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PROCESS AGITATOR OPERATING PROBLEMS AND EQUIPMENT FAILURES F-CANYON REPROCESSING FACILITY

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ABSTRACT

A compilation of operating problems and equipment failures associated with the process agitators in the Savannah River Plant F-Canyon Fuel Reprocessing Facility is presented. These data have been collected over the 30-year operation of the facility. An analysis of the failure rates of the agitators is also presented. A brief description of the agitators and the data bank from which the information was sorted is also included.

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INTRODUCTION

The Savannah River Laboratory (SRL) maintains a compilation of operating problems and equipment failures that have occurred in the fuel reprocessing areas of the Savannah River Plant (SRP). At present, the data bank contains more than 200,000 entries ranging from minor equipment malfunctions to incidents with the potential for injury or contamination of personnel, or for economic loss. The data bank has been used extensively for a wide variety of purposes, such as failure analyses, trend analyses, and preparation of safety analyses. Typical of the data are problems associated with the F-Canyon process agitators. This report contains a compilation of the agitator operating problems and equipment failures primarily as an aid to organizations with related equipment. Publication of these data was prompted by a number of requests for this information by other Department of Energy (DOE) sites.

REPROCESSING AREA DATA BANK

In 1973, SRL personnel began a computerized compilation of incidents that had occurred in the reprocessing facilities of SRP.[1-4] At present, the data bank contains more than 200,000 entries. The vast majority of these incidents are minor equipment malfunctions such as leaks, instrument failures, line pluggage, and localized contamination. A few, such as fires and major equipment failures, are significant from the point of potential economic loss or injury to personnel if other unlikely events were also to have happened. However, at no time have the operating problems or equipment failures listed in this report resulted in serious injury to operating personnel.

Each of the entries is coded so that it can be retrieved based on a wide variety of specifications, including the plant location, facility, unit operation, key word, date, and source document. In addition, further selectivity may be applied by combining specific key words ("and" logic) or by excluding specific key words ("not" logic). Data are presented either to a CRT terminal or as hard copy.

Data are obtained from many sources, such as incident reports, progress reports, maintenance records, service department files, and shift turnover log books. A complete list of these sources is shown in Table 1. Maintenance of the data bank requires one technical person plus clerical support. Data are normally abstracted onto floppy disks via a personal computer. Subsequently, the disks are read into the mainframe computer system where the transferred data are stored on a disk with magnetic tape backup. The data bank is both write and read protected to prevent unauthorized use or modifications of the stored data.

TABLE 1

Source of Information in the 200-Area Fault Tree Data Bank

Source	Source Code	From	To
Operating Incident Report (OI)	01	1961	1987
Unusual Incident Report (UI)	02	1955	1987
Special Hazards Investigation (SHI)	03	1954	1987
Daily Teletype	04	1957	1987
Criticality Audit	05	1959	1987
Separations Department Monthly Report	06	1977	1982
Works Technical Monthly Report	07	1954	1985
Fire Department Records	08	1954	1986
Salvage Yard Receipt Records	09	1975	1979
Health Protection Monthly Report	10	1960	1987
Private Communication	11	1956	1978
Equipment Histories (Selected)	12	1955	1987
TID Accident Summary (Selected)	14	1953	1960
Undocumented RBOF Monthly Reports	15	1962	1984
RBOF Unusual Incidents	18	1970	1975
Radiation Control Monthly Report	19	1962	1983
Works Engineering Monthly Report	20	1956	1984
Patrol Monthly Reports	21	1963	1984
Power Department Unusual Incident Report	22	1957	1987
Waste Management Incident Report (WMI)	23	1979	1987
Waste Management Monthly Report	24	1976	1987
T&T UI's and Monthly Reports	25	1957	1983
Power Department Weekly Reports	26	1953	1975
Separations Incident Report (SI)	27	1976	1987
Health Protection Log Book - 772-F	28	1970	1987
Health Protection Log Book - H Canyon	28	1976	1986
Health Protection Log Book - F Canyon	28	1976	1987
Health Protection Log Book - FB-Line	28	1976	1986
Health Protection Log Book - HB-Line	28	1976	1987
Health Protection Log Book - Np Billet Line	28	1973	1983
Health Protection Log Book-Waste Tank Farm	28	1974	1986
Health Protection Log Book - Burial Ground	29	1962	1985
Laboratories Dept. Incident Report (LDI)	30	1976	1987
MIAC Records (Selected)	31	1977	1984
H Canyon Senior Supervisor Log Book	32	1977	1986
F Canyon Senior Supervisor Log Book	32	1976	1987
F Canyon Crane Log Book	33	1975	1986
FB-Line Daily Report	34	1979	1987
H Canyon Decon and Maintenance Log Book	35	1975	1984

TABLE 1 (Con't)

Source of Information in the 200-Area Fault Tree Data Bank

Source	Source Code	From	To
FB-Line Recovery Shift Log Book	36	1977	1986
HB-Line Daily Report	37	1977	1987
NSF Data (Selected)	38	1966	1973
Idaho Data (Selected)	39	1972	1978
Np Target Fab Facil. Senior Supv. Log Book	40	1975	1982
Waste Tank Farms Senior Supv. Log Book	41	1977	1987
MPPF Daily Report	42	1978	1981
MPPF Manipulator Log Book	43	1972	1980
MPPF Shift Log Book	44	1978	1981
RBOF Shift Log Book	45	1977	1986
RBOF Daily Report	46	1976	1986
Waste Tank Annulus Alarm Reports	47	1981	1984
Waste Management Technology Monthly Report	48	1981	1986
PuFF Senior Supervisor Log Book	49	1979	1983
Burial Ground Waste Management Log	50	1972	1985
Special Incident Report	51	1954	1983
221-F Canyon & Outside Facil. Monthly Report	52	1982	1987
Power Technology Monthly Report	53	1977	1983
221-F Building Log	55	1977	1986
HB-Line Scrap Recovery Log	57	1980	1987
A-Line-Outside Facilities Shift Log	58	1974	1987
Health Protection Exposure Records	61	1969	1984
Unusual Occurrence Report	62	1983	1987
Environmental Control Monthly Report	63	-	-
SRP Environment Weekly Report	64	1983	1987
RHYTHM Reports	65	1983	1983
A-Line/Outside Facilities Daily Log	66	1979	1985
Area Metallurgical Report	67	1954	1987
Safety Department Records	68	1984	1987
221-211-H Morning Report	69	1984	1987
Main Line Shift Log, FB-Line	70	1983	1986
772-F Laboratories Shift Log	71	1983	1987
Seniors Log Book, FB-Line	72	1984	1986
Construction Shutdown Log, FB-Line	73	1986	1986
FB-Line Team Monthly Summary	74	1986	1987
Special Recovery Shift Log, FB-Line	75	1985	1986
Non-Conformance Report	76	1984	1987
FB-Line Nucl. Safety Insp. Highlights	77	1987	1987
HB-Line Surveillance Log Book	78	1986	1987

These data have been applied to a wide range of applications by both SRP and SRL organizations. Typically, the data have been used in preparing safety analysis reports, trend analyses, and failure rate data. A complete listing of applications is shown in Table 2.

TABLE 2

Applications of the Reprocessing Area Data Bank

- Failure rate data
- Equipment breakdown histories
- Generic incident histories
- Data for systems analyses and safety analysis reports
- Dates of specific incidents
- Consequences of incidents
- Data for design studies
- Data for quality assurance studies
- Trend analyses
- Data for project justification
- Training
- Process problem solving
- Management decision data
- Studies of effectiveness of administrative controls
- Incident audit
- Data for reliability studies
- References to source documents

A number of requests for information have been received from other DOE sites over the past several years. In response to these requests, data for selected operations are being published. The first of a planned series of reports was published in 1984 and concerned evaporation operations in the H-Area reprocessing facilities.[5] The second was published in 1985 and concerned manipulator operations.[6] The third was published in 1986 and presented data on the hot canyon crane in the F-Area reprocessing facilities and the fourth, in 1987, contained data on process pumps.[8] This report is the fifth in the planned series. A brief description of the F-Canyon process agitators follows.

AGITATOR DESCRIPTION

Highly radioactive and corrosive process solutions in the F-Canyon reprocessing facilities are mixed by mechanical agitators in the process vessels. Agitators are located on nearly all canyon process vessels (except evaporators) in Canyon Building 221-F. Agitators are used to obtain and maintain a throughly mixed solution for sampling and processing purposes, and to maintain an evenly distributed temperature in the solution when heat must be removed or added by heat and cooling coils in the vessels. The typical complement of mechanical agitators installed in both the hot and warm canyons is about 50.

Canyon tanks are of cylindrical sizes (diameter x height) 6 ft x 6 ft, 8 ft x 8 ft, 8 ft x 11 ft, 10 ft x 11 ft; bicylindrical size (width x length x height) 12 ft x 19 ft x 15 ft; and oblong sizes (width x length x height) 3 ft x 6 ft x 11 ft and 12 ft x 4 ft x 6 ft. Tanks are equipped with agitators, recirculating jets, coils, antiswirl baffles, and lubricating oil overflow catch pans.

An agitator consists of an electrical motor, motor-to-reducer flexible coupling, reducer (gear-box), rigid output coupling, and agitator shaft equipped with one or more sets of paddles. The agitator is mounted on a stainless steel support plate assembly to which a stainless steel lifting frame is attached. Electrical and lubricating connections to the agitator are made through nozzles located on the frame. Lubricating oil overflow from the reducer is contained in the oil overflow catch pan. The output shaft from the reducer, the rigid output coupling, agitator shaft and paddles are 304L stainless steel. Most reducers are Philadelphia Mixers models and the housing is the vendor's standard carbon steel construction. The electrical motors have class H insulation which allows the motor temperature to increase a maximum of 55°C over ambient. The motors are 460 volts, 3 phase, 60Hz. and operate at 1750 RPM.

A drawing of a standard 10 ft diameter x 11 ft height canyon tank equipped with an agitator is shown in Figure 1. Agitator horsepower ranges from 3 to 20 HP for standard canyon tanks. Specific data on each tank size and the applicable agitator HP and RPM are listed in the following table.

Tank Size, feet	Tk Cap of Water, lb	Agitator Motor HP	Agitator RPM
6 x 6	8,500	3	100
3 x 6 x 11	11,000	-	-
12 x 4 x 6	16,000	5	-
8 x 8	21,000	5	100
8 x 11	30,000	5	100
10 x 11	46,000	10	68
10 x 11	46,000	20	100
	157,000	20	84

A 20 HP agitator is used in some 10 ft x 11 ft canyon vessels for process purposes such as the head end strike tank where a MnO_2 cake may be formed. Figure 2 shows an agitator enclosed in a metal shroud in a single-stage solvent washer. This arrangement improves solvent washing and separation of solvent and aqueous solutions. The type of agitator, length of shaft, and number of paddles must be determined from canyon drawings (blueprints) for each tank depending on tank size, location, and process function.

Most agitator failures have occurred due to worn parts, improper assembly, or failure of electrical components (motor or power supply wiring). Failed agitators are decontaminated and disassembled for repair. New parts are installed and the agitator returned to service. Improved methods of repairing failed units and improved quality of spare parts should reduce failure frequency of older units. However, some older agitators have been retired from service because repair costs are prohibitively expensive.

Newer agitators obtained from Philadelphia Mixers have a different style reducer on which the motor is inverted and mounted on the side of the reducer as shown in Figure 3. The output speed for the new reducers being obtained for 8 ft x 8 ft and 8 ft x 11 ft tanks is 68 rpm.

ANALYSIS OF AGITATOR FAILURE RATES

Information contained in the data bank was analyzed to determine failure characteristics for the F-Canyon agitators. Only failures that required removal and major maintenance to the units were considered. Minor electrical or instrumentation problems that could be repaired without removal of the units were discounted.

Eighty individual units have been used in the F-Canyon since 1954. Of these 20 have never experienced a major failure; the remainder have failed one or more times. Failed units are either repaired and returned to service, or are retired from service. A total of 94 major failures had occurred by the end of 1987, 50 units were in active service. Table 3 shows the days to failure and Table 4 shows the suspensions, that is the days that the active units have operated since their last major repair (or since installation if no failures have occurred). Weibull analysis techniques were used to determine characteristic life of the canyon agitators.[9] These techniques enable a prediction from populations in which a significant number of the units have not experienced failure. As shown in Figure 4, the characteristic life is calculated to be 6040 days.

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The authors are appreciative of pump history records that have been maintained by J. E. Thomas, R. R. Treadway, J. A. John and the late W. T. Seigler of the Savannah River Plant Separations Department.

DEFINITIONS AND ABBREVIATIONS

Information in the Data Bank is essentially as abstracted from the source documents. The documents contain a significant amount of jargon; some of the abbreviations used are defined here as an aid to the reader.

ABBREVIATIONS	DEFINITIONS
AGIT	Agitator
AM	Ante Meridiem
AMPS	Amperage
B.S.	Bucket Storage
B.T.	Bottoms Tank
C/M	Counts per Minute
CM	Centimeter
CMS	Centimeters
COL	Column
D	Decontamination
EM-1012.2	Extra Machinery, An Agitator Designation
EP-372.56	Equipment Piece, An Agitator Designation
FT	Foot
HDC	Hot Decontamination Cell
HC	Hot Canyon
HP	Health Protection Department
HRS	Hours
LAW	Low Activity Waste
MCC	Motor Control Center
MPPF	Multipurpose Processing Facility
MR	Millirem
MRAD	Millirad
N	North
NCR	Nonconformance Report
NOZ	Nozzle
N.W.	Northwest
O/L	Overload
PU	Plutonium
REGEN	Regeneration
S/C	Shift Change
S	South
SHI-45	Special Hazards Investigation (Typical)
S.P.	Swimming Pool, A Decontamination Facility
Spec. Rec.	Special Recovery
SW	Southwest
UI-42	Unusual Incident Report (Typical)
W.S.	Warm Shop
1CU	Process Stream Designation (Typical)
11W	Warm Canyon Sump Designation (Typical)
12.2, 13.1	Canyon Vessel Location (Typical)
12-8	Midnight Work Shift (Typical)
20013021	An Equipment Identification Number (Typical)

TABLE 3

DAYS TO FAILURE FOR F-CANYON AGITATORS

4	910	3505
7	981	3676
15	1000	3822
16	1133	3992
18	1154	4152
36	1160	4590
41	1221	4595
60	1222	4805
63	1223	5092
107	1230	5345
115	1404	5580
131	1508	5874
170	1606	5877
180	1624	6138
184	1655	6404
243	1871	6525
253	1924	6849
255	1931	7035
324	1949	7132
324	1960	7912
346	2017	8269
417	2115	8614
429	2362	8855
430	2368	10117
493	2426	10209
507	2504	11505
536	2539	
575	2777	
673	2806	
757	2811	
758	3300	
803	3330	
850	3349	
885	3397	

TABLE 4

DAYS SINCE LAST FAILURE FOR F-CANYON AGITATORS OR DAYS SINCE INSTALLATION FOR UNITS THAT HAVE NOT FAILED

102	6799
289	8141
289	8272
323	8344
355	8433
456	9988
489	11565
663	12418
776	12418
806	12418
894	12418
1141	12418
1836	12418
2374	12418
2544	12418
3532	12418
3607	12418
4064	12418
4774	12418
5174	12418
5283	12418
5443	12418
5596	12418
5633	12418
5825	12418

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9. R. B. Abernethy. "Weibull Analysis Handbook". AFWAL-TR-83-2079, Pratt and Whitney Aircraft, West Palm Beach, Florida (November 1983).

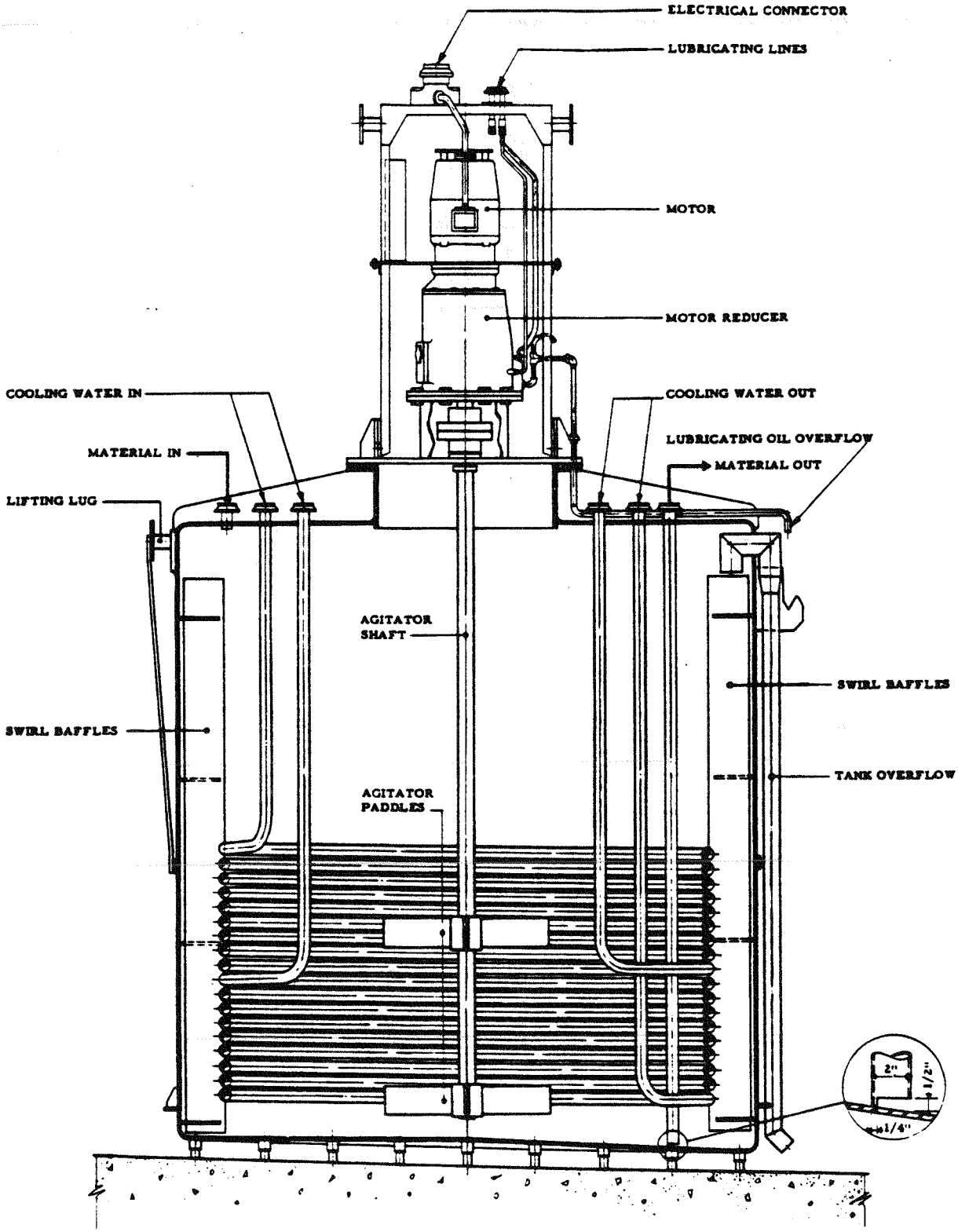

FIGURE 1. Standard 10- x 11-ft Canyon Tank

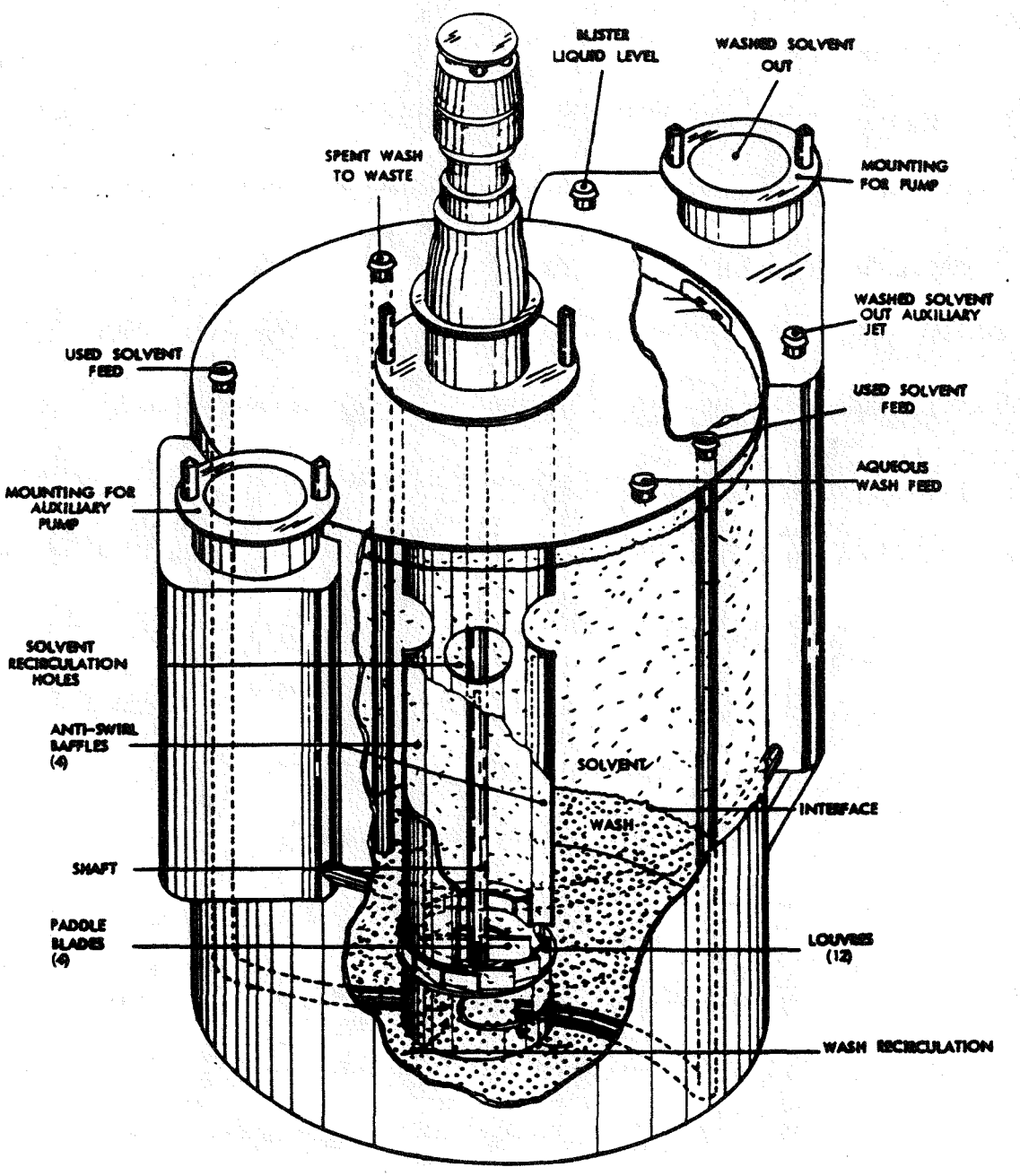

FIGURE 2. Single-Stage Washer

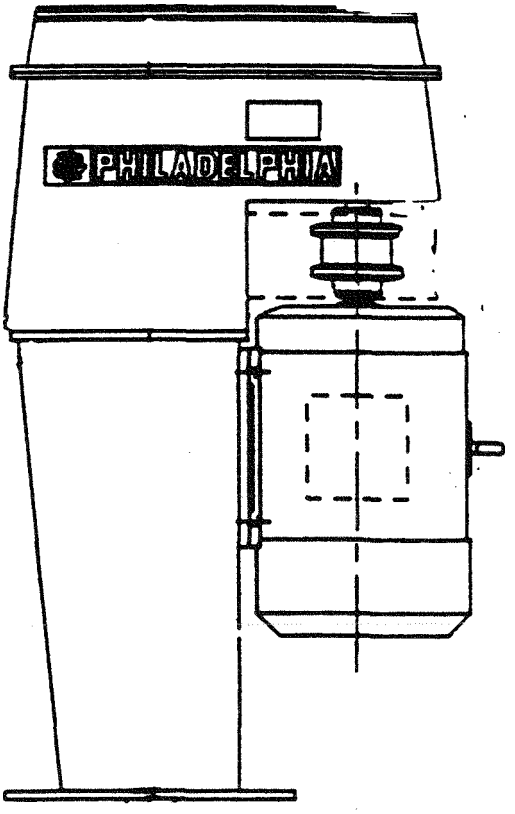

FIGURE 3. Newer Style Reducer with Side-Mounted Motor

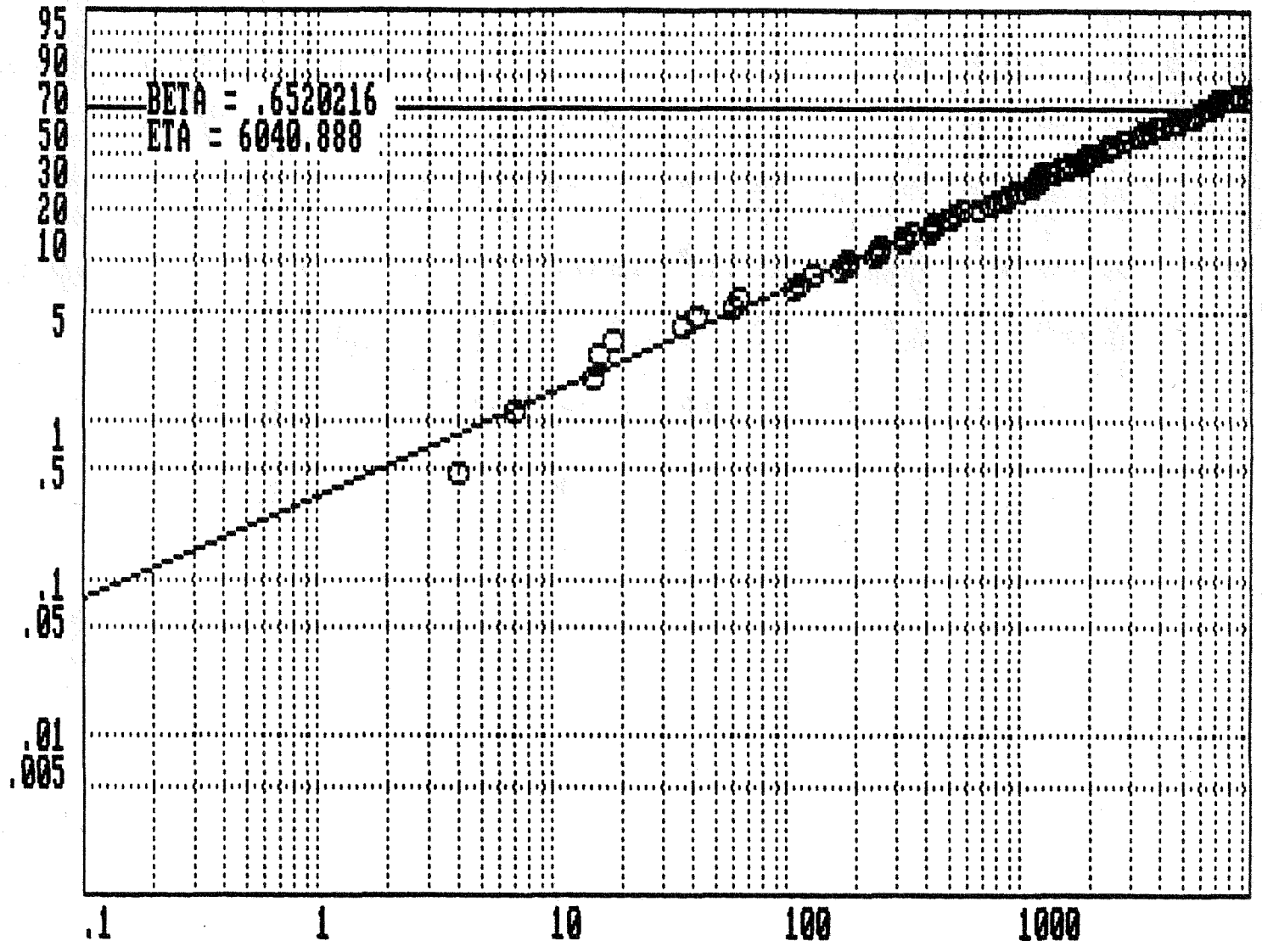

FIGURE 4. Weibull Failure Analysis of F-Canyon Agitators

APPENDIX: PROCESS AGITATOR OPERATING PROBLEMS AND EQUIPMENT FAILURES F-CANYON REPROCESSING FACILITY

Data on the F-Area process agitators, as sorted from the 200-Area Fault Tree Data Bank, are given here.

****
200 AREA FAULT TREE DATA STORAGE AND RETRIEVAL SYSTEM
****

10/14/88

AREA : F

FACILITY : CANYON

SPECIFICS : AGITATOR

NO.	SOURCE	DATE	OCCURRENCE
4783	04, , , ,	03-09-59	12.2 STRIKE TANK AGITATOR FAILED. EP 372-56. 1924 DAYS IN SERVICE.
6226	07, , , ,	04----59	HIGH AIR ACTIVITY WHEN 1D MIXER-SETTLER FEED TANK WAS OPENED FOR AGITATOR REPAIRS. 13.1 VESSEL.
72216	12, , , ,	04-16-59	EP 1039-3. AGITATOR FAILED IN (17.7E)BT. (SHAFT 6' 6-7/8"). SHORT IN WIRES TO MOTOR. REPAIRED. RE-INSTALLED. 1931 DAYS IN SERVICE.
72217	12, , , ,	05-04-59	EP 1039-3. AGITATOR FAILED AFTER 18 DAYS IN SERVICE. LOOSE CONNECTION FOUND IN TANK CONNECTOR. REPAIRED. INSTALLED 12/61 ON 17.7E EP 1039.3.
3494	07,12, , ,	05-07-59	13.1 FEED TANK AGITATOR FAILED. EP 1009-6. 1949 DAYS IN SERVICE.
4803	04, , , ,	08-26-60	10.1 TANK AGITATOR INOPERATIVE. DUST COVERS HELD ELECTRICAL CONNECTORS OFF FEED POWER, ALSO MOISTURE SHORTED A CONNECTOR. EP 373.42. 2426 DAYS IN SERVICE.
1900	, , , ,04	06-01-62	1CU EVAP BOTTOMS TANK AGITATOR FAILED. 17.7E EP. 1039.3. 180 DAYS IN SERVICE.
1910	04,12, , ,	01-14-63	9.3E BOTTOMS TANK. ELECTRICAL PROBLEMS WITH AGITATOR MOTORS. BAIL BROKEN. EP 1039-1. REPLACED WITH EP 1039-4. 3 DAYS REPAIR TIME. EP 1039-1 WAS REPAIRED 12/31/65 WITH INSTALLATION OF BEARING, STATOR, CONTACT BLOCK AND WIRING TO JUNCTION BOX. 1039-1 IN SERVICE 3300 DAYS.
72212	12, , , ,	02-13-63	EP 1039-2. FAILED. REPAIRED. STORED IN (8.5E) 50(BT). IN SERVICE 3330 DAYS.
6947	07, , , ,	04----63	AGITATOR IN TANK 11.8 (2ND PU CYCLE FEED TANK) FAILED AND WAS REPLACED. EP 372.2. IN SERVICE 3397 DAYS.
4822	04,07, , ,	04-22-64	AGITATOR BLADE ASSEMBLY DROPPED OFF SHAFT.
1953	12,04, , ,	05-27-64	9.3E. FAILED (EP 1039-4) AGITATOR, 1ST STAGE BOTTOMS TANK AFTER 493 DAYS IN SERVICE. REPLACED WITH EP 1039-2 ON 8-3-64.
6151	, , , ,07	06----64	PRC FEED TANK AGITATOR FAILURE. EP 373-42. IN SERVICE 3822 DAYS.

NO.	SOURCE	DATE	OCCURRENCE
1957	12,04, , ,	10-05-64	9.3E HAW BOTTOMS TANK AGITATOR EP 1039-2 FAILED AFTER 63 DAYS IN SERVICE. REPLACED WITH EP 1039-3. SAME DAY.
5885	04, , , ,	11-18-64	FIRST STAGE AGITATOR FAILED. ELECTRICAL OVERLOAD ON MOTOR.
72222	12, , , ,	11-28-64	EP 372.89-3. 5.2 AGITATOR FAILED. IN SERVICE 3992 DAYS. EP 371.29 INSTALLED ON 11/29/64.
177414	12, , , ,	03-05-65	EP 1009-6 WAS REPLACED WITH EP 1009-11 IN (13.1)N.
72227	12, , , ,	05-17-65	EP 373.78. 16.4 AGITATOR FAILED. 4152 DAYS IN SERVICE. REPLACED WITH EP 372.89-3.
72243	12,10,07,67,	01-30-66	EP 1009-9. AGITATOR (16.7) S FAILED AFTER 1000 DAYS IN SERVICE. THE SHAFT WITH STIRRER SEPARATED FROM LOWER HALF OF COUPLING. PIN WAS SHEARED THAT HELD SHAFT TO COUPLING. STIRRER RETRIEVED, REPAIRED, AND REINSTALLED ON 5/13/66.
72223	12, , , ,	02-00-66	EP 372.89-3. 5.2 AGITATOR FAILED AFTER 255 DAYS IN SERVICE. INSPECTION INDICATED LOSS OF ALL LUBRICATING OIL AND COMPLETE DESTRUCTION.
72230	12, , , ,	08-05-66	EP 1009-2. AGITATOR FAILED IN (8.1)N. 4595 DAYS IN SERVICE. MOTOR CONFIRMED BAD. REPLACED WITH MOTOR FROM EP 1009-11 ON 11/14/67. RUN-IN 72 HRS.
72225	12, , , ,	03-00-67	EP 373.71. AGITATOR FAILED. MOTOR MEGGED AND BRIDGED GOOD. 17.1 VESSEL. 4805 DAYS IN SERVICE.
72240	12, , , ,	04-01-67	EP 1009-11. AGITATOR (13.1) N FAILED AFTER 757 DAYS IN SERVICE. SHAFT REMAINED IN 12.1 VESSEL. MOTOR CHECKED GOOD ELECTRICALLY. MOTOR INSTALLED ON EP 1009-2.
2004	12,04, , ,	11-13-67	9.3E BOTTOMS TANK AGITATOR EP 1039-3 FAILED AFTER 1133 DAYS IN SERVICE. REPLACED WITH EP 1039-1 ON 11/21/67.
5559	04,12, , ,	12-29-67	FAILED AGITATOR SHAFT 13.1 MIXER-SETTLER FEED TANK. 13.1N, EP 1009-11. 1160 DAYS IN SERVICE.
72231	12, , , ,	03-06-68	EP 1009-2. AGITATOR FAILED IN (8.1)N AFTER 41 DAYS IN SERVICE. LEAKING OIL.
72213	12, , , ,	03-13-68	EP 1039-4. FAILED AFTER 803 DAYS IN SERVICE. MOTOR MEGGED GOOD. REPLACED BOTH BEARINGS. 8.5E B.T.
72207	12, , , ,	05-24-68	EP 1039-1. AGITATOR FAILED ON 9.3E BT AFTER 184 DAYS IN SERVICE. REPLACED WITH EP 1039-6. SAME DAY. EP 1039-1 REPAIRED 7/30/69. REPLACED BEARINGS WITH NEW STYLE. INSTALLED NEW BAIL. EP 1039-1 INSTALLED IN (9.3) BT 7/30/69.
5893	04, , , ,	08-08-68	K2 COL PLUGGED AND LEAKING AT AGITATOR SHAFT INTO CELL.
72233	12, , , ,	08-26-68	EP 1009-3. AGITATOR FAILED IN (8.3)SOUTH. GROUNDED ALL THREE PHASES. GEAR CLUSTER FAILED. 5345 DAYS IN SERVICE.

NO.	SOURCE	DATE	OCCURRENCE
72229	12, , , ,	04-14-69	EP 1009-1. AGITATOR FAILED IN 8.1 SOUTH POSITION. CIRCUIT MEGGED GOOD. BLEW TWO FUSES, PULLS 25 AMPS. 5580 DAYS IN SERVICE.
72246	12, , , ,	05-19-69	EP 1009-11. 13.1N POSITION. BLEW 30 AMP FUSES. REVERSED LEADS, LUBRICATED. OPERATING SATISFACTORILY.
2029	12,04, , ,	07-28-69	9.3E FAILED AGITATOR EP 1039-6 IN CONCENTRATE TANK AFTER 430 DAYS IN SERVICE. REPLACED WITH EP 1039-1. 2 DAYS.
4834	04,12, , ,	02-06-70	10.4 TANK AGITATOR EP 372.62 FAILED. MOVED TO 643-G IN BOX WITH OLD 17.4 VESSEL TO H-AREA. REPLACED WITH EP 372.94 FROM 18.1 VESSEL. 5877 DAYS IN SERVICE.
2035	12, , , ,	04-02-70	9.3E BOTTOMS TANK AGITATOR EP 1039-1 FAILED AFTER 243 DAYS IN IN SERVICE. HARNESS FAILED. REPLACED WITH EP 1039-2. 3 DAYS.
2037	12,04, , ,	04-09-70	9.3E BOTTOMS TANK AGITATOR EP 1039-2 FAILED. HARNESS FAILED IN 4 DAYS. REPLACED WITH EP 1039-4. 12 DAYS TO REPLACE.
72209	12, , , ,	04-21-70	EP 1039-4. INSTALLED IN (9.3E) BT. WOULD NOT OPERATE. HARNESS BAD. REINSTALLED AFTER HARNESS REPAIRED.
72210	12, , , ,	05-06-70	EP 1039-4. AGITATOR FAILED AFTER 15 DAYS IN SERVICE. INSTALLED EP 1039-1 IN (9.3E)BT ON 5/10/70. UNIT WOULD NOT OPERATE. INSTALLED EP 1039-6 IN (9.3E) BT ON 5/29/70.
72214	12, , , ,	05-13-70	EP 1039-2. AGITATOR FAILED. BAIL BROKE.(8.5E)BT. 16 DAYS IN SERVICE.
72215	12, , , ,	06-00-70	EP 1039-2. AGITATOR FAILED. REPAIRED. REWIRED,NEW BAIL, WELDED CONNECTOR TO CONDUIT, STRAIGHTENED SHAFT.(8.5E)
72232	12, , , ,	06-12-70	EP 1009-12. AGITATOR INSTALLED (8.1)43. (SOUTH) FAILED. REMOVED 4-24-75.
5897	04,12, , ,	10-23-70	5.8.3 WASTE HOLD TANK AGITATOR FAILURE. REPLACED MOTOR ASSY. RETRIEVED LOWER PADDLE FROM 5.8-3 VESSEL AND INSTALLED ON STIRRER. 11 DAYS REPAIR TIME. EP 20136-1. 2 HP. 6138 DAYS IN SERVICE.
72245	12,67, , ,	07-14-71	EP 1009-10. AGITATOR (16.7)N FAILED. REPLACED WITH EP 1009-1. 6404 DAYS IN SERVICE.
6567	04,07,12, ,	10-13-71	AGITATOR MOTOR FOR 1ST CYCLE FIRST STAGE WASHER 14.5-1 FAILED AFTER 2777 DAYS IN SERVICE. REPLACED WITH SPARE MOTOR. EP 20163-1. SHROUD AGITATOR SAME DAY.
2051	12,04, , ,	10-18-71	9.3E AGITATOR ON THE BOTTOMS TANK FAILED AFTER 507 DAYS IN SERVICE. EP 1039-6. STORED (8.1)51. REPLACED WITH EP 1039-3. 6 DAYS REPAIR TIME.
6939	04, , , ,	11-15-71	FAILED AGITATOR 2A ADJUSTMENT TANK. EP 395.29. 12.5 VESSEL. 6525 DAYS IN SERVICE.
72242	12, , , ,	01-04-72	EP 1009-1. AGITATOR (16.7)45 N FAILED AFTER 170 DAYS IN SERVICE. GEAR HOUSING CRACKED. INSTALLED METAL FAN. REWIRED FROM MOTOR TO LOWER CONNECTOR. REPLACED WITH EP 1009-10 ON 1/6/72.

NO.	SOURCE	DATE	OCCURRENCE
72200	12, , , ,	01-05-72	EP 20136-1. AGITATOR FAILED AFTER 429 DAYS IN SERVICE. INSTALLED NEW BEARINGS IN MOTOR. INSTALLED NEW CARBON RRING OIL SEAL IN GEAR BOX. DURING RUN-IN SEAL FAILED. FABRICATED TWO NEW SEALS. INSTALLED NEW OIL SEAL AND RUN-IN SATISFACTORILY. 26 DAYS REPAIR TIME. 5.8-3.
72228	12, , , ,	01-06-72	EP 373.78. 16.4 AGITATOR FAILED AFTER 1960 DAYS IN SERVICE. NO AGITATION. MOTOR CHECKED OUT GOOD. REPLACED WITH EP 373.78-2 ON 1/19/72. 13 DAYS.
2056	12,04, , ,	03-04-72	9.3E AGITATOR EP 1039-3 FAILED AFTER 131 DAYS IN SERVICE. REPLACED WITH EP 1039-2 ON 3/7/72.
72220	12, , , ,	07-28-72	EP 395.29. AGITATOR FAILED IN 12.5 SERVICE. 253 DAYS IN SERVICE. REPLACED WITH NEW EP 395.29-2. BLOWING FUSES EVERY SO OFTEN. REPAIRS INCLUDED NEW BEARINGS, OIL PUMP, AND MOTOR.
72219	12, , , ,	08-09-72	EP 373.74. AGITATOR FAILED IN 18.8. MOVED TO W.S. FOR REPAIR. REPLACED MOTOR BEARINGS AND GEARS AND BEARINGS IN GEAR BOX. COMPLETE OVERHAUL. 6849 DAYS IN SERVICE.
6804	07,04,12, ,	12-21-72	5.8-3 AGITATOR STOPPED FROM THERMAL OVERLOAD DUE TO A METAL STRIP FOR POSITIONING COILS CAME LOOSE AND JAMMED AGITATOR AFTER 324 DAYS IN SERVICE. SHAFT BENT AND BLADES DISTORTED. EP 20136-1. INSTALLED SHAFT FROM SPARE EM UNIT AND RETURNED TO SERVICE. SHAFT REMOVED FROM EM 3483 (EP 20136-2) AND INSTALLED ON EP 20136-1.
72226	12, , , ,	12-22-72	EP 373.76. 5.3 AGITATOR FAILED. GEAR FROZE UP. PULLED 75 AMPS. 2806 DAYS IN SERVICE.
72202	12, , , ,	01-12-73	EP 20136-1. AGITATOR FAILED. REMOVED FROM TANK BECAUSE OF OVERLOADING AND TRIPPING OUT. FOUND BOTTOM BLADE AND SHAFT BENT. OBSERVED BENT COIL SUPPORT NEAR BOTTOM OF 5.8-3 TANK. INSTALLED NEW SHAFT. SHAFT WAS SHORTENED 6" AND ALL THREE BLADES WERE WELDED. ADDED OIL AND CHECKED FOR LEAKS. REWIRED ELECTRICAL CONNECTOR. RUN-IN 24 HOURS. 6 DAYS REPAIR TIME. 324 DAYS IN SERVICE.
72203	12, , , ,	02-23-73	EP 20136-1. AGITATOR FAILED AFTER 36 DAYS IN SERVICE. 5.8-3. REMOVED 5-11-73. REPLACED STIRRER SHAFT AND REINSTALLED IN 5.8-3 ON 5-25-73.
72221	12, , , ,	04-10-73	EP 372.2. GEAR BOX FAILURE, MOTOR RUNS. IN POSITION 11.8. REPLACED WITH EP 20259. 7035 DAYS IN SERVICE.
72211	12, , , ,	06-08-73	EP 1039-2. REMOVED WITH FAILED B.T. STORED IN MODULE. BAIL BROKEN. STORED IN (13.3M)31 SW ON 11-1-73.(9.3E)BT. BURIED 6/2/84. 456 DAYS IN SERVICE BUT DID NOT FAIL.
72236	12,20,33, ,	07-12-73	EP 1009-4. AGITATOR (8.3)N FAILED. 7132 DAYS IN SERVICE. APPEARS TO BE GEAR ASSEMBLY TROUBLE. REPAIRED 4/12/75 AND INSTALLED IN 8.1S 4/24/75. EP 1009-13 INSTALLED IN (8.3)N ON 7/13/73
72204	12, , , ,	09-19-73	EP 20136-1. AGITATOR FAILED. 5.8-3 AFTER 107 DAYS IN SERVICE. INSTALLED NEW AGITATOR WITH A SHROUD. EM 3483 (EP 20136.2). 42 DAYS REPAIR TIME.
177430	12, , , ,	02-15-74	EP 1039-1. REPLACED BEARINGS, REWIRED FROM MOTOR TO CONNECTOR ON 6/6/72. INSTALLED IN (9.1)BT ON 2/15/74.

NO.	SOURCE	DATE	OCCURRENCE
72234	12, , , ,	03-05-74	EP 1009-1 AGITATOR FAILED IN THE (8.3)S POSITION AFTER 60 DAYS IN SERVICE. GEAR OR BEARINGS LOCKED UP.
177418	12, , , ,	06-10-74	EP 1009-10 FAILED IN (16.7)N AFTER 885 DAYS IN SERVICE. REINSTALLED IN (16.7)N ON 7/20/74.
2065	07,04,12, ,	12-11-74	AGITATOR OF 1ST STAGE SOLVENT WASHER (14.5-1) FAILED AFTER 1154 DAYS IN SERVICE. OIL PUMP FOR GEAR REDUCER FAILED RESULTING IN LACK OF LUBRICATION TO GEARS AND BEARINGS. EP 20163-1. REVERSED LEADS, AND READ 40 AMPS. WILL NOT OPERATE. INSTALLED NEW MOTOR, NEW ELECTRICAL CONNECTOR ASSY, CONDUIT, AND GEAR ASSY, ALL FROM EP 4909. 9 DAYS REPAIR TIME.
72237	12, , , ,	09-02-75	EP 1009-7. AGITATOR (8.7)S FAILED. 7912 DAYS IN SERVICE.
72244	12, , , ,	09-02-75	EP 1009-9. AGITATOR (16.7)S FAILED AFTER 3394 DAYS IN SERVICE.
12342	28,12, , ,	02-23-76	WARM SHOP - SURVEYED EP372.2 10HP - AGITATOR FROM VESSEL 11.8 FOR MAINT TO REMOVE SHAFT FROM MOTOR. MOTOR WILL BE TAKEN TO WARM CRANE MAINT AREA FOR REPAIRS. RADIATION LEVEL AT MOTOR ON TOP OF STAND 10 MRADS/5 MR/HR, MIDDLE STAND 100 MRADS/10 MR/HR @ 12 INCHES OF SHAFT, AND 600 MRADS/60 MR/HR @ 12 INCHES OF AGITATOR BLADE AND SHAFT. ETE = 25 MR.
12373	28, , , ,	03-04-76	WCMA - MAINT CONTINUED REPAIRS ON AGITATOR GEARBOX EP 372.2 WITH EXP RATE OF 5 MRADS/2 MR/HR @ 12 INCHES.
15248	32,12, , ,	06-16-76	8.1 SOUTH AGITATOR (PANEL HH-43-NO. 28) IS BAD AFTER 417 DAYS IN SERVICE. EP 1009-4.
15112	28,33,32,12,	06-23-76	DECONTAMINATION CELL - THE FAILED 8.1 SOUTH AGITATOR, EP 1009-4, WAS PLACED IN DECONTAMINATION CELL. RADIATION EXPOSURE DOSE RATE WAS 3 MRADS/3 MR/HR ON SOUTH CATWALK AND 20 MRADS/15 MR/HR AT VALVING STATION ON EAST CATWALK. TRANSFERABLE CONTAMINATION LESS THAN 1000 C/M BETA-GAMMA AND LESS THAN 500 D/M ALPHA ON SOUTH CATWALK. REPLACED WITH EP 1009-1 ON 06-24-76.
12143	07,32,33,12,	08-10-76	THE AGITATOR ON THE 1DF FEED TANK 16.7 FAILED AFTER 758 DAYS IN SERVICE. 2 DAYS REPAIR TIME. EP 1009-10. REPLACED WITH EP 1009-4 ON 8-13-76.
11441	32,12, , ,	08-23-76	REMOVED 8.7 S AGITATOR. EP 1009-7. REMOVED MOTOR. MOTOR TO BE USED ON EP 1009-10. INSTALLED MOTOR FROM EP 1009-10 ON THIS AGITATOR. STIRRER BENT 4 OR 5". RUN OUT.
72239	12, , , ,	08-25-76	EP 1009-5. AGITATOR (13.1)S FAILED. NO AGITATION. GEARS SHOT. MOTOR OK. 8269 DAYS IN SERVICE.
6726	32,28,04,33,12	11-03-76	FAILED 9.3B AGITATOR EP 20243 AFTER 1221 DAYS IN SERVICE. SHIPPED TO BURIAL GROUND. REPLACED WITH EPI-221F-20243-1, 3 HP.
72235	12, , , ,	11-17-76	EP 1009-3. AGITATOR FAILED IN (8.3)S AFTER 850 DAYS IN SERVICE. MOTOR RUNS, NO AGITATION.
159783	67, , , ,	01----77	REAGENT PREPARATION OVERFLOW TANK, EP 3126. TIME IN SERVICE: APPROXIMATELY 20 YEARS. THE AGITATOR BLADE WAS CORRODED AWAY AND THE LEVEL INDICATOR TUBE WAS BROKEN AND REQUIRED REPLACEMENT.

NO.	SOURCE	DATE	OCCURRENCE
23081	32,12, , ,	02-01-77	1ST CYCLE - THE (13.1)S AGITATOR DOESN'T SEEM TO BE AGITATING TANK CONTENTS. EP1009-11. REPLACED WITH EP 1009-10 ON 2/4/77. 2811 DAYS IN SERVIE.
21172	32,12, , ,	03-28-77	THE 8.7 AGITATOR WAS SMEARING 2X10+7 D/M ON THE COUPLING - MOVED TO WARM SHOP AND DECONNED - NOW SMEARING 2X10+6 D/M. EP 1009-7. INSTALLED IN 8.7S ON 2/15/78.
72224	12,32, , ,	08-04-77	EP 372.92. 7.5 AGITATOR FAILED. MOTOR OK, GEARS SHOT. REPLACED WITH EP 372.2 ON 8/6/77. FAILED 372.92 AGITATOR STORED 6.7 NW. 8614 DAYS IN SERVICE.
22013	32, , , ,	10-15-77	FRAME 2 - COMPLETED ELUTION AND REGEN. OF RUN 10FSW-7. UNABLE TO AGITATE THE 2K COLUMN DUE TO OVERLOAD CIRCUIT TRIPPING OUT. EP 373.42.
22024	32, , , ,	10-19-77	FRAME 2 - 2K AGITATOR KICKED OUT - RESET AND OPERATED OK. EP 373.42.
22045	32, , , ,	10-27-77	FRAME 2 - 2K AGITATOR TRIPPED OUT. RESET OVERLOADS, NOW OK. EP 373.42.
22179	32, , , ,	12-14-77	FRAME 2 - THE 9.8 AGITATOR IN 717 BLEW FUSE - MOTOR REMOVED - IT MEGGED GOOD - COULD NOT GET PINION GEAR OFF TO CHANGE BEARING - WORK WILL BE CONTINUED ON 8-4 SHIFT. 4-12 SHIFT.
21751	32,33, , ,	12-28-77	FRAME 2 - REGEN. OF 2K AND AGITATOR WON'T RUN. STOPPED REGEN. 1 DAY. EP 373.42.
20397	33,32, , ,	01-03-78	STAGE 2 AGITATOR PULLING 150% NORMAL CURRENT. EP 373.42.
22245	32, , , ,	01-04-78	DISSOLVER AND B.S - STEAM VALVED OFF 6.2F. STEAM REPAIRS HGVC. 10.2 AGITATOR NEEDS TO BE MEGGED AND RETURNED TO SERVICE.
72247	12, , , ,	01-15-78	EP 1009-8. 8.7N FAILED. REVERSED LEADS. RUNNING GOOD.
34503	32,12, , ,	02-15-78	8.7 N AGITATOR FAILED. EP 1009-8.
34549	32, , , ,	02-28-78	8.7 N AGITATOR FUSES BLEW. REFUSED. 8-4 SHIFT.EP 1009-8.
34552	32,12, , ,	02-28-78	8.7 N AGITATOR STOPPED AGAIN. FUSES REPLACED. 4-12 SHIFT.
72238	12, , , ,	03-01-78	EP 1009-8. AGITATOR (8.7) N FAILED.
34628	32,12, , ,	03-09-78	8.7 N AGITATOR KICKED OFF. EP 1009-8. IN SERVICE 8855 DAYS.
72218	12, , , ,	04-05-78	EP 1039-1. AGITATOR FAILED IN (9.1E) BOTTOMS TANK AFTER 1508 DAYS OF OPERATION.
16878	04,33,32,20,12	04-24-78	FIRST PUREX CYCLE DOWN 1 DAY TO REPAIR 14.5-1 AGITATOR IN SOLVENT WASHER. EP 20163-1 AFTER 1222 DAYS IN SERVICE.
16879	04,28,12, ,	04-27-78	FIRST PUREX CYCLE SHUT DOWN FOR THE SECOND TIME THIS MONTH BECAUSE THE AGITATOR FAILED ON THE FIRST STAGE SOLVENT WASHER. OUT 3 DAYS. EP 20163-1 IN 14.5-1. 1223 DAYS IN SERVICE.
34927	32, , , ,	07-26-78	10.4 AGITATOR PULLING 11 AMPS.

NO.	SOURCE	DATE	OCCURRENCE
36031	33,28,32,10,07	08-30-78	RETRIEVED W-3 YOKE AND STRAIGHTENED THEN CONTINUED 20 HP AGITATOR PROCEDURE. THERE WERE NO BLADES ON SHAFT, THEY ARE S/WEST IN 16.7 - NEED HP SURVEY IN W/SHOP. 12-8 SHIFT. EP 1009-9.
35837	28,12, , ,	12-11-78	REPAIRS TO 20 HP AGITATOR PUMP. EP 1009-9 INSTALLED IN 16.7 ON 12/22/78.
33249	28,12, , ,	02-06-79	DECONTAMINATION CELL - A FAILED 9.3 AGITATOR WAS SURVEYED. 12-8 SHIFT. EP 1039-4.
37798	32, , , ,	06-06-79	FIRST CYCLE. 13.1 NORTH AGITATOR BLEW FUSE WHEN CUT OFF TO GET READING-FUSE REPLACED. 4-12 SHIFT.
37910	32, , , ,	06-18-79	MISC. 13.1 AGIT. WILL NOT RUN. 12-8 SHIFT.
37981	32, , , ,	06-20-79	LAB WASTE - LAW. 8.5 OPERATING BOTTOM TANK AGITATOR DRAWING EXCESSIVE CURRENT AND IS KICKING OFF. 8-4 SHIFT.
38092	32,12,33, ,	06-28-79	HEAD END. 12.2 AGITATOR KICKED OFF AFTER 5874 DAYS IN SERVICE. 12-8 SHIFT. EP 371.18. MOVED TO D. VESSEL STAND. 4 DAYS. REPLACED BY EP 371.18-2M ON 7/03/79.
46444	10,07,12, ,	01----80	THE 17.3 MPPF EVAPORATOR AND FEED TANK WHICH HAD INADVERTENTLY BECOME DRY AND A FAILED AGITATOR FROM THE 17.1 CANYON AM-CM STORAGE VESSEL WHICH HAD BEEN LEFT EXPOSED IN THE HOT CANYON DECONTAMINATION VESSEL WERE THE CAUSE OF A RELEASE OF 0.6 MILLICURIES OF ALPHA ACTIVITY OVER AN 8 DAY PERIOD. EP 372.89-3 HAD OPERATED IN 17.1 FOR 4590 DAYS. REPLACED WITH EP 371.18-1M.
44336	32,31, , ,	02-01-80	HAW -PRC. REPLACED BLOWN FUSE IN 10.1-1K 2&3 AGITATOR. 12-8 SHIFT. 20010059.
52793	32,31,12, ,	03-28-80	8.1 - SOUTH AGITATOR (EP 1009-1) HAS GONE BAD AFTER 1404 DAYS IN SERVICE. 8-4 SHIFT. 20005541.
54063	32,31,12, ,	06-12-80	SECOND METAL - 16.7 AGITATOR EP 1009-9 FAILED AFTER 536 DAYS IN SERVICE. 4-12 SHIFT. 20015848.
48089	31, , , ,	06-13-80	20006843 AGITATOR-12.2 22100 371.79 NON-ROUTINE MAINT
51519	31, , , ,	06-18-80	20019429 AGITATOR-NORTH-14.5 22100 1011 NON-ROUTINE MAINT
59906	33,32,31,20,12	06-18-80	FOUND 13.1 SOUTH AGITATOR EP 1009-10 NOT WORKING AFTER 1230 DAYS IN SERVICE. 12-8 SHIFT. 20 HP AGITATOR REPLACED. 20 DAYS TO REPLACE. REPLACED WITH EP 1009-9 ON 7/8/80.
54090	32, , , ,	06-19-80	8.1 SOUTH AGITATOR IN HCC. IT CHECKS GOOD ELECTRICALLY. IT PULL 100% ON METER ON PANEL BOARD AND KICKED OUT AFTER ABOUT 15 SEC. OPERATION. 4-12 SHIFT.
48091	31, , , ,	09-04-80	20006843 AGITATOR-12.2 22100 371.79 NON-ROUTINE MAINT

NO.	SOURCE	DATE	OCCURRENCE
51630	31, , , ,	09-04-80	20020609 AGITATOR 7.5-WC 22100 372.92 NON-ROUTINE MAINT
50531	31, , , ,	09-18-80	20015841 AGITATOR 16.722100 1009-9 NON-ROUTINE MAINT
54325	32,12, , ,	09-21-80	LAW - 8.5E B.T. AGITATOR OVERLOADS AND KICKS OFF. 4-12 SHIFT. EP 1039-3. 2504 DAYS IN SERVICE.
50532	31, , , ,	09-23-80	20015841 AGITATOR 16.722100 1009-9 NON-ROUTINE MAINT
48416	31, , , ,	09-24-80	20007803 AGITATOR-13.1-NORTH 22100 1008 NON-ROUTINE MAINT
54375	32,31, , ,	10-15-80	HAW-PRC - 10.1 K-1 AGITATOR BLEW BOTH FUSES. 12-8 SHIFT. 20009979.
54386	32,31, , ,	10-22-80	LAW-SOLVENT RECOVERY - 14.5 STAGE 2 AGITATOR BLEW FUSES. 12-8 SHIFT. 20019427.
60074	33,12, , ,	10-27-80	REPLACED 8.5 BOTTOMS TANK AGITATOR EP 1039-3 WITH EP 1039-6. 8-4 SHIFT. 2539 DAYS IN SERVICE.
54399	32, , , ,	10-28-80	HAW-PRC - 1K-1 AGITATOR KICKED OFF ONCE. 4-12 SHIFT.
49523	20, , , ,	11----80	BEARINGS WERE REPLACED ON A FAILED 20 HP AGITATOR MOTOR ON TANK 13.1.
49686	20, , , ,	12----80	THE C-3-5 DENITRATOR KETTLE AGITATOR GEARBOX LEAKED OIL INTO THE KETTLE CREATING A FIRE HAZZARD. CAUSE WAS A GROOVE CUT IN THE SHAFT BY SEAL WEAR.
68433	36, , , ,	12-07-80	SPEC. REC. D-1 - CANYON WILL NOT RECEIVE C-7A MATERIAL DUE TO AGITATORS NOT WORKING IN RECEIPT TANK. 8-4 SHIFT.
54921	32,31,12, ,	01-07-81	SECOND PU - LOST 16.7 AGITATOR, EP 1009-4 AFTER 1606 DAYS IN SERVICE. 8-4 SHIFT. 5 DAYS. 20015845.
74828	55,31,12, ,	01-12-81	STOOD-BY FOR MAINT. TO INSTALL EP 1009-10 STIRRERS ON 16.7 AGITATOR. 4-12. 20015839. 20015848. 20015845.
74275	31, , , ,	01-19-81	20013021 MOT W/CONT 17.1 AGIT 10HP22100 373.71 HZD39 NON-ROUTINE MAINT
74989	55, , , ,	02-02-81	TURNED OFF 5D AGITATOR WHICH HAS BEEN RUNNING FOR DAYS WITH NOTHING IN TANK. 4-12.
73982	31, , , ,	02-11-81	20015841 AGITATOR 16.722100 1009-9 NON-ROUTINE MAINT
73983	31, , , ,	02-12-81	20015841 AGITATOR 16.722100 1009-9 NON-ROUTINE MAINT
73989	31, , , ,	02-23-81	20015841 AGITATOR 16.722100 1009-9 NON-ROUTINE MAINT

NO.	SOURCE	DATE	OCCURRENCE
75348	31, , , ,	04-14-81	20007805 AGITATOR-SOUTH-13.1 22100 1008 NON-ROUTINE MAINT
75303	32,31, , ,	04-16-81	HAW PRC - 10.1-1K-1 AGITATOR FAILED. 12-8. 20009981. 20009982.
75473	32, , , ,	05-05-81	PRC - 10.1-11 - 2 & 3 AGITATOR BLEW FUSES TWICE. 12-8
74146	31, , , ,	05-06-81	20011625 AGITATOR-8.7S 22100 1008- NON-ROUTINE MAINT
75694	32,12, , ,	06-08-81	12.2 AGITATOR DOES NOT APPEAR TO BE STIRRING. EP 371.18-2M FAILED AFTER 673 DAYS IN SERVICE. 12-8. INSTALLED EP 372.92 ON 7/1/81.
75722	32,31, , ,	06-16-81	ADDED OIL TO 10.4 & 11.4 AGITATORS AND 11.4 IS OK NOW. 8-4. 1 SHIFT. 20015850.
75670	33, , , ,	06-30-81	COULD NOT COVER S.P. THE CELL COVER HIT LIFTING BELL ON AGITATOR AND BENT IT DOWN. 4-12
73281	31, , , ,	07-02-81	20020609 AGITATOR 7.5-WC 22100 372.92 NON-ROUTINE MAINT
75112	31, , , ,	07-02-81	20006771 AGITATOR-12.1 22100 372.91 NON-ROUTINE MAINT
75115	31, , , ,	07-14-81	20006771 AGITATOR-12.1 22100 372.91 NON-ROUTINE MAINT
75005	31, , , ,	07-24-81	20006713 AGITATOR-11.4 22100 373.41 NON-ROUTINE MAINT
74183	31, , , ,	08-17-81	20012125 AGITATOR-5D 22100 373.65 NON-ROUTINE MAINT
74242	31, , , ,	08-20-81	20012631 AGITATOR-15.4 22100 372.25 NON-ROUTINE MAINT
75008	31, , , ,	08-25-81	20006713 AGITATOR-11.4 22100 373.41 NON-ROUTINE MAINT
76442	32,34,31,12,20	09-22-81	10.2 - DO NOT RECEIVE FROM B-LINE. AGITATOR IS OUT OF SERVICE. 8-4. 20006265. EP 371.14. 10,117 DAYS IN SERVICE.
76719	32,12, , ,	10-08-81	WORKED ON 8.1 SOUTH AGITATOR REPLACEMENT. EP 1009-15. 12-8.
77043	33, , , ,	11-17-81	HAD TO INSTALL ANOTHER FLEX ON NOZ. 10(4H). COULDN'T PICK UP LOOSE END OF FLEX ORIGINALLY INSTALLED AS 10(4H) BECAUSE IT WAS TANGLED UP WITH OTHER FLEXES. KNOCKED OVER A 20 HP AGITATOR IN HDC. 12-8.
77166	32,31, , ,	11-30-81	HAD TO REPLACE FUSES TO 14.5 STAGE 2 AGITATOR, WORKING OK NOW. 12-8. 20019431.
81855	32, , , ,	12-04-81	LAW - 14.5-2 AGITATOR BLEW 3 FUSES. REVERSED LEADS, RUNNING OK. 4-12

NO.	SOURCE	DATE	OCCURRENCE
81837	33,12, , ,	12-19-81	11.4 AGITATOR EP 373.41 FAILED. REPLACEMENT PROCEDURE COMPLETE THROUGH STEP NO. ELEVEN. 4-12. 10209 DAYS IN SERVICE.
69257	31, , , ,	01-11-82	20009981 AGITATOR-10.1-1K-1 22100 20147A NON-ROUTINE MAINT
84748	31, , , ,	01-11-82	20045003 AGITATOR-TK-181 22100 373.68 NON-ROUTINE MAINT
84749	31, , , ,	01-19-82	20045003 AGITATOR-TK-181 22100 373.68 NON-ROUTINE MAINT
79324	31, , , ,	02-01-82	20016655 AGITATOR-10-HP-W146045 22100 373.76 18.5 NON-ROUTINE MAINT
11424	31, , , ,	03-01-82	20005025 AGITATOR 5.3 22100 372.94 NON-ROUTINE MAINT
103283	33, , , ,	03-03-82	THE 10HP AGITATOR ON RUN-IN IN THE WARM SHOP QUIT RUNNING SOMETIME BETWEEN 5:00 AM & 7:00 AM. 12-8.
80000	31, , , ,	03-09-82	20016655 AGITATOR-10-HP-W146045 22100 373.76 18.5 NON-ROUTINE MAINT
80157	31, , , ,	03-10-82	20016655 AGITATOR-10-HP-W146045 22100 373.76 18.5 NON-ROUTINE MAINT
103074	28, , , ,	03-10-82	WCMA - PUNCTURE WOUND OF MAINT. MECH. WORKING ON AGITATOR E.P. 373.78 THAT FAILED IN 16.4. NO CONTAM. FOUND. 8-4
103168	32, , , ,	03-10-82	CPO REPORTED OIL FROM AGITATOR ON TOP OF 11.8 AND THE 11W SUMP TO BE ABOUT 1/2 FULL. 8-4
103169	32,31, , ,	03-10-82	SOLVENT RECOVERY - 14.5-2 REPLACED FUSES IN MCC AND LUBRICATED AGITATOR IN ATTEMPT TO SOLVE PROBLEM. 4-12. 20019431.
103186	32, , , ,	03-15-82	E&I HAD TO REPLACE FUSES TO 14.5-2 AGITATOR. 12-8
103204	32, , , ,	03-16-82	E&I REPLACED FUSES ON 10.1-2K & 3K AGITATOR. 12-8
80164	31, , , ,	03-17-82	20016655 AGITATOR-10-HP-W146045 22100 373.76 18.5 NON-ROUTINE MAINT
103209	32, , , ,	03-18-82	HAW / PRC - 10.1-K-2&3 AGITATORS BLEW A FUSE THIS SHIFT, E&I REPLACED. 4-12
103213	32,31, , ,	03-19-82	16.3 AGITATOR BLEW A FUSE, REPLACED, RAN FOR 3.5 HRS. BLEW AGAIN. 4-12. 20012849.
69262	31, , , ,	03-20-82	20010061 AGITATOR-10.1-1K-2 22100 20147B NON-ROUTINE MAINT
103219	32,31, , ,	03-22-82	16.3 DECANTED TO 15.4, WHEN WE WENT TO SAMPLE AGITATOR TRIPPED OUT, KEPT BLOWING FUSES, NEED TO LUBRICATE. 12-8. 20012849.

NO.	SOURCE	DATE	OCCURRENCE
80368	31, , , ,	03-25-82	20016655 AGITATOR-10-HP-W146045 22100 373.76 18.5 NON-ROUTINE MAINT
80443	31, , , ,	04-12-82	20016655 AGITATOR-10-HP-W146045 22100 373.76 18.5 NON-ROUTINE MAINT
80477	31, , , ,	04-20-82	20016999 AGITATOR-9.5-WC 22100 372.4 NON-ROUTINE MAINT
80550	31, , , ,	04-20-82	20017063 AGITATOR-9.8-WC 22100 372.69 NON-ROUTINE MAINT
103815	33,32,31, ,	05-14-82	8.1 NORTH AGITATOR IS GROUNDED OUT. 12-8. 20015854.
91210	52,12, , ,	06----82	WARM SHOP - AGITATOR EP 373-41 AND PUMP EP 1045-10 WERE REPAIRED. EP1045-10 WAS INSTALLED IN (12.3S)17(1AP) ON 8/25/82.
91212	52, , , ,	06----82	DECONTAMINATION CELL - TUBE BUNDLE EP 1033-22 AND AGITATOR EP 371-18.2M WERE DECONTAMINATED. A SPARE HACKMAN HAT WAS CLEANED, INSPECTED AND CALIBRATED.
104117	33, , , ,	06-19-82	COULD NOT LOCATE H3 YOKE TO MOVE FAILED 12.2 AGITATOR TO SP. 12-8.
86170	52,33, , ,	07-06-82	WARM SHOP - REPAIRS TO THE 10 HP AGITATOR EP 373.41 ARE IN PROGRESS. A NEW MOTOR AND GEAR REDUCER HAVE BEEN INSTALLED.
80455	31, , , ,	07-09-82	20016655 AGITATOR-10-HP-W146045 22100 373.76 18.5 NON-ROUTINE MAINT
104326	32,31, , ,	07-19-82	NP RECOVERY - HAVING TROUBLE GETTING 5K AGITATOR TO OPERATE. 12-8. 20011289. 20016655.
91237	52, , , ,	08----82	10 HP AGITATOR EP 373.41, REPAIRS AND RUN-IN COMPLETE.
91238	52, , , ,	08----82	10 HP AGITATOR EP 372. 8903 WAS DECONTAMINATED IN SWIMMING POOL AND STORED IN WARM CANYON.
81144	31, , , ,	08-04-82	20019431 AGITATOR-SOUTH-14.5 22100 1011 NON-ROUTINE MAINT
22458	31, , , ,	08-25-82	20006713 AGITATOR-11.4 22100 373.41 NON-ROUTINE MAINT
80472	31, , , ,	08-25-82	20016655 AGITATOR-10-HP-W146045 22100 373.76 18.5 NON-ROUTINE MAINT
104719	32, , , ,	08-31-82	SOL. REC. - 14.5-2 AGITATOR WAS DOWN FOR 21/2 HRS. UNTIL LUBRICATION COULD BE ADDED FROM 2ND LEVEL. THE CIRCUIT WAS PULLING 50 AMPS AND BLEW BOTH FUSES TWICE. 12-8
94598	52, , , ,	09----82	WARM SHOP - FAILED 10 HP AGITATOR WAS DISASSEMBLED FOR REPAIR.
177438	12, , , ,	09-01-82	EP 1009-2 FAILED IN (8.1)N AFTER 5092 DAYS IN SERVICE.

NO.	SOURCE	DATE	OCCURRENCE
104928	32,31, , ,	09-04-82	NP.REC. - 14.5-2 AGITATOR WAS GREATHER THAN 100% ON METER & BLEW FUSES. 12-8. 20019431.
105090	33, , , ,	09-19-82	WORKED ON PROCEDURE FOR MOVING FAILED 20 H.P. AGITATOR INTO W. S. 12-8.
104895	28,31, , ,	09-21-82	WARM SHOP - MAINT. REPAIRED BAIL ON AGITATOR EP NO. 372-89-3. 8-4. 18.1. 20013333.
87446	52, , , ,	10----82	DECONTAMINATION CELL - DECONTAMINATION OF 20 HP AGITATOR EP 1009-5 IS IN PROGRESS. THIS WORK HAD DELAYS DURING THE MONTH DUE TO MANIPULATOR AND DROP HOSE FAILURES AND UNAVAILABILITY OF KMN04 SOLUTION BECAUSE OF MAKEUP TANK 201 BEING TEMPORARILY USED FOR OTHER PURPOSES.
105714	33, , , ,	11-07-82	FOUND POWER HARNESS TO 9.1E B.T. AGITATOR & PUMP WITH WIRE EXPOSED TO CANYON, CAP IS MISSING. 8-4.
128876	33,32, , ,	12-13-82	HAD MAINT TO ADD OIL TO 13.1 SOUTH AGITATOR - RAN BETTER FOR A WHILE THEN TRIPPED OUT AGAIN PULLING TO MANY AMPS. 12-8.
105811	32, , , ,	12-14-82	E&I REPLACED FUSES AND O/L HEATERS ON 2K-3K AGITATORS. 12-8
105835	32,04,33,12,	12-21-82	2ND PU CYCLE - 11.8. EP 20259 FAILED AFTER 3505 DAYS IN SERVICE. REPLACED AGITATOR WITH EP 373.41. 12-8. START UP SECOND PU CYCLE AT 8:00 A.M.
177447	12, , , ,	02-09-83	EP (1039-6) FAILED IN (8.5E) BT AFTER 834 DAYS IN SERVICE. MEGGED TO GROUND.
110184	31, , , ,	03-22-83	20023803 YOKE-5-HP-AGITATOR 22100 551.13 NON-ROUTINE MAINT
126271	32, , , ,	03-31-83	SAL.REC. IT APPEARS THAT 13.8 AGITATOR WAS RUNNING WHEN STAGE 1 WAS DECANTED TO 13.7. 8-4.
110187	31, , , ,	04-12-83	20023803 YOKE-5-HP-AGITATOR 22100 551.13 NON-ROUTINE MAINT
110189	31, , , ,	04-27-83	20023803 YOKE-5-HP-AGITATOR 22100 551.13 NON-ROUTINE MAINT
110191	31, , , ,	05-13-83	20023803 YOKE-5-HP-AGITATOR 22100 551.13 NON-ROUTINE MAINT
110193	31, , , ,	06-15-83	20023803 YOKE-5-HP-AGITATOR 22100 551.13 NON-ROUTINE MAINT
126602	32, , , ,	06-20-83	2ND. 8.1 NORTH AGITATOR MOTOR GROUNDED. 4-12.
106153	31, , , ,	06-24-83	20016655 AGITATOR-10-HP-W146045 22100 373.76 18.5 NON-ROUTINE MAINT
126844	32, , , ,	08-14-83	HAW-PRC. IT APPEARS THAT WE MAY HAVE LOST THE PADDLE OFF 9.3BT AGITATOR. 8-4.

NO.	SOURCE	DATE	OCCURRENCE
122685	52, , , ,	09----83	EQUIPMENT REPAIRED - DISASSEMBLED BI-CELL TANK AGITATOR EP 1009-5 FOR REPAIRS.
127130	32, , , ,	10-05-83	10.1 AGITATOR INOPERATIVE. OPEN CIRCUIT TO OFF-ON SWITCH. 12-8. 1 SHIFT.
110196	31, , , ,	11-03-83	20023803 YOKE-5-HP-AGITATOR 22100 551.13 NON-ROUTINE MAINT
127326	32, , , ,	11-11-83	MOVED 8.5E BOTTOMS TANK TO WARM SHOP FOR REPAIRING AGITATOR BAIL. 12-8.
127330	32,52, , ,	11-12-83	2ND U, 2ND PU & FRAME II. COULD NOT WELD BAIL ON 8.5 BT AGITATOR. BRACKET THAT HOLDS BAIL IS BROKEN AND GONE AND NEW ONE NEEDS TO BE MADE. 4-12.
127366	32,52, , ,	11-18-83	FRAME II. 11.4 AGITATOR WAS MOVED TO 11.2 AND FAILED. 11.2 INSTALLED IN 11.4. 8-4.
90908	31, , , ,	11-28-83	20006577 AGITATOR-11.2-HC 22100 372.56 NON-ROUTINE MAINT
127479	32, , , ,	12-06-83	THE 9.1 BOTTOMS TANK AGITATOR FAILED. 4-12.
150278	33,52, , ,	01-13-84	CHECKED 11.2 AGITATOR PER PROCEDURE. SOUNDS LIKE THE GEAR BOX IS BAD. 4-12. EP-37256.
114012	52, , , ,	02-00-84	221-F MONTHLY REPORT. OVERHAULED AND REINSTALLED TANK 6E AGITATOR.
145477	32, , , ,	02-16-84	9.7 AGITATOR VOLT METER DOES NOT INDICATE ANY CURRENT. 4-12.
149030	55, , , ,	03-13-84	MADE UP 8A-2; UNABLE TO START RESIN REMOVAL BECAUSE POWER FOR AGITATORS IS OFF. 12-8.
145641	32, , , ,	03-18-84	WARM CANYON - 10.1-1K AGITATOR TRIPS OUT. 4-12.
145659	32, , , ,	03-23-84	1ST CYCLE - 10.2 AGIT. OFF DUE TO MCC #2 OUTAGE. 12-8.
145719	32, , , ,	03-30-84	E&I WORKING ON 9.8 AGITATOR. 8-4.
145728	32,12, , ,	03-31-84	INSTALLED AGITATOR EP-1009-4 IN 13.3(S). 8-4.
145732	32, , , ,	04-01-84	E&I CHECKED OUT 9.8 AGITATOR. THE TROUBLE IS IN THE CONTROL CIRCUIT. 8-4.
145746	32, , , ,	04-03-84	E&I WORKED ON 9.8 AGITATOR AND 7B PUMP ALL SHIFT. 8-4.
147166	28, , , ,	04-26-84	WARM CANYON SHOP: E&I CONTINUED WORK ON THE EP20259 AGITATOR. 8-4. INSTALLED IN 7.3 ON 7/12/84.
133239	52, , , ,	05----84	MADE 72 HOUR RUN-IN OF OVERHAULED 10 HP AGITATOR EP 20259 IN WARM SHOP.
133369	52, , , ,	06----84	REPAIRED 10 HP AGITATOR IN WS.
148552	32,52,12, ,	09-08-84	LOST AGITATOR ON 10.4 (EP 372.94). LOOKS AS IF BLADES CAME OFF. 4-12.

NO.	SOURCE	DATE	OCCURRENCE
179767	33,12, , ,	09-10-84	REPLACING 10.4 AGITATOR (EP 372.94) WITH 7.3 (EP 20259). 4-12. EP 20259 HAD ELECTRICAL PROBLEM.
132993	52,32, , ,	09-16-84	DECONTAMINATION OF OVERHAULED 10 HP AGITATOR EP 20259 THAT FAILED IN THE 10.4 VESSEL IS IN PROGRESS IN THE DECONTAMINATION CELL.
135942	36, , , ,	09-16-84	THE CANYON PULLED 10.3 DROP JUMPER FOR REPAIR ON AGITATOR. 8-4.
182505	28,12, , ,	09-27-84	DECONTAMINATION CELL - SURVEYED AGITATOR 20259 FOR RADIATION LEVELS AFTER BEING DECENT. RADIATION LEVELS DETECTED TO 2400 MRADS/1200 MR/HR AT 30 CMS OF AGITATOR. 8-4. MOVED TO 6.7 NE ON 10/10/84 FOR STORAGE.
179863	33, , , ,	10-24-84	LUBE JUMPER FOR (13.3) SOUTH AGIT. HAS BROKEN BAIL. 12-8.
149497	55, , , ,	10-26-84	E&I CHANGED OUT THE FUSES FOR 16.3 AGITATOR IN MCC #4. 4-12.
177456	12, , , ,	11-01-84	EP 373.78 FAILED IN 7.5 AFTER 910 DAYS IN SERVICE.
177451	12, , , ,	11-16-84	EP 372.56 FAILED IN 11.2. 11,266 DAYS IN SERVICE. REPLACED WITH EP 371.18 WHICH HAD BEEN INSTALLED IN 11.4.
176760	32, , , ,	01-27-85	HEAD END - 10.2 - THE AGITATOR HAS APPARENTLY BLOWN FUSES. 12-8.
176894	32, , , ,	02-13-85	FOUND STEAM ON 16.3 & TEMP. 93 DEGREES AT 4:30PM. PUT WATER ON THE COOL DOWN & SAMPLE - ALSO 16H SUMP ALARM SOUNDED AT 4:25PM. 4-12
209812	12, , , ,	03-01-85	EP 371.18-1M AGITATOR. MOTOR OPERATING BUT NO SIGN OF AGITATION. 1871 DAYS IN SERVICE.
177189	32, , , ,	04-17-85	13.1 AGITATOR DOES NOT APPEAR TO BE OPEN. E&I CHECKED AND BOTH INDICATED 10 AMPS EACH. SHOULD BE 25. MAYBE THE AGITATOR BLADES ARE OFF. 4-12
177254	32, , , ,	04-26-85	MAINT. LUBRICATED 14.5-2 AGITATOR (EP-1012-1) WHICH HAD BLOWN FUSE. 8-4.
177636	32,33,52,12,	05-11-85	10.4 AGITATOR INSTALLED. 4-12. EN-F-221-315-1.
177765	32, , , ,	06-06-85	INSTALLED POWER JUMPER ON 10.4 AGITATOR - WOULD NOT RUN. 8-4
177491	32,55,17,52,12	07-10-85	DISCOVERED 14.5-2 AGITATOR (EP-1012-1) FUSES BLOWN; LUBRICATED BUT FUSES BLEW AGAIN. 14-5.2 AGITATOR CHANGEOUT - THE SPARE AGITATOR ASSEMBLY (EM-1012.2) STORED IN THE CANYON WAS NOT USABLE DUE TO A BAD MOTOR AND GEAR REDUCER. THE REDUCER HAD NO LUBRICATION, CAUSING ITS BEARINGS TO FREEZE AND THE GEARS TO RUST. 12-8. 9 DAYS TO REPLACE. AFTER MOTOR GEAR REDUCER WAS REPLACED, EM 1012 WAS INSTALLED. 11,505 DAYS IN SERVICE.
177555	32,33,52,12,	07-19-85	INSTALLED NORTH AGITATOR IN 8.1. 8-4. EP1009-20 INSTALLED.
177462	12, , , ,	07-26-85	EP 1009-20 FAILED IN (8.1)N AFTER 7 DAYS IN SERVICE.
180914	33, , , ,	09-06-85	REMOVED 8.1 NORTH AGITATOR (FAILED). 12-8. EP 1009-20.

NO.	SOURCE	DATE	OCCURRENCE
183470	28, , , ,	09-18-85	HCMA - SURVEY MADE ON AGITATOR #1024-3 AFTER DECON. MAX. RADIATION LEVEL DETECTED 1500/100 MRAD/MR/HR AT 45 CMS. 12-8.
180935	33, , , ,	09-19-85	HP SURVEYED 8.1 AGITATOR IN SWIMMING POOL MOTOR WAS READING 400/150 AND THE SHAFT ABOUT 3FT DOWN FROM MOTOR TO THE BOTTOM WAS READING 4 RAD/HR. 12-8
183478	28, , , ,	09-19-85	DECONTAMINATION CELL - SURVEYED AGITATOR FROM EAST CATWALK. 4000 MRADS/1 R/HR AT 1 METER OF SHAFT AND BLADES. 12-8.
178323	32, , , ,	10-04-85	MEGGED 9.3BT PUMP AND AGITATOR. THE MOTOR POWER JUMPER 35(9H)47 WILL BE REPLACED. 8-4.
180968	33,04,32,55,	10-07-85	INSTALLED NEW HARNESS ON 9.3 BT. REINSTALLED AGITATOR ON BT. 8-4
178929	32,52,12, ,	10-15-85	PULLED 17.1 AGITATOR. 4-12. 5 HP. EP371.18-1M FAILED AFTER 2115 DAYS IN SERVICE. REPLACED WITH EN-372.32 ON 10/16/85.
178993	32,55, , ,	10-24-85	13.3 SOUTH AGITATOR (2F5A) FAILED. 8-4. 1 SHIFT. LUBRICATED. REPLACED FUSES. EP 1009-4.
179024	32,55,12, ,	10-28-85	13.3 AGITATOR IS OUT - SHOWS DEAD GROUND. EP 1009-4 WAS IN SERVICE 575 DAYS. INSTALLED EP 1009-21 ON 11/15/85.
179122	32,04, , ,	11-11-85	E&I CHECKED OUT 10.1-1K-1 AGITATOR. KEEPS TRIPPING. 4-12. EP 373.42.
183672	28, , , ,	11-11-85	WC SHOP - SEP. DECONNED AGITATOR BLADES WEARING PLASTIC SUITS. BODY DOSE RATE WAS 1 RAD/1 R/HR AT 30 CMS. 8-4.
182227	55, , , ,	11-12-85	E&I WORKED ON 10.1-1K AGITATOR. NO LUCK. 12-8. EP 373.42.
179137	32,33,04,52,	11-13-85	THE 13.3 AGITATOR HAS NOT BEEN INSTALLED PENDING E&I CHECK-OUT IN MCC #2F-5A, APPEARS TO HAVE A BAD WIRE BETWEEN MCC#2 AND 2ND LEVEL. REPAIRED SHORTING DUMMY. 12-8. 1 SHIFT. EP1009-21. INSTALLED.
179151	32,33,28, ,	11-15-85	E&I MEGGED 13.3 SOUTH AGITATOR (NEWLY INSTALLED) AND FOUND JUMPER 45(13.3)44 TO BE GROUNDED. 12-8. 1 SHIFT. EP 1009-21.
179161	32, , , ,	11-17-85	REPLACED BLOWN FUSE ON 9.3 B.T. AGITATOR. 12-8. EP 20243-1.
179261	32, , , ,	12-02-85	8.1 NO AGIT. REMAINS OUT - E&I CHECKING. 8-4
213404	28, , , ,	01-02-86	WARM SHOP - MAINTENANCE MADE REPAIRS ON THE EP 2015-20 AGITATOR. 8-4.
179582	32, , , ,	01-18-86	9.3E BT AGITATOR IS BINDING. 4-12. EP 20243-1.
179588	32, , , ,	01-19-86	E&I REPLACED FUSES IN THE 9.3 BT AGITATOR, NOW WORKING OKAY. 4-12. EP 20243-1.
211298	33, , , ,	01-30-86	MOVED 5.2 AGITATOR FROM DECONTAMINATION CELL TO 5.2 - AGITATOR WOULD NOT SIT DOWN PROPERLY. IT APPEARS AS IF STUD ON SOUTHEAST SIDE IS BENT. 4-12.
211351	33, , , ,	02-14-86	INSTALLED 7.3 AGITATOR. 4-12.

NO.	SOURCE	DATE	OCCURRENCE
180169	32,12, , ,	03-03-86	THE 10.2 AGITATOR FAILED AT 10:10AM. 8-4. EP 372.2. 1624 DAYS IN SERVICE.
172429	04,72,33,32,	03-06-86	ANION ACTIVITY HAS CEASED DUE TO FAILURE OF THE CANYON 10.2 AGITATOR (EP 372.2) AND A PLUG IN THE D-4 TANK SYSTEM. 1655 DAYS IN SERVICE FOR 372.2. REPLACED WITH ENF-221-315-1 FROM 10.4 VESSEL.
180204	32, , , ,	03-07-86	COMPLETED CHANGE OUT OF 10.4 & 10.2 AGITATORS. 8-4.
211410	33, , , ,	03-08-86	10.4 AGITATOR FAILED - REVERSED LEADS, LUBED AND TRIED AGAIN, STILL NO GOOD. REVERSED LEADS BACK TO NORMAL AND TRIED AGAIN - WORKING NOW. 4-12. EP 372.2.
180218	32,33, , ,	03-09-86	THE CHART AND PERCENT VOLTAGE GAGE ON 8.3 SOUTH AGITATOR INDICATES THAT STIRRER HAS FALLEN OFF. 12-8. HAD BEEN FAILED SINCE 11/17/76. EP 1009-3. 3676 DAYS IN SERVICE.
180228	32, , , ,	03-10-86	LOST 10.4 AGITATOR AT APPROXIMATELY 6:45AM. 12-8. EP 372.2.
213700	28, , , ,	03-21-86	WARM SHOP - MAINTENANCE REPAIRED A 10 HP AGITATOR. 8-4.
176162	17, , , ,	03-27-86	VIBRATION READINGS WERE TAKEN ON A 20 HP AND A 5 HP CANYON AGITATOR. READINGS WERE ACCEPTABLE ON THE 20 HP AGITATOR, AND UNACCEPTABLE ON THE 5 HP AGITATOR. THE 5 HP AGITATOR HAS ALREADY BEEN RETURNED TO THE FACTORY ONCE WITH GEARBOX PROBLEMS. THE CAUSE OF THE UNACCEPTABLE VIBRATION WAS DIAGNOSED AS AN OUT OF BALANCE SHAFT.
176037	17, , , ,	04-07-86	THE 700-AREA MOTOR CREW TOOK VIBRATION READINGS ON A 5 HP AGITATOR IN 717-F. VIBRATION READINGS ARE UNACCEPTABLE, PROBABLY DUE TO A MISALIGNED COUPLING.
203625	32, , , ,	04-07-86	10.4 AGITATOR BLEW 9 AMP FUSES. E&I REPLACED WITH 17 AMP. 12-8. EP 372.2.
203642	32, , , ,	04-09-86	10.4 AGITATOR HAS FAILED AGAIN. 12-8. EP 372.2.
203661	32, , , ,	04-11-86	10.4 AGITATOR HAS FAILED. 4-12. EP 372.2.
204029	32, , , ,	04-19-86	E&I REPLACED 10.4 AGITATOR FUSES IN MCCH2. 12-8. EP 372.2.
205238	32, , , ,	07-25-86	SECOND U CYCLE - WATCH 16.7 S. AGITATOR IT FAILED EARLY ON 8-4 TODAY. THE AGITATOR WAS LUBRICATED AND IS RUNNING NOW. 8-4. EP 1009-10.
205259	32, , , ,	07-26-86	16.7 SOUTH AGITATOR TRIPPED OUT AGAIN TODAY. 8-4. EP 1009-10.
205264	32, , , ,	07-27-86	SECOND U CYCLE - E&I CLEANED THE 16.7 S. AGITATOR. OVERLOAD CONTACTS AND AGITATOR HAS CONTINUED TO RUN OK. BEFORE CLEANING THE CONTACTS THE AGITATOR WAS TRIPPING OUT ABOUT EVERY 10 - 15 MINUTES. 12-8. EP 1009-10.
205524	32, , , ,	08-25-86	E&I REVERSED LEADS ON 10.4 AGITATOR. OPERABLE AT THIS TIME. 4-12. EP 372.2.
205554	32, , , ,	08-28-86	INSTALLED NEW 8.3 SOUTH AGITATOR. 4-12. EP 1009-17.

NO.	SOURCE	DATE	OCCURRENCE
205716	32, , , ,	09-22-86	7.8 AGITATOR STOPPED TODAY - MAINTENANCE LUBED - RESET AND IT OPERATED FOR APPROXIMATELY 30 MINUTES PASSING 90 PERCENT ON METER - KICKED OUT AGAIN. 8-4. EP 372-99.
205721	32, , , ,	09-22-86	E&I WORKED ON 10.4 AGITATOR AND OPERATING PROPERLY AT S/C. 4-12. EP 372.2.
209188	32, , , ,	11-27-86	IT APPEARS THAT 12.8 AGITATOR (EP 1017-2) HAS FAILED ALTHOUGH AMMETER STILL SHOWS READING. 12-8.
209294	32, , , ,	12-13-86	E&I WORKED ON 9.3E BT AGITATOR, BLEW DOWN WARM SUMP TRANSMITTERS. EP 20243-1. 8-4.
209321	32, , , ,	12-17-86	THE FUSES WERE REPLACED ON 10.4 AGITATOR 17-1/2 AMP. 12-8. EP 372.2.
209836	32,33, , ,	01-04-87	13.1 SOUTH AGITATOR NOT OPERATING. 8-4. EP 1009-9. SHAFT BROKEN BELOW COUPLING. 2362 DAYS IN SERVICE.
209856	32,12,33, ,	01-06-87	THE 13.1 SOUTH AGITATOR SHAFT HAS BROKEN BELOW THE COUPLING, UNDER THE BASE PLATE (EP 1009-9). 4-12. REPLACED 1/10/87 WITH EP 1009-16. 2368 DAYS IN SERVICE.
191836	04,52,32, ,	01-08-87	PREPARATIONS ARE UNDERWAY FOR RETRIEVAL OF A BROKEN AGITATOR SHAFT FROM THE 1AF TANK TODAY. 13.1 TANK.
202632	76, , , ,	01-21-87	NCR NUMBER 2037, IMPROPER INSTALLATION OF PARTS IN A TYPE MTE PHILADELPHIA MIXER GEARBOX. TWO BOLTS WERE LEFT UNINSTALLED IN THIS GEARBOX. THIS CAUSED THE OUTPUT SHAFT TO SLIP OUT OF PLACE DURING RUN-IN. NO SERIOUS DAMAGE WAS DONE TO THE GEARBOX. ESTIMATED COST OF NONCONFORMANCE IS $500.
177464	12,32, , ,	02-10-87	EP 1009-15 FAILED IN (8.1)S. REPLACED WITH NEW EP 1009-22 ON 2/12/87. 2017 DAYS IN SERVICE.
210159	32, , , ,	02-17-87	10.4 (EP 372.2) AGITATOR OUT. WON'T RESET. 12-8. 346 DAYS IN SERVICE. REPLACED WITH ENF-20346A.
210132	12,33,32, ,	09-20-87	EP 1009-20 AGITATOR FAILED IN 16.7N. 115 DAYS IN SERVICE.
209811	12,32, , ,	04-01-88	EM 221F-1012 AGITATOR REMOVED FROM 14.5 AND REPLACED GEARS IN REDUCTION BOX. 981 DAYS IN SERVICE.
231052	17, , , ,	04-11-88	14.5-2 AGITATOR - THE AGITATOR GEARBOX HAS BEEN REPAIRED AND THE AGITATOR CAN BE RUN.
239162	17, , , ,	06-24-88	ON JUNE 24, SWE-ES AIDED MAINTENANCE WITH TROUBLESHOOTING THE 14.5-1 AGITATOR WHICH WAS ASSUMED FAULTY BE SEP. TECH. IT WAS DISCOVERED THAT THE MOTOR MOUNTED PINION GEAR HAD FAILED AND THAT THE OIL LEVEL WAS EXTREMELY LOW. THE GEAR BOX AND THE MOTOR WERE PARTIALLY REBUILT AND A P-TRAP TUBE ASSEMBLY WAS INSTALLED TO STOP THE OIL LEAK.