900.	-3.	-56.	11.	-585.	107.	.0245	-.0022	-.0183	-.0887	-.1818	-.0224	4141.			

ADLPIPE PAGE 2887

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.01.

S/RV 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

.2940	-107.	-215.	-105.	150.	-17.	-9.	.0224	-0.063	-0.0301	.0395	.0106	-0.0090	1177.
.2950	-210.	-195.	-79.	129.	-74.	13.	.0279	-0.0073	-0.0219	.0126	-0.0390	-0.0210	1097.
.2960	-336.	-183.	-67.	105.	-144.	40.	.0302	-0.0076	-0.0192	-0.0019	-0.0645	-0.0262	1356.
.2970	-459.	-173.	-73.	114.	-227.	65.	.0316	-0.0075	-0.0181	-0.0164	-0.0889	-0.0307	1802.
.2980	-570.	-147.	-85.	109.	-302.	77.	.0319	-0.0067	-0.0184	-0.0312	-0.1112	-0.0336	2297.
.2990	-688.	-111.	-96.	105.	-377.	81.	.0314	-0.0056	-0.0193	-0.0458	-0.1315	-0.0346	2779.
.3000	-780.	-85.	-106.	92.	-450.	91.	.0303	-0.0048	-0.0204	-0.0594	-0.1494	-0.0341	3259.
.3010	-849.	-68.	-106.	70.	-516.	106.	.0289	-0.0043	-0.0210	-0.0713	-0.1644	-0.0320	3700.
.3020	-880.	-40.	-90.	44.	-562.	113.	.0270	-0.0035	-0.0203	-0.0812	-0.1755	-0.0281	4002.
.3030	-900.	-3.	-56.	10.	-585.	107.	.0245	-0.0027	-0.0183	-0.0887	-0.1818	-0.0224	4141.

ADLPIPE PAGE 2083

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/3/12/02.

18.30.01.

S/RV PIPING KEWAUNEE CKW00F 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	DX	DY	DZ	FX	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)							
.3040	-100.	21.	-20.	-14.	-595.	102.	.0215	-0.0009	-0.0156	-0.0931	-0.1836	-0.0156	4202.
.3050	-867.	26.	7.	-49.	-601.	100.	.0180	.0003	-0.0128	-0.0941	-0.1813	-0.0083	4253.
.3060	-821.	31.	26.	-76.	-600.	85.	.0138	.0022	-0.0102	-0.0916	-0.1751	-0.0004	4253.
.3070	-767.	41.	37.	-94.	-586.	54.	.0087	.0051	-0.0076	-0.0858	-0.1642	.0081	4145.
.3080	-703.	39.	38.	-108.	-557.	18.	.0027	.0083	-0.0052	-0.0766	-0.1483	.0168	3750.
.3090	-627.	18.	29.	-122.	-519.	-15.	-0.0037	.0113	-0.0026	-0.0642	-0.1288	.0252	3713.
.3100	-535.	-7.	22.	-135.	-472.	-49.	-0.0101	.0143	.0004	-0.0493	-0.1073	.0333	3432.
.3110	-427.	-26.	24.	-144.	-409.	-89.	-0.0164	.0176	.0042	-0.0329	-0.0840	.0410	3083.
.3120	-311.	-51.	32.	-153.	-331.	-125.	-0.0227	.0206	.0086	-0.0156	-0.0587	.0477	2682.
.3130	-194.	-84.	36.	-162.	-244.	-153.	-0.0286	.0232	.0132	.0020	-0.0322	.0529	2299.
.3140	-82.	-113.	36.	-166.	-158.	-177.	-0.0340	.0254	.0175	.0184	-0.0068	.0568	2018.
.3150	20.	-132.	32.	-164.	-79.	-200.	-0.0387	.0273	.0210	.0324	.0161	.0595	1882.
.3160	105.	-151.	20.	-158.	-9.	-213.	-0.0426	.0284	.0235	.0436	.0365	.0607	1846.
.3170	170.	-169.	-5.	-151.	52.	-212.	-0.0457	.0286	.0250	.0513	.0346	.0602	1849.
.3180	210.	-174.	-31.	-141.	105.	-205.	-0.0479	.0281	.0257	.0548	.0694	.0587	1882.
.3190	252.	-160.	-48.	-129.	150.	-193.	-0.0489	.0267	.0258	.0535	.0796	.0562	1922.
.3200	271.	-143.	-60.	-122.	182.	-163.	-0.0485	.0240	.0255	.0478	.0851	.0528	1901.
.3210	275.	-125.	-71.	-121.	200.	-116.	-0.0468	.0201	.0247	.0380	.0865	.0482	1816.
.3220	265.	-93.	-77.	-119.	210.	-65.	-0.0441	.0154	.0237	.0244	.0845	.0430	1742.
.3230	242.	-41.	-74.	-115.	214.	-15.	-0.0405	.0104	.0223	.0074	.0794	.0379	1697.
.3240	204.	10.	-73.	-114.	204.	41.	-0.0363	.0045	.0203	-0.0118	.0713	.0327	1648.
.3250	154.	52.	-80.	-117.	175.	106.	-0.0313	-0.0021	.0177	-0.0321	.0607	.0274	1639.
.3260	98.	96.	-87.	-119.	138.	168.	-0.0261	-0.0088	.0149	-0.0523	.0487	.0224	1723.
.3270	41.	150.	-86.	-117.	102.	217.	-0.0210	-0.0151	.0121	-0.0716	.0367	.0181	1856.
.3280	-12.	200.	-82.	-116.	70.	259.	-0.0161	-0.0212	.0097	-0.0886	.0256	.0142	2032.
.3290	-57.	230.	-77.	-120.	35.	301.	-0.0114	-0.0272	.0076	-0.1022	.0154	.0107	2270.
.3300	-91.	250.	-69.	-125.	3.	376.	-0.0070	-0.0328	.0060	-0.1118	.0065	.0077	2494.
.3310	-117.	269.	-55.	-126.	-22.	352.	-0.0034	-0.0375	.0050	-0.1170	-0.0004	.0055	2608.
.3320	-125.	279.	-42.	-124.	-38.	354.	-0.0007	-0.0412	.0045	-0.1174	-0.0040	.0041	2624.
.3330	-128.	269.	-37.	-123.	-47.	348.	.0011	-0.0444	.0043	-0.1128	-0.0044	.0031	2591.
.3340	-123.	244.	-36.	-120.	-55.	333.	.0020	-0.0470	.0043	-0.1036	-0.0026	.0027	2491.
.3350	-108.	217.	-35.	-113.	-58.	303.	.0022	-0.0486	.0047	-0.0905	.0009	.0030	2284.
.3360	-83.	184.	-32.	-105.	-57.	263.	.0018	-0.0496	.0054	-0.0740	.0064	.0035	2004.
.3370	-50.	138.	-30.	-99.	-39.	222.	.0006	-0.0501	.0066	-0.0547	.0141	.0040	1710.
.3380	-12.	87.	-25.	-94.	-20.	178.	-0.0010	-0.0503	.0081	-0.0338	.0227	.0045	1404.
.3390	31.	43.	-16.	-88.	1.	128.	-0.0028	-0.0500	.0097	-0.0124	.0308	.0052	1084.
.3400	71.	-0.	-5.	-83.	20.	80.	-0.0047	-0.0496	.0109	.0083	.0378	.0037	815.
.3410	103.	-47.	-1.	-80.	35.	38.	-0.0066	-0.0493	.0116	.0278	.0438	.0058	665.

ADLPIPE PAGE 2084

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/3/12/02.

18.30.01.

S/RV PIPING KEWAUNEE CKW00F 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

.3320	-125.	279.	-42.	-124.	-38.	354.	-.0007	-.0412	.0045	-.1174	-.0040	.0041	2624.
.3330	-128.	269.	-37.	-123.	-47.	348.	.0011	-.0444	.0043	-.1128	-.0044	.0031	2591.
.3340	-127.	244.	-36.	-120.	-55.	373.	.0020	-.0470	.0043	-.1036	-.0026	.0027	2491.
.3350	-109.	217.	-35.	-113.	-55.	303.	.0022	-.0486	.0047	-.0905	.0004	.0030	2284.
.3360	-87.	184.	-32.	-105.	-57.	263.	.0018	-.0496	.0054	-.0740	.0064	.0035	2004.
.3370	-50.	138.	-30.	-99.	-39.	222.	.0006	-.0501	.0066	-.0547	.0141	.0040	1710.
.3380	-12.	87.	-25.	-94.	-20.	178.	-.0010	-.0503	.0081	-.0338	.0227	.0045	1404.
.3390	31.	43.	-16.	-88.	1.	128.	-.0028	-.0500	.0097	-.0124	.0308	.0052	1084.
.3400	71.	-0.	-5.	-83.	20.	80.	-.0047	-.0496	.0104	.0083	.0378	.0057	815.
.3410	103.	-47.	-1.	-70.	35.	38.	-.0066	-.0493	.0116	.0278	.0438	.0058	665.

ADLPIPE PAGE 2084

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.01.

S/RV PIPING KEWAUNEE CRUDDF 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	72	MEMBER	1	SEQUENCE	100	LOCATION	BEG	TYPE	EL						
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	PZ	STRESS		
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)		
.3420	127.	-89.	-5.	-76.	44.	0.	-.0086	-.0489	.0115	.0449	.0486	.0055	614.		
.3430	131.	-115.	-11.	-70.	47.	-39.	-.0103	-.0484	.0108	.0588	.0510	.0051	644.		
.3440	126.	-132.	-17.	-64.	41.	-72.	-.0116	-.0481	.0096	.0690	.0505	.0044	727.		
.3450	108.	-148.	-26.	-63.	26.	-91.	-.0122	-.0483	.0081	.0755	.0473	.0031	791.		
.3460	82.	-158.	-32.	-65.	6.	-100.	-.0121	-.0489	.0067	.0782	.0418	.0014	835.		
.3470	49.	-150.	-29.	-69.	-12.	-107.	-.0114	-.0495	.0056	.0772	.0343	-.0004	889.		
.3480	12.	-130.	-17.	-75.	-31.	-108.	-.0101	-.0503	.0048	.0728	.0250	-.0022	940.		
.3490	-32.	-111.	-7.	-86.	-55.	-97.	-.0082	-.0516	.0040	.0658	.0141	-.0043	981.		
.3500	-82.	-93.	-0.	-99.	-84.	-79.	-.0060	-.0532	.0030	.0569	.0023	-.0066	1056.		
.3510	-136.	-67.	4.	-107.	-114.	-62.	-.0036	-.0545	.0017	.0466	-.0097	-.0089	1172.		
.3520	-191.	-34.	4.	-111.	-142.	-50.	-.0014	-.0554	.0001	.0360	-.0210	-.0114	1299.		
.3530	-246.	-6.	-4.	-113.	-169.	-35.	.0007	-.0561	-.0017	.0258	-.0309	-.0142	1433.		
.3540	-296.	13.	-16.	-114.	-194.	-18.	.0028	-.0568	-.0035	.0170	-.0393	-.0173	1571.		
.3550	-334.	30.	-25.	-113.	-212.	-3.	.0048	-.0571	-.0049	.0099	-.0459	-.0206	1675.		
.3560	-356.	47.	-27.	-109.	-220.	6.	.0066	-.0570	-.0056	.0052	-.0500	-.0239	1707.		
.3570	-361.	57.	-25.	-104.	-214.	15.	.0082	-.0568	-.0057	.0032	-.0509	-.0273	1660.		
.3580	-351.	55.	-21.	-100.	-198.	24.	.0095	-.0565	-.0053	.0043	-.0487	-.0309	1550.		
.3590	-326.	48.	-15.	-92.	-174.	29.	.0105	-.0561	-.0048	.0080	-.0440	-.0344	1386.		
.3600	-288.	36.	-11.	-79.	-146.	30.	.0112	-.0554	-.0043	.0144	-.0370	-.0380	1173.		
.3610	-243.	17.	-14.	-61.	-114.	28.	.0115	-.0546	-.0043	.0231	-.0275	-.0419	919.		
.3620	-193.	-10.	-25.	-37.	-75.	25.	.0113	-.0536	-.0046	.0339	-.0157	-.0461	630.		
.3630	-137.	-40.	-39.	-9.	-41.	18.	.0110	-.0525	-.0052	.0460	-.0024	-.0505	319.		
.3640	-77.	-71.	-54.	23.	-3.	9.	.0106	-.0514	-.0058	.0588	.0115	-.0549	176.		
.3650	-12.	-107.	-66.	55.	35.	4.	.0105	-.0506	-.0060	.0718	.0255	-.0596	455.		
.3660	57.	-146.	-73.	85.	76.	3.	.0107	-.0500	-.0056	.0847	.0393	-.0644	795.		
.3670	128.	-182.	-71.	115.	121.	2.	.0111	-.0494	-.0046	.0968	.0531	-.0692	1159.		
.3680	201.	-211.	-61.	144.	166.	2.	.0118	-.0488	-.0031	.1076	.0656	-.0738	1531.		
.3690	269.	-239.	-47.	170.	208.	8.	.0127	-.0484	-.0015	.1167	.0763	-.0782	1870.		
.3700	328.	-268.	-37.	193.	242.	16.	.0137	-.0481	-.0002	.1240	.0849	-.0824	2156.		
.3710	376.	-290.	-31.	216.	268.	26.	.0144	-.0474	.0003	.1291	.0914	-.0863	2403.		
.3720	411.	-299.	-28.	241.	287.	32.	.0148	-.0462	.0001	.1319	.0958	-.0894	2620.		
.3730	430.	-302.	-31.	264.	298.	37.	.0149	-.0447	-.0008	.1324	.0979	-.0916	2785.		
.3740	436.	-303.	-40.	282.	299.	46.	.0148	-.0431	-.0023	.1306	.0972	-.0926	2875.		
.3750	430.	-298.	-49.	293.	290.	57.	.0147	-.0413	-.0038	.1264	.0938	-.0923	2898.		
.3760	415.	-282.	-51.	299.	278.	64.	.0146	-.0391	-.0049	.1201	.0880	-.0904	2880.		
.3770	392.	-255.	-47.	299.	265.	69.	.0145	-.0366	-.0053	.1117	.0801	-.0867	2823.		
.3780	362.	-225.	-37.	289.	250.	75.	.0146	-.0340	-.0048	.1015	.0704	-.0812	2712.		
.3790	325.	-191.	-20.	270.	230.	83.	.0148	-.0315	-.0036	.0895	.0586	-.0737	2539.		

ADLPIPE PAGE 2085

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.02.

S/RV PIPING KEWAUNEE CRUDDF 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

.3690	269.	-239.	-47.	170.	200.	6.	.127	-.0484	-.0015	.1167	.0763	-.0782	1531.
.3700	320.	-268.	-37.	193.	242.	16.	.0137	-.0481	-.0002	.1240	.0849	-.0824	2156.
.3710	376.	-290.	-31.	216.	268.	26.	.0144	-.0474	.0003	.1291	.0914	-.0863	2403.
.3720	411.	-299.	-26.	241.	287.	32.	.0148	-.0462	.0001	.1319	.0958	-.0894	2620.
.3730	430.	-307.	-31.	264.	298.	37.	.0149	-.0447	-.0008	.1324	.0979	-.0916	2785.
.3740	436.	-303.	-40.	282.	299.	46.	.0148	-.0431	-.0023	.1306	.0972	-.0926	2975.
.3750	430.	-298.	-49.	293.	290.	57.	.0147	-.0413	-.0038	.1264	.0938	-.0923	2898.
.3760	415.	-282.	-51.	299.	278.	64.	.0146	-.0391	-.0049	.1201	.0880	-.0904	2880.
.3770	392.	-255.	-47.	299.	265.	69.	.0145	-.0366	-.0053	.1117	.0801	-.0867	2823.
.3780	362.	-225.	-37.	299.	250.	75.	.0146	-.0340	-.0048	.1015	.0704	-.0812	2712.
.3790	325.	-191.	-20.	270.	230.	83.	.0148	-.0315	-.0036	.0895	.0586	-.0737	2539.

ADLPIPE PAGE 2885

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.30.02.

S/RV PIPING KEWAUNEE CKW00F 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	FL								
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)	
.3800	282.	-150.	-1.	244.	206.	89.	.0152	-.0289	-.0018	.0758	.0449	-.0643	2308.	
.3810	232.	-101.	19.	214.	177.	92.	.0154	-.0263	.0001	.0607	.0301	-.0531	2035.	
.3820	176.	-47.	38.	180.	145.	94.	.0154	-.0236	.0020	.0445	.0149	-.0404	1737.	
.3830	116.	8.	52.	143.	111.	95.	.0150	-.0210	.0036	.0275	-.0005	-.0266	1422.	
.3840	53.	68.	63.	104.	72.	95.	.0144	-.0186	.0048	.0099	-.0160	-.0117	1100.	
.3850	-7.	130.	72.	63.	31.	95.	.0134	-.0164	.0056	-.0080	-.0313	.0038	821.	
.3860	-62.	190.	83.	22.	-8.	96.	.0122	-.0146	.0063	-.0257	-.0454	.0194	684.	
.3870	-107.	251.	95.	-20.	-40.	97.	.0106	-.0130	.0070	-.0425	-.0575	.0350	743.	
.3880	-141.	311.	111.	-61.	-67.	97.	.0087	-.0117	.0078	-.0582	-.0676	.0502	924.	
.3890	-163.	366.	131.	-102.	-87.	100.	.0066	-.0109	.0086	-.0725	-.0757	.0646	1162.	
.3900	-171.	409.	151.	-141.	-102.	107.	.0044	-.0104	.0095	-.0848	-.0816	.0771	1422.	
.3910	-168.	444.	168.	-174.	-113.	114.	.0020	-.0098	.0102	-.0947	-.0846	.0870	1643.	
.3920	-153.	475.	181.	-195.	-114.	116.	-.0008	-.0088	.0107	-.1018	-.0844	.0940	1769.	
.3930	-128.	497.	193.	-207.	-107.	115.	-.0040	-.0076	.0110	-.1062	-.0811	.0979	1810.	
.3940	-94.	502.	198.	-213.	-96.	116.	-.0074	-.0063	.0110	-.1075	-.0751	.0986	1815.	
.3950	-51.	491.	196.	-211.	-82.	120.	-.0108	-.0050	.0108	-.1058	-.0669	.0961	1785.	
.3960	3.	472.	194.	-200.	-61.	120.	-.0144	-.0033	.0106	-.1012	-.0564	.0904	1679.	
.3970	65.	448.	194.	-181.	-29.	115.	-.0180	-.0012	.0107	-.0939	-.0434	.0820	1505.	
.3980	132.	411.	193.	-156.	10.	111.	-.0216	.0011	.0110	-.0843	-.0287	.0709	1334.	
.3990	200.	361.	187.	-128.	48.	110.	-.0250	.0032	.0113	-.0729	-.0134	.0575	1220.	
.4000	268.	305.	181.	-95.	85.	107.	-.0280	.0055	.0116	-.0603	.0015	.0422	1161.	

MAXIMUM VALUE OF STRESS OCCURS AT

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)
.1340	-941.	74.	-269.	-98.	-701.	-95.	.0137	.0349	.0146	-.0027	.1241	-.0164	4969.

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)	
0.0000	0.	0.	0.	0.	0.	0.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.	
.0010	0.	-0.	0.	-0.	0.	0.	.0000	.0000	-.0000	-.0000	.0000	.0000	0.	
.0020	0.	-0.	0.	-0.	0.	0.	.0000	.0000	-.0000	-.0000	.0000	.0000	0.	
.0030	-0.	-0.	0.	-0.	0.	0.	.0000	.0000	.0000	-.0000	.0000	.0000	1.	

ADLPIPE PAGE 2886

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.30.02.

S/RV PIPING KEWAUNEE CKW00F 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

.1340 -041. 74. -269. -98. -701. -95. .0137 .0349 .0146 -.0027 -1241 -.0164 4969.

SECTION	72	MEMBER	1	SEQUENCE	835	LOCATION	END	TYPE	EL	DZ	RX	RY	RZ	STRESS
TIME	FX	FY	FZ	MX	MY	MZ								(PSI)
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)		(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	
0.0000	0.	0.	0.	0.	0.	0.		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.
.0010	0.	-0.	0.	-0.	0.	0.		.0000	.0000	-.0000	-.0000	.0000	.0000	0.
.0020	0.	-0.	0.	-0.	0.	0.		.0000	.0000	-.0000	-.0000	.0000	.0000	0.
.0030	-0.	-0.	0.	-0.	0.	0.		.0000	.0000	.0000	-.0000	.0000	.0000	1.

ADLPIPE PAGE 2886

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.02.

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	72	MEMBER	1	SEQUENCE	835	LOCATION	END	TYPE	EL	DZ	RX	RY	RZ	STRESS
TIME	FX	FY	FZ	MX	MY	MZ								(PSI)
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)		(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	
.0040	-1.	-0.	0.	0.	-0.	0.		-.0000	-.0000	.0000	-.0000	-.0000	.0000	2.
.0050	-2.	-1.	-1.	0.	-1.	-0.		-.0000	-.0000	.0000	-.0000	-.0000	.0000	9.
.0060	-5.	-1.	-2.	1.	-3.	-0.		-.0001	-.0000	-.0000	.0000	-.0001	.0000	23.
.0070	-10.	-2.	-4.	1.	-6.	-1.		-.0003	-.0000	-.0001	.0001	-.0001	.0001	43.
.0080	-15.	-4.	-6.	2.	-10.	-1.		-.0006	-.0001	-.0003	.0001	-.0002	.0003	71.
.0090	-22.	-6.	-8.	3.	-15.	-2.		-.0010	-.0002	-.0007	.0001	-.0002	.0005	105.
.0100	-34.	-10.	-12.	4.	-21.	-4.		-.0017	-.0003	-.0013	.0002	-.0001	.0007	153.
.0110	-50.	-16.	-18.	7.	-30.	-7.		-.0026	-.0004	-.0021	.0004	.0002	.0009	220.
.0120	-69.	-24.	-24.	12.	-41.	-10.		-.0040	-.0006	-.0032	.0007	.0007	.0015	304.
.0130	-89.	-34.	-30.	17.	-52.	-14.		-.0059	-.0010	-.0048	.0012	.0017	.0025	396.
.0140	-108.	-43.	-34.	24.	-63.	-19.		-.0081	-.0015	-.0068	.0019	.0028	.0042	486.
.0150	-123.	-50.	-34.	30.	-70.	-23.		-.0106	-.0020	-.0092	.0026	.0041	.0061	556.
.0160	-131.	-55.	-28.	34.	-73.	-26.		-.0131	-.0024	-.0118	.0033	.0054	.0082	587.
.0170	-126.	-57.	-15.	34.	-69.	-24.		-.0151	-.0025	-.0144	.0038	.0066	.0098	559.
.0180	-106.	-57.	4.	30.	-55.	-18.		-.0164	-.0021	-.0162	.0039	.0077	.0108	453.
.0190	-70.	-55.	27.	24.	-30.	-9.		-.0164	-.0013	-.0169	.0036	.0083	.0107	273.
.0200	-21.	-48.	47.	18.	4.	1.		-.0148	-.0004	-.0156	.0028	.0083	.0095	130.
.0210	32.	-38.	52.	17.	43.	8.		-.0116	.0004	-.0120	.0021	.0074	.0070	326.
.0220	68.	-29.	38.	25.	83.	7.		-.0068	.0010	-.0061	.0028	.0060	.0034	602.
.0230	90.	-23.	3.	40.	113.	2.		-.0014	.0011	.0017	.0043	.0041	-.0002	832.
.0240	112.	-13.	-49.	54.	126.	-2.		.0039	.0007	.0098	.0054	.0012	-.0024	955.
.0250	152.	6.	-89.	61.	140.	-4.		.0088	-.0002	.0165	.0048	-.0029	-.0037	1066.
.0260	201.	25.	-84.	62.	181.	-7.		.0137	-.0010	.0200	.0029	-.0071	-.0061	1329.
.0270	225.	35.	-60.	57.	230.	-14.		.0180	-.0009	.0205	.0026	-.0105	-.0110	1651.
.0280	257.	46.	-53.	34.	241.	-12.		.0201	-.0001	.0190	.0017	-.0127	-.0158	1697.
.0290	345.	62.	-17.	-13.	242.	12.		.0206	.0009	.0157	-.0039	-.0141	-.0181	1691.
.0300	429.	73.	105.	-59.	316.	29.		.0229	.0015	.0107	-.0083	-.0145	-.0210	2244.
.0310	461.	104.	192.	-89.	386.	21.		.0266	.0011	.0076	-.0095	-.0164	-.0267	2759.
.0320	463.	131.	162.	-109.	369.	15.		.0293	.0001	.0094	-.0116	-.0176	-.0311	2678.
.0330	430.	113.	126.	-113.	301.	23.		.0311	-.0010	.0151	-.0129	-.0151	-.0310	2243.
.0340	328.	93.	49.	-90.	217.	10.		.0330	-.0034	.0226	-.0094	-.0142	-.0302	1638.
.0350	187.	128.	-103.	-50.	114.	-37.		.0339	-.0074	.0288	-.0029	-.0187	-.0318	903.
.0360	72.	164.	-189.	-28.	25.	-72.		.0323	-.0101	.0298	.0028	-.0207	-.0334	567.
.0370	-15.	138.	-138.	-41.	-33.	-62.		.0271	-.0087	.0239	.0084	-.0137	-.0324	569.
.0380	-89.	100.	-78.	-81.	-108.	-30.		.0178	-.0047	.0124	.0148	-.0031	-.0302	962.
.0390	-101.	118.	-19.	-136.	-174.	3.		.0063	-.0011	-.0030	.0189	.0063	-.0272	1539.
.0400	-35.	160.	181.	-199.	-134.	42.		-.0030	.0019	-.0204	.0198	.0168	-.0222	1697.
.0410	-5.	180.	414.	-249.	-40.	79.		-.0084	.0056	-.0336	.0235	.0276	-.0182	1837.

ADLPIPE PAGE 2887

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.02.

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

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

.0310	461.	104.	182.	-89.	386.	21.	.0266	.0011	.0076	-.0095	-.0164	-.0267	2244.
.0320	463.	131.	162.	-109.	369.	15.	.0293	.0001	.0094	-.0116	-.0176	-.0311	2678.
.0330	430.	113.	126.	-113.	301.	23.	.0311	-.0010	.0151	-.0129	-.0151	-.0310	2243.
.0340	320.	93.	49.	-90.	217.	10.	.0330	-.0034	.0226	-.0094	-.0142	-.0302	1638.
.0350	187.	128.	-103.	-50.	114.	-37.	.0339	-.0074	.0288	-.0029	-.0187	-.0318	903.
.0360	72.	164.	-189.	-28.	25.	-72.	.0323	-.0101	.0298	.0028	-.0207	-.0334	567.
.0370	-15.	138.	-138.	-41.	-33.	-62.	.0271	-.0087	.0239	.0084	-.0137	-.0324	569.
.0380	-89.	100.	-78.	-81.	-108.	-30.	.0178	-.0047	.0124	.0148	-.0031	-.0302	962.
.0390	-101.	118.	-19.	-136.	-174.	3.	.0063	-.0011	-.0030	.0189	.0063	-.0272	1539.
.0400	-35.	160.	181.	-199.	-134.	42.	-.0030	.0019	-.0204	.0198	.0168	-.0222	1697.
.0410	-5.	180.	414.	-249.	-40.	79.	-.0084	.0056	-.0336	.0235	.0276	-.0182	1837.

ADLPIPE PAGE 2887

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/3/12/02.

18.30.02.

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								STRESS
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	MX (FT-LB)	MY (FT-LB)	NZ (FT-LB)	DX (IN)	DY (IN)	DZ (IN)	RX (DEG)	RY (DEG)	RZ (DEG)	(PSI)	
.0420	-67.	184.	422.	-268.	-77.	106.	-.0123	.0096	-.0348	.0292	.0348	-.0164	2075.	
.0430	-160.	167.	279.	-249.	-223.	130.	-.0151	.0127	-.0239	.0341	.0411	-.0133	2498.	
.0440	-275.	118.	169.	-183.	-329.	134.	-.0139	.0134	-.0067	.0401	.0465	-.0072	2777.	
.0450	-448.	-108.	-27.	-68.	-405.	81.	-.0097	.0104	.0123	.0486	.0419	-.0028	2914.	
.0460	-612.	146.	-304.	45.	-500.	5.	-.0071	.0063	.0277	.0545	.0314	-.0008	3492.	
.0470	-652.	124.	-364.	91.	-540.	-7.	-.0090	.0062	.0333	.0523	.0322	.0053	3812.	
.0480	-575.	20.	-188.	67.	-498.	54.	-.0149	.0107	.0274	.0422	.0434	.0166	3517.	
.0490	-471.	-49.	-57.	28.	-430.	99.	-.0225	.0145	.0141	.0287	.0480	.0257	3080.	
.0500	-351.	-39.	41.	11.	-315.	89.	-.0289	.0148	-.0022	.0147	.0453	.0306	2278.	
.0510	-209.	-50.	247.	11.	-135.	68.	-.0327	.0139	-.0165	.0013	.0461	.0361	1058.	
.0520	-111.	-132.	358.	28.	-35.	67.	-.0348	.0135	-.0215	-.0123	.0472	.0437	558.	
.0530	-108.	-225.	194.	21.	-83.	52.	-.0348	.0119	-.0141	-.0253	.0400	.0493	884.	
.0540	-159.	-279.	-17.	178.	-126.	-9.	-.0302	.0072	.0005	-.0344	.0286	.0507	1515.	
.0550	-215.	-305.	-129.	292.	-85.	-99.	-.0216	.0008	.0160	-.0395	.0173	.0491	2224.	
.0560	-265.	-329.	-296.	383.	-80.	-172.	-.0146	-.0046	.0300	-.0456	.0035	.0467	2975.	
.0570	-269.	-370.	-477.	424.	-122.	-199.	-.0124	-.0069	.0384	-.0547	-.0079	.0448	3370.	
.0580	-177.	-416.	-424.	411.	-73.	-192.	-.0134	-.0061	.0359	-.0633	-.0085	.0427	3200.	
.0590	-9.	-418.	-197.	360.	78.	-180.	-.0154	-.0046	.0238	-.0703	-.0048	.0386	2855.	
.0600	171.	-372.	-34.	292.	224.	-169.	-.0176	-.0032	.0090	-.0777	-.0069	.0322	2815.	
.0610	320.	-332.	93.	220.	346.	-146.	-.0184	-.0009	-.0029	-.0837	-.0096	.0240	3029.	
.0620	443.	-312.	246.	159.	446.	-119.	-.0167	.0024	-.0075	-.0840	-.0065	.0133	3401.	
.0630	479.	-284.	257.	124.	453.	-106.	-.0123	.0050	-.0009	-.0791	-.0056	-.0002	3353.	
.0640	424.	-247.	64.	132.	369.	-113.	-.0051	.0053	.0156	-.0715	-.0139	-.0140	2837.	
.0650	310.	-209.	-152.	176.	291.	-145.	.0046	.0031	.0353	-.0601	-.0251	-.0264	2577.	
.0660	183.	-148.	-310.	229.	230.	-195.	.0134	-.0003	.0517	-.0449	-.0330	-.0386	2638.	
.0670	85.	-82.	-457.	247.	135.	-225.	.0171	-.0022	.0600	-.0312	-.0375	-.0494	2509.	
.0680	57.	-70.	-482.	205.	72.	-197.	.0153	-.0003	.0356	-.0225	-.0368	-.0555	2038.	
.0690	115.	-79.	-300.	115.	121.	-135.	.0101	.0036	.0374	-.0164	-.0301	-.0575	1499.	
.0700	235.	-27.	-30.	10.	230.	-88.	.0028	.0062	.0110	-.0103	-.0223	-.0584	1717.	
.0710	362.	53.	193.	-88.	317.	-50.	-.0048	.0073	-.0151	-.0049	-.0162	-.0570	2317.	
.0720	432.	65.	360.	-159.	369.	5.	-.0097	.0087	-.0337	.0009	-.0100	-.0509	2797.	
.0730	410.	40.	415.	-180.	360.	47.	-.0103	.0031	-.0400	.0099	-.0053	-.0429	2820.	
.0740	309.	64.	290.	-143.	264.	42.	-.0067	.0043	-.0329	.0229	-.0069	-.0367	2110.	
.0750	164.	111.	72.	-67.	138.	10.	.0006	-.0019	-.0170	.0376	-.0137	-.0307	1070.	
.0760	4.	115.	-125.	14.	35.	-8.	.0096	-.0073	.0008	.0516	-.0214	-.0227	269.	
.0770	-132.	109.	-294.	71.	-67.	-8.	.0164	-.0108	.0145	.0636	-.0267	-.0147	681.	
.0780	-195.	130.	-380.	87.	-152.	5.	.0186	-.0125	.0190	.0725	-.0264	-.0078	1218.	
.0790	-167.	143.	-280.	57.	-147.	42.	.0168	-.0120	.0112	.0778	-.0188	.0004	1132.	

ADLPIPE PAGE 2888

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/3/12/02.

18.30.02.

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

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

.0700	235.	-27.	-30.	10.	230.	-88.	.0028	.0062	.0110	-.0103	-.0223	-.0584	1717.
.0710	362.	53.	193.	-88.	317.	-50.	-.0048	.0073	-.0151	-.0049	-.0162	-.0570	2317.
.0720	432.	65.	360.	-159.	369.	5.	-.0097	.0083	-.0337	.0009	-.0100	-.0509	2797.
.0730	410.	40.	415.	-180.	360.	47.	-.0103	.0081	-.0400	.0099	-.0053	-.0429	2820.
.0740	307.	64.	290.	-143.	264.	42.	-.0067	.0043	-.0329	.0229	-.0069	-.0367	2110.
.0750	164.	111.	72.	-67.	138.	10.	.0006	-.0019	-.0170	.0376	-.0137	-.0307	1070.
.0760	4.	115.	-125.	14.	35.	-8.	.0096	-.0073	.0008	.0516	-.0214	-.0227	269.
.0770	-132.	109.	-294.	71.	-67.	-8.	.0164	-.0108	.0145	.0636	-.0267	-.0147	681.
.0780	-195.	130.	-710.	87.	-152.	5.	.0186	-.0125	.0190	.0725	-.0264	-.0078	1218.
.0790	-167.	143.	-280.	57.	-147.	42.	.0168	-.0120	.0112	.0778	-.0188	.0004	1132.

ADLPIPE PAGE 2888

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.02.

S/RV PIPING KEWAUNEE CKW08F 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	72	MEMBER	1	SEQUENCE	835	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)	
.0800	-80.	135.	-60.	-5.	-61.	100.		.0125	-.0101	-.0059	.0798	-.0083	.0104	815.	
.0810	27.	153.	136.	-76.	22.	150.		.0064	-.0085	-.0256	.0800	.0008	.0193	1179.	
.0820	126.	193.	300.	-134.	77.	180.		.0005	-.0076	-.0412	.0807	.0110	.0248	1651.	
.0830	166.	200.	423.	-166.	103.	201.		-.0023	-.0064	-.0481	.0834	.0221	.0275	1955.	
.0840	114.	180.	389.	-163.	58.	208.		-.0012	-.0057	-.0433	.0875	.0278	.0268	1883.	
.0850	3.	188.	201.	-125.	-53.	184.		.0033	-.0067	-.0285	.0924	.0266	.0217	1589.	
.0860	-105.	226.	32.	-73.	-145.	135.		.0103	-.0090	-.0098	.0982	.0252	.0131	1470.	
.0870	-180.	253.	-60.	-37.	-194.	96.		.0175	-.0101	.0073	.1027	.0264	.0032	1524.	
.0880	-204.	264.	-133.	-41.	-234.	36.		.0224	-.0089	.0193	.1024	.0284	-.0069	1759.	
.0890	-149.	280.	-116.	-88.	-234.	99.		.0243	-.0061	.0236	.0971	.0333	-.0168	1868.	
.0900	-24.	310.	61.	-162.	-145.	117.		.0248	-.0028	.0202	.0897	.0432	-.0268	1715.	
.0910	102.	345.	259.	-238.	-34.	127.		.0248	.0000	.0139	.0812	.0524	-.0367	1895.	
.0920	171.	361.	334.	-296.	11.	131.		.0242	.0021	.0106	.0721	.0565	-.0457	2252.	
.0930	167.	344.	323.	-315.	-4.	119.		.0238	.0029	.0124	.0649	.0584	-.0533	2346.	
.0940	89.	315.	254.	-287.	-53.	74.		.0240	.0016	.0188	.0617	.0586	-.0601	2105.	
.0950	-52.	295.	75.	-223.	-161.	-1.		.0240	-.0017	.0274	.0607	.0528	-.0668	1916.	
.0960	-207.	269.	-136.	-156.	-272.	-77.		.0226	-.0051	.0330	.0587	.0432	-.0721	2247.	
.0970	-308.	223.	-220.	-120.	-323.	-127.		.0188	-.0064	.0305	.0545	.0371	-.0753	2558.	
.0980	-331.	176.	-170.	-127.	-319.	-149.		.0116	-.0050	.0185	.0475	.0358	-.0774	2604.	
.0990	-292.	140.	-71.	-171.	-289.	-146.		.0016	-.0015	-.0008	.0374	.0349	-.0788	2551.	
.1000	-218.	98.	69.	-226.	-223.	-129.		-.0088	.0032	-.0235	.0257	.0327	-.0788	2386.	
.1010	-145.	58.	221.	-267.	-129.	-118.		-.0173	.0077	-.0443	.0156	.0283	-.0786	2223.	
.1020	-108.	36.	274.	-274.	-78.	-127.		-.0231	.0112	-.0579	.0087	.0194	-.0795	2169.	
.1030	-118.	12.	200.	-247.	-88.	-144.		-.0257	.0143	-.0619	.0042	.0055	-.0805	2082.	
.1040	-150.	-38.	84.	-197.	-109.	-153.		-.0245	.0174	-.0582	.0011	-.0109	-.0796	1894.	
.1050	-172.	-79.	-34.	-135.	-108.	-161.		-.0199	.0200	-.0502	-.0013	-.0290	-.0773	1643.	
.1060	-152.	-79.	-147.	-77.	-82.	-169.		-.0137	.0218	-.0414	-.0039	-.0481	-.0737	1415.	
.1070	-72.	-77.	-192.	-38.	-13.	-155.		-.0074	.0240	-.0346	-.0083	-.0643	-.0662	1113.	
.1080	70.	-106.	-139.	-24.	103.	-103.		-.0017	.0270	-.0308	-.0156	-.0754	-.0528	1026.	
.1090	240.	-131.	-60.	-16.	232.	-43.		.0034	.0295	-.0288	-.0243	-.0844	-.0366	1645.	
.1100	357.	-117.	-40.	14.	341.	-21.		.0084	.0300	-.0262	-.0270	-.0939	-.0220	2383.	
.1110	432.	-126.	-49.	62.	419.	-0.		.0129	.0293	-.0220	-.0277	-.1026	-.0041	2950.	
.1120	477.	-181.	-86.	124.	449.	34.		.0165	.0278	-.0160	-.0294	-.1105	.0187	3253.	
.1130	467.	-199.	-193.	201.	431.	38.		.0191	.0248	-.0095	-.0272	-.1193	.0385	3319.	
.1140	430.	-172.	-207.	272.	414.	14.		.0210	.0219	-.0056	-.0203	-.1258	.0516	3445.	
.1150	424.	-188.	-267.	300.	431.	28.		.0215	.0220	-.0063	-.0155	-.1253	.0639	3663.	
.1160	461.	-236.	-187.	284.	453.	84.		.0197	.0247	-.0107	-.0151	-.1194	.0761	3766.	
.1170	527.	-208.	-113.	245.	465.	122.		.0169	.0272	-.0166	-.0150	-.1110	.0818	3756.	

ADLPIPE PAGE 2889

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.02.

S/RV PIPING KEWAUNEE CKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

.1070	-72.	-77.	-192.	-38.	-13.	-155.	-.0174	.0240	-.0346	-.0083	-.0643	-.0662	1113.
.1080	70.	-106.	-139.	-24.	103.	-103.	-.0017	.0270	-.0308	-.0156	-.0754	-.0528	1026.
.1090	240.	-131.	-60.	-16.	232.	-43.	.0034	.0295	-.0288	-.0243	-.0844	-.0366	1645.
.1100	357.	-117.	-40.	14.	341.	-21.	.0084	.0300	-.0262	-.0270	-.0939	-.0220	2383.
.1110	432.	-126.	-49.	62.	419.	-0.	.0129	.0293	-.0220	-.0277	-.1026	-.0041	2950.
.1120	477.	-101.	-86.	124.	440.	34.	.0165	.0278	-.0160	-.0294	-.1105	.0187	3213.
.1130	467.	-199.	-193.	201.	431.	38.	.0191	.0248	-.0095	-.0272	-.1193	.0385	3319.
.1140	430.	-172.	-287.	272.	414.	14.	.0210	.0219	-.0056	-.0203	-.1258	.0516	3445.
.1150	424.	-188.	-267.	300.	431.	28.	.0215	.0220	-.0063	-.0155	-.1253	.0639	3663.
.1160	461.	-236.	-187.	284.	453.	84.	.0197	.0247	-.0107	-.0151	-.1194	.0761	3766.
.1170	527.	-208.	-113.	245.	465.	122.	.0169	.0272	-.0166	-.0150	-.1110	.0818	3756.

ADLPIPE PAGE 2889

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/3/12/02.

18.30.02.

S/RV PIPING KEWAUNEE CKW08F 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	72	MEMBER	1	SEQUENCE	835	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)		
.1180	595.	-116.	35.	193.	525.	133.		.0157	.0297	-.0222	-.0107	-.0981	.0796	3999.		
.1190	667.	-64.	207.	120.	579.	179.		.0167	.0340	-.0231	-.0093	-.0829	.0768	4294.		
.1200	678.	-57.	247.	52.	537.	246.		.0196	.0391	-.0148	-.0107	-.0705	.0734	4124.		
.1210	568.	-2.	155.	31.	421.	249.		.0252	.0420	.0021	-.0049	-.0601	.0610	3413.		
.1220	385.	109.	2.	47.	269.	191.		.0322	.0430	.0234	.0070	-.0500	.0398	2319.		
.1230	174.	152.	-147.	57.	108.	153.		.0383	.0455	.0436	.0176	-.0396	.0194	1364.		
.1240	-13.	134.	-309.	38.	-72.	155.		.0403	.0495	.0573	.0218	-.0299	.0038	1218.		
.1250	-130.	178.	-368.	-9.	-206.	139.		.0374	.0526	.0590	.0239	-.0159	-.0128	1729.		
.1260	-160.	273.	-188.	-90.	-209.	109.		.0317	.0556	.0468	.0263	.0069	-.0305	1759.		
.1270	-114.	303.	89.	-221.	-169.	139.		.0236	.0609	.0263	.0201	.0514	-.0410	2164.		
.1280	-85.	246.	299.	-357.	-159.	211.		.0150	.0670	.0057	.0082	.0516	-.0440	3091.		
.1290	-121.	233.	403.	-431.	-197.	221.		.0084	.0688	-.0086	.0007	.0675	-.0479	3629.		
.1300	-225.	281.	423.	-426.	-257.	152.		.0055	.0653	-.0133	.0007	.0796	-.0539	3623.		
.1310	-409.	247.	312.	-373.	-371.	87.		.0060	.0601	-.0081	.0021	.0838	-.0528	3712.		
.1320	-629.	128.	36.	-295.	-563.	59.		.0077	.0540	.0039	-.0019	.0784	-.0416	4446.		
.1330	-828.	53.	-203.	-195.	-724.	0.		.0099	.0453	.0143	-.0047	.0727	-.0287	5221.		
.1340	-941.	74.	-269.	-106.	-782.	-88.		.0112	.0352	.0166	-.0055	.0721	-.0176	5524.		
.1350	-955.	34.	-222.	-77.	-768.	-109.		.0100	.0287	.0093	-.0128	.0722	-.0005	5424.		
.1360	-891.	-107.	-122.	-100.	-713.	-46.		.0059	.0265	-.0054	-.0276	.0709	.0250	5023.		
.1370	-750.	-187.	29.	-126.	-626.	1.		.0002	.0231	-.0237	-.0426	.0698	.0500	4446.		
.1380	-593.	-161.	229.	-119.	-494.	-17.		-.0037	.0169	-.0408	-.0505	.0690	.0689	3536.		
.1390	-487.	-177.	322.	-89.	-392.	-27.		-.0039	.0111	-.0502	-.0578	.0609	.0875	2803.		
.1400	-461.	-292.	226.	-39.	-374.	-1.		-.0004	.0072	-.0487	-.0681	.0433	.1071	2616.		
.1410	-491.	-368.	65.	47.	-387.	-16.		.0064	.0028	-.0388	-.0732	.0244	.1186	2714.		
.1420	-501.	-371.	-84.	144.	-396.	-85.		.0147	-.0031	-.0251	-.0737	.0067	.1193	2991.		
.1430	-469.	-325.	-203.	207.	-371.	-120.		.0231	-.0067	-.0125	-.0775	-.0127	.1184	3076.		
.1440	-388.	-403.	-296.	221.	-313.	-87.		.0302	-.0056	-.0046	-.0893	-.0341	.1200	2738.		
.1450	-246.	-421.	-292.	212.	-207.	-69.		.0350	-.0046	-.0037	-.1014	-.0503	.1162	2116.		
.1460	-56.	-338.	-147.	189.	-43.	-99.		.0376	-.0042	-.0093	-.1091	-.0568	.1037	1515.		
.1470	160.	-293.	17.	134.	116.	-91.		.0386	-.0013	-.0168	-.1207	-.0614	.0911	1387.		
.1480	338.	-347.	115.	63.	247.	-31.		.0397	.0045	-.0218	-.1360	-.0695	.0811	1786.		
.1490	463.	-346.	146.	19.	343.	-14.		.0418	.0086	-.0213	-.1463	-.0783	.0653	2392.		
.1500	536.	-235.	143.	16.	400.	-68.		.0448	.0096	-.0144	-.1480	-.0838	.0413	2826.		
.1510	530.	-181.	81.	29.	406.	-106.		.0483	.0118	-.0017	-.1464	-.0873	.0190	2928.		
.1520	458.	-231.	-91.	39.	338.	-87.		.0507	.0162	.0145	-.1470	-.0921	.0042	2441.		
.1530	368.	-234.	-247.	61.	267.	-88.		.0509	.0193	.0283	-.1427	-.0930	-.0098	2000.		
.1540	318.	-120.	-272.	85.	248.	-135.		.0480	.0205	.0351	-.1316	-.0854	-.0263	2051.		
.1550	301.	-38.	-208.	73.	259.	-137.		.0409	.0246	.0343	-.1204	-.0726	-.0378	2100.		

ADLPIPE PAGE 2890

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/3/12/02.

18.30.02.

S/RV PIPING KEWAUNEE CKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

.1450	-246.	-421.	-293.	213.	-207.	-69.	.350	-.0046	-.0037	-.1014	-.0503	.1162	2116.
.1460	-56.	-338.	-147.	139.	-43.	-99.	.376	-.0042	-.0093	-.1091	-.0568	.1037	1515.
.1470	160.	-273.	17.	134.	116.	-91.	.0386	-.0013	-.0168	-.1207	-.0614	.0911	1387.
.1480	730.	-347.	110.	83.	247.	-71.	.0397	.0045	-.0218	-.1360	-.0695	.0811	1786.
.1490	467.	-346.	146.	19.	347.	-14.	.0418	.0086	-.0213	-.1463	-.0783	.0653	2392.
.1500	536.	-235.	147.	16.	400.	-68.	.0448	.0096	-.0144	-.1480	-.0838	.0413	2826.
.1510	530.	-181.	81.	29.	406.	-106.	.0483	.0118	-.0017	-.1464	-.0873	.0190	2928.
.1520	458.	-231.	-91.	39.	338.	-87.	.0507	.0162	.0145	-.1470	-.0921	.0042	2441.
.1530	368.	-234.	-247.	61.	267.	-88.	.0509	.0193	.0283	-.1427	-.0930	-.0098	2000.
.1540	310.	-120.	-272.	15.	240.	-135.	.0400	.0205	.0351	-.1316	-.0854	-.0263	2051.
.1550	301.	-31.	-200.	73.	259.	-137.	.0409	.0246	.0343	-.1204	-.0726	-.0378	2100.

ADLPIPE PAGE 2890

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.02.

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	72	MEMBER	1	SEQUENCE	835	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)	
.1560	269.	-77.	-138.	21.	252.	-56.	.0297	.0338	.0281	-.1112	-.0575	-.0408	1805.		
.1570	239.	-93.	-72.	-35.	210.	28.	.0148	.0432	.0189	-.0999	-.0388	-.0410	1495.		
.1580	196.	-15.	50.	-57.	186.	57.	-.0007	.0495	.0089	-.0805	-.0146	-.0422	1411.		
.1590	98.	41.	157.	-48.	157.	81.	-.0149	.0546	.0016	-.0574	.0080	-.0383	1274.		
.1600	-56.	11.	98.	-23.	49.	146.	-.0283	.0600	.0006	-.0376	.0234	-.0253	1085.		
.1610	-221.	-13.	-8.	23.	-95.	204.	-.0408	.0638	.0046	-.0172	.0382	-.0092	1575.		
.1620	-375.	26.	-29.	94.	-196.	215.	-.0511	.0652	.0104	.0080	.0574	.0043	2127.		
.1630	-499.	61.	-72.	157.	-290.	233.	-.0599	.0662	.0170	.0287	.0727	.0189	2812.		
.1640	-596.	17.	-152.	195.	-375.	298.	-.0671	.0686	.0229	.0403	.0812	.0386	3600.		
.1650	-647.	-36.	-151.	226.	-402.	358.	-.0727	.0701	.0259	.0482	.0896	.0586	4064.		
.1660	-641.	-17.	-89.	264.	-398.	368.	-.0775	.0684	.0262	.0541	.0988	.0743	4194.		
.1670	-621.	-11.	-56.	303.	-393.	364.	-.0812	.0653	.0255	.0555	.1032	.0885	4280.		
.1680	-605.	-92.	-86.	373.	-393.	381.	-.0832	.0623	.0246	.0489	.0992	.1041	4460.		
.1690	-584.	-182.	-106.	369.	-366.	373.	-.0830	.0577	.0228	.0392	.0913	.1157	4450.		
.1700	-541.	-196.	-111.	414.	-324.	304.	-.0813	.0499	.0198	.0289	.0822	.1182	4225.		
.1710	-470.	-208.	-139.	444.	-290.	227.	-.0787	.0415	.0161	.0132	.0699	.1159	4015.		
.1720	-395.	-308.	-141.	444.	-224.	184.	-.0741	.0349	.0107	-.0075	.0554	.1127	3695.		
.1730	-297.	-397.	-129.	428.	-140.	136.	-.0683	.0279	.0042	-.0308	.0396	.1050	3275.		
.1740	-159.	-390.	-96.	411.	-42.	40.	-.0617	.0184	-.0028	-.0519	.0249	.0886	2887.		
.1750	-19.	-366.	-39.	381.	70.	-61.	-.0539	.0091	-.0091	-.0707	.0115	.0675	2732.		
.1760	114.	-308.	-15.	325.	158.	-117.	-.0452	.0023	-.0128	-.0910	-.0030	.0466	2641.		
.1770	223.	-423.	-16.	258.	224.	-163.	-.0357	-.0035	-.0137	-.1076	-.0167	.0224	2635.		
.1780	320.	-354.	-13.	197.	275.	-240.	-.0256	-.0102	-.0120	-.1168	-.0272	-.0082	2886.		
.1790	392.	-257.	14.	133.	326.	-314.	-.0151	-.0160	-.0084	-.1191	-.0339	-.0410	3281.		
.1800	435.	-207.	15.	50.	340.	-338.	-.0054	-.0187	-.0030	-.1183	-.0391	-.0703	3392.		
.1810	471.	-147.	-20.	-45.	326.	-332.	.0019	-.0200	.0035	-.1142	-.0421	-.0967	3253.		
.1820	495.	-25.	10.	-131.	321.	-343.	.0075	-.0214	.0087	-.1008	-.0380	-.1233	3391.		
.1830	505.	121.	70.	-213.	322.	-348.	.0111	-.0220	.0126	-.0813	-.0289	-.1470	3614.		
.1840	480.	219.	110.	-301.	290.	-307.	.0122	-.0204	.0160	-.0603	-.0189	-.1629	3611.		
.1850	440.	290.	123.	-381.	232.	-242.	.0108	-.0175	.0191	-.0369	-.0071	-.1721	3536.		
.1860	374.	397.	151.	-475.	167.	-197.	.0074	-.0155	.0214	-.0086	.0080	-.1783	3523.		
.1870	274.	510.	177.	-461.	100.	-165.	.0024	-.0138	.0228	.0236	.0240	-.1804	3479.		
.1880	154.	567.	142.	-474.	4.	-109.	-.0045	-.0112	.0238	.0531	.0367	-.1748	3386.		
.1890	37.	580.	104.	-475.	-90.	-37.	-.0128	-.0080	.0232	.0797	.0483	-.1624	3376.		
.1900	-66.	610.	122.	-457.	-147.	15.	-.0219	-.0058	.0199	.1054	.0613	-.1472	3345.		
.1910	-128.	651.	152.	-428.	-184.	54.	-.0314	-.0043	.0146	.1265	.0728	-.1294	3267.		
.1920	-169.	635.	180.	-398.	-196.	111.	-.0401	-.0021	.0087	.1402	.0806	-.1071	3188.		
.1930	-189.	573.	207.	-361.	-185.	176.	-.0475	.0004	.0035	.1473	.0850	-.0821	3080.		

ADLPIPE PAGE 2891

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.02.

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

.1830	507.	121.	75.	-213.	322.	-348.	.111	-.0220	.0126	-.0813	-.0289	-.1470	3614.
.1840	485.	219.	110.	-301.	290.	-307.	.122	-.0204	.0160	-.0603	-.0189	-.1629	3611.
.1850	440.	290.	123.	-301.	232.	-242.	.0108	-.0175	.0191	-.0369	-.0071	-.1721	3536.
.1860	774.	397.	151.	-475.	167.	-197.	.0074	-.0155	.0214	-.0086	.0080	-.1783	3523.
.1870	274.	510.	177.	-461.	100.	-165.	.0024	-.0138	.0228	.0256	.0240	-.1804	3479.
.1880	154.	567.	142.	-474.	4.	-109.	-.0045	-.0112	.0238	.0531	.0367	-.1748	3386.
.1890	37.	580.	104.	-475.	-90.	-37.	-.0128	-.0080	.0232	.0797	.0483	-.1624	3376.
.1900	-66.	610.	122.	-457.	-147.	15.	-.0219	-.0058	.0199	.1054	.0615	-.1472	3345.
.1910	-120.	651.	152.	-428.	-184.	54.	-.0314	-.0043	.0146	.1265	.0728	-.1294	3267.
.1920	-167.	675.	180.	-398.	-196.	111.	-.0401	-.0021	.0087	.1402	.0806	-.1071	3188.
.1930	-180.	573.	207.	-361.	-185.	176.	-.0475	.0004	.0035	.1473	.0850	-.0821	3080.

ADLPIPE PAGE 2891

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/3/12/02. 18.30.02.

S/RV PIPING KEWAUNEE CKW05F 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	72	MEMBER	1	SEQUENCE	835	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)	
.1940	-194.	529.	220.	-301.	-167.	208.		-.0533	.0013	.0007	.1505	.0868	-.0586	2800.	
.1950	-200.	492.	192.	-216.	-154.	208.		-.0573	.0003	.0012	.1502	.0848	-.0371	2346.	
.1960	-218.	407.	113.	-115.	-148.	205.		-.0593	-.0010	.0046	.1444	.0773	-.0154	1930.	
.1970	-240.	291.	7.	-8.	-141.	195.		-.0599	-.0027	.0092	.1338	.0655	.0052	1673.	
.1980	-245.	205.	-96.	106.	-123.	156.		-.0601	-.0054	.0126	.1210	.0527	.0208	1568.	
.1990	-216.	140.	-148.	200.	-83.	106.		-.0607	-.0080	.0129	.1059	.0407	.0316	1680.	
.2000	-145.	50.	-150.	258.	-10.	79.		-.0620	-.0085	.0092	.0867	.0290	.0399	1885.	
.2010	-36.	-49.	-112.	280.	60.	73.		-.0636	-.0074	.0023	.0645	.0174	.0452	2070.	
.2020	97.	-103.	-34.	204.	173.	54.		-.0647	-.0064	-.0060	.0437	.0075	.0443	2345.	
.2030	228.	-120.	57.	201.	277.	20.		-.0645	-.0057	-.0127	.0262	-.0007	.0377	2749.	
.2040	327.	-145.	102.	271.	347.	-4.		-.0625	-.0045	-.0149	.0110	-.0093	.0281	3064.	
.2050	384.	-175.	78.	260.	370.	-21.		-.0586	-.0032	-.0115	-.0011	-.0189	.0158	3154.	
.2060	404.	-165.	21.	257.	367.	-56.		-.0527	-.0030	-.0033	-.0074	-.0280	-.0009	3142.	
.2070	401.	-117.	-40.	254.	351.	-104.		-.0457	-.0038	.0071	-.0082	-.0352	-.0212	3100.	
.2080	388.	-72.	-102.	233.	320.	-135.		-.0389	-.0040	.0175	-.0069	-.0407	-.0415	2910.	
.2090	380.	-40.	-143.	188.	284.	-140.		-.0333	-.0034	.0253	-.0046	-.0434	-.0603	2564.	
.2100	389.	13.	-122.	125.	268.	-141.		-.0292	-.0030	.0283	.0002	-.0416	-.0787	2284.	
.2110	414.	95.	-43.	51.	276.	-147.		-.0265	-.0033	.0267	.0072	-.0360	-.0965	2207.	
.2120	445.	169.	53.	-34.	290.	-140.		-.0250	-.0036	.0222	.0144	-.0289	-.1116	2255.	
.2130	462.	216.	135.	-121.	294.	-119.		-.0239	-.0039	.0171	.0216	-.0215	-.1232	2363.	
.2140	453.	262.	192.	-192.	281.	-105.		-.0225	-.0051	.0137	.0304	-.0138	-.1328	2481.	
.2150	407.	321.	207.	-237.	247.	-110.		-.0200	-.0080	.0131	.0411	-.0068	-.1411	2500.	
.2160	325.	364.	167.	-257.	191.	-121.		-.0164	-.0118	.0154	.0518	-.0022	-.1463	2386.	
.2170	219.	379.	91.	-263.	126.	-127.		-.0121	-.0157	.0193	.0613	.0002	-.1479	2213.	
.2180	118.	390.	17.	-260.	65.	-134.		-.0081	-.0198	.0226	.0698	.0024	-.1468	2083.	
.2190	44.	409.	-26.	-256.	22.	-142.		-.0050	-.0236	.0235	.0765	.0052	-.1436	2042.	
.2200	4.	414.	-30.	-262.	6.	-136.		-.0030	-.0263	.0205	.0802	.0081	-.1374	2052.	
.2210	-6.	398.	0.	-278.	17.	-112.		-.0017	-.0275	.0143	.0803	.0103	-.1283	2087.	
.2220	9.	380.	55.	-295.	46.	-85.		-.0008	-.0279	.0064	.0782	.0120	-.1177	2158.	
.2230	28.	370.	112.	-302.	76.	-65.		.0002	-.0280	-.0010	.0753	.0130	-.1069	2218.	
.2240	38.	346.	138.	-296.	92.	-47.		.0019	-.0278	-.0057	.0715	.0117	-.0953	2185.	
.2250	26.	303.	113.	-274.	86.	-31.		.0047	-.0273	-.0069	.0667	.0071	-.0829	2008.	
.2260	-4.	263.	49.	-233.	65.	-27.		.0085	-.0271	-.0048	.0618	-.0001	-.0713	1692.	
.2270	-39.	234.	-23.	-182.	38.	-37.		.0127	-.0270	-.0014	.0571	-.0082	-.0612	1318.	
.2280	-67.	200.	-83.	-176.	12.	-43.		.0165	-.0262	.0016	.0508	-.0162	-.0517	998.	
.2290	-65.	151.	-116.	-107.	-5.	-35.		.0194	-.0241	.0025	.0421	-.0236	-.0420	786.	
.2300	-40.	106.	-104.	-94.	-3.	-23.		.0210	-.0213	.0002	.0320	-.0295	-.0333	673.	
.2310	6.	78.	-49.	-91.	18.	-16.		.0217	-.0184	-.0048	.0216	-.0336	-.0261	654.	

ADLPIPE PAGE 2892

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/3/12/02. 18.30.02.

S/RV PIPING KEWAUNEE CKW05F 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

.2210	-6.	398.	0.	-278.	17.	-112.	-.017	-.0275	.0143	.0803	.0081	-.1374	2052.
.2220	5.	380.	55.	-295.	46.	-85.	-.0008	-.0279	.0064	.0782	.0120	-.1177	2158.
.2230	21.	370.	112.	-302.	76.	-65.	.0002	-.0280	-.0010	.0753	.0130	-.1069	2218.
.2240	39.	346.	139.	-276.	92.	-47.	.0019	-.0278	-.0057	.0715	.0117	-.0953	2185.
.2250	26.	303.	117.	-274.	86.	-31.	.0047	-.0273	-.0064	.0667	.0071	-.0829	2008.
.2260	-4.	263.	49.	-273.	65.	-27.	.0005	-.0271	-.0048	.0618	-.0001	-.0713	1692.
.2270	-39.	234.	-27.	-102.	38.	-37.	.0127	-.0270	-.0014	.0571	-.0082	-.0612	1318.
.2280	-63.	200.	-87.	-136.	12.	-43.	.0165	-.0262	.0016	.0508	-.0162	-.0517	998.
.2290	-69.	151.	-116.	-107.	-5.	-35.	.0194	-.0241	.0025	.0421	-.0236	-.0420	786.
.2300	-40.	106.	-104.	-94.	-3.	-23.	.0210	-.0213	.0002	.0320	-.0295	-.0333	673.
.2310	6.	78.	-49.	-61.	18.	-16.	.0217	-.0184	-.0048	.0216	-.0336	-.0261	654.

ADLPIPE PAGE 2892

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.02.

S/RV PIPING KEWAUNEE CKW08F 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	TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS
72	(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)
.2320	61.	52.	10.	-94.	41.	-9.	.0215	-.0154	-.0107	.0111	-.0365	-.0198	717.	
.2330	105.	17.	73.	-99.	51.	1.	.0211	-.0123	-.0155	.0007	-.0387	-.0139	773.	
.2340	129.	-16.	104.	-98.	44.	6.	.0210	-.0094	-.0178	-.0082	-.0401	-.0091	748.	
.2350	130.	-32.	114.	-87.	22.	-1.	.0218	-.0074	-.0169	-.0147	-.0405	-.0062	627.	
.2360	111.	-38.	98.	-71.	-13.	-13.	.0234	-.0057	-.0128	-.0193	-.0400	-.0046	507.	
.2370	76.	-48.	66.	-55.	-59.	-18.	.0255	-.0037	-.0065	-.0224	-.0383	-.0034	573.	
.2380	36.	-54.	33.	-44.	-107.	-18.	.0274	-.0013	.0012	-.0237	-.0343	-.0028	814.	
.2390	-1.	-46.	17.	-39.	-151.	-15.	.0287	.0014	.0084	-.0229	-.0275	-.0029	1090.	
.2400	-34.	-31.	17.	-41.	-187.	-7.	.0291	.0046	.0144	-.0205	-.0182	-.0028	1334.	
.2410	-67.	-19.	30.	-49.	-217.	10.	.0285	.0084	.0188	-.0168	-.0072	-.0020	1547.	
.2420	-106.	-7.	48.	-59.	-244.	32.	.0270	.0127	.0219	-.0116	.0051	-.0007	1762.	
.2430	-157.	8.	63.	-67.	-276.	52.	.0246	.0171	.0243	-.0047	.0186	.0006	2009.	
.2440	-227.	19.	64.	-69.	-315.	71.	.0215	.0216	.0262	.0034	.0322	.0023	2298.	
.2450	-303.	17.	47.	-65.	-360.	90.	.0180	.0261	.0279	.0116	.0448	.0050	2622.	
.2460	-390.	10.	17.	-54.	-405.	106.	.0142	.0301	.0292	.0195	.0560	.0087	2936.	
.2470	-475.	3.	-14.	-36.	-447.	114.	.0104	.0333	.0295	.0263	.0659	.0131	3193.	
.2480	-552.	-11.	-41.	-15.	-471.	120.	.0067	.0361	.0285	.0313	.0741	.0186	3385.	
.2490	-617.	-42.	-67.	5.	-489.	126.	.0031	.0385	.0262	.0335	.0800	.0252	3517.	
.2500	-662.	-84.	-88.	26.	-494.	131.	-.0002	.0404	.0275	.0325	.0832	.0327	3562.	
.2510	-685.	-127.	-101.	49.	-482.	127.	-.0028	.0411	.0176	.0285	.0832	.0407	3489.	
.2520	-689.	-173.	-113.	76.	-456.	115.	-.0043	.0408	.0120	.0216	.0794	.0486	3316.	
.2530	-676.	-229.	-133.	106.	-420.	97.	-.0045	.0396	.0063	.0114	.0715	.0567	3091.	
.2540	-647.	-294.	-157.	136.	-376.	77.	-.0033	.0376	.0008	-.0017	.0600	.0645	2835.	
.2550	-601.	-359.	-179.	169.	-323.	49.	-.0007	.0347	-.0044	-.0171	.0456	.0715	2559.	
.2560	-534.	-419.	-202.	201.	-261.	14.	.0033	.0309	-.0093	-.0344	.0284	.0776	2291.	
.2570	-449.	-479.	-221.	229.	-188.	-21.	.0085	.0265	-.0138	-.0533	.0086	.0830	2069.	
.2580	-346.	-537.	-233.	252.	-108.	-56.	.0146	.0217	-.0182	-.0729	-.0125	.0877	1947.	
.2590	-232.	-587.	-236.	270.	-24.	-90.	.0213	.0167	-.0223	-.0922	-.0339	.0915	1987.	
.2600	-111.	-629.	-231.	283.	56.	-122.	.0283	.0116	-.0259	-.1103	-.0545	.0948	2178.	
.2610	9.	-663.	-223.	291.	131.	-148.	.0355	.0064	-.0290	-.1268	-.0743	.0978	2451.	
.2620	121.	-694.	-214.	295.	199.	-171.	.0425	.0014	-.0315	-.1405	-.0927	.1003	2751.	
.2630	221.	-691.	-202.	295.	256.	-190.	.0492	-.0033	-.0372	-.1505	-.1087	.1019	3022.	
.2640	307.	-686.	-188.	288.	296.	-199.	.0551	-.0072	-.0342	-.1568	-.1214	.1031	3195.	
.2650	375.	-671.	-173.	275.	318.	-198.	.0599	-.0103	-.0345	-.1592	-.1304	.1039	3234.	
.2660	424.	-644.	-155.	255.	326.	-188.	.0636	-.0125	-.0344	-.1574	-.1354	.1044	3164.	
.2670	453.	-600.	-129.	230.	324.	-172.	.0664	-.0139	-.0341	-.1514	-.1364	.1041	3014.	
.2680	462.	-544.	-99.	200.	310.	-147.	.0680	-.0143	-.0376	-.1415	-.1332	.1034	2764.	
.2690	451.	-484.	-69.	165.	279.	-112.	.0684	-.0136	-.0325	-.1283	-.1257	.1024	2388.	

ADLPIPE PAGE 2897

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.02.

S/RV PIPING KEWAUNEE CKW08F 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

.2600	-111.	-587.	-231.	273.	56.	-122.	.2283	.0116	-.0223	-.1103	-.0545	.0915	1987.
.2610	9.	-663.	-223.	291.	131.	-148.	.3353	.0064	-.0290	-.1268	-.0743	.0978	2451.
.2620	121.	-654.	-214.	291.	190.	-171.	.0425	.0014	-.0315	-.1405	-.0927	.1003	2751.
.2630	221.	-691.	-202.	295.	256.	-190.	.0492	-.0033	-.0332	-.1505	-.1087	.1019	3022.
.2640	207.	-686.	-180.	288.	296.	-169.	.0551	-.0072	-.0342	-.1568	-.1214	.1031	3195.
.2650	375.	-671.	-173.	275.	318.	-198.	.0599	-.0103	-.0345	-.1592	-.1304	.1039	3234.
.2660	424.	-644.	-155.	255.	326.	-188.	.0636	-.0125	-.0344	-.1574	-.1354	.1044	3164.
.2670	453.	-600.	-129.	230.	324.	-172.	.0664	-.0139	-.0341	-.1514	-.1364	.1041	3014.
.2680	462.	-544.	-99.	200.	310.	-147.	.0600	-.0143	-.0336	-.1415	-.1332	.1034	2764.
.2690	451.	-484.	-69.	165.	279.	-112.	.0684	-.0136	-.0325	-.1283	-.1257	.1024	2388.

ADLPIPE PAGE 2893

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.02.

S/RV 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	72	MEMBER	1	SEQUENCE	835	LOCATION	END	TYPE	EL						
TIME	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	FX	RY	RZ	STRESS		
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)		
.2700	421.	-419.	-42.	126.	233.	-70.	.0676	-.0120	-.0309	-.1123	-.1145	.1011	1910.		
.2710	369.	-344.	-18.	88.	178.	-27.	.0660	-.0099	-.0289	-.0939	-.1003	.0989	1392.		
.2720	296.	-263.	-2.	51.	115.	15.	.0638	-.0072	-.0265	-.0735	-.0838	.0955	881.		
.2730	205.	-187.	7.	14.	44.	60.	.0609	-.0039	-.0239	-.0521	-.0654	.0916	529.		
.2740	103.	-119.	12.	-22.	-34.	108.	.0572	-.0003	-.0214	-.0307	-.0455	.0883	804.		
.2750	-1.	-51.	17.	-55.	-113.	152.	.0529	.0030	-.0194	-.0100	-.0242	.0850	1373.		
.2760	-103.	21.	26.	-84.	-182.	188.	.0484	.0059	-.0183	.0101	-.0032	.0814	1912.		
.2770	-201.	84.	40.	-113.	-238.	221.	.0439	.0086	-.0182	.0285	.0170	.0779	2395.		
.2780	-291.	129.	56.	-143.	-288.	256.	.0393	.0113	-.0187	.0443	.0362	.0749	2860.		
.2790	-370.	167.	68.	-168.	-337.	284.	.0347	.0133	-.0193	.0575	.0542	.0721	3281.		
.2800	-441.	207.	77.	-185.	-377.	299.	.0306	.0142	-.0199	.0687	.0699	.0687	3588.		
.2810	-506.	240.	80.	-196.	-405.	303.	.0274	.0144	-.0203	.0776	.0822	.0649	3776.		
.2820	-563.	255.	72.	-202.	-427.	304.	.0249	.0140	-.0204	.0838	.0910	.0613	3909.		
.2830	-609.	260.	51.	-202.	-450.	299.	.0227	.0129	-.0201	.0876	.0968	.0579	4012.		
.2840	-639.	269.	31.	-196.	-468.	281.	.0206	.0109	-.0201	.0896	.1000	.0540	4037.		
.2850	-646.	276.	23.	-189.	-468.	257.	.0188	.0084	-.0210	.0896	.1002	.0496	3942.		
.2860	-630.	270.	27.	-186.	-448.	235.	.0174	.0062	-.0231	.0872	.0970	.0452	3752.		
.2870	-588.	259.	41.	-188.	-414.	214.	.0162	.0041	-.0261	.0826	.0910	.0405	3502.		
.2880	-519.	256.	68.	-193.	-370.	190.	.0151	.0021	-.0294	.0766	.0833	.0347	3191.		
.2890	-427.	255.	105.	-199.	-314.	164.	.0145	.0002	-.0325	.0693	.0736	.0281	2827.		
.2900	-325.	246.	133.	-204.	-249.	142.	.0150	-.0012	-.0344	.0604	.0606	.0212	2449.		
.2910	-220.	235.	143.	-206.	-180.	119.	.0166	-.0026	-.0346	.0505	.0444	.0138	2076.		
.2920	-111.	232.	141.	-200.	-112.	89.	.0191	-.0040	-.0330	.0403	.0266	.0056	1710.		
.2930	-2.	230.	129.	-188.	-47.	56.	.0222	-.0053	-.0299	.0298	.0078	-.0030	1402.		
.2940	107.	215.	105.	-175.	19.	29.	.0255	-.0062	-.0261	.0181	-.0123	-.0106	1239.		
.2950	219.	195.	79.	-161.	91.	5.	.0288	-.0067	-.0226	.0053	-.0332	-.0175	1285.		
.2960	336.	183.	67.	-146.	175.	-23.	.0316	-.0072	-.0204	-.0078	-.0533	-.0242	1595.		
.2970	458.	173.	73.	-133.	268.	-49.	.0335	-.0074	-.0197	-.0211	-.0716	-.0300	2111.		
.2980	578.	147.	85.	-126.	359.	-64.	.0343	-.0068	-.0203	-.0353	-.0880	-.0336	2682.		
.2990	688.	111.	96.	-117.	445.	-70.	.0342	-.0060	-.0216	-.0495	-.1026	-.0350	3241.		
.3000	780.	85.	106.	-102.	528.	-83.	.0336	-.0055	-.0230	-.0621	-.1151	-.0353	3786.		
.3010	849.	68.	108.	-77.	601.	-100.	.0325	-.0053	-.0238	-.0724	-.1252	-.0344	4278.		
.3020	888.	40.	90.	-49.	654.	-109.	.0308	-.0048	-.0233	-.0808	-.1528	-.0315	4624.		
.3030	900.	3.	56.	-18.	681.	-107.	.0284	-.0038	-.0215	-.0870	-.1574	-.0263	4800.		
.3040	890.	-21.	20.	17.	693.	-104.	.0254	-.0027	-.0188	-.0899	-.1384	-.0202	4880.		
.3050	863.	-26.	-7.	52.	699.	-102.	.0218	-.0016	-.0160	-.0892	-.1358	-.0136	4928.		
.3060	821.	-31.	-26.	80.	695.	-88.	.0175	.0002	-.0132	-.0857	-.1297	-.0058	4908.		
.3070	767.	-41.	-37.	99.	675.	-57.	.0122	.0030	-.0105	-.0798	-.1200	.0036	4767.		

ADLPIPE PAGE 2894

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.02.

S/RV 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

.2980	430.	172.	73.	-113.	288.	-49.	.0335	-.0074	-.0197	-.0211	-.0718	-.0300	2111.
.2990	570.	147.	85.	-126.	359.	-64.	.0343	-.0068	-.0203	-.0353	-.0880	-.0336	2682.
.3000	680.	111.	96.	-117.	445.	-70.	.0342	-.0060	-.0216	-.0495	-.1026	-.0350	3241.
.3010	780.	85.	106.	-102.	525.	-83.	.0336	-.0055	-.0230	-.0621	-.1151	-.0353	3786.
.3020	840.	60.	108.	-77.	601.	-100.	.0325	-.0053	-.0238	-.0724	-.1252	-.0344	4278.
.3030	880.	40.	90.	-49.	654.	-109.	.0308	-.0048	-.0233	-.0808	-.1328	-.0315	4624.
.3040	900.	3.	56.	-18.	681.	-107.	.0284	-.0038	-.0215	-.0870	-.1374	-.0263	4800.
.3050	890.	-21.	20.	17.	693.	-104.	.0254	-.0027	-.0188	-.0899	-.1384	-.0202	4880.
.3060	867.	-26.	-7.	52.	699.	-102.	.0218	-.0016	-.0160	-.0892	-.1358	-.0136	4928.
.3070	821.	-31.	-26.	80.	695.	-98.	.0175	.0002	-.0132	-.0857	-.1297	-.0058	4908.
.3070	767.	-41.	-37.	99.	675.	-57.	.0122	.0030	-.0105	-.0798	-.1200	.0036	4767.

ADLPIPE PAGE 2894

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/31/02.

18.30.02.

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	72	MEMBER	1	SEQUENCE	835	LOCATION	END	TYPE	EL					
TIME	FX	FY	FZ	MX	MY	MZ								STRESS
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)		(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)
.3080	703.	-39.	-38.	112.	639.	-21.	.0058	.0062	-.0077	-.0707	-.1064	.0133	4521.	
.3090	627.	-18.	-29.	124.	592.	13.	-.0010	.0094	-.0048	-.0584	-.0899	.0228	4213.	
.3100	535.	7.	-22.	134.	534.	50.	-.0079	.0126	-.0014	-.0439	-.0721	.0321	3847.	
.3110	427.	26.	-24.	142.	459.	92.	-.0148	.0161	.0028	-.0281	-.0536	.0413	3406.	
.3120	311.	51.	-32.	148.	369.	130.	-.0215	.0194	.0077	-.0112	-.0342	.0492	2908.	
.3130	194.	84.	-36.	153.	269.	161.	-.0280	.0222	.0127	.0060	-.0143	.0554	2426.	
.3140	82.	113.	-36.	153.	171.	188.	-.0340	.0248	.0175	.0219	.0047	.0603	2065.	
.3150	-20.	132.	-33.	149.	80.	212.	-.0391	.0269	.0214	.0352	.0217	.0641	1890.	
.3160	-105.	151.	-20.	141.	-1.	227.	-.0435	.0283	.0243	.0457	.0368	.0660	1860.	
.3170	-170.	169.	5.	132.	-71.	228.	-.0470	.0287	.0260	.0530	.0503	.0658	1900.	
.3180	-218.	174.	31.	121.	-132.	222.	-.0495	.0283	.0270	.0561	.0611	.0642	1986.	
.3190	-252.	160.	48.	111.	-183.	208.	-.0507	.0269	.0273	.0547	.0680	.0615	2075.	
.3200	-271.	143.	60.	106.	-210.	176.	-.0503	.0241	.0270	.0494	.0711	.0569	2087.	
.3210	-275.	125.	71.	107.	-237.	128.	-.0487	.0201	.0263	.0407	.0712	.0504	2019.	
.3220	-265.	93.	77.	109.	-247.	73.	-.0459	.0152	.0252	.0284	.0685	.0431	1949.	
.3230	-242.	41.	74.	111.	-248.	19.	-.0423	.0099	.0237	.0126	.0633	.0359	1897.	
.3240	-204.	-10.	73.	115.	-233.	-42.	-.0378	.0037	.0216	-.0052	.0560	.0283	1834.	
.3250	-154.	-52.	80.	123.	-200.	-111.	-.0326	-.0032	.0188	-.0236	.0476	.0202	1805.	
.3260	-98.	-96.	87.	130.	-157.	-177.	-.0272	-.0103	.0157	-.0421	.0385	.0125	1876.	
.3270	-41.	-150.	86.	134.	-115.	-231.	-.0218	-.0169	.0127	-.0601	.0291	.0060	2022.	
.3280	12.	-200.	82.	138.	-76.	-278.	-.0166	-.0233	.0101	-.0760	.0205	.0003	2222.	
.3290	57.	-230.	77.	146.	-36.	-323.	-.0117	-.0296	.0079	-.0882	.0130	-.0051	2479.	
.3300	91.	-250.	69.	153.	1.	-359.	-.0072	-.0353	.0062	-.0966	.0065	-.0097	2718.	
.3310	117.	-269.	55.	156.	30.	-377.	-.0034	-.0400	.0050	-.1013	.0015	-.0126	2830.	
.3320	125.	-279.	42.	156.	40.	-380.	-.0006	-.0438	.0045	-.1018	-.0010	-.0141	2877.	
.3330	128.	-269.	37.	153.	50.	-373.	.0011	-.0469	.0042	-.0974	-.0007	-.0148	2838.	
.3340	123.	-244.	36.	147.	65.	-356.	.0020	-.0492	.0043	-.0888	.0016	-.0144	2717.	
.3350	100.	-217.	35.	137.	67.	-323.	.0022	-.0505	.0047	-.0769	.0052	-.0127	2486.	
.3360	83.	-184.	32.	125.	59.	-280.	.0016	-.0511	.0056	-.0618	.0104	-.0102	2176.	
.3370	50.	-138.	30.	114.	42.	-234.	.0003	-.0513	.0069	-.0440	.0170	-.0077	1839.	
.3380	12.	-87.	25.	104.	19.	-186.	-.0015	-.0510	.0086	-.0246	.0241	-.0052	1486.	
.3390	-31.	-43.	16.	93.	-6.	-132.	-.0035	-.0503	.0103	-.0048	.0306	-.0023	1127.	
.3400	-71.	0.	5.	83.	-28.	-80.	-.0055	-.0494	.0117	.0144	.0361	.0004	827.	
.3410	-103.	47.	1.	75.	-46.	-34.	-.0076	-.0487	.0124	.0325	.0410	.0024	658.	
.3420	-123.	89.	5.	66.	-58.	8.	-.0097	-.0479	.0125	.0483	.0450	.0040	618.	
.3430	-131.	115.	11.	57.	-63.	50.	-.0115	-.0471	.0118	.0609	.0472	.0054	682.	
.3440	-126.	132.	17.	49.	-57.	84.	-.0127	-.0465	.0106	.0699	.0471	.0062	785.	
.3450	-108.	148.	26.	46.	-41.	105.	-.0133	-.0465	.0090	.0758	.0450	.0058	847.	

ADLPIPE PAGE 2895

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/31/02.

18.30.02.

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

.3350	100.	-217.	35.	137.	67.	-323.	.022	-.0505	.0047	-.0769	.0052	-.0127	2486.
.3360	87.	-104.	37.	125.	59.	-280.	.016	-.0511	.0056	-.0618	.0104	-.0102	2176.
.3370	50.	-138.	30.	114.	42.	-224.	.0003	-.0513	.0069	-.0440	.0170	-.0077	1839.
.3380	12.	-37.	25.	104.	19.	-186.	-.0015	-.0510	.0086	-.0246	.0241	-.0052	1486.
.3390	-31.	-47.	16.	92.	-6.	-132.	-.0035	-.0503	.0103	-.0048	.0306	-.0023	1127.
.3400	-71.	0.	5.	83.	-25.	-80.	-.0055	-.0494	.0117	.0144	.0361	.0004	827.
.3410	-107.	47.	1.	75.	-46.	-34.	-.0076	-.0487	.0124	.0325	.0410	.0024	658.
.3420	-127.	89.	5.	66.	-58.	8.	-.0097	-.0479	.0125	.0483	.0450	.0040	618.
.3430	-131.	115.	11.	57.	-63.	50.	-.0115	-.0471	.0118	.0609	.0472	.0054	682.
.3440	-126.	132.	17.	49.	-57.	84.	-.0127	-.0465	.0106	.0699	.0471	.0062	785.
.3450	-109.	148.	24.	40.	-41.	105.	-.0133	-.0465	.0090	.0758	.0450	.0058	847.

ADLPIPE PAGE 2095

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/31/02.

18.30.02.

S/RV PIPING KEWAUNEE CKW02F 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	72	MEMBER	1	SEQUENCE	825	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	-82.	158.	32.	48.	-18.	115.		-.0131	-.0470	.0075	.0784	.0410	.0044	877.	
.3470	-49.	150.	29.	52.	4.	121.		-.0122	-.0477	.0063	.0775	.0349	.0028	916.	
.3480	-12.	130.	17.	61.	28.	120.		-.0107	-.0486	.0053	.0734	.0270	.0008	955.	
.3490	32.	111.	7.	73.	58.	108.		-.0086	-.0500	.0043	.0673	.0181	-.0020	993.	
.3500	82.	93.	0.	88.	93.	88.		-.0061	-.0517	.0031	.0595	.0085	-.0054	1081.	
.3510	136.	67.	-4.	100.	129.	69.		-.0035	-.0532	.0015	.0502	-.0012	-.0088	1233.	
.3520	191.	34.	-4.	107.	163.	53.		-.0010	-.0542	-.0002	.0401	-.0103	-.0119	1409.	
.3530	246.	6.	4.	112.	196.	36.		.0013	-.0551	-.0022	.0305	-.0181	-.0154	1591.	
.3540	296.	-13.	16.	115.	226.	16.		.0036	-.0559	-.0041	.0222	-.0246	-.0194	1768.	
.3550	334.	-30.	25.	116.	248.	0.		.0057	-.0564	-.0056	.0155	-.0298	-.0233	1905.	
.3560	356.	-47.	27.	114.	257.	-11.		.0077	-.0564	-.0065	.0109	-.0333	-.0269	1960.	
.3570	361.	-57.	25.	111.	252.	-20.		.0093	-.0561	-.0066	.0089	-.0345	-.0306	1923.	
.3580	351.	-55.	21.	106.	235.	-29.		.0105	-.0557	-.0061	.0099	-.0335	-.0344	1806.	
.3590	326.	-48.	15.	97.	209.	-34.		.0115	-.0551	-.0055	.0134	-.0305	-.0380	1624.	
.3600	289.	-36.	11.	83.	177.	-33.		.0120	-.0542	-.0050	.0191	-.0256	-.0412	1382.	
.3610	243.	-17.	14.	62.	140.	-30.		.0121	-.0531	-.0047	.0268	-.0186	-.0445	1087.	
.3620	193.	10.	25.	36.	98.	-24.		.0116	-.0519	-.0049	.0363	-.0095	-.0480	746.	
.3630	137.	40.	39.	4.	53.	-14.		.0110	-.0504	-.0052	.0467	.0010	-.0513	384.	
.3640	77.	71.	54.	-31.	7.	-3.		.0104	-.0490	-.0056	.0576	.0119	-.0545	223.	
.3650	12.	107.	66.	-67.	-40.	6.		.0100	-.0478	-.0055	.0688	.0229	-.0580	545.	
.3660	-57.	146.	73.	-102.	-89.	11.		.0098	-.0468	-.0049	.0800	.0337	-.0620	944.	
.3670	-128.	182.	71.	-135.	-142.	15.		.0100	-.0459	-.0036	.0905	.0439	-.0659	1368.	
.3680	-201.	211.	61.	-168.	-195.	18.		.0104	-.0450	-.0019	.0998	.0529	-.0697	1793.	
.3690	-269.	239.	47.	-197.	-243.	16.		.0111	-.0442	-.0001	.1076	.0605	-.0736	2178.	
.3700	-329.	268.	37.	-223.	-282.	9.		.0118	-.0436	.0012	.1138	.0665	-.0775	2504.	
.3710	-376.	290.	31.	-249.	-313.	1.		.0124	-.0428	.0019	.1179	.0711	-.0811	2784.	
.3720	-411.	299.	28.	-275.	-336.	-4.		.0127	-.0415	.0018	.1197	.0740	-.0839	3022.	
.3730	-430.	302.	31.	-298.	-350.	-9.		.0128	-.0400	.0009	.1191	.0752	-.0858	3199.	
.3740	-436.	303.	40.	-316.	-351.	-18.		.0127	-.0384	-.0006	.1167	.0745	-.0867	3290.	
.3750	-430.	298.	49.	-327.	-343.	-29.		.0127	-.0367	-.0022	.1122	.0716	-.0866	3304.	
.3760	-415.	282.	51.	-331.	-330.	-38.		.0127	-.0347	-.0034	.1058	.0667	-.0849	3263.	
.3770	-392.	255.	47.	-328.	-314.	-45.		.0128	-.0324	-.0039	.0977	.0598	-.0815	3173.	
.3780	-362.	225.	37.	-315.	-294.	-54.		.0131	-.0302	-.0036	.0882	.0513	-.0766	3022.	
.3790	-325.	191.	20.	-292.	-269.	-65.		.0136	-.0281	-.0026	.0774	.0411	-.0700	2799.	
.3800	-282.	150.	1.	-261.	-237.	-75.		.0142	-.0260	-.0011	.0654	.0294	-.0616	2512.	
.3810	-232.	101.	-19.	-225.	-201.	-83.		.0148	-.0239	.0006	.0520	.0169	-.0513	2179.	
.3820	-176.	47.	-38.	-185.	-162.	-90.		.0151	-.0218	.0022	.0379	.0041	-.0398	1820.	
.3830	-116.	-8.	-52.	-142.	-119.	-96.		.0151	-.0199	.0035	.0228	-.0086	-.0270	1451.	

ADLPIPE PAGE 2096

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/31/02.

18.30.02.

S/RV PIPING KEWAUNEE CKW02F 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

.3730	-430.	302.	31.	-278.	-350.	-9.	.128	-.0400	.0009	.1191	.0752	-.0858	3199.
.3740	-436.	303.	40.	-316.	-351.	-18.	.127	-.0384	-.0006	.1167	.0745	-.0867	3290.
.3750	-430.	298.	40.	-327.	-343.	-29.	.127	-.0367	-.0022	.1122	.0716	-.0866	3304.
.3760	-415.	202.	51.	-331.	-330.	-28.	.127	-.0347	-.0034	.1058	.0667	-.0849	3263.
.3770	-392.	255.	47.	-320.	-314.	-45.	.128	-.0324	-.0039	.0977	.0598	-.0815	3173.
.3780	-362.	225.	37.	-315.	-294.	-54.	.131	-.0302	-.0036	.0882	.0515	-.0766	3022.
.3790	-325.	191.	20.	-292.	-269.	-65.	.136	-.0281	-.0026	.0774	.0411	-.0700	2799.
.3800	-282.	150.	1.	-261.	-237.	-75.	.142	-.0260	-.0011	.0654	.0294	-.0616	2512.
.3810	-232.	101.	-19.	-225.	-201.	-83.	.148	-.0239	.0006	.0520	.0169	-.0513	2179.
.3820	-176.	47.	-38.	-179.	-162.	-90.	.151	-.0218	.0022	.0378	.0041	-.0398	1820.
.3830	-116.	-8.	-57.	-142.	-119.	-96.	.151	-.0199	.0035	.0228	-.0086	-.0270	1451.

ADLPIPE PAGE 2096

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/3/12/02.

18.30.02.

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	72	MEMBER	1	SEQUENCE	835	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)		
.3840	-53.	-68.	-63.	-96.	-72.	-101.	.0148	-.0182	.0044	.0073	-.0211	-.0133	1094.		
.3850	7.	-130.	-72.	-49.	-23.	-107.	.0142	-.0167	.0050	-.0084	-.0332	.0011	832.		
.3860	62.	-190.	-83.	-0.	22.	-113.	.0132	-.0155	.0054	-.0237	-.0445	.0154	804.		
.3870	107.	-251.	-95.	48.	61.	-120.	.0119	-.0146	.0059	-.0382	-.0540	.0297	998.		
.3880	141.	-311.	-111.	96.	93.	-126.	.0102	-.0140	.0065	-.0517	-.0620	.0438	1280.		
.3890	163.	-366.	-131.	143.	117.	-134.	.0084	-.0137	.0072	-.0657	-.0686	.0569	1590.		
.3900	171.	-409.	-151.	187.	136.	-145.	.0063	-.0137	.0079	-.0738	-.0735	.0680	1899.		
.3910	168.	-444.	-160.	223.	147.	-155.	.0039	-.0135	.0086	-.0817	-.0755	.0767	2153.		
.3920	153.	-475.	-181.	249.	149.	-160.	.0011	-.0129	.0091	-.0876	-.0752	.0831	2304.		
.3930	128.	-497.	-193.	263.	140.	-161.	-.0022	-.0118	.0094	-.0913	-.0725	.0867	2358.		
.3940	94.	-502.	-198.	269.	125.	-163.	-.0057	-.0106	.0096	-.0923	-.0674	.0872	2358.		
.3950	51.	-491.	-196.	260.	106.	-166.	-.0093	-.0091	.0095	-.0907	-.0604	.0845	2306.		
.3960	-3.	-472.	-194.	253.	79.	-164.	-.0131	-.0072	.0096	-.0866	-.0515	.0792	2172.		
.3970	-65.	-448.	-194.	231.	40.	-157.	-.0170	-.0048	.0099	-.0806	-.0411	.0715	1964.		
.3980	-132.	-411.	-193.	202.	-7.	-149.	-.0210	-.0022	.0104	-.0724	-.0294	.0613	1751.		
.3990	-200.	-361.	-187.	169.	-53.	-143.	-.0246	.0005	.0110	-.0626	-.0171	.0488	1584.		
.4000	-268.	-305.	-181.	129.	-98.	-136.	-.0279	.0033	.0116	-.0519	-.0050	.0346	1474.		

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)
.1340	-941.	74.	-269.	-106.	-782.	-88.	.0112	.0352	.0166	-.0055	.0721	-.0176	5524.

SECTION	72	MEMBER	2	SEQUENCE	107	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	0.	-0.	0.	-0.	0.	0.	.0000	.0000	-.0000	-.0000	.0000	.0000	0.		
.0020	0.	-0.	0.	-0.	0.	0.	.0000	.0000	-.0000	-.0000	.0000	.0000	0.		
.0030	-0.	-0.	0.	-0.	-0.	0.	.0000	.0000	.0000	-.0000	.0000	.0000	1.		
.0040	-1.	-0.	0.	0.	-0.	0.	-.0000	-.0000	.0000	-.0000	-.0000	.0000	3.		
.0050	-2.	-1.	-1.	0.	-1.	-0.	-.0000	-.0000	.0000	.0000	-.0001	-.0000	10.		
.0060	-3.	-1.	-2.	1.	-3.	-1.	-.0001	-.0000	-.0000	.0001	-.0003	-.0000	23.		
.0070	-10.	-2.	-4.	1.	-6.	-1.	-.0003	-.0000	-.0001	.0001	-.0006	.0000	44.		

ADLPIPE PAGE 2097

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/3/12/02.

18.30.02.

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

(SEC)	(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	0.	-0.	0.	-0.	0.	0.	.0000	.0000	-.0000	-.0000	.0000	.0000	0.
.0020	0.	-0.	0.	-0.	0.	0.	.0000	.0000	-.0000	-.0000	.0000	.0000	0.
.0030	-0.	-0.	0.	-0.	-0.	0.	.0000	.0000	.0000	-.0000	.0000	.0000	1.
.0040	-1.	-0.	0.	0.	-0.	0.	-.0000	-.0000	.0000	-.0000	-.0000	.0000	3.
.0050	-2.	-1.	-1.	0.	-1.	-0.	-.0000	-.0000	.0000	.0000	-.0001	-.0000	10.
.0060	-5.	-1.	-2.	1.	-3.	-1.	-.0001	-.0000	-.0000	.0001	-.0003	-.0000	23.
.0070	-10.	-2.	-4.	1.	-6.	-1.	-.0003	-.0000	-.0001	.0001	-.0006	.0000	44.

ADLPIPE PAGE 2097

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.02.

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	72	MEMBER	2	SEQUENCE	107	LOCATION	END	TYPE	EL						
TIME	FX	FY	FZ	MX	MY	MZ		DX	DY	DZ	FX	RY	RZ	STRESS	
(SEC)	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)		(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)	
.0080	-15.	-4.	-6.	2.	-10.	-2.		-.0006	-.0001	-.0003	.0002	-.0009	.0002	73.	
.0090	-22.	-6.	-8.	3.	-15.	-3.		-.0010	-.0002	-.0007	.0002	-.0012	.0003	110.	
.0100	-34.	-10.	-12.	5.	-22.	-5.		-.0016	-.0003	-.0013	.0004	-.0016	.0003	161.	
.0110	-50.	-16.	-18.	8.	-31.	-9.		-.0026	-.0004	-.0021	.0008	-.0020	.0003	232.	
.0120	-69.	-24.	-24.	13.	-42.	-13.		-.0040	-.0006	-.0032	.0014	-.0022	.0005	322.	
.0130	-89.	-34.	-30.	20.	-54.	-19.		-.0059	-.0010	-.0048	.0021	-.0021	.0012	424.	
.0140	-108.	-43.	-34.	27.	-66.	-25.		-.0082	-.0015	-.0068	.0031	-.0017	.0024	523.	
.0150	-127.	-50.	-34.	34.	-74.	-30.		-.0107	-.0021	-.0091	.0041	-.0010	.0039	604.	
.0160	-131.	-55.	-28.	38.	-78.	-33.		-.0131	-.0026	-.0118	.0050	.0001	.0057	645.	
.0170	-126.	-57.	-15.	38.	-75.	-31.		-.0152	-.0026	-.0142	.0055	.0016	.0075	626.	
.0180	-106.	-57.	4.	34.	-63.	-25.		-.0165	-.0023	-.0161	.0053	.0036	.0089	526.	
.0190	-70.	-55.	27.	27.	-38.	-16.		-.0165	-.0015	-.0167	.0046	.0059	.0094	346.	
.0200	-21.	-48.	47.	21.	-3.	-5.		-.0149	-.0006	-.0154	.0035	.0083	.0089	155.	
.0210	32.	-38.	52.	19.	38.	3.		-.0117	.0002	-.0118	.0025	.0102	.0070	301.	
.0220	68.	-29.	38.	27.	82.	3.		-.0069	.0009	-.0058	.0035	.0118	.0032	603.	
.0230	90.	-23.	3.	41.	118.	-1.		-.0015	.0012	.0019	.0056	.0122	-.0010	873.	
.0240	112.	-13.	-49.	55.	140.	-4.		.0038	.0008	.0100	.0071	.0105	-.0037	1048.	
.0250	152.	6.	-88.	61.	162.	-3.		.0087	-.0000	.0166	.0067	.0077	-.0051	1205.	
.0260	201.	25.	-84.	60.	205.	-3.		.0137	-.0008	.0200	.0049	.0064	-.0076	1488.	
.0270	225.	35.	-60.	55.	253.	-10.		.0181	-.0006	.0204	.0046	.0064	-.0129	1802.	
.0280	257.	46.	-53.	31.	266.	-6.		.0202	.0004	.0189	.0029	.0050	-.0170	1861.	
.0290	345.	62.	-17.	-17.	268.	19.		.0207	.0013	.0156	-.0046	.0038	-.0169	1875.	
.0300	429.	73.	105.	-64.	331.	38.		.0230	.0019	.0107	-.0109	.0082	-.0178	2363.	
.0310	461.	104.	182.	-97.	393.	34.		.0267	.0016	.0076	-.0130	.0109	-.0232	2830.	
.0320	463.	131.	162.	-117.	379.	32.		.0294	.0007	.0093	-.0155	.0086	-.0274	2773.	
.0330	430.	113.	126.	-120.	314.	37.		.0312	-.0004	.0150	-.0171	.0065	-.0269	2355.	
.0340	328.	93.	40.	-96.	233.	22.		.0331	-.0028	.0224	-.0126	.0016	-.0274	1763.	
.0350	187.	128.	-103.	-59.	140.	-21.		.0342	-.0066	.0283	-.0040	-.0098	-.0324	1065.	
.0360	72.	164.	-189.	-39.	54.	-51.		.0326	-.0091	.0293	.0030	-.0179	-.0363	586.	
.0370	-15.	138.	-130.	-51.	-16.	-45.		.0273	-.0076	.0234	.0081	-.0154	-.0346	482.	
.0380	-89.	100.	-78.	-88.	-104.	-17.		.0178	-.0037	.0122	.0126	-.0106	-.0299	954.	
.0390	-101.	118.	-19.	-144.	-179.	18.		.0063	-.0002	-.0030	.0144	-.0061	-.0238	1602.	
.0400	-35.	160.	181.	-210.	-160.	63.		-.0032	.0026	-.0201	.0124	.0066	-.0150	1890.	
.0410	-5.	180.	414.	-261.	-94.	102.		-.0088	.0062	-.0329	.0138	.0230	-.0078	2057.	
.0420	-67.	184.	422.	-280.	-136.	130.		-.0128	.0102	-.0339	.0183	.0274	-.0039	2349.	
.0430	-160.	167.	279.	-261.	-270.	152.		-.0156	.0133	-.0230	.0233	.0239	.0001	2817.	
.0440	-275.	118.	169.	-191.	-369.	149.		-.0144	.0140	-.0057	.0315	.0220	.0048	3072.	
.0450	-448.	108.	-27.	-76.	-432.	95.		-.0101	.0110	.0130	.0446	.0125	.0038	3124.	

ADLPIPE PAGE 2098

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.02.

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

.0360	72.	164.	-189.	-39.	54.	-51.	189.	21.	542.	.0088	.0285	-.0040	-.0098	-.0324	1065.
.0370	-15.	138.	113.	-51.	-16.	-45.	273.	-.0076	.0234	.0081	-.0154	-.0363	-.0346	482.	
.0380	-89.	100.	70.	-88.	-104.	-17.	.0178	-.0037	.0122	.0126	-.0106	-.0299	954.		
.0390	-101.	118.	-19.	-144.	-179.	18.	.0063	-.0002	-.0030	.0144	-.0061	-.0238	1602.		
.0400	-35.	160.	181.	-210.	-160.	61.	-.0032	.0026	-.0201	.0124	.0066	-.0150	1890.		
.0410	-5.	180.	414.	-261.	-94.	102.	-.0088	.0062	-.0329	.0138	.0230	-.0078	2057.		
.0420	-67.	184.	422.	-280.	-136.	130.	-.0128	.0102	-.0339	.0183	.0274	-.0039	2349.		
.0430	-160.	167.	279.	-261.	-270.	152.	-.0156	.0133	-.0230	.0233	.0239	.0001	2817.		
.0440	-275.	118.	169.	-101.	-369.	149.	-.0144	.0140	-.0057	.0315	.0220	.0048	3072.		
.0450	-440.	100.	-27.	-76.	-432.	95.	-.0101	.0110	.0130	.0446	.0125	.0038	3124.		

ADLPIPE PAGE 2090

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02. 18.30.02.

S/RV PIPING KEWAUNEE SKNOBF 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	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS
TIME	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(DEG)	(DEG)	(DEG)	(DEG)	(DEG)	(DEG)	(PSI)
.0460	-617.	146.	-304.	35.	-502.	24.	-.0073	.0071	.0281	.0555	-.0038	-.0008	3507.						
.0470	-652.	124.	-364.	83.	-537.	10.	-.0092	.0069	.0336	.0549	-.0056	.0037	3784.						
.0480	-575.	20.	-189.	66.	-513.	56.	-.0153	.0108	.0281	.0431	.0079	.0185	3619.						
.0490	-471.	-49.	-57.	31.	-455.	92.	-.0230	.0141	.0150	.0277	.0169	.0307	3240.						
.0500	-351.	-39.	41.	13.	-344.	84.	-.0294	.0141	-.0012	.0134	.0222	.0354	2466.						
.0510	-202.	-50.	247.	14.	-182.	62.	-.0333	.0128	-.0154	.0004	.0351	.0396	1339.						
.0520	-111.	-132.	358.	37.	-89.	50.	-.0355	.0121	-.0203	-.0125	.0429	.0464	752.						
.0530	-108.	-225.	194.	97.	-115.	23.	-.0354	.0101	-.0130	-.0234	.0331	.0497	1059.						
.0540	-159.	-239.	-17.	107.	-134.	-45.	-.0305	.0054	.0012	-.0281	.0195	.0453	1687.						
.0550	-215.	-305.	-129.	312.	-87.	-139.	-.0218	-.0009	.0164	-.0277	.0114	.0360	2449.						
.0560	-265.	-329.	-296.	406.	-60.	-215.	-.0146	-.0062	.0300	-.0295	-.0015	.0275	3220.						
.0570	-269.	-370.	-477.	449.	-79.	-247.	-.0123	-.0085	.0380	-.0367	-.0151	.0230	3611.						
.0580	-177.	-416.	-424.	440.	-30.	-246.	-.0132	-.0079	.0355	-.0458	-.0122	.0213	3512.						
.0590	-9.	-418.	-197.	389.	103.	-234.	-.0154	-.0063	.0237	-.0546	.0015	.0189	3239.						
.0600	171.	-372.	-34.	317.	240.	-217.	-.0176	-.0049	.0090	-.0645	.0093	.0147	3151.						
.0610	328.	-332.	93.	243.	356.	-189.	-.0184	-.0026	-.0029	-.0732	.0150	.0095	3275.						
.0620	443.	-312.	246.	180.	445.	-160.	-.0168	.0010	-.0072	-.0760	.0248	.0017	3520.						
.0630	479.	-284.	257.	144.	453.	-143.	-.0124	.0040	-.0006	-.0725	.0262	-.0102	3451.						
.0640	424.	-247.	64.	148.	389.	-145.	-.0051	.0048	.0156	-.0646	.0127	-.0244	3072.						
.0650	310.	-209.	-152.	191.	332.	-172.	.0049	.0032	.0349	-.0512	-.0032	-.0394	2922.						
.0660	187.	-148.	-710.	239.	283.	-215.	.0138	.0004	.0510	-.0335	-.0151	-.0554	2978.						
.0670	85.	-82.	-453.	252.	200.	-236.	.0176	-.0009	.0591	-.0188	-.0258	-.0679	2778.						
.0680	57.	-70.	-482.	209.	138.	-206.	.0158	.0012	.0547	-.0121	-.0295	-.0714	2259.						
.0690	125.	-79.	-300.	121.	168.	-146.	.0104	.0051	.0367	-.0099	-.0200	-.0681	1762.						
.0700	235.	-27.	-30.	12.	250.	-92.	.0030	.0077	.0106	-.0082	-.0054	-.0639	1855.						
.0710	367.	53.	193.	-92.	317.	-43.	-.0047	.0088	-.0152	-.0068	.0060	-.0579	2314.						
.0720	432.	65.	360.	-164.	352.	13.	-.0097	.0097	-.0336	-.0043	.0153	-.0472	2701.						
.0730	410.	40.	415.	-183.	334.	52.	-.0104	.0093	-.0398	.0033	.0191	-.0364	2675.						
.0740	309.	64.	290.	-147.	248.	50.	-.0067	.0055	-.0329	.0175	.0111	-.0311	2036.						
.0750	164.	111.	72.	-74.	140.	24.	.0007	-.0003	-.0173	.0350	-.0040	-.0283	1116.						
.0760	4.	115.	-125.	6.	52.	7.	.0099	-.0059	.0002	.0519	-.0183	-.0229	365.						
.0770	-132.	109.	-294.	64.	-38.	6.	.0168	-.0095	.0137	.0657	-.0304	-.0161	517.						
.0780	-195.	130.	-380.	78.	-116.	22.	.0190	-.0112	.0181	.0748	-.0359	-.0087	984.						
.0790	-167.	143.	-280.	47.	-122.	61.	.0171	-.0109	.0105	.0784	-.0282	.0023	1001.						
.0800	-80.	135.	-60.	-15.	-58.	118.	.0127	-.0093	-.0062	.0773	-.0125	.0170	919.						
.0810	27.	153.	136.	-86.	6.	170.	.0064	-.0081	-.0255	.0743	.0018	.0303	1325.						
.0820	126.	193.	300.	-147.	46.	205.	.0003	-.0073	-.0408	.0725	.0154	.0390	1787.						
.0830	166.	200.	423.	-160.	60.	227.	-.0027	-.0062	-.0474	.0738	.0280	.0435	2060.						

ADLPIPE PAGE 2090

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02. 18.30.02.

S/RV PIPING KEWAUNEE SKNOBF 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

.0730	410.	40.	415.	-103.	234.	52.	-.104	.0093	-.0398	.0033	.0191	-.0364	2701.
.0740	309.	64.	290.	-147.	245.	50.	-.067	.0055	-.0329	.0175	.0111	-.0311	2036.
.0750	164.	111.	72.	-74.	140.	24.	.0007	-.0006	-.0175	.0350	-.0040	-.0283	1116.
.0760	4.	115.	-125.	6.	52.	7.	.0099	-.0059	.0002	.0519	-.0183	-.0229	365.
.0770	-130.	109.	-294.	74.	-37.	6.	.0168	-.0095	.0177	.0657	-.0304	-.0161	517.
.0780	-195.	130.	-380.	70.	-116.	22.	.0190	-.0112	.0131	.0748	-.0359	-.0087	984.
.0790	-167.	143.	-280.	47.	-122.	61.	.0171	-.0109	.0105	.0784	-.0282	.0023	1001.
.0800	-80.	135.	-60.	-15.	-58.	118.	.0127	-.0093	-.0062	.0773	-.0125	.0170	919.
.0810	27.	153.	136.	-86.	6.	170.	.0064	-.0081	-.0255	.0743	.0018	.0303	1325.
.0820	126.	193.	300.	-147.	46.	205.	.0003	-.0073	-.0408	.0725	.0154	.0390	1787.
.0830	166.	200.	423.	-110.	60.	227.	-.0027	-.0062	-.0474	.0738	.0280	.0435	2060.

ADLPIPE PAGE 2899

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.02.

S/RV PIPING KEWAUNEE GKW00F 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	72	MEMBER	2	SEQUENCE	107	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)		
.0840	114.	100.	780.	-175.	16.	232.	-.0016	-.0054	-.0425	.0779	.0304	.0431	2023.		
.0850	3.	188.	201.	-138.	-79.	208.	.0029	-.0062	-.0278	.0844	.0220	.0359	1821.		
.0860	-105.	226.	32.	-88.	-156.	165.	.0100	-.0080	-.0092	.0927	.0147	.0236	1695.		
.0870	-180.	253.	-60.	-54.	-198.	128.	.0172	-.0088	.0078	.0990	.0127	.0106	1685.		
.0880	-204.	264.	-133.	-59.	-231.	120.	.0220	-.0073	.0198	.0988	.0120	.0001	1857.		
.0890	-149.	280.	-116.	-107.	-229.	135.	.0239	-.0043	.0242	.0918	.0171	-.0080	1993.		
.0900	-24.	310.	61.	-103.	-155.	157.	.0243	-.0010	.0212	.0817	.0328	-.0153	1991.		
.0910	102.	345.	259.	-262.	-61.	172.	.0240	.0020	.0153	.0705	.0491	-.0229	2221.		
.0920	171.	361.	334.	-320.	-20.	178.	.0233	.0042	.0122	.0595	.0562	-.0305	2553.		
.0930	167.	344.	323.	-339.	-34.	163.	.0229	.0050	.0140	.0520	.0571	-.0384	2628.		
.0940	89.	315.	254.	-309.	-85.	115.	.0232	.0039	.0204	.0506	.0536	-.0486	2369.		
.0950	-52.	295.	75.	-243.	-174.	37.	.0233	.0008	.0287	.0531	.0411	-.0611	2100.		
.0960	-207.	269.	-136.	-175.	-268.	-42.	.0221	-.0023	.0339	.0548	.0243	-.0722	2247.		
.0970	-309.	223.	-220.	-135.	-316.	-98.	.0184	-.0035	.0312	.0529	.0147	-.0793	2486.		
.0980	-331.	176.	-170.	-139.	-319.	-126.	.0112	-.0021	.0191	.0462	.0134	-.0827	2579.		
.0990	-292.	140.	-71.	-180.	-300.	-128.	.0012	.0013	-.0001	.0347	.0142	-.0833	2595.		
.1000	-210.	98.	69.	-233.	-246.	-117.	-.0092	.0057	-.0228	.0210	.0162	-.0814	2497.		
.1010	-145.	58.	221.	-271.	-168.	-111.	-.0176	.0100	-.0437	.0095	.0179	-.0799	2348.		
.1020	-108.	36.	274.	-276.	-120.	-123.	-.0233	.0135	-.0574	.0027	.0125	-.0813	2264.		
.1030	-110.	12.	200.	-248.	-122.	-143.	-.0258	.0166	-.0618	-.0006	-.0018	-.0840	2163.		
.1040	-150.	-38.	84.	-195.	-130.	-158.	-.0243	.0196	-.0586	-.0019	-.0192	-.0848	1964.		
.1050	-172.	-79.	-34.	-130.	-115.	-171.	-.0194	.0222	-.0511	-.0021	-.0368	-.0843	1695.		
.1060	-152.	-79.	-147.	-71.	-73.	-180.	-.0130	.0238	-.0428	-.0027	-.0536	-.0825	1439.		
.1070	-72.	-77.	-192.	-33.	7.	-165.	-.0065	.0257	-.0363	-.0062	-.0645	-.0749	1171.		
.1080	70.	-106.	-139.	-17.	126.	-116.	-.0007	.0283	-.0328	-.0141	-.0674	-.0588	1198.		
.1090	240.	-131.	-60.	-7.	256.	-60.	.0045	.0301	-.0309	-.0237	-.0673	-.0394	1831.		
.1100	357.	-117.	-40.	22.	371.	-36.	.0096	.0302	-.0205	-.0258	-.0690	-.0240	2599.		
.1110	432.	-126.	-49.	71.	455.	-17.	-.0142	.0291	-.0244	-.0255	-.0720	-.0060	3207.		
.1120	477.	-181.	-86.	126.	492.	11.	.0179	.0269	-.0186	-.0258	-.0775	.0174	3560.		
.1130	467.	-199.	-193.	215.	488.	12.	.0207	.0234	-.0124	-.0213	-.0871	.0358	3709.		
.1140	430.	-172.	-287.	283.	480.	-8.	.0227	.0203	-.0087	-.0118	-.0945	.0462	3880.		
.1150	424.	-188.	-267.	313.	495.	3.	.0231	.0202	-.0093	-.0063	-.0929	.0586	4075.		
.1160	461.	-236.	-187.	300.	500.	53.	.0213	.0225	-.0135	-.0075	-.0852	.0742	4126.		
.1170	527.	-208.	-113.	259.	515.	95.	.0183	.0248	-.0192	-.0094	-.0767	.0831	4070.		
.1180	595.	-116.	35.	201.	561.	118.	.0169	.0274	-.0244	-.0071	-.0600	.0830	4225.		
.1190	667.	-64.	207.	124.	597.	171.	.0177	.0317	-.0247	-.0090	-.0416	.0846	4406.		
.1200	678.	-57.	247.	56.	551.	238.	.0204	.0367	-.0162	-.0139	-.0323	.0865	4195.		
.1210	560.	-2.	155.	31.	440.	249.	.0259	.0401	.0008	-.0089	-.0299	.0750	3525.		

ADLPIPE PAGE 2900

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.03.

S/RV PIPING KEWAUNEE GKW00F 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

.1110	432.	-126.	-49.	71.	455.	-17.	.0142	.0291	-.0244	-.0255	-.0720	-.0060	3207.
.1120	477.	-181.	-86.	176.	493.	11.	.0179	.0269	-.0186	-.0258	-.0775	-.0174	3560.
.1130	467.	-199.	-193.	215.	488.	12.	.0207	.0234	-.0124	-.0213	-.0871	-.0358	3709.
.1140	430.	-172.	-287.	203.	480.	-8.	.0227	.0203	-.0087	-.0118	-.0945	-.0462	3880.
.1150	424.	-168.	-267.	313.	490.	3.	.0231	.0202	-.0095	-.0063	-.0929	-.0586	4075.
.1160	461.	-236.	-187.	300.	500.	53.	.0213	.0225	-.0135	-.0075	-.0858	-.0742	4126.
.1170	527.	-208.	-113.	259.	515.	95.	.0183	.0248	-.0192	-.0094	-.0767	-.0831	4070.
.1180	595.	-116.	35.	201.	561.	118.	.0169	.0274	-.0244	-.0071	-.0600	-.0830	4225.
.1190	667.	-64.	207.	124.	597.	171.	.0177	.0317	-.0247	-.0090	-.0416	-.0846	4406.
.1200	678.	-57.	247.	56.	551.	278.	.0204	.0367	-.0162	-.0159	-.0323	-.0865	4195.
.1210	560.	-2.	155.	71.	440.	249.	.0259	.0401	.0008	-.0089	-.0299	-.0750	3525.

ADLPIPE PAGE 2900

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.05.

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	72	MEMBER	2	SEQUENCE	107	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)			
.1220	385.	109.	2.	40.	295.	205.	.0329	.0419	.0223	.0044	-.0302	.0505	2515.			
.1230	174.	152.	-147.	47.	139.	173.	.0389	.0451	.0426	.0160	-.0309	.0279	1578.			
.1240	-13.	134.	-309.	28.	-33.	172.	.0407	.0496	.0564	.0196	-.0336	.0127	1237.			
.1250	-130.	178.	-368.	-21.	-167.	162.	.0378	.0531	.0584	.0205	-.0290	-.0036	1626.			
.1260	-160.	273.	-188.	-108.	-196.	145.	.0317	.0567	.0467	.0207	-.0073	-.0210	1856.			
.1270	-114.	303.	80.	-241.	-180.	179.	.0232	.0621	.0270	.0098	.0189	-.0270	2467.			
.1280	-85.	246.	290.	-374.	-204.	243.	.0143	.0680	.0070	-.0076	.0389	-.0233	3411.			
.1290	-121.	233.	403.	-447.	-253.	251.	.0075	.0698	-.0069	-.0176	.0520	-.0253	5981.			
.1300	-225.	201.	423.	-445.	-327.	188.	.0044	.0664	-.0114	-.0162	.0592	-.0352	4063.			
.1310	-409.	247.	312.	-390.	-440.	119.	.0049	.0613	-.0061	-.0118	.0554	-.0391	4172.			
.1320	-629.	128.	36.	-304.	-611.	76.	.0068	.0550	.0055	-.0126	.0372	-.0316	4778.			
.1330	-828.	58.	-203.	-199.	-754.	8.	.0091	.0459	.0156	-.0109	.0209	-.0246	5431.			
.1340	-941.	74.	-269.	-112.	-811.	-79.	.0105	.0356	.0178	-.0072	.0162	-.0203	5723.			
.1350	-955.	34.	-222.	-79.	-804.	-105.	.0093	.0286	.0105	-.0151	.0170	-.0052	5670.			
.1360	-891.	-107.	-122.	-93.	-758.	-60.	.0051	.0254	-.0042	-.0296	.0192	.0238	5332.			
.1370	-750.	-107.	29.	-113.	-681.	-23.	-.0006	.0211	-.0224	-.0461	.0239	.0517	4808.			
.1380	-593.	-161.	229.	-108.	-564.	-37.	-.0045	.0142	-.0394	-.0535	.0320	.0696	4003.			
.1390	-487.	-177.	322.	-77.	-467.	-50.	-.0046	.0078	-.0489	-.0596	.0308	.0869	3310.			
.1400	-461.	-292.	226.	-19.	-435.	-39.	-.0009	.0033	-.0478	-.0686	.0150	.1065	3040.			
.1410	-491.	-368.	65.	72.	-429.	-63.	.0062	-.0015	-.0385	-.0706	-.0042	.1150	3057.			
.1420	-501.	-331.	-84.	167.	-419.	-128.	.0147	-.0073	-.0253	-.0667	-.0219	.1099	3263.			
.1430	-469.	-325.	-203.	230.	-377.	-162.	.0234	-.0105	-.0132	-.0680	-.0390	.1057	3272.			
.1440	-388.	-403.	-296.	249.	-301.	-139.	.0308	-.0100	-.0059	-.0798	-.0558	.1086	2887.			
.1450	-246.	-421.	-292.	240.	-186.	-124.	.0358	-.0091	-.0053	-.0925	-.0641	.1060	2284.			
.1460	-56.	-338.	-147.	212.	-28.	-142.	.0384	-.0084	-.0109	-.1005	-.0593	.0926	1789.			
.1470	160.	-293.	17.	154.	125.	-129.	.0394	-.0053	-.0184	-.1140	-.0529	.0818	1645.			
.1480	338.	-347.	115.	86.	255.	-76.	.0406	.0004	-.0234	-.1326	-.0518	.0765	1947.			
.1490	463.	-346.	146.	42.	355.	-58.	.0428	.0048	-.0231	-.1447	-.0538	.0625	2525.			
.1500	536.	-235.	143.	32.	418.	-99.	.0458	.0065	-.0163	-.1456	-.0551	.0359	2997.			
.1510	530.	-181.	81.	41.	432.	-130.	.0494	.0093	-.0037	-.1430	-.0579	.0114	3149.			
.1520	458.	-231.	-91.	55.	381.	-117.	.0518	.0140	.0123	-.1436	-.0669	-.0027	2796.			
.1530	368.	-234.	-247.	77.	324.	-119.	.0521	.0176	.0260	-.1385	-.0723	-.0173	2458.			
.1540	310.	-120.	-272.	93.	305.	-150.	.0491	.0195	.0330	-.1260	-.0661	-.0364	2453.			
.1550	301.	-38.	-208.	76.	306.	-142.	.0419	.0241	.0326	-.1153	-.0528	-.0475	2407.			
.1560	269.	-77.	-138.	26.	288.	-66.	.0304	.0333	.0267	-.1092	-.0386	-.0448	2068.			
.1570	239.	-93.	-72.	-29.	236.	16.	.0153	.0428	.0181	-.1013	-.0232	-.0391	1657.			
.1580	196.	-15.	58.	-56.	192.	55.	-.0005	.0494	.0086	-.0834	-.0014	-.0378	1443.			
.1590	90.	41.	157.	-51.	143.	86.	-.0151	.0547	.0020	-.0606	.0185	-.0324	1217.			

ADLPIPE PAGE 2901

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.05.

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

.1490	467.	-344.	146.	42.	352.	-58.	.0428	.0048	-.0231	-.1447	-.0538	.0625	1947.
.1500	536.	-235.	143.	32.	418.	-99.	.0458	.0065	-.0163	-.1456	-.0551	.0359	2997.
.1510	530.	-191.	81.	41.	432.	-130.	.0494	.0093	-.0037	-.1430	-.0579	.0114	3149.
.1520	459.	-231.	-91.	55.	381.	-117.	.0518	.0140	.0123	-.1436	-.0669	-.0027	2796.
.1530	368.	-274.	-247.	77.	324.	-119.	.0521	.0176	.0260	-.1385	-.0723	-.0173	2458.
.1540	310.	-120.	-272.	93.	305.	-150.	.0491	.0195	.0330	-.1260	-.0661	-.0364	2453.
.1550	301.	-78.	-208.	76.	306.	-142.	.0419	.0241	.0376	-.1153	-.0528	-.0475	2407.
.1560	269.	-77.	-138.	26.	288.	-66.	.0304	.0333	.0267	-.1092	-.0386	-.0448	2068.
.1570	239.	-93.	-72.	-29.	236.	16.	.0153	.0428	.0181	-.1013	-.0232	-.0391	1657.
.1580	196.	-15.	50.	-56.	192.	55.	-.0005	.0494	.0086	-.0834	-.0014	-.0378	1443.
.1590	98.	41.	157.	-51.	143.	86.	-.0151	.0547	.0070	-.0606	.0185	-.0324	1217.

ADLPIPE PAGE 2901

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.30.03.

S/RV PIPING KEWAUNEE GKW06F 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	72	MEMBER	2	SEQUENCE	107	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)	
.1600	-56.	11.	98.	-24.	33.	148.		-.0287	.0600	.0013	-.0412	.0262	-.0162	1065.	
.1610	-221.	-13.	-8.	24.	-110.	202.		-.0413	.0636	.0056	-.0206	.0310	.0022	1609.	
.1620	-375.	26.	-29.	92.	-218.	218.		-.0519	.0650	.0118	.0065	.0428	.0151	2240.	
.1630	-499.	61.	-72.	152.	-315.	241.		-.0608	.0660	.0187	.0287	.0514	.0298	2958.	
.1640	-596.	17.	-152.	194.	-396.	300.		-.0681	.0679	.0248	.0404	.0541	.0522	3713.	
.1650	-647.	-36.	-151.	228.	-427.	353.		-.0738	.0690	.0279	.0481	.0604	.0748	4170.	
.1660	-641.	-17.	-89.	265.	-430.	366.		-.0788	.0669	.0285	.0549	.0697	.0905	4341.	
.1670	-621.	-11.	-56.	303.	-428.	362.		-.0826	.0635	.0280	.0576	.0744	.1037	4437.	
.1680	-605.	-92.	-86.	339.	-423.	369.		-.0845	.0600	.0269	.0518	.0706	.1194	4566.	
.1690	-584.	-102.	-106.	381.	-392.	349.		-.0842	.0549	.0249	.0435	.0647	.1293	4515.	
.1700	-541.	-196.	-111.	428.	-346.	278.		-.0824	.0470	.0217	.0361	.0586	.1268	4290.	
.1710	-470.	-208.	-139.	458.	-305.	200.		-.0796	.0385	.0177	.0229	.0489	.1193	4073.	
.1720	-395.	-308.	-141.	465.	-233.	145.		-.0748	.0318	.0120	.0033	.0393	.1132	3759.	
.1730	-293.	-397.	-129.	455.	-143.	85.		-.0688	.0247	.0051	-.0194	.0296	.1026	3373.	
.1740	-159.	-390.	-96.	437.	-40.	-11.		-.0620	.0154	-.0022	-.0390	.0220	.0810	3058.	
.1750	-19.	-366.	-39.	406.	74.	-109.		-.0541	.0065	-.0087	-.0569	.0165	.0546	2972.	
.1760	114.	-398.	-15.	352.	168.	-168.		-.0453	-.0000	-.0128	-.0777	.0084	.0314	2955.	
.1770	223.	-423.	-16.	287.	241.	-217.		-.0355	-.0054	-.0139	-.0954	-.0004	.0058	3017.	
.1780	320.	-354.	-13.	221.	298.	-286.		-.0253	-.0113	-.0125	-.1051	-.0071	-.0278	3261.	
.1790	392.	-257.	14.	150.	351.	-347.		-.0147	-.0162	-.0090	-.1081	-.0102	-.0633	3590.	
.1800	435.	-207.	15.	64.	376.	-364.		-.0050	-.0182	-.0037	-.1095	-.0137	-.0920	3669.	
.1810	471.	-147.	-20.	-35.	361.	-351.		.0024	-.0187	.0026	-.1086	-.0180	-.1159	3511.	
.1820	495.	-25.	10.	-129.	353.	-346.		.0079	-.0192	.0080	-.0979	-.0143	-.1409	3556.	
.1830	505.	121.	78.	-221.	346.	-332.		.0114	-.0190	.0121	-.0812	-.0055	-.1625	3674.	
.1840	489.	219.	110.	-316.	309.	-279.		.0123	-.0167	.0158	-.0640	.0022	-.1739	3637.	
.1850	440.	290.	123.	-401.	246.	-205.		.0108	-.0133	.0191	-.0445	.0097	-.1773	3573.	
.1860	374.	397.	151.	-463.	173.	-145.		.0072	-.0108	.0217	-.0190	.0200	-.1793	3582.	
.1870	274.	510.	177.	-496.	95.	-99.		.0020	-.0086	.0236	.0115	.0310	-.1786	3582.	
.1880	154.	567.	142.	-513.	-4.	-35.		-.0051	-.0058	.0248	.0393	.0368	-.1691	3578.	
.1890	33.	580.	104.	-515.	-101.	38.		-.0135	-.0026	.0244	.0644	.0416	-.1524	3661.	
.1900	-66.	610.	122.	-499.	-167.	93.		-.0227	-.0005	.0214	.0896	.0503	-.1344	3719.	
.1910	-128.	651.	152.	-473.	-212.	138.		-.0324	.0008	.0164	.1107	.0590	-.1147	3734.	
.1920	-168.	635.	180.	-442.	-231.	194.		-.0412	.0026	.0107	.1242	.0657	-.0897	3723.	
.1930	-189.	573.	207.	-400.	-225.	250.		-.0486	.0045	.0056	.1313	.0707	-.0619	3640.	
.1940	-194.	529.	220.	-337.	-209.	276.		-.0545	.0047	.0029	.1358	.0737	-.0380	3365.	
.1950	-200.	492.	192.	-249.	-193.	272.		-.0585	.0032	.0033	.1382	.0726	-.0184	2895.	
.1960	-210.	407.	113.	-142.	-177.	257.		-.0604	.0013	.0065	.1358	.0659	.0008	2390.	
.1970	-240.	291.	3.	-26.	-157.	233.		-.0608	-.0011	.0108	.1291	.0551	.0181	1962.	

ADLPIPE PAGE 2902

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.30.03.

S/RV PIPING KEWAUNEE GKW06F 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

.1870	274.	510.	177.	-456.	95.	-99.	-.020	-.0086	.0236	.0115	.0310	-.1786	3582.
.1880	154.	567.	142.	-513.	-4.	-75.	-.051	-.0058	.0248	.0293	.0368	-.1691	3578.
.1890	32.	580.	104.	-515.	-101.	78.	-.0135	-.0026	.0244	.0644	.0416	-.1524	3661.
.1900	-66.	610.	122.	-499.	-167.	93.	-.0227	-.0005	.0214	.0896	.0503	-.1344	3719.
.1910	-120.	651.	152.	-472.	-212.	138.	-.0324	.0008	.0164	.1107	.0590	-.1147	3734.
.1920	-160.	635.	180.	-442.	-231.	194.	-.0412	.0026	.0107	.1242	.0657	-.0897	3723.
.1930	-189.	573.	207.	-400.	-225.	250.	-.0486	.0045	.0056	.1313	.0707	-.0619	3640.
.1940	-194.	529.	220.	-377.	-209.	276.	-.0545	.0047	.0029	.1258	.0737	-.0380	3365.
.1950	-200.	492.	192.	-249.	-193.	272.	-.0585	.0032	.0033	.1382	.0726	-.0184	2895.
.1960	-210.	407.	113.	-142.	-177.	257.	-.0604	.0013	.0065	.1358	.0659	.0008	2390.
.1970	-240.	291.	2.	-76.	-157.	233.	-.0608	-.0011	.0108	.1291	.0551	.0181	1962.

ADLPIPE PAGE 2900

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.03.

S/RV PIPING KEWAUNEE CKWGEF 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	72	MEMBER	2	SEQUENCE	107	LOCATION	END	TYPE	FL								
TIME	FX	FY	FZ	FX	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)			
.1980	-245.	205.	-96.	92.	-128.	183.		-.0608	-.0043	.0140	.1207	.0439	.0288	1678.			
.1990	-216.	140.	-148.	191.	-79.	124.		-.0613	-.0073	.0139	.1097	.0350	.0344	1676.			
.2000	-145.	50.	-150.	255.	-9.	86.		-.0624	-.0083	.0100	.0930	.0280	.0396	1873.			
.2010	-36.	-49.	-112.	283.	80.	67.		-.0638	-.0076	.0028	.0719	.0226	.0436	2103.			
.2020	97.	-103.	-34.	291.	184.	40.		-.0649	-.0069	-.0056	.0517	.0200	.0413	2413.			
.2030	228.	-120.	57.	289.	285.	5.		-.0646	-.0062	-.0125	.0348	.0190	.0327	2826.			
.2040	327.	-145.	102.	281.	356.	-23.		-.0625	-.0050	-.0148	.0198	.0154	.0218	3160.			
.2050	384.	-175.	78.	272.	386.	-44.		-.0584	-.0035	-.0116	.0078	.0076	.0086	3304.			
.2060	404.	-165.	21.	268.	392.	-77.		-.0524	-.0029	-.0037	.0021	-.0014	-.0101	3348.			
.2070	401.	-117.	-40.	262.	383.	-119.		-.0453	-.0031	.0065	.0020	-.0094	-.0329	3336.			
.2080	380.	-72.	-102.	238.	359.	-144.		-.0384	-.0028	.0167	.0032	-.0169	-.0544	3164.			
.2090	380.	-40.	-143.	191.	328.	-145.		-.0327	-.0016	.0243	.0042	-.0219	-.0725	2830.			
.2100	388.	13.	-122.	124.	311.	-140.		-.0287	-.0007	.0275	.0069	-.0213	-.0894	2523.			
.2110	414.	95.	-43.	44.	310.	-135.		-.0261	-.0004	.0260	.0115	-.0154	-.1057	2373.			
.2120	445.	169.	53.	-46.	314.	-118.		-.0247	-.0003	.0217	.0158	-.0077	-.1184	2355.			
.2130	462.	216.	135.	-136.	308.	-91.		-.0237	-.0002	.0168	.0198	-.0003	-.1267	2427.			
.2140	453.	262.	192.	-210.	287.	-71.		-.0224	-.0011	.0136	.0260	.0062	-.1339	2525.			
.2150	407.	321.	207.	-259.	248.	-69.		-.0200	-.0036	.0131	.0352	.0106	-.1413	2537.			
.2160	325.	364.	167.	-282.	192.	-74.		-.0165	-.0071	.0155	.0454	.0113	-.1466	2430.			
.2170	219.	379.	91.	-289.	129.	-78.		-.0122	-.0108	.0194	.0549	.0092	-.1483	2267.			
.2180	118.	390.	17.	-286.	71.	-83.		-.0081	-.0148	.0227	.0635	.0072	-.1477	2133.			
.2190	44.	409.	-26.	-284.	28.	-89.		-.0051	-.0186	.0235	.0705	.0070	-.1449	2079.			
.2200	4.	414.	-30.	-290.	10.	-82.		-.0031	-.0214	.0207	.0738	.0086	-.1383	2098.			
.2210	-6.	398.	0.	-305.	17.	-61.		-.0019	-.0229	.0146	.0730	.0115	-.1274	2165.			
.2220	8.	380.	55.	-320.	39.	-36.		-.0010	-.0236	.0068	.0699	.0150	-.1151	2261.			
.2230	29.	370.	112.	-328.	64.	-17.		-.0000	-.0241	-.0005	.0664	.0179	-.1030	2326.			
.2240	38.	346.	138.	-320.	77.	-3.		.0017	-.0243	-.0053	.0625	.0177	-.0906	2291.			
.2250	26.	303.	113.	-294.	73.	9.		.0046	-.0242	-.0066	.0581	.0127	-.0779	2111.			
.2260	-4.	263.	49.	-251.	58.	7.		.0085	-.0243	-.0048	.0546	.0042	-.0670	1792.			
.2270	-39.	234.	-23.	-198.	38.	-6.		.0128	-.0245	-.0015	.0516	-.0056	-.0587	1403.			
.2280	-63.	200.	-83.	-150.	19.	-17.		.0168	-.0240	.0012	.0470	-.0151	-.0505	1058.			
.2290	-65.	151.	-116.	-118.	6.	-15.		.0197	-.0224	.0018	.0392	-.0236	-.0413	826.			
.2300	-40.	106.	-104.	-101.	8.	-9.		.0215	-.0200	-.0006	.0293	-.0293	-.0323	709.			
.2310	6.	78.	-49.	-96.	25.	-6.		.0221	-.0174	-.0057	.0190	-.0321	-.0249	692.			
.2320	61.	52.	19.	-97.	43.	-3.		.0220	-.0148	-.0116	.0083	-.0335	-.0183	742.			
.2330	105.	17.	73.	-100.	48.	3.		.0216	-.0119	-.0165	-.0024	-.0352	-.0118	774.			
.2340	129.	-16.	104.	-97.	39.	4.		.0216	-.0094	-.0189	-.0113	-.0372	-.0069	727.			
.2350	130.	-32.	114.	-85.	16.	-5.		.0224	-.0075	-.0180	-.0173	-.0391	-.0047	604.			

ADLPIPE PAGE 2907

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.03.

S/RV PIPING KEWAUNEE CKWGEF 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

.2250	26.	303.	117.	-294.	73.	9.	.0046	-.0242	-.0066	.0581	.0127	-.0779	2291.
.2260	-4.	263.	49.	-251.	50.	7.	.0085	-.0243	-.0048	.0546	.0042	-.0670	1792.
.2270	-30.	234.	-23.	-198.	38.	-6.	.0128	-.0245	-.0015	.0516	-.0056	-.0587	1403.
.2280	-67.	200.	-83.	-150.	19.	-17.	.0168	-.0240	.0012	.0470	-.0151	-.0505	1058.
.2290	-65.	151.	-110.	-110.	0.	-15.	.0197	-.0224	.0018	.0392	-.0236	-.0413	826.
.2300	-40.	106.	-104.	-101.	0.	-9.	.0215	-.0200	-.0006	.0293	-.0293	-.0323	709.
.2310	6.	78.	-49.	-96.	25.	-6.	.0221	-.0174	-.0057	.0190	-.0321	-.0249	692.
.2320	61.	52.	19.	-97.	43.	-3.	.0220	-.0148	-.0116	.0083	-.0335	-.0183	742.
.2330	105.	17.	73.	-100.	48.	3.	.0216	-.0119	-.0165	-.0024	-.0352	-.0118	774.
.2340	120.	-16.	104.	-97.	39.	4.	.0216	-.0094	-.0189	-.0113	-.0372	-.0069	727.
.2350	130.	-32.	114.	-95.	16.	-5.	.0224	-.0075	-.0180	-.0173	-.0391	-.0047	604.

ADLPIPE PAGE 2903

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/3/12/02. 18.30.03.

S/RV 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	72	MEMBER	2	SEQUENCE	107	LOCATION	END	TYPE	FL						
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)		
.2360	111.	-38.	98.	-68.	-10.	-18.	.0240	-.0059	-.0139	-.0211	-.0410	-.0041	505.		
.2370	76.	-48.	66.	-52.	-62.	-24.	.0260	-.0040	-.0074	-.0236	-.0425	-.0036	587.		
.2380	36.	-54.	33.	-40.	-109.	-25.	.0279	-.0016	.0002	-.0246	-.0418	-.0032	826.		
.2390	-1.	-46.	17.	-36.	-153.	-21.	.0291	.0012	.0075	-.0237	-.0381	-.0032	1104.		
.2400	-34.	-31.	17.	-38.	-192.	-11.	.0294	.0044	.0137	-.0215	-.0315	-.0025	1363.		
.2410	-67.	-19.	30.	-47.	-225.	8.	.0287	.0082	.0184	-.0184	-.0227	-.0005	1602.		
.2420	-106.	-7.	48.	-58.	-258.	31.	.0270	.0125	.0219	-.0140	-.0124	.0024	1851.		
.2430	-157.	8.	63.	-67.	-295.	53.	.0244	.0189	.0245	-.0078	-.0014	.0050	2136.		
.2440	-223.	19.	64.	-71.	-339.	73.	.0211	.0215	.0268	-.0003	.0093	.0079	2460.		
.2450	-303.	17.	47.	-66.	-387.	92.	.0175	.0260	.0288	.0077	.0187	.0116	2806.		
.2460	-390.	10.	17.	-55.	-434.	107.	.0136	.0300	.0303	.0156	.0267	.0160	3131.		
.2470	-475.	3.	-14.	-36.	-473.	115.	.0097	.0332	.0308	.0229	.0338	.0206	3400.		
.2480	-552.	-11.	-41.	-15.	-503.	118.	.0058	.0359	.0301	.0285	.0399	.0258	3601.		
.2490	-617.	-42.	-67.	8.	-523.	121.	.0021	.0382	.0279	.0312	.0445	.0323	3733.		
.2500	-662.	-84.	-88.	31.	-529.	120.	-.0012	.0398	.0245	.0308	.0473	.0395	3774.		
.2510	-685.	-127.	-101.	58.	-516.	111.	-.0038	.0403	.0194	.0278	.0481	.0465	3695.		
.2520	-689.	-173.	-113.	88.	-488.	92.	-.0052	.0397	.0138	.0220	.0462	.0530	3513.		
.2530	-676.	-229.	-133.	121.	-449.	68.	-.0054	.0381	.0079	.0133	.0409	.0593	3271.		
.2540	-647.	-294.	-157.	157.	-400.	38.	-.0040	.0358	.0021	.0017	.0327	.0649	3001.		
.2550	-601.	-359.	-179.	193.	-341.	2.	-.0012	.0325	-.0035	-.0120	.0223	.0694	2726.		
.2560	-534.	-419.	-202.	229.	-271.	-40.	.0030	.0283	-.0087	-.0275	.0096	.0725	2486.		
.2570	-449.	-479.	-221.	262.	-190.	-83.	.0084	.0235	-.0138	-.0447	-.0048	.0750	2325.		
.2580	-346.	-537.	-233.	289.	-101.	-125.	.0148	.0184	-.0187	-.0628	-.0200	.0769	2301.		
.2590	-232.	-587.	-236.	310.	-9.	-166.	.0218	.0131	-.0232	-.0807	-.0351	.0782	2448.		
.2600	-111.	-629.	-231.	326.	79.	-203.	.0291	.0076	-.0274	-.0977	-.0499	.0791	2727.		
.2610	0.	-663.	-223.	376.	161.	-234.	.0365	.0022	-.0309	-.1133	-.0641	.0803	3064.		
.2620	121.	-684.	-214.	342.	235.	-260.	.0438	-.0031	-.0338	-.1263	-.0775	.0812	3408.		
.2630	221.	-691.	-202.	342.	297.	-279.	.0507	-.0079	-.0359	-.1360	-.0894	.0817	3704.		
.2640	307.	-686.	-189.	335.	342.	-288.	.0567	-.0120	-.0372	-.1423	-.0991	.0825	3888.		
.2650	375.	-671.	-173.	320.	366.	-295.	.0616	-.0151	-.0378	-.1452	-.1064	.0838	3924.		
.2660	424.	-644.	-155.	299.	375.	-271.	.0655	-.0173	-.0378	-.1443	-.1108	.0853	3834.		
.2670	457.	-600.	-129.	271.	372.	-249.	.0682	-.0186	-.0375	-.1395	-.1120	.0867	3642.		
.2680	462.	-544.	-99.	237.	354.	-218.	.0698	-.0189	-.0369	-.1311	-.1099	.0882	3331.		
.2690	451.	-484.	-69.	198.	319.	-175.	.0701	-.0181	-.0357	-.1199	-.1047	.0903	2882.		
.2700	421.	-419.	-42.	155.	267.	-124.	.0692	-.0163	-.0338	-.1061	-.0969	.0926	2318.		
.2710	369.	-344.	-18.	111.	205.	-71.	.0674	-.0138	-.0314	-.0899	-.0868	.0940	1699.		
.2720	296.	-263.	-2.	69.	135.	-19.	.0650	-.0108	-.0286	-.0716	-.0750	.0941	1065.		
.2730	205.	-187.	7.	26.	57.	36.	.0618	-.0072	-.0256	-.0524	-.0618	.0940	506.		

ADLPIPE PAGE 2904

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/3/12/02. 18.30.03.

S/RV 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

.2630	221.	-691.	-202.	342.	297.	-279.	.0507	-.0079	-.0359	-.1360	-.0894	.0817	3408.
.2640	307.	-606.	-188.	335.	342.	-288.	.0567	-.0120	-.0372	-.1423	-.0991	.0825	3888.
.2650	375.	-671.	-173.	320.	366.	-285.	.0616	-.0151	-.0378	-.1452	-.1064	.0838	3924.
.2660	424.	-644.	-155.	299.	375.	-271.	.0655	-.0173	-.0378	-.1443	-.1108	.0853	3834.
.2670	457.	-600.	-129.	271.	372.	-249.	.0682	-.0186	-.0375	-.1395	-.1120	.0867	3642.
.2680	462.	-544.	-99.	237.	354.	-218.	.0698	-.0189	-.0369	-.1311	-.1099	.0882	3331.
.2690	451.	-484.	-69.	198.	319.	-175.	.0701	-.0181	-.0357	-.1199	-.1047	.0903	2882.
.2700	421.	-419.	-42.	155.	267.	-124.	.0692	-.0163	-.0338	-.1061	-.0969	.0926	2318.
.2710	369.	-344.	-18.	111.	205.	-71.	.0674	-.0138	-.0314	-.0899	-.0868	.0940	1699.
.2720	296.	-263.	-2.	69.	135.	-19.	.0650	-.0108	-.0286	-.0716	-.0750	.0941	1065.
.2730	205.	-187.	7.	26.	57.	36.	.0618	-.0072	-.0256	-.0524	-.0618	.0940	506.

ADLPIPE PAGE 2904

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/3/12/02.

18.30.03.

S/RV PIPING KEWAUNEE GKW00F 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)	FX (DEG)	RY (DEG)	RZ (DEG)	STRESS (PSI)	
.2740	107.	-119.	12.	-14.	-20.	93.	.0579	-.0033	-.0226	-.0333	-.0474	.0945	682.	
.2750	-1.	-51.	17.	-52.	-115.	146.	.0533	.0004	-.0202	-.0146	-.0321	.0948	1340.	
.2760	-103.	21.	26.	-86.	-192.	191.	.0485	.0036	-.0186	.0036	-.0165	.0942	1977.	
.2770	-201.	84.	40.	-119.	-257.	232.	.0437	.0066	-.0180	.0203	-.0003	.0935	2548.	
.2780	-291.	129.	56.	-151.	-315.	272.	.0389	.0096	-.0180	.0344	.0151	.0934	3086.	
.2790	-370.	167.	68.	-179.	-371.	306.	.0341	.0118	-.0182	.0463	.0294	.0929	3569.	
.2800	-441.	207.	77.	-199.	-417.	325.	.0298	.0130	-.0184	.0565	.0420	.0909	3935.	
.2810	-506.	240.	80.	-212.	-450.	334.	.0264	.0134	-.0185	.0649	.0522	.0877	4171.	
.2820	-563.	255.	72.	-219.	-474.	337.	.0238	.0132	-.0185	.0709	.0594	.0844	4329.	
.2830	-609.	260.	51.	-220.	-498.	332.	.0215	.0122	-.0179	.0747	.0635	.0806	4438.	
.2840	-639.	269.	31.	-214.	-516.	316.	.0193	.0104	-.0178	.0773	.0655	.0756	4464.	
.2850	-646.	276.	23.	-208.	-515.	292.	.0175	.0081	-.0188	.0780	.0657	.0697	4370.	
.2860	-630.	270.	27.	-205.	-494.	270.	.0162	.0059	-.0209	.0762	.0639	.0640	4172.	
.2870	-588.	259.	41.	-206.	-460.	248.	.0151	.0039	-.0240	.0719	.0603	.0580	3908.	
.2880	-519.	256.	68.	-210.	-414.	223.	.0140	.0020	-.0275	.0662	.0558	.0509	3586.	
.2890	-427.	255.	105.	-216.	-357.	197.	.0136	.0002	-.0308	.0592	.0501	.0429	3210.	
.2900	-325.	246.	133.	-221.	-288.	174.	.0142	-.0012	-.0330	.0507	.0418	.0348	2803.	
.2910	-220.	235.	143.	-222.	-214.	149.	.0161	-.0024	-.0336	.0412	.0307	.0260	2382.	
.2920	-111.	232.	141.	-215.	-138.	119.	.0188	-.0037	-.0324	.0318	.0179	.0158	1964.	
.2930	-7.	230.	129.	-203.	-63.	86.	.0221	-.0049	-.0297	.0223	.0040	.0051	1599.	
.2940	107.	215.	105.	-189.	12.	57.	.0257	-.0057	-.0264	.0116	-.0112	-.0045	1379.	
.2950	219.	195.	79.	-174.	96.	30.	.0292	-.0062	-.0234	-.0002	-.0266	-.0131	1398.	
.2960	336.	183.	67.	-158.	190.	1.	.0323	-.0067	-.0217	-.0123	-.0405	-.0218	1720.	
.2970	458.	173.	73.	-145.	290.	-27.	.0344	-.0069	-.0214	-.0247	-.0520	-.0294	2263.	
.2980	570.	147.	85.	-136.	387.	-44.	.0355	-.0064	-.0224	-.0382	-.0618	-.0341	2872.	
.2990	688.	111.	96.	-125.	479.	-56.	.0355	-.0057	-.0240	-.0519	-.0701	-.0363	3470.	
.3000	780.	55.	106.	-107.	567.	-72.	.0350	-.0054	-.0257	-.0638	-.0766	-.0377	4051.	
.3010	849.	68.	108.	-82.	645.	-91.	.0340	-.0054	-.0266	-.0730	-.0814	-.0385	4572.	
.3020	888.	40.	90.	-51.	702.	-104.	.0325	-.0050	-.0263	-.0802	-.0852	-.0367	4955.	
.3030	900.	3.	56.	-18.	735.	-106.	.0301	-.0042	-.0245	-.0854	-.0877	-.0322	5171.	
.3040	890.	-21.	20.	18.	751.	-107.	.0271	-.0034	-.0219	-.0873	-.0877	-.0267	5283.	
.3050	863.	-26.	-7.	53.	758.	-106.	.0235	-.0024	-.0190	-.0855	-.0847	-.0208	5342.	
.3060	821.	-31.	-26.	82.	754.	-92.	.0191	-.0007	-.0160	-.0814	-.0789	-.0127	5320.	
.3070	767.	-41.	-37.	101.	732.	-63.	.0136	.0019	-.0131	-.0754	-.0707	-.0020	5165.	
.3080	703.	-39.	-30.	115.	692.	-26.	.0071	.0049	-.0100	-.0667	-.0598	.0097	4887.	
.3090	627.	-18.	-29.	126.	639.	-11.	.0000	.0080	-.0067	-.0548	-.0468	.0209	4530.	
.3100	535.	7.	-22.	134.	573.	51.	-.0071	.0111	-.0028	-.0407	-.0333	.0324	4111.	
.3110	427.	26.	-24.	140.	492.	95.	-.0142	.0145	.0018	-.0256	-.0203	.0440	3618.	

ADLPIPE PAGE 2905

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/3/12/02.

18.30.03.

S/RV PIPING KEWAUNEE GKW00F 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

.3020	880.	40.	90.	-51.	702.	-104.	.325	-.0050	-.0263	-.0802	-.0852	-.0367	4955.
.3030	900.	3.	56.	-18.	735.	-106.	.301	-.0042	-.0245	-.0854	-.0877	-.0322	5171.
.3040	990.	-21.	20.	10.	751.	-107.	.0271	-.0034	-.0219	-.0873	-.0877	-.0267	5283.
.3050	867.	-26.	-7.	53.	750.	-106.	.0235	-.0024	-.0190	-.0855	-.0847	-.0208	5342.
.3060	021.	-31.	-26.	83.	754.	-92.	.0191	-.0007	-.0160	-.0814	-.0789	-.0127	5320.
.3070	767.	-41.	-37.	101.	732.	-63.	.0136	.0019	-.0131	-.0754	-.0707	-.0020	5165.
.3080	703.	-39.	-38.	115.	692.	-26.	.0071	.0049	-.0100	-.0667	-.0598	.0097	4887.
.3090	627.	-18.	-29.	126.	639.	11.	.0000	.0080	-.0067	-.0548	-.0468	.0209	4530.
.3100	535.	7.	-22.	124.	572.	51.	-.0071	.0111	-.0028	-.0407	-.0333	.0324	4111.
.3110	427.	26.	-24.	140.	492.	95.	-.0142	.0145	.0018	-.0256	-.0203	.0440	3618.

ADLPIPE PAGE 2905

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.03.

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

SECTION	MEMBER	SEQUENCE	LOCATION	END	TYPE	FL	FX	FY	FZ	MX	MY	MZ	DX	DY	DZ	RX	RY	RZ	STRESS
TIME	(LB)	(LB)	(LB)	(FT-LB)	(FT-LB)	(FT-LB)	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(DEG)	(DEG)	(DEG)	(PSI)
.3120	311.	51.	-32.	144.	394.	137.	-.0212	.0178	.0071	-.0093	-.0075	.0541	3070.						
.3130	194.	84.	-36.	147.	287.	171.	-.0279	.0208	.0126	.0073	.0052	.0622	2542.						
.3140	82.	113.	-36.	146.	181.	202.	-.0341	.0234	.0178	.0226	.0170	.0688	2145.						
.3150	-20.	132.	-33.	140.	83.	230.	-.0395	.0256	.0221	.0353	.0273	.0742	1958.						
.3160	-105.	151.	-20.	131.	-5.	246.	-.0440	.0270	.0253	.0452	.0365	.0771	1942.						
.3170	-170.	169.	5.	121.	-83.	250.	-.0477	.0275	.0273	.0521	.0449	.0772	2017.						
.3180	-210.	174.	31.	109.	-151.	244.	-.0503	.0272	.0285	.0530	.0511	.0755	2140.						
.3190	-252.	160.	48.	100.	-206.	228.	-.0516	.0259	.0289	.0536	.0543	.0721	2252.						
.3200	-271.	143.	60.	96.	-244.	195.	-.0513	.0232	.0287	.0488	.0549	.0657	2276.						
.3210	-275.	125.	71.	98.	-265.	144.	-.0496	.0192	.0280	.0412	.0536	.0563	2211.						
.3220	-265.	93.	77.	103.	-275.	85.	-.0468	.0145	.0268	.0301	.0502	.0457	2129.						
.3230	-242.	41.	74.	108.	-274.	24.	-.0431	.0091	.0252	.0156	.0450	.0350	2059.						
.3240	-204.	-10.	73.	116.	-257.	-43.	-.0385	.0030	.0229	-.0008	.0389	.0235	1983.						
.3250	-154.	-52.	80.	126.	-221.	-118.	-.0333	-.0040	.0199	-.0174	.0329	.0110	1949.						
.3260	-98.	-96.	87.	136.	-175.	-189.	-.0277	-.0110	.0166	-.0343	.0269	-.0009	2028.						
.3270	-41.	-150.	86.	144.	-129.	-250.	-.0222	-.0177	.0134	-.0510	.0206	-.0109	2201.						
.3280	12.	-200.	82.	152.	-86.	-303.	-.0169	-.0241	.0106	-.0656	.0149	-.0196	2436.						
.3290	57.	-230.	77.	161.	-42.	-353.	-.0119	-.0303	.0082	-.0767	.0103	-.0280	2716.						
.3300	91.	-250.	69.	170.	-2.	-392.	-.0073	-.0360	.0063	-.0841	.0063	-.0350	2971.						
.3310	113.	-269.	55.	175.	30.	-412.	-.0034	-.0407	.0051	-.0883	.0036	-.0391	3122.						
.3320	125.	-279.	42.	175.	51.	-416.	-.0006	-.0444	.0045	-.0887	.0025	-.0408	3161.						
.3330	128.	-269.	37.	171.	62.	-408.	.0011	-.0475	.0043	-.0846	.0036	-.0409	3112.						
.3340	127.	-244.	36.	164.	69.	-387.	.0020	-.0497	.0044	-.0766	.0063	-.0393	2966.						
.3350	108.	-217.	35.	152.	69.	-351.	.0021	-.0509	.0049	-.0656	.0100	-.0354	2706.						
.3360	83.	-184.	32.	138.	61.	-304.	.0014	-.0514	.0059	-.0519	.0146	-.0300	2361.						
.3370	50.	-138.	30.	124.	42.	-252.	-.0000	-.0514	.0074	-.0355	.0199	-.0244	1977.						
.3380	12.	-87.	25.	110.	17.	-197.	-.0019	-.0510	.0092	-.0174	.0253	-.0185	1573.						
.3390	-31.	-43.	16.	96.	-10.	-138.	-.0039	-.0501	.0111	.0008	.0300	-.0121	1171.						
.3400	-71.	0.	5.	83.	-34.	-80.	-.0060	-.0491	.0126	.0185	.0339	-.0059	857.						
.3410	-103.	47.	1.	72.	-54.	-28.	-.0082	-.0482	.0135	.0354	.0375	-.0008	653.						
.3420	-123.	89.	5.	60.	-67.	20.	-.0103	-.0473	.0136	.0500	.0403	.0035	644.						
.3430	-131.	115.	11.	49.	-72.	64.	-.0122	-.0464	.0130	.0614	.0424	.0077	759.						
.3440	-126.	132.	17.	40.	-68.	101.	-.0134	-.0457	.0118	.0695	.0427	.0107	893.						
.3450	-108.	148.	26.	36.	-51.	124.	-.0139	-.0457	.0102	.0748	.0418	.0117	969.						
.3460	-82.	158.	32.	37.	-20.	136.	-.0136	-.0461	.0086	.0772	.0393	.0110	998.						
.3470	-49.	150.	29.	42.	-3.	140.	-.0127	-.0467	.0072	.0763	.0349	.0095	1018.						
.3480	-12.	130.	17.	52.	25.	137.	-.0111	-.0476	.0061	.0726	.0289	.0072	1033.						
.3490	32.	111.	7.	66.	59.	122.	-.0088	-.0490	.0048	.0671	.0222	.0033	1050.						

ADLPIPE PAGE 2906

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.03.

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

.3390	-31.	-43.	16.	96.	-10.	-138.	-.0039	-.0501	.0092	-.0174	.0253	-.0185	1573.
.3400	-71.	0.	5.	83.	-24.	-80.	-.0060	-.0491	.0126	.0185	.0339	-.0059	837.
.3410	-103.	47.	1.	72.	-54.	-28.	-.0082	-.0482	.0135	.0354	.0375	-.0008	653.
.3420	-123.	89.	5.	60.	-67.	20.	-.0103	-.0473	.0136	.0500	.0405	.0035	644.
.3430	-131.	115.	11.	49.	-72.	64.	-.0122	-.0464	.0130	.0614	.0424	.0077	759.
.3440	-126.	132.	17.	40.	-68.	101.	-.0134	-.0457	.0118	.0695	.0427	.0107	893.
.3450	-108.	148.	26.	36.	-51.	124.	-.0139	-.0457	.0102	.0748	.0418	.0117	969.
.3460	-82.	158.	32.	37.	-28.	136.	-.0136	-.0461	.0086	.0772	.0393	.0110	998.
.3470	-49.	150.	29.	42.	-3.	140.	-.0127	-.0467	.0072	.0763	.0349	.0095	1018.
.3480	-12.	130.	17.	52.	25.	137.	-.0111	-.0476	.0061	.0726	.0289	.0072	1033.
.3490	32.	111.	7.	66.	59.	122.	-.0088	-.0490	.0048	.0671	.0222	.0033	1050.

ADLPIPE PAGE 2906

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.05.

S/RV PIPING KEWAUNEE CKW08F 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	72	MEMBER	2	SEQUENCE	107	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)		
.3500	82.	93.	0.	82.	99.	100.	-.0062	-.0507	.0034	.0602	.0152	-.0016	1131.		
.3510	136.	67.	-4.	95.	139.	77.	-.0035	-.0522	.0016	.0517	.0082	-.0064	1291.		
.3520	191.	34.	-4.	105.	177.	57.	-.0009	-.0533	-.0004	.0423	.0016	-.0108	1486.		
.3530	246.	6.	4.	112.	212.	37.	.0015	-.0543	-.0025	.0333	-.0038	-.0156	1689.		
.3540	296.	-13.	16.	116.	244.	15.	.0038	-.0550	-.0046	.0255	-.0081	-.0208	1883.		
.3550	334.	-30.	25.	118.	267.	-4.	.0060	-.0555	-.0062	.0192	-.0117	-.0257	2034.		
.3560	356.	-47.	27.	118.	278.	-17.	.0080	-.0554	-.0071	.0147	-.0145	-.0301	2103.		
.3570	361.	-57.	25.	115.	274.	-27.	.0097	-.0551	-.0073	.0129	-.0161	-.0343	2074.		
.3580	351.	-55.	21.	110.	256.	-36.	.0109	-.0546	-.0068	.0139	-.0162	-.0385	1957.		
.3590	326.	-48.	15.	100.	230.	-40.	.0118	-.0538	-.0061	.0172	-.0151	-.0421	1767.		
.3600	288.	-36.	11.	85.	196.	-38.	.0123	-.0528	-.0055	.0224	-.0125	-.0450	1509.		
.3610	243.	-17.	14.	64.	155.	-32.	.0123	-.0515	-.0051	.0294	-.0082	-.0476	1186.		
.3620	193.	10.	25.	35.	108.	-22.	.0117	-.0500	-.0051	.0378	-.0022	-.0500	806.		
.3630	137.	40.	39.	1.	57.	-9.	.0110	-.0483	-.0052	.0470	.0049	-.0520	404.		
.3640	77.	71.	54.	-26.	5.	6.	.0102	-.0467	-.0052	.0565	.0123	-.0537	257.		
.3650	12.	107.	66.	-74.	-49.	20.	.0096	-.0452	-.0049	.0664	.0198	-.0559	630.		
.3660	-57.	146.	73.	-112.	-102.	30.	.0094	-.0440	-.0041	.0763	.0270	-.0586	1075.		
.3670	-128.	182.	71.	-148.	-160.	38.	.0094	-.0428	-.0026	.0856	.0334	-.0615	1537.		
.3680	-201.	211.	61.	-182.	-216.	45.	.0097	-.0417	-.0006	.0937	.0385	-.0643	1992.		
.3690	-269.	239.	47.	-213.	-267.	47.	.0103	-.0408	.0013	.1006	.0426	-.0676	2401.		
.3700	-328.	268.	37.	-242.	-309.	44.	.0110	-.0400	.0028	.1061	.0458	-.0713	2747.		
.3710	-376.	290.	31.	-269.	-343.	39.	.0115	-.0390	.0036	.1095	.0481	-.0748	3042.		
.3720	-411.	299.	28.	-295.	-368.	35.	.0118	-.0376	.0035	.1105	.0493	-.0772	3292.		
.3730	-430.	302.	31.	-319.	-383.	30.	.0118	-.0361	.0026	.1094	.0495	-.0789	3474.		
.3740	-436.	303.	40.	-336.	-386.	21.	.0118	-.0345	.0011	.1066	.0486	-.0801	3567.		
.3750	-430.	298.	49.	-347.	-379.	10.	.0118	-.0329	-.0006	.1020	.0463	-.0804	3576.		
.3760	-415.	282.	51.	-350.	-365.	-1.	.0119	-.0310	-.0019	.0957	.0423	-.0792	3520.		
.3770	-392.	255.	47.	-345.	-347.	-12.	.0121	-.0289	-.0026	.0879	.0367	-.0764	3405.		
.3780	-362.	225.	37.	-330.	-324.	-25.	.0125	-.0269	-.0025	.0790	.0297	-.0724	3221.		
.3790	-325.	191.	20.	-305.	-294.	-41.	.0131	-.0251	-.0017	.0693	.0214	-.0671	2960.		
.3800	-282.	150.	1.	-271.	-257.	-56.	.0139	-.0235	-.0005	.0584	.0121	-.0600	2629.		
.3810	-232.	101.	-19.	-232.	-214.	-70.	.0147	-.0218	.0009	.0465	.0023	-.0512	2251.		
.3820	-176.	47.	-38.	-188.	-169.	-83.	.0151	-.0202	.0022	.0337	-.0075	-.0411	1853.		
.3830	-116.	-8.	-52.	-141.	-120.	-97.	.0153	-.0188	.0032	.0204	-.0169	-.0298	1457.		
.3840	-53.	-68.	-63.	-92.	-68.	-110.	.0151	-.0177	.0037	.0065	-.0260	-.0176	1102.		
.3850	7.	-130.	-72.	-40.	-13.	-123.	.0147	-.0168	.0040	-.0075	-.0345	-.0048	908.		
.3860	62.	-190.	-83.	13.	37.	-138.	.0139	-.0162	.0042	-.0210	-.0422	.0079	999.		
.3870	107.	-251.	-95.	65.	81.	-153.	.0126	-.0159	.0045	-.0337	-.0490	.0206	1286.		

ADLPIPE PAGE 2907

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.05.

S/RV PIPING KEWAUNEE CKW08F 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

.3780	-360.	225.	37.	-370.	-324.	-25.	.0125	-.0269	-.0025	.0790	.0297	-.0724	3221.
.3790	-325.	191.	20.	-305.	-294.	-41.	.0131	-.0251	-.0017	.0693	.0214	-.0671	2960.
.3800	-282.	150.	1.	-271.	-257.	-56.	.0139	-.0235	-.0005	.0584	.0121	-.0600	2629.
.3810	-232.	101.	-10.	-232.	-214.	-70.	.0147	-.0218	.0009	.0465	.0023	-.0512	2251.
.3820	-176.	47.	-38.	-180.	-169.	-83.	.0151	-.0202	.0022	.0357	-.0075	-.0411	1853.
.3830	-116.	-8.	-52.	-141.	-120.	-97.	.0153	-.0188	.0032	.0204	-.0169	-.0298	1457.
.3840	-53.	-68.	-63.	-92.	-68.	-110.	.0151	-.0177	.0037	.0065	-.0260	-.0176	1102.
.3850	7.	-130.	-72.	-40.	-13.	-123.	.0147	-.0168	.0040	-.0075	-.0345	-.0048	908.
.3860	62.	-190.	-83.	13.	37.	-138.	.0139	-.0162	.0042	-.0210	-.0422	.0079	999.
.3870	107.	-251.	-95.	65.	81.	-153.	.0126	-.0159	.0045	-.0337	-.0490	.0206	1286.

ADLPIPE PAGE 2907

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.05.

S/RV PIPING KEWAUNEE GKW00F 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	72	MEMBER	2	SEQUENCE	107	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)		
.3880	141.	-311.	-111.	117.	117.	-167.	.0111	-.0158	.0049	-.0455	-.0547	.0330	1635.		
.3890	167.	-366.	-131.	168.	145.	-181.	.0093	-.0160	.0054	-.0558	-.0594	.0445	1996.		
.3900	171.	-409.	-151.	215.	167.	-198.	.0073	-.0164	.0061	-.0642	-.0627	.0539	2342.		
.3910	168.	-444.	-168.	254.	180.	-213.	.0049	-.0166	.0066	-.0707	-.0641	.0612	2624.		
.3920	153.	-475.	-181.	281.	183.	-221.	.0021	-.0161	.0072	-.0756	-.0637	.0665	2796.		
.3930	128.	-497.	-193.	297.	173.	-225.	-.0012	-.0152	.0076	-.0788	-.0615	.0697	2863.		
.3940	94.	-502.	-198.	303.	157.	-228.	-.0048	-.0140	.0078	-.0796	-.0576	.0699	2860.		
.3950	51.	-491.	-196.	300.	135.	-229.	-.0085	-.0125	.0080	-.0780	-.0519	.0672	2791.		
.3960	-3.	-472.	-194.	286.	104.	-225.	-.0124	-.0104	.0082	-.0744	-.0452	.0624	2632.		
.3970	-65.	-448.	-194.	262.	60.	-215.	-.0164	-.0077	.0088	-.0692	-.0576	.0536	2394.		
.3980	-132.	-411.	-193.	230.	9.	-203.	-.0205	-.0047	.0096	-.0622	-.0295	.0466	2136.		
.3990	-200.	-361.	-187.	193.	-43.	-190.	-.0244	-.0015	.0105	-.0537	-.0205	.0354	1910.		
.4000	-268.	-305.	-181.	150.	-93.	-175.	-.0278	.0018	.0114	-.0445	-.0118	.0226	1732.		

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)		
.1340	-941.	74.	-269.	-112.	-811.	-79.	.0105	.0356	.0178	-.0072	.0162	-.0203	5723.		

SECTION	73	MEMBER	1	SEQUENCE	107	LOCATION	BEG	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)		
0.0000	0.	0.	0.	0.	0.	0.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.		
.0010	-0.	0.	-0.	0.	-0.	-0.	.0000	.0000	-.0000	-.0000	.0000	.0000	0.		
.0020	-0.	0.	-0.	0.	-0.	-0.	.0000	.0000	-.0000	-.0000	.0000	.0000	0.		
.0030	0.	0.	-0.	0.	0.	-0.	.0000	.0000	.0000	-.0000	.0000	.0000	1.		
.0040	1.	0.	-0.	-0.	0.	-0.	-.0000	-.0000	.0000	-.0000	-.0000	.0000	3.		
.0050	3.	1.	1.	-0.	1.	0.	-.0000	-.0000	.0000	.0000	-.0001	-.0000	10.		
.0060	6.	2.	3.	-1.	3.	1.	-.0001	-.0000	-.0000	.0001	-.0003	-.0000	23.		
.0070	11.	3.	5.	-1.	6.	1.	-.0003	-.0000	-.0001	.0001	-.0006	.0000	44.		
.0080	16.	5.	8.	-2.	10.	2.	-.0006	-.0001	-.0003	.0002	-.0009	.0002	73.		
.0090	25.	7.	10.	-3.	15.	3.	-.0010	-.0002	-.0007	.0002	-.0012	.0003	110.		
.0100	37.	11.	14.	-5.	22.	5.	-.0016	-.0003	-.0013	.0004	-.0016	.0003	161.		
.0110	55.	17.	21.	-8.	31.	9.	-.0026	-.0004	-.0021	.0008	-.0020	.0003	232.		

ADLPIPE PAGE 2908

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.05.

S/RV PIPING KEWAUNEE GKW00F 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

.0020	-0.	0.	-0.	0.	-0.	-0.	.0000	.0000	-.0000	-.0000	.0000	.0000	0.
.0030	0.	0.	-0.	0.	0.	-0.	.0000	.0000	.0000	-.0000	.0000	.0000	1.
.0040	1.	0.	-0.	-0.	0.	-0.	-.0000	-.0000	.0000	-.0000	-.0000	.0000	3.
.0050	2.	1.	1.	-0.	1.	0.	-.0000	-.0000	.0000	.0000	-.0001	-.0000	10.
.0060	6.	2.	3.	-1.	3.	1.	-.0001	-.0000	-.0000	.0001	-.0003	-.0000	23.
.0070	11.	3.	5.	-1.	6.	1.	-.0003	-.0000	-.0001	.0001	-.0006	.0000	44.
.0080	16.	5.	8.	-2.	10.	2.	-.0006	-.0001	-.0003	.0002	-.0009	.0002	73.
.0090	25.	7.	10.	-3.	15.	3.	-.0010	-.0002	-.0007	.0002	-.0012	.0003	110.
.0100	37.	11.	14.	-5.	22.	5.	-.0016	-.0003	-.0013	.0004	-.0016	.0003	161.
.0110	55.	17.	21.	-8.	31.	9.	-.0026	-.0004	-.0021	.0008	-.0020	.0003	232.

ADLPIPE PAGE 2908

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.03.

S/RV PIPING KEWAUNEE CRK00F 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	MEMBER	SEQUENCE	LOCATION	BEG	TYPE	RU	DX	DY	DZ	RX	RY	RZ	STRESS
TIME (SEC)	FX (LB)	FY (LB)	FZ (LB)	FX (FT-LB)	MY (FT-LB)	MZ (FT-LB)	(IN)	(IN)	(IN)	(DEG)	(DEG)	(DEG)	(PSI)
.0120	75.	26.	28.	-13.	42.	13.	-.0040	-.0006	-.0032	.0014	-.0022	.0005	322.
.0130	95.	37.	35.	-20.	54.	19.	-.0059	-.0010	-.0048	.0021	-.0021	.0012	424.
.0140	112.	46.	38.	-27.	66.	25.	-.0082	-.0015	-.0068	.0031	-.0017	.0024	523.
.0150	124.	50.	36.	-34.	74.	30.	-.0107	-.0021	-.0097	.0041	-.0010	.0039	604.
.0160	128.	52.	26.	-38.	78.	33.	-.0131	-.0026	-.0118	.0050	.0001	.0037	645.
.0170	118.	53.	8.	-38.	75.	31.	-.0152	-.0026	-.0142	.0055	.0016	.0075	626.
.0180	92.	54.	-18.	-34.	67.	25.	-.0165	-.0023	-.0161	.0053	.0036	.0089	526.
.0190	51.	53.	-49.	-27.	38.	16.	-.0165	-.0015	-.0167	.0046	.0059	.0094	346.
.0200	-2.	48.	-77.	-21.	3.	5.	-.0149	-.0006	-.0154	.0035	.0083	.0089	155.
.0210	-56.	37.	-79.	-19.	-38.	-3.	-.0117	.0002	-.0118	.0025	.0102	.0070	301.
.0220	-81.	31.	-60.	-27.	-82.	-3.	-.0069	.0009	-.0058	.0035	.0118	.0032	603.
.0230	-88.	30.	-11.	-41.	-118.	1.	-.0015	.0012	.0019	.0056	.0122	-.0010	873.
.0240	-106.	20.	64.	-55.	-140.	4.	.0038	.0008	.0100	.0071	.0105	-.0037	1048.
.0250	-150.	-6.	122.	-61.	-162.	3.	.0087	-.0000	.0166	.0067	.0077	-.0051	1205.
.0260	-191.	-35.	116.	-60.	-205.	3.	.0137	-.0008	.0200	.0049	.0064	-.0076	1488.
.0270	-192.	-43.	78.	-55.	-253.	10.	.0181	-.0006	.0204	.0046	.0064	-.0129	1802.
.0280	-231.	-45.	72.	-31.	-266.	6.	.0202	.0004	.0189	.0029	.0050	-.0170	1861.
.0290	-364.	-57.	38.	17.	-268.	-19.	.0207	.0013	.0156	-.0046	.0038	-.0169	1875.
.0300	-444.	-59.	-128.	64.	-331.	-38.	.0230	.0019	.0107	-.0109	.0082	-.0178	2363.
.0310	-441.	-93.	-244.	97.	-397.	-34.	.0267	.0016	.0076	-.0130	.0109	-.0232	2830.
.0320	-447.	-128.	-215.	117.	-379.	-32.	.0294	.0007	.0093	-.0155	.0086	-.0274	2773.
.0330	-431.	-97.	-150.	120.	-314.	-37.	.0312	-.0004	.0150	-.0171	.0065	-.0269	2355.
.0340	-317.	-69.	-37.	96.	-233.	-22.	.0331	-.0028	.0224	-.0126	.0016	-.0274	1763.
.0350	-155.	-140.	161.	59.	-140.	21.	.0342	-.0066	.0283	-.0040	-.0098	-.0324	1065.
.0360	-27.	-215.	271.	39.	-54.	51.	.0326	-.0091	.0293	.0030	-.0179	-.0363	586.
.0370	67.	-170.	203.	51.	16.	45.	.0273	-.0076	.0234	.0081	-.0154	-.0346	482.
.0380	118.	-92.	127.	88.	104.	17.	.0178	-.0037	.0122	.0126	-.0106	-.0299	954.
.0390	73.	-110.	54.	144.	179.	-18.	.0063	-.0002	-.0030	.0144	-.0061	-.0238	1602.
.0400	-19.	-174.	-221.	210.	160.	-63.	-.0032	.0026	-.0201	.0124	.0066	-.0150	1890.
.0410	-16.	-190.	-553.	261.	94.	-102.	-.0088	-.0062	-.0329	.0138	.0230	-.0078	2037.
.0420	54.	-176.	-568.	280.	136.	-130.	-.0128	.0102	-.0339	.0183	.0274	-.0039	2349.
.0430	107.	-140.	-355.	261.	270.	-152.	-.0156	.0133	-.0230	.0233	.0239	.0001	2817.
.0440	229.	-74.	-189.	191.	369.	-149.	-.0144	.0140	-.0057	.0315	.0220	.0048	3072.
.0450	463.	-91.	63.	76.	432.	-95.	-.0101	.0110	.0130	.0446	.0125	.0038	3124.
.0460	669.	-193.	418.	-35.	502.	-24.	-.0073	.0071	.0281	.0555	-.0038	-.0008	3507.
.0470	702.	-181.	501.	-83.	537.	-10.	-.0092	.0069	.0336	.0549	-.0056	.0037	3784.
.0480	595.	-12.	279.	-66.	513.	-56.	-.0153	.0108	.0281	.0431	.0079	.0185	3619.
.0490	455.	93.	99.	-31.	455.	-92.	-.0230	.0141	.0150	.0277	.0169	.0307	3240.

ADLPIPE PAGE 2909

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

8/12/02.

18.30.03.

S/RV PIPING KEWAUNEE CRK00F 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