

**ARPEC Minutes**  
**15 May 2012, HRO Classroom**  
**Dress: Business casual or uniform of the day**  
**Breaks as needed**

Mission: To transform labor-management relations from confrontation over rights to collaboration on achieving improved Military Readiness, Public Service, and Individual Quality of Life

Attendees: BG Harris, COL Dernberger, COL Tansill, COL Rogers, COL Driesbach, LTC Cappone, LTC Rogers, LTC Gustafan, LTC Rogers, MAJ Rogers, Mr. Tanner, Mr. Dohrmann, Mr. Hill, Mr. Lykins, Mr. Lane, and Ms. Gulla.

Also in attendance were members of the Army Local Partnership Councils: LTC Smith, LTC Digiacomo, CPT Hoogendoorn, CW3 Hughes, CW2 Chief Pocock, CW2 Vissoc, and SSG Jones

<u>Item</u>	<u>Status</u>
<i>1. Previous Minutes, LPC Metrics, Issue Metric</i>	<i>Standing Item</i>
All metrics and the minutes from 29 February 2012 were sent out as “read aheads” to the ARPEC members. There were no comments or changes.	
<i>2. Energy Conservation</i>	<i>Ongoing</i>
The ARPEC determined in November 2011 that the entire agenda for May would be devoted to hearing energy saving ideas from local partnership councils.	
BG Harris stated that utility costs at the ONG are a major budgetary concern. He reminded the members that the recent mild winter should not lull us into inactivity on this issue.	
Each LPC presented their ideas. Outlines and/or slides of each presentation are attached.	
<i>3. New Business</i>	<i>Closed</i>
Mr. Tanner presented a new concern that management had recently denied mileage reimbursement to a union member traveling to an LPC in his personal vehicle. The USP&FO stated there was no authority to pay these costs.	
<i>4. New Business</i>	<i>Ongoing</i>
Mr. Tanner is concerned that there are late appraisals and performance standards under the new PAA system. This issue needs to be closely monitored.	

Next Meetings:

JPEC 1300 20 July 2012, HRO Classroom

ARPEC 0800 30 July 2012, HRO Classroom

For Management

For Labor

JOHN C. HARRIS JR.  
Brigadier General  
Asst Adj Gen for Army

JEFFERY L. TANNER  
President  
AFGE Local 3970

## **CSMS ENERGY CONSERVATION PLAN**

### **Dollar Savers**

- Control of air handlers: Currently running all day  
Set air handlers to run only when air quality dictates
- Control of floor heating system: Issues with phase 1& 2 controller compatibility  
Local control of temperature (Johnson control training)
- Lighting in phase 1 bays (Work request sent to Mr Gooch to remove newer lighting from Newark for install at DSCC)

## **CSMS ENERGY CONSERVATION PLAN**

### **Penny savers**

- All flex schedule personnel on same day of the week off for better shutdown of area lights
- Shutdown of wings on flex day off
- Drop ceiling in calibration lab to better control HVAC (Request submitted)
- Strict enforcement of overhead door opening /closing during cold weather months
- Prompt shutoff of vehicle exhaust system when not in use
- Blinds for windows in Inspection, Electronics, Allied trades shops
- Turn off all electrical equipment when not in use

**EAST REGION**  
**LABOR PARTNERSHIP COUNSEL**

**ENERGY CONSERVATION IDEAS**

The following are Energy Conservation Ideas identified by the East Region LPC:

- 1) Switch all schedules to the 4-10 Monday – Thursday or Tuesday – Friday. Set schedule by region or area of the state to insure there is always a shop open for unit mission and recovery support.
  - a. Issue: possible grievance issues with technicians that need to be on an eight hour schedule.
  - b. Suggestion: check with the Air Guard facilities that have done this to see how well it worked out of them.
- 2) Install plastic or air curtains in front of the bay doors to keep warm air in the winter.
- 3) Add wind turbines or solar panels at shops and armories.
- 4) Install on demand type water heaters in facilities that the water heater is a long distance from restrooms and showers.
- 5) Install low usage shower heads and faucet screens to reduce the amount of water being used.
- 6) Add wash rack water recycling system at the UTES/Ravenna location to conserve water usage.
- 7) Send an energy conservation expert to each facility to perform an assessment of the facility and the operating procedures within the facility.
- 8) Create an incentive program that sets goals and rewards good energy conservation performance.

Nicholas L. Vissoc  
Co-Chair East Region LPC  
Management

Michael Reid  
Co-Chair East Region LPC  
Labor

THE ADJUTANT GENERAL'S DEPARTMENT  
ATTN: LPC RPEC COMMITTEE  
2825 WEST DUBLIN GRANVILLE ROAD  
COLUMBUS, OHIO 43235-2789

NGOH-SUS-TA

10 May 2012

MEMORANDUM FOR LPC West ARPEC

SUBJECT: FMS Energy Conservation Measures

1. LPC West Facilities:
  - a. CONDITION – Energy Consumption
  - b. SOLUTION – Energy Consumption Reduction
2. Maintenance Facilities:
  - a. FMS #9 (Piketon), FMS #11 (Hamilton), FMS #12 (Kettering), FMS #13 (Springfield), FMS # 15 (Lima), FMS #16 Walbridge), FMS #17 (Camp Perry).
3. Reduction Topics by facility:
  - a. FMS #9- Relatively good shape. Lighting is energy efficient.
  - b. FMS #11- Walker Johnson Control System. Supervisor Access.
  - c. FMS #12- Walker Johnson Control System. Supervisor Access.
  - d. FMS #13- Walker Johnson Control System. Supervisor Access.
  - e. FMS #15- Walker Johnson Control System. Supervisor Access. Motion sensor light switches, 2ea. Office / Parts Room.
  - f. FMS #16- Walker Johnson Control System. Supervisor Access.

\*\*\*\*\***The Walker Johnson Control System** is used to control heating and lighting during core hours of operation. It can be set specifically to automatically reduce heat settings after hours of operation and on non days of operation to include holidays and weekends. Lighting interior and exterior can be set to automatically turn on or off at preset times. This can be adjusted to sync with daylight savings time and correlate with seasonal changes. The problem with the unit is the master location of control which resides in Columbus Ohio, does not always reflect current weather conditions affecting shop settings and comfort level cannot be assimilated from this location. Units experience excessive cold or excessive heat due to tricking the unit, by switching it on or off, for heating purposes. This wastes energy due to the inconsistent heat / cool cycles. If

NGOH-SUS-TA

SUBJECT: FMS Energy Conservation Measures

inadvertently shut off (for heating), the unit will not kick out, and run continuously until turned back on. The shop is left with no options for heating using this manual method. Lights will turn off and not be able to be extended, or can be extended, and not shut off at the day's end or extended training times, until the cycle dictates the off time. Each shop experiences different scenarios of unwanted circumstances, which eventually consumes more energy than needed. With a tailored and well thought out plan of execution, the proper data input will substantially decrease energy consumption. Mr. Ron Gooch has been involved with LPC West to correct this problem. In 2007 a computer based program was installed on all Shop Supervisor computers. This gave them access to the program and offered a tailored way of adjustment with seasonal changes. Heat, cooling and lighting issues were able to be manipulated locally. Sometime in 2008-2009 the RCAS computers were changed at the maintenance facilities. The reimaging and replacement deleted the program originally installed. No access was the result. At the same time, new Shop Supervisors filling positions and Shop mergers were taking place, and persons had no idea about the workings of a program that had existed. Listed below are the steps that need to be taken to correct the Walker Johnson Control System. This will transfer control to the Facility Supervisor. Mr. Gooch will have visibility and can override the system if necessary, in the event of system failure or if assistance is needed.

**\*\*\*\*\*SOLUTION: Walker Johnson Control System.**

Step-1. Submit a help desk request through J6.

Step-2. The request should specify, install of Walker ETEK 2000 software. Request is for access of heating and lighting controls in your FMS facility. (Bill Slosser is familiar with the program in J6)

Step-3. When done, look for installed program. Ron Gooch will provide any assistance in program familiarization.

g. FMS #17- Man lighting mounted on building exterior walls can be replaced with fluorescent lighting using 28watt light fixtures emitting a comparable light source. This could replace metal halide and sodium vapor lighting with a rating, at approximately 150watt apiece. 10ea counted currently using 1500watts continuously at night could be reduced to a consumption level of 280watts using an all weather light procured locally for \$30ea. Self help replaces the component at no cost. Pole lamps can be replaced with LED lighting which the Post has already addressed aggressively last fall. The FMS Facility has not received any at this time. We have a mix of mercury and sodium for physical security. The shop interior can benefit largely with the current lighting replaced with energy efficient lighting similar to what Brook Park had installed. There is a multitude of fluorescent lighting in the low ceilings that are over kill and inefficient. Replacement will reduce the lighting cost factor by an estimate of 50% by sheer numbers eliminated using a continual tube design (Brook Park). A system survey request will be submitted to Ron Gooch / Josh Farrier for an analysis of three 480volt transformers in building 2012. These step up transformers were originally installed for missions when the facility was built. Since then as mission has changed, the need of this power source is not needed. By wiring the facility to existing 240volt incoming power these transformers will not be needed. They consume quantities of electricity by sheer existence. A site survey can answer power

NGOH-SUS-TA  
SUBJECT: FMS Energy Conservation Measures

consumption and cost effective measures to see if removal is warranted. Emmert Electricity was consulted about this off line, and inquiries about power robbing consumption were verified.

4. Implemented Conservation Measures:

a. FMS #17 Vacated Building 2501 (old UTES #2) and moved all maintenance operations to the main facility. Fluorescent light bulbs within the building were removed. Eliminated refrigerators and enforce thermostat temperatures. Moved RESET operations to the main facility during the winter months to save fuel and electricity.

5. LPC (West) Open Discussion on Energy Conversation Ideas.

a. \*Walker Johnson Control System inoperative and ineffective /Solved; instructions listed. Involves FMS #11,12,13,16 only.

b. If systems (Walker) are offline, how does DIMER capture usage and or savings? / Solution; Ron Gooch captures data per shop and facility. Some FMS facilities are conjoined with armories, and are not listed independently (FMS #16 & FMS #12). Only a percentage is paid dependent on usage. One Facility we do not pay for Nat. Gas, only electricity (FMS #9).

c. If Walker System does not improve with a fix, remove system totally and let Supervisors manage energy consumption by using proven human interaction.

d. Motion detectors to control lighting in various rooms.

e. Overhead garage door seal replacement.

f. Energy efficient windows / double pane.

g. Manual controls / light switches / thermostats. (low maintenance / cost effective)

h. Information campaign / Culture of Conversation.

i. Used oil furnaces in shop for supplemental heating.

j. Hybrid GSA vehicle implementation.

k. Refrigerator usage / personnel refrigerator in offices where a common one will suffice.

l. Vending machines / external vendors.

m. Geothermal heating / cooling.

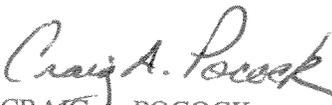
NGOH-SUS-TA  
SUBJECT: FMS Energy Conservation Measures

- n. Solar panels.
- o. Building wraps. Styrofoam aluminum covered exterior paneling used to insulate existing structures. (used at CP on the state side)
- p. Re-evaluate 4/10hr work week, 5/8hr etc. / initially good, but now causing more power usage due to extension of core hours and an incorporated Monday and Friday verses a Monday or a Friday off.
- q. Solar heating installed on rooftops or southern unobstructed walls.
- r. Low volume ceiling blowers in shops to circulate heat during winter. (push heat back down).

6. Notes\*

- a. Camp Perry's "whole post", monthly electricity cost reduction due to solar panel installation, \$30,000 to \$17,000 per month decrease.
- b. Energy cost spreadsheet does not indicate electricity usage for FMS #17. It was based off of a Master Meter during dates indicated until individual electric meters were installed this past year on individual buildings. Data will now be tabulated beginning FY/2012.
- c. Ron Gooch captures energy consumption data per shop and facility. Some FMS facilities are conjoined with armories, and are not listed independently (FMS #16 & FMS #12). Only a percentage is paid dependent on usage. One Facility we do not pay for Nat. Gas, only electricity (FMS #9).

7. The point of contact for this memorandum is the undersigned at (COMM) 614.336.6222

  
CRAIG A. POCOCK  
CW2, OD, OHARNG  
FMS #17 Shop Supervisor

## FMS 2

Date	Electricity Cost	Electricity (kWh)	Natural Gas Cost	Natural Gas (Therms)
10/09	\$687	3,534	\$807	947
11/09	\$672	3,420	\$1,189	1,400
12/09	\$785	4,239	\$3,298	4,001
01/10	\$697	3,435	\$3,263	3,405
02/10	\$996	5,680	\$3,060	3,365
03/10	\$721	3,613	\$1,690	1,899
04/10	\$708	3,491	\$838	880
05/10	\$607	1,012	\$293	245
06/10	\$380	1,192	\$254	199
07/10	\$624	2,903	\$162	97
08/10	\$520	2,170	\$80	8
09/10	\$537	2,132	\$143	87
<b>Annual Total</b>	<b>\$7,934</b>	<b>36,821</b>	<b>\$15,077</b>	<b>16,532</b>

10/10	\$563	2,314	\$526	546
11/10	\$646	2,924	\$1,768	2,205
12/10	\$797	3,968	\$2,788	3,166
01/11	\$691	3,313	\$3,142	3,607
02/11	\$706	3,381	\$1,911	2,099
03/11	\$654	2,988	\$1,690	1,956
04/11	\$640	2,827	\$1,006	1,192
05/11	\$386	979	\$420	429
06/11	\$597	2,699	\$132	67
07/11	\$528	2,189	\$122	55
08/11	\$447	1,599	\$123	58
09/11	\$447	1,907	\$152	104
<b>Annual Total</b>	<b>\$7,104</b>	<b>31,088</b>	<b>\$13,780</b>	<b>15,483</b>

## FMS 3

Date	Electricity Cost	Electricity (kWh)	Natural Gas Cost	Natural Gas (Therms)
10/09	\$316	2,320	274	368
11/09	\$334	2,325	426	561
12/09	\$411	3,026	1028	1,328
01/10	\$467	3,184	1123	1,243
02/10	\$352	2,579	1133	1,328
03/10	\$389	2,724	169	195
04/10	\$342	2,442	218	255
05/10	\$365	2,490	78	74
06/10	\$388	2,527	48	38
07/10	\$379	2,709	(\$13)	0
08/10	\$332	2,364	\$45	33
09/10	\$260	1,836	\$12	28
<b>Annual Total</b>	<b>\$4,335</b>	<b>30,526</b>	<b>\$4,540</b>	<b>5,451</b>

10/10	\$260	1,855	\$222	269
11/10	\$262	1,859	\$488	648
12/10	\$316	2,248	\$1,221	1,416
01/11	\$255	1,866	\$1,282	1,495
02/11	\$305	2,126	\$1,015	1,165
03/11	\$305	2,132	\$565	697
04/11	\$249	1,747	\$336	448
05/11	\$282	1,878	\$99	107
06/11	\$263	1,766	\$24	1
07/11	\$340	2,551	\$23	0
08/11	\$291	2,056	\$23	0
09/11	\$236	1,635	\$33	17
<b>Annual Total</b>	<b>\$3,365</b>	<b>23,719</b>	<b>\$5,331</b>	<b>6,262</b>

## FMS 6

Date	Electricity Cost	Electricity (kWh)	Natural Gas Cost	Natural Gas (Therms)
10/09	\$682	6,560	387	529
11/09	\$833	8,280	438	577
12/09	\$1,025	10,360	1426	1,850
01/10	\$1,112	11,080	2152	2,394
02/10	\$922	9,080	1723	2,025
03/10	\$1,019	10,000	968	1,195
04/10	\$795	7,680	589	722
05/10	\$741	7,080	333	388
06/10	\$692	6,240	261	304
07/10	\$695	6,480	162	172
08/10	\$676	6,120	91	89
09/10	\$616	5,920	115	135
<b>Annual Total</b>	<b>\$9,808</b>	<b>94,880</b>	<b>8646</b>	<b>10,380</b>
10/10	\$648	5,800	108	115
11/10	\$654	6,360	609	803
12/10	\$908	9,000	1619	1,874
01/11	\$1,106	11,400	1970	2,290
02/11	\$1,054	10,880	2430	2,769
03/11	\$946	9,480	1396	1,694
04/11	\$1,028	10,520	794	1,042
05/11	\$724	5,840	355	467
06/11	\$697	6,480	136	161
07/11	\$561	4,760	102	112
08/11	\$633	5,360	(\$54)	2
09/11	\$685	5,480	\$43	32
<b>Annual Total</b>	<b>\$9,645</b>	<b>91,360</b>	<b>\$9,508</b>	<b>11,361</b>

## FMS 8

Date	Electricity Cost	Electricity (kWh)	Natural Gas Cost	Natural Gas (Therms)
10/09	\$937	12,200	\$452	450
11/09	\$875	11,000	\$1,171	1,310
12/09	\$1,014	12,800	\$2,744	3,190
01/10	\$1,229	15,000	\$3,634	3,182
02/10	\$1,125	13,600	\$2,460	2,266
03/10	\$967	11,000	\$1,245	1,208
04/10	\$1,100	13,200	\$581	628
05/10	\$972	11,400	\$41	32
06/10	\$901	9,800	\$17	7
07/10	\$1,019	12,000	\$10	0
08/10	\$964	11,200	\$10	0
09/10	\$974	11,400	\$10	0
<b>Annual Total</b>	<b>\$12,076</b>	<b>144,600</b>	<b>\$12,373</b>	<b>12,273</b>

10/10	\$907	10,600	\$17	8
11/10	\$1,036	12,400	\$813	945
12/10	\$1,248	15,000	\$2,146	2,220
01/11	\$883	10,200	\$2,974	3,088
02/11	\$1,007	10,600	\$2,648	2,711
03/11	\$1,202	13,200	\$1,465	1,599
04/11	\$1,113	12,000	\$1,251	1,291
05/11	\$921	9,600	\$256	0
06/11	\$867	9,200	\$38	29
07/11	\$1,022	10,600	\$21	11
08/11	\$1,116	11,400	\$39	30
09/11	\$1,146	11,800	\$152	158
<b>Annual Total</b>	<b>\$12,469</b>	<b>136,600</b>	<b>\$11,821</b>	<b>12,090</b>

## FMS 15

Date	Electricity Cost	Electricity (kWh)	Natural Gas Cost	Natural Gas (Therms)	
10/09	\$229	2,328	\$215	269	
11/09	\$270	3,021	\$298	366	
12/09	\$339	3,972	\$762	929	
01/10	\$390	4,365	\$806	842	
02/10	\$356	3,792	\$714	789	
03/10	\$247	2,586	\$390	450	
04/10	\$224	2,281	\$123	129	
05/10	\$287	3,000	\$79	70	
06/10	\$273	2,904	\$35	0	
07/10	\$386	4,522	\$17	0	
08/10	\$283	3,039	\$17	0	
09/10	\$310	3,160	\$17	0	
<b>Annual Total</b>	<b>\$3,592</b>	<b>38,970</b>	<b>\$3,473</b>	<b>3,844</b>	

Note: Gas r  
broken. Nr  
12

10/10	\$232	2,359	\$23	0
11/10	\$286	2,950	\$23	0
12/10	\$359	3,878	\$23	0
01/11	\$426	4,278	\$23	0
02/11	\$326	3,216	\$23	0
03/11	\$287	2,583	\$23	0
04/11	\$283	2,753	\$23	0
05/11	\$312	3,168	\$23	0
06/11	\$330	3,269	\$23	0
07/11	\$353	3,374	\$23	0
08/11	\$321	3,193	\$23	0
09/11	\$312	3,160	\$23	0
<b>Annual Total</b>	<b>\$3,827</b>	<b>38,181</b>	<b>\$277</b>	<b>0</b>

## FMS 17

Date	Electricity Cost	Electricity (kWh)	Natural Gas Cost	Natural Gas (Therms)	
10/09	\$0	0	\$767	711	
11/09	\$0	0	\$1,458	1,352	Note CP I meter. Sut
12/09	\$0	0	\$3,021	3,129	
01/10	\$0	0	\$3,173	3,159	
02/10	\$0	0	\$4,056	4,052	
03/10	\$0	0	\$2,267	2,172	
04/10	\$0	0	\$50	657	
05/10	\$0	0	\$412	296	
06/10	\$0	0	\$101	34	
07/10	\$0	0	\$145	6	
08/10	\$0	0	\$166	31	
09/10	\$0	0	\$158	24	
<b>Annual Total</b>	<b>\$0</b>	<b>0</b>	<b>\$15,773</b>	<b>15,622</b>	

10/10	\$0	0	\$299	240
11/10	\$0	0	\$948	1,395
12/10	\$0	0	\$1,473	2,167
01/11	\$0	0	\$3,442	3,450
02/11	\$0	0	\$2,796	3,976
03/11	\$0	0	\$1,264	1,785
04/11	\$0	0	\$1,122	1,375
05/11	\$0	0	\$367	302
06/11	\$0	0	\$160	29
07/11	\$0	0	\$156	28
08/11	\$0	0	\$153	22
09/11	\$0	0	\$146	11
<b>Annual Total</b>	<b>\$0</b>	<b>0</b>	<b>\$12,326</b>	<b>14,779</b>

## UTES

Date	Electricity Cost	Electricity (kWh)	Natural Gas Cost	Natural Gas (Therms)
10/09	\$1,578	16,680	1059	1,460
11/09	\$1,829	20,460	910	1,205
12/09	\$1,795	18,180	2074	2,696
01/10	\$1,628	16,500	1369	1,518
02/10	\$1,145	10,200	2633	3,102
03/10	\$1,994	21,120	1110	1,372
04/10	\$1,864	19,680	1203	1,484
05/10	\$1,876	19,800	332	376
06/10	\$2,029	20,040	139	151
07/10	\$1,959	19,680	133	138
08/10	\$1,788	17,640	78	73
09/10	\$1,684	18,060	165	203
<b>Annual Total</b>	<b>\$21,168</b>	<b>218,040</b>	<b>11204</b>	<b>13,779</b>

10/10	\$1,366	14,400	426	540
11/10	\$1,862	20,520	1496	1,944
12/10	\$2,617	29,280	2739	3,160
01/11	\$1,683	17,700	1810	2,105
02/11	\$3,633	43,260	3306	3,762
03/11	\$2,040	22,500	1937	2,344
04/11	\$2,784	31,860	1460	1,902
05/11	\$2,148	23,040	342	449
06/11	\$2,088	20,640	156	188
07/11	\$3,276	32,400	86	90
08/11	\$2,012	18,900	(\$11)	42
09/11	\$2,772	29,940	\$171	239
<b>Annual Total</b>	<b>\$28,282</b>	<b>304,440</b>	<b>\$13,918</b>	<b>16,765</b>

## DCSS CSMS

Date	Electricity Cost	Electricity (kWh)	Natural Gas Cost	Natural Gas (Therms)
10/09	\$3,154	60,160	\$1,226	1,146
11/09	\$3,706	70,310	\$2,254	2,200
12/09	\$3,590	69,133	\$6,847	6,482
01/10	\$3,660	70,200	\$5,987	5,451
02/10	\$3,466	63,265	\$5,913	5,477
03/10	\$3,843	69,700	\$2,524	2,532
04/10	\$3,558	66,599	\$2,542	2,602
05/10	\$2,708	47,931	\$935	845
06/10	\$6,745	122,462	\$170	168
07/10	\$4,179	76,559	\$331	335
08/10	\$3,691	66,035	\$110	104
09/10	\$2,982	53,348	\$88	75
<b>Annual Total</b>	<b>\$45,281</b>	<b>835,702</b>	<b>\$28,926</b>	<b>27,416</b>

10/10	\$3,218	58,223	\$763	1,124
11/10	\$3,074	60,320	\$2,237	3,059
12/10	\$2,948	54,227	\$6,720	9,563
01/11	\$3,782	72,010	\$4,962	6,936
02/11	\$3,754	69,324	\$4,277	6,427
03/11	\$4,263	80,999	\$3,457	4,624
04/11	\$2,763	48,732	\$2,529	3,269
05/11	\$4,260	74,794	\$1,147	1,435
06/11	\$4,492	80,020	\$99	89
07/11	\$5,435	90,020	\$92	79
08/11	\$5,143	85,670	\$190	226
09/11	\$6,179	105,050	\$246	306
<b>Annual Total</b>	<b>\$49,310</b>	<b>879,389</b>	<b>\$26,718</b>	<b>37,136</b>

## NEWARK CSMS

Date	Electricity Cost	Electricity (kWh)	Natural Gas Cost	Natural Gas (Therms)
10/09	\$2,626	33,660	\$4,388	4,450
11/09	\$2,903	38,340	\$7,595	7,720
12/09	\$3,735	47,880	\$13,704	13,950
01/10	\$3,616	45,900	\$12,363	13,000
02/10	\$3,259	40,680	\$0	0
03/10	\$3,075	37,260	\$9,259	9,730
04/10	\$3,272	40,140	\$3,505	3,770
05/10	\$3,397	38,700	\$1,992	2,130
06/10	\$3,833	46,620	\$478	490
07/10	\$4,495	56,160	\$136	110
08/10	\$3,245	39,420	\$66	40
09/10	\$4,200	50,940	\$66	40
<b>Annual Total</b>	<b>\$41,655</b>	<b>515,700</b>	<b>\$53,552</b>	<b>55,430</b>
10/10	\$2,965	35,280	\$602	560
11/10	\$3,597	43,560	\$12,064	10,930
12/10	\$4,544	57,780	\$15,299	14,350
01/11	\$4,812	55,980	\$16,865	15,290
02/11	\$3,751	42,120	\$8,657	8,270
03/11	\$3,630	40,500	\$5,349	5,050
04/11	\$3,738	41,040	\$1,720	1,640
05/11	\$3,747	40,140	\$367	330
06/11	\$4,405	48,420	\$68	40
07/11	\$4,038	44,820	\$68	40
08/11	\$4,602	51,300	\$26	0
09/11	\$2,940	30,240	\$564	540
<b>Annual Total</b>	<b>\$46,768</b>	<b>531,180</b>	<b>\$61,649</b>	<b>57,040</b>

meter was  
now fixed for FY



## Information on Retrofitting Urinals in Existing OHARNG Facilities with Waterless Urinals

15 May 2012

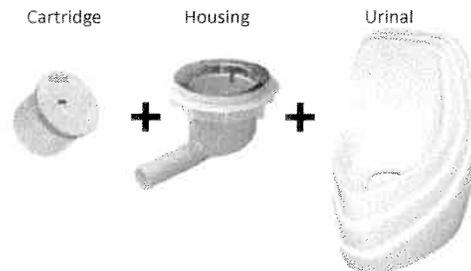
## Outline

- Waterless Urinal Technology
- Advantages / Disadvantages
- Retrofit Installation
- Financial Savings
- Environmental Impact
- Recommendation
- Proposal

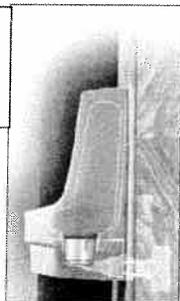
## Note

*Most waterless urinal brands are very similar in terms of design and function. For the purposes of this document, waterless urinals from Falcon Waterfree Technologies will be referenced. Falcon waterless urinals are what are currently being installed in new construction in OHARNG buildings. (Falcon F-series and Sloan WES-series urinals are identical.)*

## Waterless Urinal Technology



### Waterless Urinal Technology (cont)

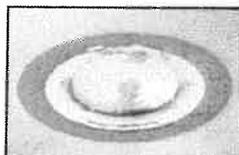


- A lighter than water sealant liquid inside the cartridge provides an airtight barrier between the drain and the restroom
- Urine passes through the sealant liquid and into the trap and then into the drain
- The cartridge also acts as a trap for uric sediment which could otherwise contribute to drain pipe clogs

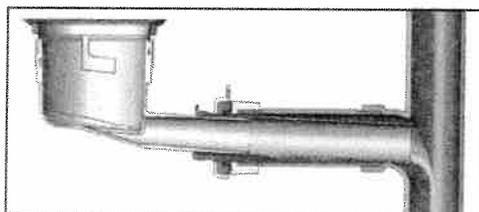
### Waterless Urinal Technology (cont)

When sealant shows / doesn't quickly drain, it's time for a new cartridge

The cartridge is replaced every 7000 uses. No further sealant is required to be added for life of cartridge

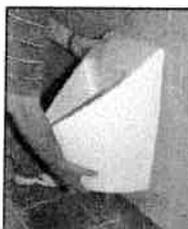


### Waterless Urinal Technology (cont)



Falcon systems use a pipe-in-pipe drain system that corrects drain slope issues and eliminates build-up

### Retrofit Installation



Waterless urinal installation utilizes existing drain plumbing and takes about one hour.

### Waterless Urinal Advantages / Disadvantages

#### Financial Advantages\*

- Reduced water and sewer costs
- Lowered electricity costs (to pump water and sewage)
- Reduced septic system load and treatment time
- Requires no maintenance or repair costs for flush valves, handles, sensors, or water supply piping
- Requires no batteries, transformers, or other electronics

\* From Army Corps of Engineers Engineer Research and Development Center, "Waterless Urinals, a Technical Evaluation" (rev January 2007)  
[http://www.cecer.army.mil/techreports/ERDC-CERL\\_TN-06-03/ERDC-CERL\\_TN-06-03.pdf](http://www.cecer.army.mil/techreports/ERDC-CERL_TN-06-03/ERDC-CERL_TN-06-03.pdf)

### Waterless Urinal Advantages / Disadvantages (Cont)

#### Sanitary and Environmental Advantages \*\*

- There is no mixing of water and urine in waterless urinals therefore odor is minimized. Flush urinals provide a chemical reaction between the urine and the water in the urinal, which generates the familiar ammonia smell.
- Waterless urinals promote lower colonization of bacteria because of lower presence of moisture
- No generation of aerosols are produced during flushing that cause widespread dissemination of microorganisms
- No handles to touch; less germ transmission

\*\* Charles P. Gerba, Ph.D., Professor, University of Arizona  
[http://falcon-media.unitedfuture.com/s3.amazonaws.com/1332957229-university\\_arizona\\_letter.pdf](http://falcon-media.unitedfuture.com/s3.amazonaws.com/1332957229-university_arizona_letter.pdf)

### Waterless Urinal Advantages / Disadvantages (Cont)

#### Disadvantages

- Incur an installation cost and ongoing cartridge replacement cost
- Cannot be utilized with copper waste plumbing
- Must be compatible with existing drain pipe height or additional cost is incurred during installation to move drain pipe

### Cost Savings

AAJSP #1, North Carolina, Oct			
<b>Current</b>		<b>Plan</b>	
Number of Urinals	8	Flush - Waterless Urinal Detail	3100 per year
Number of Sites	8	Flush - Waterless Urinal Cost	2700 per year
Urine Frequency per Day	17=66	Urinals	600 per year
Water Volume per Flush	1.25gallons	Cartridge Cost	800 per year
Number of Flushes per Year	1400 days		
Water @ 1.5 gpm	\$9.00 per 1000 gallons		
Water @ 1.5 gpm	\$240 per year		
<b>Flush Urinal</b>		<b>Waterless Urinal</b>	
Water Used per Day	125 gallons	Cartridge Use per Month	0.5
Water Used per Year	35,000 gallons	Cartridge Use per Year	6
Water @ 1.5 gpm	\$450 per year	Cartridge Cost	\$60 per year
Total Water @ Sewer / yr	\$1,200 per year	Total Cartridge Cost	\$175 per year
Total Maintenance Cost	\$100 per year	Total Water @ Sewer / yr	\$80 per year
Total Upfront Cost	\$920 per year	Total Upfront Cost	\$1,175 per year
<b>Flush Urinal - Total Upfront Cost</b>		<b>Waterless Urinal - Total Upfront Cost</b>	
\$920		\$1,175	
<b>Investment</b>		<b>Investment</b>	
Net Cost per Urinal	\$400 per year	Total Investment Cost	\$3,200
<b>Investment Cost of Waterless System</b>		<b>Investment Cost of Waterless System</b>	
\$1,175		\$1,175	

NOTE: This analysis is based on the assumption of a certain number of users and flush volume of each urinal in the facility. It is possible to optimize the design and reduce the total investment cost by using the cost of an alternative water supply or sewer system to flush urine volume. This cost is not included in the above analysis. Please refer to the attached data.

### Environmental Impact

AASF #1 NORTH Canton, OH

Current		Pipe	
Number of Toilets	8	Rebate - Waterless Street Urinal	\$200 per unit
Number of Urinals	8	Rebate - Waterless Street Cost	\$100 per unit
Water Freezing per Day	0	Rebate	\$100 per unit
Water Volume per Year	0	Cartridge Cost	\$20 per cartridge
Number of Days Used per Year	365		
Water in Drain	0		
Electronics (Laptops, Tablets, etc.)	0		
Leak Risk	0		

Flush Urinal		Waterfree Urinal	
Water Used per Day	140 gallons	Cartridge Use per Month	0.5
Water Used per Year	51,100 gallons	Cartridge Use per Year	6
Water in Sewer Cost	\$42 per year	Cartridge Cost	\$20 per year
Cost/Urinal in Sewer Cost	\$5.25 per year	Leak Savings Cost	\$20 per year
Total Maintenance Cost	\$200 per year	Total Maintenance Cost	\$0 per year
<b>Total Operations Cost</b>	<b>\$242 per year</b>	<b>Total Operations Cost</b>	<b>\$20 per year</b>

<b>Annual Water Savings</b>	<b>41954 gallons</b>
<b>Annual Greenhouse Gas Reduction</b>	<b>755 lbs CO2</b>

\*GPM calculated from flush fixture data as the amount of energy required to remove and discharge effluent

BAND  
Calculations are based upon the Building Energy Analysis Model (BEAM) Copyright 2007 AECO Systems

### Recommendation

Recommend that existing OHARNG facilities be considered for retrofitting to waterless urinals. The largest environmental impact and cost savings will occur in buildings with high use.

- ### Proposal
- Propose that the North Canton complex and AASF #2 be used as test locations for waterless urinal retrofit.
  - Project would consist of:
    - AASF#1: 8 urinals
    - N. Canton Armony: 5 urinals
    - FMS #6: 1 urinal
    - AASF#2: 7 urinals
    - TOTAL: 21 urinals
  - Project cost: @ \$8,400

Ohio Army National  
Army Aviation Support Facility #2  
7750 South Access Road, Building 918  
Columbus, Ohio 43217-5918

ENERGY CONSERVATION IDEAS:

- 1) If everyone at the facility would work a 4-10 schedule
- 2) Comp Time & AFTPs for workers in the hangar, only one night a week would be best for cutting down on the lighting, etc.
- 3) Limit night flying to two nights per week
- 4) Motion sensors on light switches throughout the building
- 5) Hand dryers, cutting down on paper towel costs
- 6) Refrigerators are over 30 years old, replace with energy efficient appliances
- 7) Personal electronics should be turned off at the end of the day
- 8) Hot water lines need re-routed
- 9) Power strips need shut off at night (toolboxes)
- 10) Programmable thermostats for heat/air conditioning
- 11) Windows at the facility need new seals
- 12) Heat in Hangar can be reduced in the winter months