B-50 Replace Battery Banks, $71,700

Q. Provide a copy of the most recent reports resulting from routine maintenance tests and inspections of the battery bank to be replaced at each of the Stony Brook and Western Avalon Terminal Station.

A. Attached are copies of the preventive maintenance inspection reports for the Stony Brook and Western Avalon Terminal station batteries for the period 2000 to the present.

Stoney Brook Battery PM'S

2006 PM'S

FORM I - FLOODED (VENTED) BATTERY CELL INSPECTION

Equipment ID: _____ Station: Stoney Serial No.: 90A-09
Manufacturer: GNB Date: 2006-01-17 Readings By: JS + BS

Room Temperature: 18 °C

Position Found: □ float □ equalize
Position Left: □ float □ equalize

Voltage of Battery Disconnected: 128.8 V

Pilot Cell Voltage: 2.2 V Pilot Cell No.: 218
Pilot Cell Specific Gravity: N/A Pilot Cell Temp.: 18°
Water Added: □ yes ~~□~~ no
Equalize Charge: □ yes ~~□~~ no
(specific gravity should be maintained between 1200 & 1220)

Voltage Output of Charger (V): 130 Found 130 Left
DC Current Output of Charger (A): 6 Found 6 Left

Electrolyte Level: □ low □ very low □ normal
Cabinet Heater: □ on □ off

CHECKS COMPLETED:

- ✓ Check the accuracy of the charger voltage meter against another meter.
- ✓ Check each cell for cracks, corrosion on terminals, leaks.
- ✓ Inspect the battery rack for signs of corrosion & battery leakage.
- ✓ Check cells for deposits on the bottom
- _____ Check the operation of ventilation fans and thermostat.
- ✓ Check the operation of emergency lighting.

Note Any Concerns Below:

Equalizing Charge			
Why given:			
Voltage:	Amps:	Duration:	hrs

**Notes:
125V Bank: Float - 129V Equalize - 139V
48V Bank: Float - 51.6V Equalize - 56V

-Equalize charge is required after any water is added
-Do not allow excessive gassing

ORM IV - Battery Cell

System ID: _____ Station: Stone 4 Serial No.: 90A-09

Manufacturer: GNB Date: 2006-01-17 Readings By: TS + BS

128.8 VDC

	Volt	Temp (°C)	Specific Gravity	Electrolyte Level (low / normal / high)	Refilled		Volt.	Temp (°C)	Specific Gravity	Electrolyte Level (low / normal / high)	Refilled
1	2.2	18°C				31	2.2				
2	2.2					32	2.2				
3	2.2					33	2.2				
4	2.2					34	2.2				
5	2.2					35	2.2				
6	2.2					36	2.2				
7	2.2					37	2.2				
8	2.2					38	2.2				
9	2.2					39	2.2				
10	2.2					40	2.2				
11	2.2					41	2.2				
12	2.2					42	2.2				
13	2.2					43	2.2				
14	2.2					44	2.2				
15	2.2					45	2.2				
16	2.2					46	2.2				
17	2.2					47	2.2				
18	2.2					48	2.2				
19	2.2					49	2.2				
20	2.2					50	2.2				
21	2.2					51	2.2				
22	2.1					52	2.2				
23	2.2					53	2.2				
24	2.2					54	2.2				
25	2.2					55	2.2				
26	2.2					56	2.2				
27	2.2					57	2.2				
28	2.2					58					
29	2.2					59					
30	2.2					60					

** Take temperature readings at the negative terminal of cells.

Take specific gravity readings before adding water to cells.

Add water to cells with low levels of electrolyte.

2005 PM'S

FORM FLOODED (VENTED) BATTERY CELL INSPECTION

Equipment ID: BATTERY 5 Station: STB Serial No.: _____
Manufacturer: GNB Date: 05-03-28 Readings By: GN/WS

Room Temperature: _____ °C

Position Found: ☑ float ☐ equalize
Position Left: ☑ float ☐ equalize

Voltage of Battery Disconnected: — V

Pilot Cell Voltage: 2.4 V Pilot Cell No.: _____
Pilot Cell Specific Gravity: N/A Pilot Cell Temp.: — N/A
Water Added: ☐ yes ☐ no DRY
Equalize Charge: ☐ yes ☐ no
(specific gravity should be maintained between 1200 & 1220)

Voltage Output of Charger (V): 130 Found 130 Left
DC Current Output of Charger (A): 6 Found 6 Left

Electrolyte Level: ☐ low ☐ very low ☐ normal
Cabinet Heater: ☐ on ☐ off N/A.

CHECKS COMPLETED:

OK Check the accuracy of the charger voltage meter against another meter.
OK Check each cell for cracks, corrosion on terminals, leaks.
OK Inspect the battery rack for signs of corrosion & battery leakage.
N/A Check cells for deposits on the bottom
OK Check the operation of ventilation fans and thermostat.
OK Check the operation of emergency lighting.

Note Any Concerns Below:

Equalizing Charge			
Why given:			
Voltage:	Amps:	Duration:	hrs

**Notes:

125V Bank: Float - 129V Equalize - 139V
48V Bank: Float - 51.6V Equalize - 56V

-Equalize charge is required after any water is added
-Do not allow excessive gassing

microCELLTRON DataLogge

Notes:
STB
2005-03-28

03/28/05 10:27

Reference Value Entered
#--- Siemens (MHOS)

Reference Temperature:
?2 Degrees Celsius

----String Statistics---

String Average : 867s
String% of HI Jar: 073%

-----Jar Statistics-----

JAR	JAR--V	JAR--G	+STRAF
001	2.24V	0829s	0887s
002	2.20V	1060s	0797s
003	2.24V	0829s	1093s
004	2.25V	1182s	0884s
005	2.25V	0842s	0866s
006	2.24V	0931s	0607s
007	2.24V	0614s	0786s
008	2.24V	0764s	1008s
009	2.25V	0982s	0937s
010	2.25V	0524s	0852s
011	2.25V	0889s	0827s
012	2.25V	0896s	0661s
013	2.25V	0665s	0967s
014	2.25V	1028s	0712s
015	2.27V	0725s	0654s
016	2.27V	0699s	0887s
017	2.27V	0895s	0813s
018	2.25V	0835s	1025s
019	2.22V	0967s	0973s
020	2.24V	0963s	1062s
021	2.25V	1082s	0826s
022	2.25V	0829s	0862s
023	2.25V	0878s	0884s
024	2.24V	0914s	0950s
025	2.25V	0881s	0557s
026	2.24V	0620s	0818s
027	2.24V	0835s	0828s
028	2.25V	0852s	0895s
029	2.24V	0849s	0892s
030	2.25V	0846s	0829s
031	2.25V	0914s	1023s
032	2.25V	0860s	1035s
033	2.25V	1118s	0664s
034	2.24V	0692s	0856s
035	2.25V	0971s	1056s
036	2.24V	1018s	0919s
037	2.25V	0859s	0877s
038	2.24V	0943s	0942s
039	2.25V	1050s	1022s
040	2.24V	0963s	0626s
041	2.22V	0620s	1035s
042	2.25V	0922s	0584s
043	2.22V	0610s	0810s
044	2.25V	0835s	0868s
045	2.25V	0931s	0804s
046	2.25V	0790s	0670s
047	2.24V	0720s	0846s
048	2.22V	0846s	0594s
049	2.22V	0608s	0962s
050	2.25V	0986s	0803s
051	2.24V	0875s	0578s
052	2.22V	0634s	0937s
053	2.25V	0970s	1046s
054	2.25V	1086s	0862s
055	2.24V	0889s	0919s
056	2.25V	1031s	0473s
057	2.22V	0729s	0000s

Lowest Jar:
049

Highest Jar:
004

---Setup Information----

String Warn% (?): 70%
String Fail% (!): 60%
Jar Warn% (?): 70%
Jar Fail% (!): 60%
[illegible] Jar Selected: 02V

2004 PM'S

LOCATION: Stoney Brook MANUF: C&D MDSolyte

CAT. NO. 90A-09 TYPE ELECTROLYTE Dry Sulfuric Acid

CHARGING CONDITION FOUND:
FLOAT ✓ EQUALIZE _____ VOLTS 128.9 AMPS 6

PILOT CELL:
NO. 48 (FOUND) SP. GRAVITY N/A VOLTS 2.22 TEMP — DEG C

WATER ADDED: YES ___ NO ✓ EQUALIZE CHARGE: VOLTS — AMP — HR. —
BANK CLEANED yes CLEAN AND LUBRICATE CONNECTIONS yes ALARM TESTED yes
NEW PILOT CELL: NO. — SP. GRAVITY: —
CHECK ACCURACY OF CHARGER METERS: yes ✓ ok

RECORD ALL CELLS:

	SP GR	VOLT	TEMP 15°C		SP GR	VOLT	TEMP 15°C		SP GR	VOLT	TEMP 15°C
1.				21.				41.			
2.				22.				42.			
3.				23.				43.			
4.				24.				44.			
5.				25.				45.			
6.				26.				46.			
7.				27.				47.			
8.				28.				48.			
9.				29.				49.			
10.				30.				50.			
11.				31.				51.			
12.				32.				52.			
13.				33.				53.			
14.				34.				54.			
15.				35.				55.			
16.				36.				56.			
17.				37.				57.			
18.				38.				58.			
19.				39.				59.			
20.				40.				60.			

ONLY IF INSTRUCTED:
TERMINATIONS SCANNED _____

COMPLETE AMP/HR DISCHARGE TEST:
1. DISCHARGE: AMPS _____ HOURS _____ TEMP _____
CHARGE: AMPS _____ HOURS _____ TEMP _____
2. DISCHARGE: AMPS _____ HOURS _____ TEMP _____
CHARGE: AMPS _____ HOURS _____ TEMP _____

(CAUTION: AVOID EXCESS GASSING AND TEMPERATURE)

DATE 2004-04-15 TEST COMPLETED BY J.R. Cw

REVISED: 5/21/96 (WS)

microCELLTRON DataLogger

Notes:
Storey Brook

03/15/04 13:14

Reference Value Entered:
4--- Siemens (MHOS)

Reference Temperature:
15 Degrees Celsius

----String Statistics---

String Average : 1388s
String% of HI Jar: 083%

-----Jar Statistics-----

JAR	JAR--V	JAR--G	% REF
001	2.25V	1438s	-----
002	2.25V	1470s	-----
003	2.24V	1279s	-----
004	2.24V	1571s	-----
005	2.25V	1452s	-----
006	2.25V	1512s	-----
007	2.24V	0929s	-----
008	2.25V	1166s	-----
009	2.25V	1470s	-----
010	2.25V	1407s	-----
011	2.24V	1576s	-----
012	2.25V	1539s	-----
013	2.22V	1205s	-----
014	2.25V	1584s	-----
015	2.27V	1265s	-----
016	2.27V	1281s	-----
017	2.27V	1484s	-----
018	2.24V	1462s	-----
019	2.24V	1410s	-----
020	2.24V	1213s	-----
021	2.25V	1602s	-----
022	2.25V	1481s	-----
023	2.25V	1580s	-----
024	2.24V	1108s	-----
025	2.25V	1539s	-----
026	2.25V	0919s	-----
027	2.24V	1309s	-----
028	2.25V	1444s	-----
029	2.27V	1484s	-----
030	2.25V	1515s	-----
031	2.25V	1523s	-----
032	2.24V	1563s	-----
033	2.25V	1661s	-----
034	2.25V	1140s	-----
035	2.25V	1503s	-----
036	2.24V	1519s	-----
037	2.25V	1509s	-----
038	2.22V	1459s	-----
039	2.25V	1515s	-----
040	2.25V	1535s	-----
041	2.24V	1135s	-----
042	2.25V	1466s	-----
043	2.22V	0903s	-----
044	2.24V	1496s	-----
045	2.24V	1550s	-----
046	2.24V	1437s	-----
047	2.24V	1351s	-----
048	2.22V	1301s	-----
049	2.24V	0926s	-----
050	2.25V	1519s	-----
051	2.24V	1333s	-----
052	2.24V	0867s	-----
053	2.25V	1530s	-----
054	2.25V	1452s	-----
055	2.25V	1547s	-----
056	2.25V	1628s	-----
057	2.22V	1007s	-----

Lowest Jar:
052

Highest Jar:
033

---Setup Information----

String Warn% (?): 70%
String Fail% (?): 60%
Jar Warn% (?): 70%
Jar Fail% (?): 60%
Volt Jar Changed: 02V

Enc

2003 PM'S

FORM II - VRLA BATTERY CELL INSPECTION

Equipment ID: STB Batt. Bank Station: STB Type No.: 90A-09
Manufacturer: Absolyte IIP Date: 2003/04/02 Readings By: BP - GN

Room Temperature: 18 °C
Average Battery Temperature: 18 °C

Voltage of Battery Disconnected: — V
Pilot Cell Voltage: 2.20 V
Pilot Cell No.: 48

	(CHARGER #1)		(CHARGER #2)	
Voltage Output of Charger (V):	130 Found	130 Left	Found _____	Left _____
DC Current Output of Charger (A):	5 Found	5 Left	Found _____	Left _____
AC Current Output of Charger (A):	— Found	— Left	Found _____	Left _____

Terminal DC Voltage to Ground (V): — Positive — Negative

CHECKS COMPLETED:

- ✓ Check the accuracy of the charger voltage meter against another meter.
- ✓ Check each cell for cracks, corrosion on terminals, leaks, swelling.
- ✓ Inspect the battery rack for signs of corrosion & battery leakage.
- ✓ Clean, lubricate cell connections if required.
- — Conduct individual cell temperature (formV).
- ✓ Check the operation of ventilation fans and thermostat.
- ✓ Check the operation of emergency lighting.
- ✓ Fire extinguisher (Class C) available & inspected.
- ✓ Evaluate and attach MIDTRONICS Battery Diagnosis Test report.
  (Tests to be completed on Batteries (Jars) and intercell connections (Straps).

ONLY IF INSTRUCTED:

- — Conduct resistance test of cell-cell connections (formVI).
- — Collect cell internal ohmic values (formIII).

**Notes:

125V Bank: Float - 129V
48V Bank: Float - 51.6V

Alarm Checked OK

MIDTRONICS

microCELLTRON DataLogger

Notes: STB
GN/BP
2003-04-02

04/02/03 11:41

Reference Value Entered:
1530 Siemens (MHOS)

Reference Temperature:
18 Degrees Celsius

----String Statistics---

String Average : 2788s
String% of Ref. : 190%
String% of HI Jar: 085%

-----Jar Statistics-----

JAR	JAR--V	JAR--G	+STRAP
001	2.25V	2970s	2806s
002	2.24V	3000s	2692s
003	2.25V	2642s	2512s
004	2.24V	2932s	2804s
005	2.27V	2968s	2830s
006	2.24V	3114s	2896s
007	2.25V	2228s	2118s
008	2.24V	2568s	2376s
009	2.25V	2924s	2802s
010	2.25V	2862s	2740s
011	2.25V	3134s	3000s
012	2.25V	3014s	2846s
013	2.24V	2666s	2524s
014	2.25V	3134s	2882s
015	2.27V	2798s	2648s
016	2.27V	2738s	2602s
017	2.27V	2948s	2806s
018	2.25V	3014s	2842s
019	2.24V	2824s	2624s
020	2.25V	2482s	2258s
021	2.25V	3152s	2954s
022	2.25V	2976s	2878s
023	2.25V	3168s	2992s
024	2.24V	2458s	2366s
025	2.25V	3070s	2840s
026	2.25V	2234s	2148s
027	2.24V	2692s	2562s
028	2.25V	2912s	2726s
029	2.27V	2976s	2806s
030	2.25V	3006s	2840s
031	2.25V	3046s	2848s
032	2.24V	2948s	2820s
033	2.25V	3264s	3086s
034	2.22V	2514s	2444s
035	2.24V	3046s	2862s
036	2.22V	2910s	2984s
037	2.25V	2774s	2836s
038	2.22V	2660s	3046s
039	2.25V	2882s	2992s
040	2.24V	2860s	2636s
041	2.22V	2518s	3014s
042	2.25V	2874s	2100s
043	2.22V	1954s	3000s
044	2.24V	2846s	3052s
045	2.24V	2982s	2924s
046	2.24V	2754s	2940s
047	2.24V	2734s	2496s
048	2.20V	2308s	2024s
049	2.24V	1946s	3046s
050	2.27V	2868s	2792s
051	2.24V	2672s	2112s
052	2.24V	2030s	3094s
053	2.25V	2924s	3100s
054	2.25V	2904s	3078s
055	2.24V	2896s	3322s
056	2.25V	3100s	2186s
057	2.24V	2098s	0000s

Lest Jar:
043 133%

Highest Jar:
033 223%

---Setup Information----

String Warn% (?): 70%

2002 PM'S

BATTERY BANK

~~LOCATION:~~ Stony Brook MANUF. Absolyte GNB

CAT. NO. 90A-09 TYPE ELECTROLYTE Dry (Gel)

CHARGING CONDITION FOUND:
FLOAT ✓ EQUALIZE _____ VOLTS 128.8 AMPS 5

PILOT CELL:
NO. 48 (FOUND) SP. GRAVITY N/A VOLTS 2.196 TEMP N/A DEG C

WATER ADDED: YES ___ NO ✓ EQUALIZE CHARGE: VOLTS ___ AMP ___ HR. ___
BANK CLEANED ✓ CLEAN AND LUBRICATE CONNECTIONS ✓ ALARM TESTED ✓
NEW PILOT CELL: NO. _____ SP. GRAVITY _____
CHECK ACCURACY OF CHAGER METERS: ✓

RECORD ALL CELLS:

	SP GR	VOLT	TEMP		SP GR	VOLT	TEMP		SP GR	VOLT	TEMP
1.		2.261		21.		2.264		41.		2.247	
2.		2.258		22.		2.264		42.		2.272	
3.		2.260		23.		2.266		43.		2.244	
4.		2.228		24.		2.261		44.		2.259	
5.		2.265		25.		2.270		45.		2.259	
6.		2.282		25.		2.265		46.		2.256	
7.		2.258		27.		2.261		47.		2.254	
8.		2.263		28.		2.263		48.		2.196	
9.		2.271		29.		2.274		49.		2.257	
10.		2.266		30.		2.263		50.		2.251	
11.		2.260		31.		2.265		51.		2.258	
12.		2.266		32.		2.260		52.		2.255	
13.		2.246		33.		2.266		53.		2.265	
14.		2.266		34.		2.264		54.		2.262	
15.		2.279		35.		2.261		55.		2.255	
16.		2.275		36.		2.256		56.		2.264	
17.		2.286		37.		2.262		57.		2.251	
18.		2.263		38.		2.245		59.			
19.		2.258		39.		2.264		59.			
20.		2.262		40.		2.260		60.			

ONLY IF INSTRUCTED:
TERMINATIONS SCANNED _____

COMPLETE AMP/HR DISCHARGE TEST:
1. DISCHARGE: AMPS_____ HOURS_____ TEMP _____
CHARGE: AMPS_____ HOURS_____ TEMP _____
2. DISCHARGE: AMPS_____ HOURS_____ TEMP _____
CHARGE: AMPS_____ HOURS_____ TEMP _____

(CAUTION: AVOID EXCESS GASSING AND TEMPERATURE)

DATE 2002/02/06 TEST COMPLETED BY BP-MG

~~REVISED: 98-04-08 (WG)~~

BATTERY BANK

LOCATION: Stony Brook MANUF. Absolyte GNB

CAT. NO. 90A-09 TYPE ELECTROLYTE Dry

CHARGING CONDITION FOUND:
FLOAT _____ EQUALIZE ✓ VOLTS 133.7 AMPS 8

PILOT CELL:
NO. 48 (FOUND) SP. GRAVITY N/A VOLTS 2.194 TEMP N/A DEG C

WATER ADDED: YES ___ NO ✓ EQUALIZE CHARGE: VOLTS 133.7 AMP 8 HR. 4
BANK CLEANED ✓ CLEAN AND LUBRICATE CONNECTIONS ✓ ALARM TESTED ✓
NEW PILOT CELL: NO. _____ SP. GRAVITY _____
CHECK ACCURACY OF CHAGER METERS: ✓

Readings After 4 Hrs of Equalize

RECORD ALL CELLS:

	SP GR	VOLT	TEMP		SP GR	VOLT	TEMP		SP GR	VOLT	TEMP
1.		2.265		21.		2.264		41.		2.247	
2.		2.262		22.		2.266		42.		2.271	
3.		2.263		23.		2.269		43.		2.243	
4.		2.233		24.		2.264		44.		2.258	
5.		2.271		25.		2.273		45.		2.258	
6.		2.286		25.		2.268		46.		2.256	
7.		2.262		27.		2.264		47.		2.254	
8.		2.266		28.		2.266		48.		2.194	
9.		2.273		29.		2.276		49.		2.257	
10.		2.268		30.		2.265		50.		2.281	
11.		2.263		31.		2.265		51.		2.259	
12.		2.267		32.		2.260		52.		2.258	
13.		2.248		33.		2.267		53.		2.267	
14.		2.267		34.		2.265		54.		2.263	
15.		2.281		35.		2.261		55.		2.256	
16.		2.277		36.		2.255		56.		2.265	
17.		2.279		37.		2.261		57.		2.252	
18.		2.265		38.		2.245		59.			
19.		2.260		39.		2.264		59.			
20.		2.264		40.		2.261		60.			

ONLY IF INSTRUCTED:
TERMINATIONS SCANNED —

COMPLETE AMP/HR DISCHARGE TEST:

1.	DISCHARGE:	AMPS_____	HOURS_____	TEMP _____
	CHARGE:	AMPS_____	HOURS_____	TEMP _____
2.	DISCHARGE:	AMPS_____	HOURS_____	TEMP _____
	CHARGE:	AMPS_____	HOURS_____	TEMP _____

(CAUTION: AVOID EXCESS GASSING AND TEMPERATURE)

DATE 2002/02/07 TEST COMPLETED BY BP-MG

~~REVISED: 98-06-08 (WS)~~

After Equalize 128.9 VDS
5 Amps

2001 PM'S

BATTERY BANK

LOCATION: Stony Brook MANUF. GNB Industrial Battery Co.

NO. 90A-09 TYPE ELECTROLYTE Dry Fit Sulfuric Acid

FLOATING CONDITION FOUND:
FLOAT ✓ EQUALIZE _____ VOLTS 128.89 AMPS 6

PILOT CELL:
48 (FOUND) SP. GRAVITY N/A VOLTS 2.17 TEMP ✓ DEG C

WATER ADDED: YES ___ NO ✓ EQUALIZE CHARGE: VOLTS____ AMP____ HR.____
TERMINALS CLEANED yes CLEAN AND LUBRICATE CONNECTIONS ✓ ALARM TESTED ✓ OK
NEW PILOT CELL: NO. 48 SP. GRAVITY _____
VERIFY ACCRUACY OF CHAGER METERS: ✓ OK

RECORD ALL CELLS:

SP GR	VOLT	TEMP		SP GR	VOLT	TEMP		SP GR	VOLT	TEMP
	2.27		21.		2.25		41.		2.24	
	2.27		22.		2.28		42.		2.25	
	2.27		23.		2.25		43.		2.26	
	2.23		24.		2.27		44.		2.25	
	2.25		25.		2.26		45.		2.27	
	2.26		26.		2.25		46.		2.27	
	2.25		27.		2.27		47.		2.24	
	2.27		28.		2.26		48.		2.17	
	2.27		29.		2.28		49.		2.27	
	2.25		30.		2.25		50.		2.28	
	2.26		31.		2.27		51.		2.25	
	2.27		32.		2.27		52.		2.25	
	2.24		33.		2.25		53.		2.25	
	2.27		34.		2.28		54.		2.27	
	2.29		35.		2.25		55.		2.27	
	2.26		36.		2.27		56.		2.24	
	2.29		37.		2.27		57.		2.27	
	2.28		38.		2.27		59.			
	2.25		39.		2.25		59.			
	2.27		40.		2.27		60.			

SPECIAL INSTRUCTED:
LOCATIONS SCANNED _____

ANNUAL AMP/HR DISCHARGE TEST:
DISCHARGE: AMPS_____ HOURS_____ TEMP _____
CHARGE: AMPS_____ HOURS_____ TEMP _____
DISCHARGE: AMPS_____ HOURS_____ TEMP _____
CHARGE: AMPS_____ HOURS_____ TEMP _____

(CAUTION: AVOID EXCESS GASSING AND TEMPERATURE)

00-01-31 TEST COMPLETED BY C. K. Jr. — W. F.

REVISED: 98-04-08 (WW)

Western Avalon Battery PM'S

2006 PM'S

FORM II - FLOODED (VENTED) BATTERY CELL INSPECTION

Equipment ID: 129V DC Bank Station: WAV Serial No.: _____
Manufacturer: Exide C Date: 2006/02/17 Readings By: Chk G.H.

Room Temperature: _____ ^{0}C
Average Battery Temperature: _____ ^{0}C

Voltage of Battery Disconnected: N/A V
Pilot Cell Voltage: 2.15 V
Pilot Cell No.: #1 S.P. 1.210

	(CHARGER #1)		(CHARGER #2)	
Voltage Output of Charger (V):	129 Found	129 Left	Found _____	Left _____
DC Current Output of Charger (A):	Temp Found	Temp Left	Found _____	Left _____
AC Current Output of Charger (A):	N/A Found	N/A Left	Found _____	Left _____

Terminal DC Voltage to Ground (V): 65.8 Positive 62.2 Negative

CHECKS COMPLETED:

- ✓ Check the accuracy of the charger voltage meter against another meter.
- ✓ Check each cell for cracks, corrosion on terminals, leaks.
- ✓ Inspect the battery rack for signs of corrosion & battery leakage.
- ✓ Clean and lubricate all battery and cell connections as needed.
- ✓ Collect specific gravity, electrolyte level & temperature of cells (formIV).
- ✓ Check the operation of ventilation fans and thermostat.
- ✓ Check the operation of emergency lighting.
- _____ Fire extinguisher (Class C) available & inspected.
- ✓ Evaluate and attach MIDTRONICS Battery Diagnosis Test report.
  (Tests to be completed on all Batteries and Cell Interconnections (Straps).

ONLY IF INSTRUCTED:

- N/A Apply an equalizing charge to battery.
- N/A Conduct resistance test of cell-cell connections (formVI).

**Notes:

125V Bank:	Float - 129V	Equalize - 139V	-Equalize charge is required after any water is added
48V Bank:	Float - 51.6V	Equalize - 56V	-Do not allow excessive gassing

FORM IV - Battery Cell Inspection

System ID: 139VDC Bank Station: WAV Serial No.: _____
Manufacturer: Exide G Date: 2006/08/15 Readings By: VBW, Bob

Lead Antimony

	Volt	Temp (°C)	Specific Gravity	Electrolyte Level (low / normal / high)	Refilled		Volt.	Temp (°C)	Specific Gravity	Electrolyte Level (low / normal / high)	Refilled
1			1.210			31			1.235		
2			1.235			32			1.235		
3			1.220			33			1.230		
4			1.225			34			1.250		
5			1.215			35			1.225		
6			1.225			36			1.250		
7			1.230			37			1.220		
8			1.240			38			1.240		
9			1.230			39			1.245		
10			1.235			40			1.235		
11			1.240			41			1.235		
12			1.225			42			1.235		
13			1.230			43			1.250		
14			1.230			44			1.235		
15			1.220			45			1.240		
16			1.230			46			1.220		
17			1.230			47			1.225		
18			1.240			48			1.225		
19			1.240			49			1.225		
20			1.230			50			1.235		
21			1.230			51			1.225		
22			1.235			52			1.220		
23			1.230			53			1.240		
24			1.235			54			1.230		
25			1.240			55			1.230		
26			1.230			56			1.235		
27			1.225			57			1.235		
28			1.235			58			1.230		
29			1.220			59			1.235		
30			1.225			60			1.230		

** Take temperature readings at the negative terminal of cells.

Take specific gravity readings before adding water to cells.

Add water to cells with low levels of electrolyte.

MIDTRONICS

MICROCELLTRON DataLogger

Notes: WAO TS

Battle to a measurement

15/02/06 13:44

Reference Value Entered:
0--- Siemens (MHOS)

Reference Temperature:
14 Degrees Celsius

----String Statistics---

String Average : 941s
String% of Hi Jar: 094%

-----Jar Statistics-----

JAR	JAR--V	JAR--G	%STRAP
001	6.45V	0975s	0969s
002	6.45V	0978s	0954s
003	6.43V	0966s	0921s
004	6.45V	0957s	0939s
005	6.43V	0948s	0818s
006	6.46V	0936s	0948s
007	6.45V	0933s	0918s
008	6.45V	0940s	0936s
009	6.46V	0963s	0945s
010	6.46V	0924s	0804s
011	6.49V	0936s	0993s
012	6.51V	0930s	0915s
013	6.45V	0897s	0879s
014	6.46V	0942s	0936s
015	6.49V	0927s	0813s
016	6.49V	0998s	0981s
017	6.48V	0945s	0930s
018	6.45V	0990s	0957s
019	6.40V	0870s	0867s
020	6.49V	0873s	0000s

Lowest Jar:
019

Highest Jar:
016

---Setup Information----

String Warn% (?): 60%
String Fail% (!): 50%
Jar Warn% (?): 60%
Jar Fail% (!): 50%
Volts/Jar Selected: 06V

End of Data

2004 PM'S

FORM II - FLOODED (VENTED) BATTERY CELL INSPECTION

Equipment ID: Battery Bank 129V Station: W.A.V Serial No.: 51088
Manufacturer: Exide C Date: 2004/01/21 Readings By: GH W.J.

Room Temperature: 12° °C
Average Battery Temperature: 59°F °C

Voltage of Battery Disconnected: _____ V
Pilot Cell Voltage: _____ V
Pilot Cell No.: _____

	(CHARGER #1)		(CHARGER #2)	
Voltage Output of Charger (V):	129 Found	129 Left	Found _____	Left _____
DC Current Output of Charger (A):	3 Found	3 Left	Found _____	Left _____
AC Current Output of Charger (A):	N/A Found	– Left	Found _____	Left _____

Terminal DC Voltage to Ground (V): 64.7 Positive 64.2 Negative

CHECKS COMPLETED:

- ✓ Check the accuracy of the charger voltage meter against another meter.
- ✓ Check each cell for cracks, corrosion on terminals, leaks.
- ✓ Inspect the battery rack for signs of corrosion & battery leakage.
- ✓ Clean and lubricate all battery and cell connections as needed.
- _____ Collect specific gravity, electrolyte level & temperature of cells (formIV).
- ✓ Check the operation of ventilation fans and thermostat.
- ✓ Check the operation of emergency lighting.
- ✓ Fire extinguisher (Class C) available & inspected.
- ✓ Evaluate and attach MIDTRONICS Battery Diagnosis Test report.
  (Tests to be completed on all Batteries and Cell Interconnections (Straps).

ONLY IF INSTRUCTED:

- _____ Apply an equalizing charge to battery.
- _____ Conduct resistance test of cell-cell connections (formVI).

*Notes:

125V Bank:	Float - 129V	Equalize - 139V
48V Bank:	Float - 51.6V	Equalize - 56V

-Equalize charge is required after any water is added
-Do not allow excessive gassing

FORM IV - Battery Cell Inspection

System ID: Battery Bank Station: W.A.V Serial No.: 57088
Manufacturer: Exide C Date: 2004/01/21 Readings By: GH W.D.

	Volt	Temp (°F)	Specific Gravity	Electrolyte Level (low / normal / high)	Refilled		Volt.	Temp (°F)	Specific Gravity	Electrolyte Level (low / normal / high)	Refilled
1	2.14	59	1207	low	yes	31	2.15	59	1214	Low	yes
2	2.14	59	1218			32	2.14	59	1218		
3	2.14	59	1216			33	2.15	59	1216		
4	2.14	59	1210			34	2.14	59	1219		
5	2.14	60	1212			35	2.14	59	1220		
6	2.14	60	1215			36	2.14	59	1219		
7	2.14	60	1211			37	2.14	57	1208		
8	2.11	60	1208			38	2.14	57	1214		
9	2.12	60	1207			39	2.14	57	1213		
10	2.15	60	1211			40	2.14	57	1216		
11	2.14	60	1210			41	2.14	57	1214		
12	2.14	60	1210			42	2.15	57	1217		
13	2.14	60	1207			43	2.14	57	1213		
14	2.14	60	1205			44	2.14	57	1218		
15	2.14	60	1208			45	2.14	57	1214		
16	2.14	60	1213			46	2.14	59	1213		
17	2.14	59	1206			47	2.14	59	1216		
18	2.15	59	1211			48	2.15	59	1213		
19	2.14	59	1213			49	2.15	59	1211		
20	2.14	59	1210			50	2.14	59	1217		
21	2.14	59	1210			51	2.14	59	1219		
22	2.14	59	1219			52	2.12	59	1219		
23	2.14	59	1212			53	2.15	60	1217		
24	2.15	59	1215			54	2.15	60	1223		
25	2.14	59	1212			55	2.15	60	1215		
26	2.14	59	1210			56	2.15	60	1216		
27	2.14	59	1217			57	2.14	60	1219		
28	2.14	59	1218			58	2.15	60	1215		
29	2.14	59	1220			59	2.15	60	1226		
30	2.15	59	1209			60	2.14	60	1227		

** Take temperature readings at the negative terminal of cells.

Take specific gravity readings before adding water to cells.

Add water to cells with low levels of electrolyte.

MIDTRONICS

[illegible] DataLogger
Notes: [illegible handwriting]

21/01/04 12:55

Reference Value Entered:
#--- Siemens (MHOS)

Reference Temperature:
12 Degrees Celsius

----String Statistics----

String Average : 842s
String% of HI Jar: 084%

------Jar Statistics------

JAR	JAR--V	JAR--G	% REF
001	2.14V	0900s	-----
002	2.14V	0864s	-----
003	2.14V	0911s	-----
004	2.14V	0873s	-----
005	2.14V	[illegible]s	0.70%(?)
006	2.14V	0892s	-----
007	2.14V	0849s	-----
008	2.11V	0874s	-----
009	2.12V	0846s	-----
010	2.15V	0857s	-----
011	2.14V	0858s	-----
012	2.14V	0872s	-----
013	2.14V	0871s	-----
014	2.14V	0866s	-----
015	2.14V	0857s	-----
016	2.14V	0829s	-----
017	2.14V	0867s	-----
018	2.15V	0883s	-----
019	2.14V	0793s	-----
020	2.14V	0872s	-----
021	2.14V	0862s	-----
022	2.14V	0863s	-----
023	2.14V	0863s	-----
024	2.15V	[illegible]	-----
025	2.14V	0893s	-----
026	2.14V	0877s	-----
027	2.14V	0852s	-----
028	2.14V	0841s	-----
029	2.14V	0883s	-----
030	2.15V	0844s	-----
031	2.15V	0867s	-----
032	2.14V	0839s	-----
033	2.15V	0849s	-----
034	2.14V	0848s	-----
035	2.14V	0852s	-----
036	2.14V	0852s	-----
037	2.14V	0825s	-----
038	2.14V	0806s	-----
039	2.14V	0815s	-----
040	2.14V	0849s	-----
041	2.14V	0863s	-----
042	2.15V	0849s	-----
043	2.14V	0860s	-----
044	2.14V	0854s	-----
045	2.14V	0843s	-----
046	2.14V	0995s	-----
047	2.14V	0886s	-----
048	2.15V	0905s	-----
049	2.15V	0849s	-----
050	2.14V	0855s	-----
051	2.14V	0852s	-----
052	2.12V	0885s	-----
053	2.15V	[illegible]	-----
054	2.15V	[illegible]	-----
055	2.15V	[illegible]	-----
056	2.15V	[illegible]	-----
057	2.14V	0785s	-----
058	2.15V	0810s	-----
059	2.15V	0821s	-----
060	2.14V	0785s	-----

Lowest Jar:
005

Highest Jar:
046

---Setup Information---

String Warn% (?): [illegible]
String Fail% (!): [illegible]
Jar Warn% (?): [illegible]
[illegible]

End of Data

MIDTRONICS

MICROCELLTRON DataLogger
Notes: WAV

21/01/04 13:37

Reference Value Entered:
#--- Siemens (MHOS)

Reference Temperature:
12 Degrees Celsius

----String Statistics----

String Average : 923s
String% of HI Jar: 094%

------Jar Statistics------

JAR	JAR--V	JAR--G	+STRAP
001	7.04V	0954s	0936s
002	6.99V	0945s	0930s
003	6.94V	0909s	0900s
004	6.94V	0948s	0912s
005	6.91V	0930s	0807s
006	7.07V	0930s	0915s
007	7.04V	0900s	0888s
008	7.05V	0933s	0915s
009	7.04V	0942s	0930s
010	7.08V	0912s	0780s
011	7.07V	0924s	0903s
012	7.10V	0918s	0894s
013	7.13V	0873s	0852s
014	7.08V	0948s	0909s
015	7.04V	0930s	0813s
016	7.07V	0978s	0957s
017	7.04V	0936s	0918s
018	7.04V	0954s	0933s
019	7.05V	0858s	0843s
020	7.07V	0849s	0852s

Lowest Jar:
020

Highest Jar:
016

---Setup Information---

String Warn% (?): 60%
String Fail% (!): 50%
Jar Warn% (?): 60%
Jar Fail% (!): 50%
Volts/Jar Selected: 06V

End of Data

2003 PM'S

FORM II - FLOODED (VENTED) BATTERY CELL INSPECTION

Equipment ID: 129V DC Station: WAV Serial No.: 93605
Manufacturer: EXIDE Date: 2003/02/13 Readings By: WB/GB

Room Temperature: 18 °C
Average Battery Temperature: _____ °C

Voltage of Battery Disconnected: _____ V
Pilot Cell Voltage: 2.17 V
Pilot Cell No.: 15

Voltage Output of Charger (V):	131	Found	131	Left
DC Current Output of Charger (A):	7	Found	7	Left
AC Current Output of Charger (A):	_____	Found	_____	Left

Terminal DC Voltage to Ground (V): 65.56 Positive 65.02 Negative

HECKS COMPLETED:

- ✓ Check the accuracy of the charger voltage meter against another meter.
- ✓ Check each cell for cracks, corrosion on terminals, leaks.
- ✓ Inspect the battery rack for signs of corrosion & battery leakage.
- ✓ Clean, lubricate, & tighten all battery and cell connections as needed.
- ✓ Collect specific gravity, electrolyte level, temperature & voltage readings of cells (formIV).
- Check the operation of ventilation fans and thermostat.
- ✓ Check the operation of emergency lighting.
- ✓ Fire extinguisher (Class C) available & inspected.

NLY IF INSTRUCTED:

- _____ Apply an equalizing charge to battery.
- _____ Complete capacity (discharge) test of battery.
- _____ Conduct resistance test of cell-cell connections (formVI).

Equalizing Charge		
Why given:		
Voltage:	Amps:	Duration: hrs

Capacity Test			
Initial		Final (Battery Voltage at Specified Minimum Value)	
Current:	Amps	Current:	Amps
Voltage:	Volts.	Voltage:	Volts.
Battery Temp:	°C	Battery Temp:	°C
Discharge Time	hrs		
Complete formV after discharge			

*Notes:

125V Bank: Float - 129V Equalize - 139V
48V Bank: Float - 51.6V Equalize - 56V

-Equalize charge is required after any water is added
-Do not allow excessive gassing

FORM IV - Battery Cell Inspection

System ID: 129V DC Station: WAV Serial No.: 93605
Manufacturer: EXIDE Date: 2003/02/13 Readings By: WO/GB

	Volt.	Temp (°C)	Specific Gravity	Electrolyte Level (low / normal / high)	Refilled		Volt.	Temp (°C)	Specific Gravity	Electrolyte Level (low / normal / high)	Refilled
1	2.18		1.19	N		31	2.18		1.20	N	
2	2.18		1.19	N		32	2.18		1.19	N	
3	2.17		1.19	N		33	2.18		1.18	N	
4	2.18		1.19	N		34	2.18		1.19	N	
5	2.18		1.19	N		35	2.18		1.18	N	
6	2.18		1.18	N		36	2.18		1.20	N	
7	2.17		1.19	N		37	2.20		1.18	N	
8	2.18		1.18	N		38	2.20		1.18	N	
9	2.17		1.19	N		39	2.17		1.20	N	
10	2.17		1.19	N		40	2.19		1.19	N	
11	2.17		1.19	N		41	2.18		1.18	N	
12	2.18		1.20	N		42	2.18		1.19	N	
13	2.17		1.19	N		43	2.18		1.19	N	
14	2.17		1.18	N		44	2.18		1.19	N	
15	2.17		1.17	N		45	2.18		1.18	N	
16	2.18		1.21	N		46	2.20		1.20	N	
17	2.18		1.20	N		47	2.18		1.20	N	
18	2.18		1.19	N		48	2.18		1.18	N	
19	2.18		1.19	N		49	2.16		1.20	N	
20	2.18		1.19	N		50	2.19		1.20	N	
21	2.18		1.19	N		51	2.18		1.20	N	
22	2.18		1.19	N		52	2.18		1.20	N	
23	2.17		1.20	N		53	2.18		1.20	N	
24	2.18		1.20	N		54	2.18		1.20	N	
25	2.18		1.19	N		55	2.18		1.20	N	
26	2.18		1.19	N		56	2.20		1.19	N	
27	2.18		1.20	N		57	2.20		1.19	N	
28	2.18		1.20	N		58	2.18		1.19	N	
29	2.18		1.19	N		59	2.19		1.19	N	
30	2.18		1.19	N		60	2.19		1.20	N	

** Take temperature readings at the negative terminal of cells.

Take specific gravity readings before adding water to cells.

Add water to cells with low levels of electrolyte.

2001 PM'S

6407 193479

STATION BATTERY & CHARGERS - FORM II

97 MAR 05

Date 2001/02/24 Inspected By P.G. G.S. Station WAI

Mfg. Exide/C Cat. # 93605 Type Electrolyte lead Antimony

CHARGING COND. FOUND: Float ✓ Equalize ____ Volts 132.5 Amps 7

PILOT CELL: # 37 (Found) Sp. Gr. 1250 Volts 2.21 Temp 70°F C

WATER ADDED: Yes ✓ No ____ EQUALIZE CHARGE: Volts ____ Amp ____ Hr. ____

Bank Cleaned yes Terminations Scanned yes Alarm Tested ✓

RECORD ALL CELLS: New Pilot Cell - # 52 Sp. Gr. 1.230

	SP.GR	VOLTS	TEMP.C		SP.GR	VOLTS	TEMP.C		SP.GR	VOLTS	TEMP.C
1	1260	2.2	22	21	1250	2.21	22	41	1.260	2.21	22
2	1250	2.2		22	1.250	2.21		42	1.250	2.2	
3	1.250	2.19		23	1.250	2.2		43	1.250	2.21	
4	1260	2.2		24	1.275	2.21		44	1.260	2.21	
5	1.260	2.19		25	1.260	2.21		45	1.250	2.2	
6	1.260	2.19		26	1.260	2.21		46	1.250	2.21	
7	1.250	2.2		27	1.275	2.2		47	1.250	2.2	
8	1.275	2.2		28	1.275	2.21		48	1.275	2.21	
9	1.260	2.2		29	1.250	2.21		49	1.250	2.2	
10	1.250	2.2		30	1.260	2.21		50	1.250	2.2	
11	1.260	2.2		31	1.250	2.21		51	1.250	2.21	
12	1.260	2.19		32	1.260	2.22		52	1.230	2.2	
13	1.250	2.19		33	1.250	2.21		53	1.250	2.21	
14	1.260	2.19		34	1.275	2.21		54	1.260	2.21	
15	1.260	2.19		35	1.250	2.21		55	1.275	2.21	
16	1.260	2.21		36	1.240	2.21		56	1.275	2.22	
17	1.275	2.2		37	1.250	2.21		57	1.250	2.21	
18	1.275	2.2		38	1.250	2.22		58	1.250	2.2	
19	1.260	2.19		39	1.250	2.18		59	1.260	2.22	
20	1.260	2.21		40	1.250	2.21		60	1250	2.22	

ONLY IF INSTRUCTED *** CAUTION: AVOID EXCESS GASSING AND TEMPERATURE ***

Clean & Lubricate Connections ✓ Check Accuracy of Charger Meters ✓

Complete Amp/Hr. Discharge Test:

1. Discharge: Amps ____ Hrs. ____ Temp ____
   Charge: Amps ____ Hrs. ____ Temp ____

2. Discharge: Amps ____ Hrs. ____ Temp ____
   Charge: Amps ____ Hrs. ____ Temp ____

2000 PM'S

1984-04-15

STATION BATTERY - FORM II

W/O 140800

STATION WAV INSPECTED BY P. O'Grady DATE 00,04,11

MFG. EXIDE C CAT. NO. 93605 TYPE ELECTROLYTE Lead Antimony

CHARGING CONDITION FOUND: FLOAT ✓ EQUALIZE _____ VOLTS 132.6 AMPS 7

PILOT CELL: NO. 37 (FOUND) SP. GR. 1200 VOLTS 2.18 TEMP. 20 °C

WATER ADDED: YES _____ NO _____ EQUALIZE CHARGE: VOLTS _____ AMP _____ HR. _____

BANK CLEANED _____ TERMINATIONS SCANNED _____ ALARM TESTED OK

RECORD ALL CELLS: NEW PILOT CELL: NO. ——— SP. GR. ———

	SP. GR.	VOLTS	TEMP.		SP. GR.	VOLTS	TEMP.		SP. GR.	VOLTS	TEMP.
1.	1225	2.21	20°C	21.	1215	2.20	20°C	41.	1225	2.21	20°C
2.	1225	2.20		22.	1225	2.21		42.	1225	2.21	
3.	1230	2.21		23.	1230	2.20		43.	1225	2.20	
4.	1225	2.20		24.	1230	2.21		44.	1225	2.20	
5.	1230	2.20		25.	1230	2.21		45.	1225	2.20	
6.	1230	2.20		26.	1210	2.21		46.	1220	2.21	
7.	1235	2.19		27.	1235	2.21		47.	1225	2.21	
8.	1235	2.20		28.	1235	2.21		48.	1225	2.21	
9.	1235	2.20		29.	1225	2.21		49.	1225	2.20	
10.	1230	2.19		30.	1225	2.22		50.	1210	2.21	
11.	1230	2.20		31.	1230	2.21		51.	1225	2.21	
12.	1225	2.20		32.	1230	2.21		52.	1210	2.20	
13.	1225	2.20		33.	1225	2.21		53.	1220	2.21	
14.	1225	2.20		34.	1225	2.21		54.	1225	2.21	
15.	1225	2.19		35.	1225	2.21		55.	1225	2.22	
16.	1225	2.21		36.	1230	2.21		56.	1225	2.22	
17.	1230	2.21		37.	1200	2.18		57.	1200	2.22	
18.	1225	2.21		38.	1230	2.22		58.	1205	2.20	
19.	1230	2.20		39.	1225	2.18		59.	1225	2.22	
20.	1210	2.20		40.	1225	2.21		60.	1225	2.22	

ONLY IF INSTRUCTED:

Clean & Lubricate Connections _____ Check Accuracy of Charger Meters _____

Complete Amp/Hr. Discharge Test:

1. Discharge: Amps _____ Hrs. _____ Temp. _____
   Charge: Amps _____ Hrs. _____ Temp. _____

2. Discharge: Amps _____ Hrs. _____ Temp. _____
   Charge: Amps _____ Hrs. _____ Temp. _____

CAUTION: AVOID EXCESS GASSING AND TEMPERATURE.