DEPARTMENT OF THE ARMY
HEADQUARTERS DWIGHT DAVID EISENHOWER ARMY MEDICAL CENTER
FORT GORDON, GEORGIA 30905-5650

22 December 1992

Department of Family
and Community Medicine

LTC Gary Bratt
HQDA (SGPS-PSP)
Skyline 5, Room 606
5109 Leesburg Pike
Falls Church, VA 22041-3258

Dear LTC Bratt:

Attached is the information that we discussed regarding the bottled water problem we encountered during our deployment to Hurricane Andrew. The following are several of the articles I mentioned that related to waterborne diseases being transmitted through bottled water.

1. Blake PA, Rosenberg ML, Fluorenzia J, et al: Cholera in Portugal 1974: Transmission by Bottled Water. American Journal of Epidemiology, Volume 105, pages 344-348, 1977.

2. Gonzales-Cortez A, Gangarosa EJ, Parrilla C, et al: Bottled Beverages and Typhoid Fever: The Mexican Epidemic of 1972-73. American Journal of Public Health, Volume 72, pages 844-845, 1982.

3. Rivera F, Galvan M, Robles E, et al: Bottled Mineral Water Polluted by Protozoa in Mexico. Journal of Protozoology, Volume 28, pages 54-56, 1981.

4. Sheth NK, Wisniewski TR, Francin TR: Survival of Enteric Pathogens in Common Beverages: An In Vitro Study. American Journal of Gastroenterology, Volume 83, pages 658-660, 1988.

I have also included a copy of the After-Action Report that I sent to both COL Tomlinson and COL Erdtmann. Observation #8 regarding portable water should be of interest to you. Thank you for your interest in our activities in the Hurricane Andrew relief efforts and for your interest in my After-Action Report. Should you have further questions, please do not hesitate to call me at (706) 791-8135/7057, AV 780.

Sincerely,

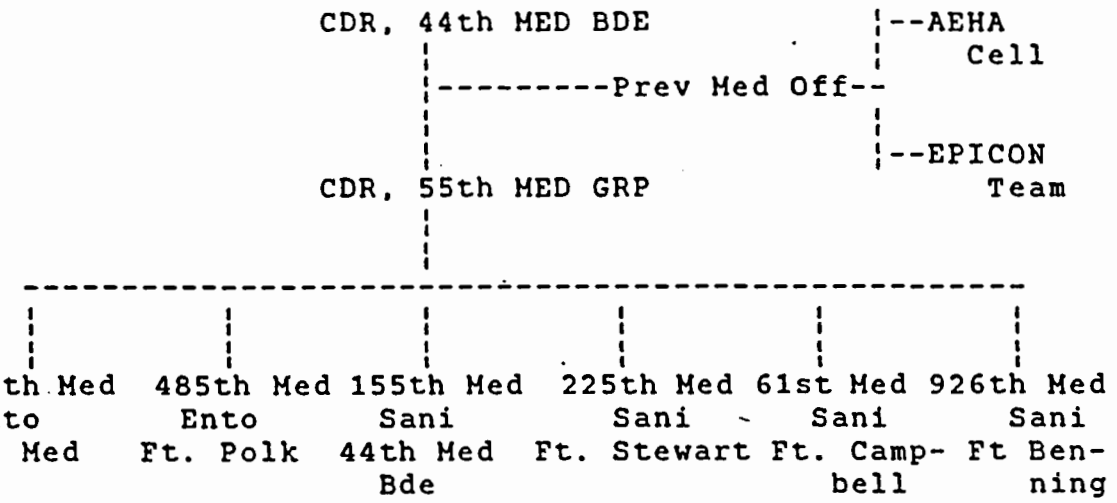
Dale A. Carroll
Colonel, U.S. Army
Chief, Department of Family
and Community Medicine

I. EXECUTIVE SUMMARY
PREVENTIVE MEDICINE AND PUBLIC HEALTH

A. MISSION:

The mission of the Preventive Medicine (PM) elements of JTF-Andrew was to provide PM support to deployed forces in order to preserve the health of the force; to assist local Public Health Authorities (PHA) to return to pre-disaster level of services amd to provide direct PM support to the disaster area on request.

B. ORGANIZATION:



C. CAPABILITIES

The PM assets assigned/attached to the 44th Med Bde for JTF Andrew had the following capabilities:

- entomological/rodent survey
- entomological/rodent control
- water quality survey
- water system design and analysis
- food sanitation
- solid waste management
- general sanitation
- disease/injury surveillance and control

D. CONCEPT OF OPERATIONS

1. Phases

a. Phase 1

Phase 1 operations consisted of a rapid assessment of the most severe public health risks and intervention to decrease the risks. The initial assessment led to a decision to focus on provision of potable water, quality of food service sanitation and general sanitation. Vector surveillance and control were secondary Phase 1 objectives.

b. Phase 2

Phase 2 operation objectives included detailed surveillance of bottled water and water systems. Coordination with the local solid waste management systems was also accomplished in this stage. Vector surveillance and control were major objectives during this phase.

2. Task Organization

The preventive medicine elements of JTF-Andrew were task organized as follows:

North of Biscayne Dr.	South of Biscayne Dr.
82nd Airborne Division AO	10th MTN Division AO
1 entomological team	1 entomological team
1 sanitation team	1 sanitation team

1 sanitation team for water quality surveillance for the entire AO.

1 sanitation team to assist Special Forces teams in the area west of the main AO and east of the Everglades.

3. Tasks

The preventive medicine tasks for JTF Andrew were as follows:

Entomological survey and control support of troop concentrations

Sanitation support of troop concentrations

Sanitation and entomological support of MKT sites and other sites with attached military personnel

Sanitation and entomological support of family support centers

Coordinate with Public Health Task Force, Joint Medical Operations Center

Coordinate with Department of Health and Rehabilitative Services (HRS) and local Public Health Authorities (PHA)

Conduct disease/injury surveillance of military treatment sites

Coordinate disease/injury surveillance with Centers for Disease Control team, HRS, and local PHA

Provide entomological, sanitation, and epidemiological support and consultation to HRS and local PHA on request.

4. Key Events

Early deployment of Ento and Sani teams

Early augmentation of 44th Med Bde PM units by additional PM units

Establishment of coordination with local PHA and the Public Health Task Force, Joint Medical Operations Center

Early deployment of EPICON Team

Comprehensive water quality survey coordinated with State Water Lab

Augmentation by AEHA water system and solid waste experts

5. Key Personnel

CAPT Gorham	USPHS	
Mr. Livingston	HRS	
Mr. Sims	HRS	
Mr. Grimm	HRS	
MS. Neesman	Dade County PHD	
LTC McKee	82nd Airborne Div Prev Med Off	
LTC Sanchez	EPICON, WRAIR	
Maj Jones	XVIII Airborne Corps ESO	
Maj Klamerus	10th Mountain Div Prev Med Off	
Capt Ryan	Cdr, 714th Med Detach	44th Med Bde
Capt Horosko	Cdr, 485th Med Detach	Ft. Polk
Capt Van Werden	Cdr, 225th Med Detach	Ft. Stewart
Capt Waterbury	Army Environmental Hygiene Agency	
Lt Bosetti	Army Environmental Hygiene Agency	
Lt Silver	Cdr, 155th Med Detach	44th Med Bde
Lt Killian	Cdr, 61st Med Detach	Ft. Campbell
Lt Sanders	Cdr, 926th Med Detach	Ft. Benning

II. JOINT TASK FORCE ANDREW
PUBLIC HEALTH AND PREVENTIVE MEDICINE
LESSONS LEARNED

1. OBSERVATION: PHASE I

That an initial assessment of the situation by a multidisciplinary public health/preventive medicine (PM/PH) team would have been useful in developing a PM/PH plan.

DISCUSSION:

Immediately after alert for disaster assistance deployment a Preventive Medicine-Public Health (PM/PH) team should be deployed to perform an initial assessment of the PM/PH aspects of the disaster area. Ideally, this team should be composed of subject matter experts in the areas listed below. The team need not be a new TOE team and need not be assigned at a particular post. The team should hwoever be a standing team with clear understanding of the team members, their commanders, and the MACOM's that this team must be deployable within 24 hr to any site.

The following is a suggested team composition:

- Team Chief: 0-6 60-C (PM/PH physician)
- Epidemiologist: 0-4/5 60-C
- Entomologist
- Sanitary Engineer
- Community Health Nurse
- Veterinarian
- Civil Affairs Officer
- *Solid Waste Specialist
- *Water System Specialist
- *Occupational Health/Toxicologist

*Dependent on type and severity of disaster

The mission of the PM/PH Team would be to perform an initial assessment of the disaster situation. The assessment should focus on the following areas:

- availability and condition of:
  - food/food distribution system
  - water/water systems
  - shelter
  - sanitation facilities
- solid waste burden/handling facilities
- status of public health infrastructure
- health care facilities/staffing
- presence or absence of effective surveillance system

The team should seek access to predisaster data on:

- population demographics
- public health status
- health care delivery system

The team should establish contact with and identify POC's in the following areas:

state and local public health agencies
state and local medical professional societies
hospital associations
city, state and county leaders
water, solid waste, vector control agencies

After the initial assessment the team should provide the medical task force commander a specific listing of PM/PH assets required within the AO and a suggested timeline for their deployment.

The team will require priority transportation to the AO and within the AO. An initial aerial survey will be required upon arrival. The team will also require communications support. The team should deploy with portable computers and accessories. The team must be colocated with other deployed elements for logistical support. It should be located in close proximity to the disaster area rather than in the administrative rear areas.

The civil affairs member of the team would be responsible for developing an action plan for producing and distributing public health information. This officer would also be responsible for assessing cultural and linquistic issues in the disaster area.

At the discretion of the Medical Task Force Commander the PM/PH assessment team could be augmented with a clinician to assist in the over-all medical assessment specifically with the emergency medicine and primary care assessments. Ideally,the PM/PH team leader should have a firm background in clinical medicine thus obviating the need for an additional clinician augmentee.

RECOMMENDATION:

That a PM/PH initial disaster assessment team be developed with the organization and mission described above.

2. OBSERVATION: PHASE I

That the decision to deploy an LX ento and an LX sani team early in the operation was crucial to the success of the PM/PH mission.

DISCUSSION:

Most disaster scenarios will require sanitation and entomological support. An LX (ento) and an LX (sani) team should be alerted immediately and deployed early. The alert and deployment of these teams should NOT wait upon the initial assessment by the PM/PH Team. The literature supports the early need for entomological and sanitation support for most disaster scenarios.

RECOMMENDATION:

That an LX Sani and an LX Ento team be part of the initial lift for disaster operations.

3. OBSERVATION: PHASE I

That an ad hoc but effective command and control mechanism was instituted for this operation.

DISCUSSION:

Six PM teams ultimately comprised the PM assets for JTF-Andrew. The decision was made to assign all PM units to the 55th MED GRP and have the senior MSC officer provide control with advice from the JTF Preventive Medicine Officer. Although this mechanism functioned effectively in this case it was likely due to the personalities involved. Consideration should be given to forming a provisional PM Unit with a command and control AM detachment in future disaster deployments of this magnitude.

RECOMMENDATIONS:

That in future deployments a provisional PM unit should be activated to provide command and control for PM units.

4. OBSERVATION: PHASE II

That there was difficulty in insuring that all DOD assets reported to the JTF-SURGEON

DISCUSSION:

If the Task Force is to be truly "joint" all PM/PH assets should be organized within the Joint PM structure. This includes USN/USMC and USAF PM/PH assets. In this operation the USN DVECC Team was requested through FEMA channels and reported through FEMA channels with info copies of reports to the JTF-Preventive Medicine Officer.

RECOMMENDATIONS:

That in future operations in which a JTF Surgeon is designated all DOD PM/PH units be placed under the operational control of the JTF-Surgeon.

5. OBSERVATION: PHASE I

That a shortage of certain types of equipment was noted in the early part of the operation.

DISCUSSION:

The following types of equipment must be available for future deployments of this magnitude:

- facsimile capability
- notebook computers
- printers
- modems
- copy machines
- cellular phones
- hand held radios
- beepers
- ice chests
- videotape capabilities

RECOMMENDATIONS:

That the equipment noted above be available early in future deployments.

6. OBSERVATION: PHASE I

That additions to the standard PM book sets would be helpful.

DISCUSSION:

The following books should be added to the PM book sets:

- Epidemiologic Surveillance After Natural Disaster
  PAHO 1982
- Emergency Vector Control After Natural Disasters
  PAHO 1982
- Environmental Health Management After Natural Disasters
  PAHO 1982
- Public Health Action in Emergencies Caused By Epidemics
  WHO 1986
- The Public Health Consequences of Disasters 1989
  CDC 1989

RECOMMENDATION:

That the above listed books be obtained and added to the PM book set.

7. OBSERVATION: PHASE I / II

That the essential elements of analysis necessary to analyze the situation and to develop a PM/PH plan had to be identified as the operation progressed.

DISCUSSION:

In future disaster exercises certain data will need to be obtained rapidly in order to facilitate analysis of the situation and to assist in developing a PM/PH plan.

The following information is required in order to determine the mission, the METL's, the task force organization and the task organization. The information is also required for evaluation of progress in return to predisaster levels of care.

- census track data on population demographics, socioeconomic status, and ethnicity
- health status indicators from local or national sources e.g. immunization coverage, TB rates, maternal-child health data
- medical care utilization data e.g.hospitalization statistics, emergency room visits, ambulatory care data, EMS calls, nursing home/special care home data
- endemic disease data from public health surveillance systems

The following data is required to assess the impact of the disaster:

- demographic data e.g. population shifts secondary to the disaster
- status of housing, transportation, and communications
- medical care utilization post disaster.
- status of medical and public health facilities
- status of water, sewer, and solid waste systems
- adequacy of water,food,shelter and medical supplies

RECOMMENDATION:

That the above listed information be considered essential elaments of analysis for future PM/PH operations in a disaster situation.

8. OBSERVATION: PHASE I / II

That the quality and provision of potable water was a major success in this operation and contributed to the absence of outbreaks of enteric diseases.

DISCUSSION:

The provision of potable water is a primary public health concern in a disaster scenario. The status of the water systems in the AO is one of the Critical Elements of Analysis. The presence of a water sytems engineer from the Army Environmental Hygiene Agency was extremely helpful in coordinating JTF efforts with those of the civilian agencies. The presence of such an engineer should be doctrinal.

PM/PH personnel must be sensitive to political agendas which often spill over into the water system arena. In this case repeated positive samples from one water sytem led to our water surveillance team being asked to cease sampling in the area and turn over all sampling to thier civilian counterparts.

As was done in this exercise the sanitation teams must develop a plan for surveillance which is developed in conjunction with and approved by the local authorities. As was also the case in this exercise the sanitation teams must contact the state or local water testing laboratory to ensure that our water sampling techniques are approved by the lab. If the local lab prefers testing of a differnt type than ours the lab can instruct and certify our personnel in their specific methods.

Large quantities of bottled water were shipped into the AO early on. In many cases these containers set outside in the hot sun for several weeks. Many containers were found to be positive for coliforms when tested 18-20 days into the exercise. Doctrine for storage and expiration of bottled water supplies should be developed.

A central recieving and distribution point for donated and contracted water should be established immediately. This will facilitate water testing and will allow more efficient and timely distribution of water. It will also allow for a system of "first in... first out" to be instituted.

In this scenario I made the decision to not recommend individual water purification instructions to the civilian populace. Boiling water was the only individual water purification technique recommended. My decision was based on the adequate supply of bottled water in the AO and my concern regarding the possibility of children obtaining chlorox, iodine, or halazone tablets if these methods of water purification were recommended. I was also concerned about the language issue and the literacy issue and the possibility that these chemicals might be used incorrectly.

RECOMMENDATION:

That water quality be assessed immediately in future operations

That a comprehensive water quality program covering municipal systems, community well systems, and bottled water be initiated as soon as possible in disaster operations.

That a water systems engineer be available for future operations

That procurement standards for bottled water be developed and that SOP's be developed for storage of bottled water

9. OBSERVATION: PHASE I

That adequate numbers and prompt cleaning of toilets was a major problem early in the operation.

DISCUSSION:

Lack of toilets and failure of the contractors to keep toilets clean was a significant problem in the early part of the deployment. The problem was addressed by reworking the contract by DFO. The solution included requiring all contractors to clean any toilet they found at any site. A central control point was also established at DFO level to facilitate requests for additional toilets and for requests for cleaning.

The final contract used in this operation should be used as a template for future contracts. A central point for managing toilet issues should be established as was done in this operation. Consideration should be given to procuring and stockpiling personal toilets such as the one described in Appendix 1 which could be rapidly transported in large quantities and used until portable toilets become available in sufficient numbers.

RECOMMENDATION:

That the contract for toilets developed in this operation be used as a template for future operations.

That consideration be given to stockpiling individual disposable toilets for future operations.

10. OBSERVATION: PHASE I / II

That inadequate handwashing was a major problem at MKT sites and Life Support Centers (LSC).

DISCUSSION:

The provision of adequate handwashing facilities has been difficult throughout this operation. We have developed blueprints for handwashing devices (Appendix 2) which could be distributed throughout the AO but the engineer support to build the devices was difficult to obtain.

For future operations we must place handwashing devices high on the engineer priority list. We should also begin to search for civilian designed-off the shelf handwashing devices which could be procured in large quantities at time of deployment or procured and stored for future disaster operations.

RECOMMENDATIONS:

That provision of handwashing facilities be placed high on the engineer priority list for construction.

That suitable "off-the-shelf" handwashing devices be identified and procured for future operations.

11. OBSERVATION: PHASE I / II

That the solid waste problem in this operation was staggering.

DISCUSSION:

The massive amount of solid waste generated by the disaster quicky overwhelmed the local solid waste management systems. The environment of south Florida interfered with several of the more comman solid waste management techniques. Burial of the waste was not possible in south Florida due to the high water table and the underlying limestone formations.

The final contracts which led to the successful management of the solid waste burden should be used as a template for future operations. This contract should be let immediately after the initial assessment and be among the highest priorities for funding.

The accumulation of solid waste and household garbage are major public health issues. The accumulation leads to fly and rodent problems which in turn increase the risk of vector borne diseases.

The ability to augment the PM/PH assets with a solid waste expert from the Army Environmental Hygiene Agency (AEHA) was crucial to the accomplishment of the mission. In future disaster operations early augmentation with a solid waste expert should be considered. Expertise from AEHA may also be required in the area of air pollution should large quantities of solid waste need to be burned and local/state/federal air quality experts are not available.

RECOMMENDATIONS:

That the final solid waste contract implemented in this operation be used as a template for future operations.

That a solid waste expert be readily available for future operations.

12. OBSERVATION: PHASE II

That the numerous issues related to the establishment of "tent cities"/Life Support Centers (LSC) in CONUS were more difficult than many of us comprehended.

DISCUSSION:

Numerous issues in regards to the Life Support Centers (LSC) require attention before future disaster operations.

Control

In most previous disaster operations in which refugee relocation sites have had to be established the issue of who was in control of the camps was clear. The camps have usually been under the control of the United Nations, an international relief organization, or the host nation. In this operation there was no clear control authority for the LSC's even as late as three weeks after the establishment of the LSC's. This fact is clearly related to the fact that this is the first time large scale LSC's have been established by the military in this country.

In future operations requiring establishment of LSC's, clear lines of authority must be established early. If Martial Law exists the military would of course be responsible for the LSC's and their support. However, as will be the usual case in CONUS these operations will not be conducted under martial law. Once the controlling authority (municipal,county,state) has been identified a "commission" to manage the LSC's should be formed. This "commission" should include representatives from:

- the local government
- police
- public health (local and state)
- mental health (local and state)
- volunteer organizations
- local medical/professional/hospital organizations
- military advisors in the areas of
  - public health
  - security
  - logistics

Publicity/Civil Affairs/Education

There was reluctance on the part of many storm victims to leave their homes to move into the LSC's. The resistence appears to have arisen from several sources. A comprehensive public relations campaign must be intiated to educate the population on the benefits of the LSC's. For those who fear that their few remaining belongings might be looted while they are residing in the LSC perhaps contracts for conex's in which the LSC inhabitants could store their belongings could be let.

An education campaign must be directed to the LSC inhabitants. This campaign should stress the rules of the LSC, sanitation and personal hygiene, and attempt to enroll the LSC inhabitants in taking responsibility for their own sanitation and their own groundskeeping and housekeeping.

Site Selection

LSC sites should not be selected haphazardly. Engineers and PM/PH personnel must be involved in site selection in conjunction with the local authorities.

The decision to establish a few large LSC's versus more numerous small/community LSC's must be reviewed. The benefits of the few large sites include logistical and security issues as well as facilitating effective utilization of scare manpower. However, smaller sites scattered among the communities should be considered in the next operation. The benefits of the community sites include the presence of pre-existing social support systems; and the ability of the families to maintain some observation of their property. The sense of community responsibility may also be enhanced by construction of smaller community oriented LSC's.

Special Needs Populations

In future operations we must consider special need populations in the establishment of LSC's. These populations include the frail and elderly who had great difficulties dealing with the heat and stress of the LSC's. Other special populations include the mentally ill and the developmentally disabled. The necessity of child care facilities must also be considered.

Subject matter experts in mental health, developmental pediatrics and geriatrics would be useful consultants in future operations.

RECOMMENDATIONS:

That the decision as to who controls the LSC's be made early and stated clearly in future disaster operations

That a commission comprised of representatives as stated above be formed early to advise whichever authority assumes control of the LSC's

That Civil Affairs be tasked to support the LSC's with health education and general education on camp rules and sanitation

That PM/PH personnel be consulted early in the site selection process for LSC's

That consideration be given to special needs populations in regards to LSC's and that advice from geriatricians, developmental pediatricians, and mental health personnel be sought.

13. OBSERVATION: PHASE I / II

That some units deployed without Field Sanitation Teams (FST) and without FST supplies

DISCUSSION:

Some units failed to deploy with a trained FST or failed to deploy with the required FST equipment. The need to supplement FST's diverted preventive medicine resources.

Each company size unit must have a trained and equipped FST. FST training should be provided when units return to garrison for those units without an FST.

RECOMMENDATION:

That FST be a priority for future disaster operations

14. OBSERVATION: PHASE II

That management of donations of food, water, clothing and medical supplies early in this operation was poor leading to wastage, spoilage, and maldistribution.

DISCUSSION:

A system must be in place in future operations to rapidly establish a central receipt and distribution point (depot) for water, food, clothing, and medical donations. The depot system would facilitate food and water inspections, proper storage of supplies and permit a distribution system to insure "first in..first out". The depot would also assist in ensuring equitable and timely distribution of supplies.

RECOMMENDATION:

That a depot system to handle food, water, clothing, and medical donations be established immediately on deployment to a disaster AO.

15. OBSERVATION: PHASE I / II

That vector survey and control issues were extremely important issue in this deployment and could have had major negative public health impact had it not been addressed quickly and professionally.

DISCUSSION:

Entomological issues were extermely important in this operation due to the south Florida environment and the large quantities of decomposing food and organic matter in the devastated areas. The mosquito problem which is a perenial problem in south Florida was complicated in this case by the large number of persons without adequate shelter who were at risk for bites. The problem was further complicated by the slight risk of encephalitis which had been a problem in north Florida for the past several years.

The coalition developed to address this problem in this operation is a model for future operations. The coalition included entomologists from CDC, USAF Reserve Aerial Spray Teams, local mosquito control personnel, Army preventive medicine and US Public Health Service personnel, and US Navy Disease Vector Control teams. The state contract with a major pest control company provided sorely needed manpower for pest control and should be used as a template for future contracts.

RECOMMENDATION:

The pest control contract should be used as a template for future disaster assistance operations.

16. OBSERVATION: PHASE I / II

That the ability to rapidly augment PM/PH assets with the EPICON team contributed greatly to the control of communicable diseases and the prevention of injuries.

DISCUSSION:

A disease/injury surveillance program must be established rapidly to monitor for disease/injury trends and to evaluate disease control efforts. This program must be a conjoint program with local/state surveillance programs. The EPICON team from Walter Reed Army Institute of Research was extremely effective in disease/injury surveillance efforts.

RECOMMENDATION:

That EPICON be tasked to support future disaster releif operations.

17. OBSERVATION: PHASE II

That the true requirement for post-disaster medical care has not been determined.

DISCUSSION:

The large influx of medical assets has affirmed the rule that "demand for medical care will expand to meet the assets available". The difficulty in determining post disaster medical care needs is complicated by the inability to accurately assess the post disaster population; the inability to determine the proportion of visits primarily or secondarily storm related; the disruption of pre-disaster medical services and the chronically underserved status of medical care in south Dade County.

The Department of Health and Rehabilitative Services grant request is an excellent comprehensive document which should serve as a template for future grant requests. The major problem with the grant was that it was developed without the input of the local primary care medical community. The local public health authorities clearly have an agenda which places little reliance on the private practice of medicine.

Should future circumstances require similar grant requests it is imperative that the Army not be perceived to be aligning itself with a particular agenda. A true coalition of both the public and the private medical communities must be formed to draft a course for future medical care in the disaster area.

RECOMMENDATION:

That the HRS grant for primary care be used as a template for future grants for post disaster primary care

That if the Army is involved in discussions leading to post disaster medical care grants that we attempt to insure that all sectors of primary care, both public and private, be involved in generating the plan for post disaster care.

18. OBSERVATION: PHASE I / II / III

That a health and medical task force be constituted immediately to coordinate health and medical issues.

DISCUSSION:

The decision to constitute a Health and Medical Task Force (HMTF) to organize, prioritize and coordinate health and medical issues was a key to the successful mission of the JTF medical elements. Members of the HMTF should include decision makers from the following organizations at a minimum:

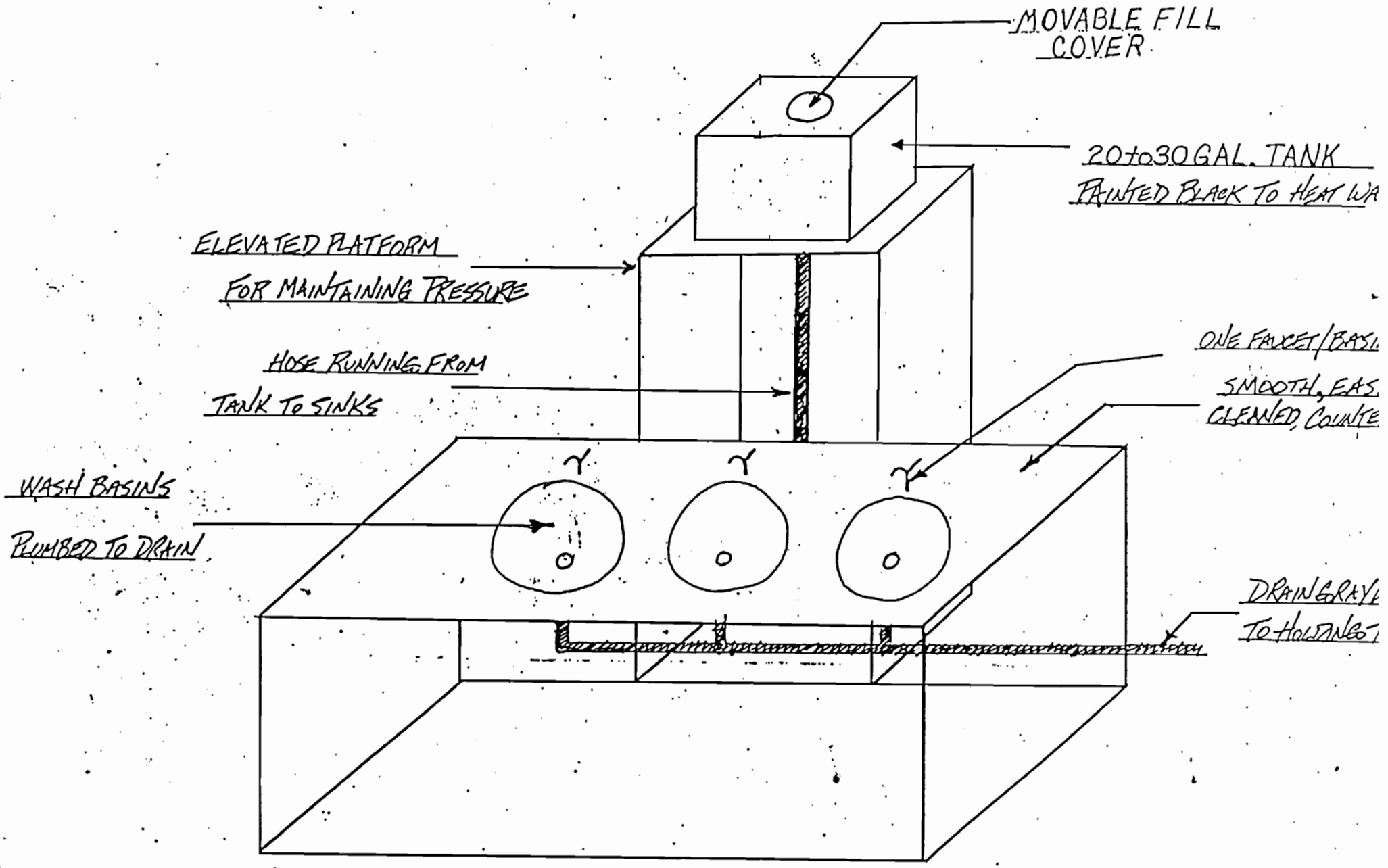
- Local Public Health Agency
- State Public Health Agency
- USPHS
- FEMA
- DOD- medical
  - public health
  - mental health
  - medical logistics
- Local Professional Organizations
  - Hospital Association
  - Medical Society
  - Nursing Association
  - Dental Society
  - Veterinary Association
  - Pharmacy Association
- Local Mental Health Agencies
- State Mental Health Agencies
- EMS
- Volunteer Agencies
  - American Red Cross
  - Salvation Army

RECOMMENDATION:

That the establishment of a HMTF become doctrine for future disaster relief operations.

BASIC HANDWASHING DEVICE CONCEPTUAL DRAWING

ITEM 7L

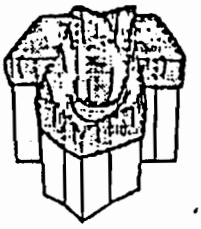


NOT DRAWN TO SCALE

DRAWN BY SFC HERALD 7TH MED DET

P.O. Box 102 • Patton, California 92369-0102
Telephone and FAX (714) 425-0124

PERSONAL COMMODE (P.C.)
HUMAN ECOLOGY TOILET



The P.C. human ecology toilet is reusable, portable (less than one pound), disposable, degradable and does not require any water or chemicals. Constructed of recycled fiberboard, it is designed to fit the unique form and dynamics of a seated person in the process of voiding.

The human ecology toilet is intended for use whenever/wherever proper facilities are inoperative/unavailable and when cost/environmental effectiveness is a priority... i.e., camping, back-packing, boating, military maneuvers, and most especially in disaster situations where intelligent emergency mass care is paramount. In addition, the P.C. is essential for those segments of the population that are vulnerable on a day-to-day basis...i.e., high-rise building emergency sanitation management, school campuses, infectious disease wards, isolated construction sites, forestry, fire fighting, farming/produce harvest sanitation, and a host of other 'in-the-field' professions.

The P.C.'s patented design is like no other in the world. The standard 10" human ecology toilet/seat when closed for storage, has the appearance of an ordinary textbook. When open and set up, it resembles three attached, rectangular, open-ended boxes. The opened unit has a pair of corrugated cardboard seat-flaps that operate in a hinged fashion at the rim of the middle box. These flaps interlock with the seat supports to assure structural integrity and comfort.

The P.C. uses special human ecology corn-starch-imbibed plastic bags for degradeability. These custom one-use liners are designed to fill the center chamber and cover the seat areas; minimizing hands/seat contact and maximizing sanitation. Each liner has a built-in tie-strip that seals the liner after use for disposal or [illegible]

Both the 10" and 16" models are adjustable for width and capable of supporting a seated weight up to [illegible]
All models are shipped in 'tamper evident' reclosable seal-pull outer packages.

NOTES:

1. The P.C. is central to the human ecology Mass Care Toilet System available from Personal Commode.
2. Each P.C. can contain multi-lingual instructions upon request.
3. A standard air-lift pallet (80" x 80" x 100") will hold 2,300 –2,800 Personal Commode Human Ecology Toilets with a gross weight of 2,600–3,300 lbs. P.C.'s are air-droppable.
4. Detailed ground/air international specification sheets are available on request.

Patent # 5,040,249
Available under GSA# GS-07F-5175A, FSC Group 4510, NIIS numbers F-0711 to F-0716

GENERAL SERVICES ADMINISTRATION
FEDERAL SUPPLY SERVICE
Authorized Federal Supply Schedule Pricelist (Catalog)

New Item Introductory Schedule, FSC Group 4510

FSC Class: 4510

Contract Number: GS-07F-5175A

Contract Period: April 28, 1992 – March 31, 1995

Contractor: **Personal Commode**
P.O. Box 102
Patton, California 92369-0102
(714) 425-0124
FAX (714) 425-0124

Business Size: Small

1a. Award Special Item Numbers F-0711, F-0712, F-0713, F-0714, F-0715, F-0716.

1b.

NIIS #	MODEL	NOMENCLATURE	PRICE/UNIT
F-0711	S-P	10" Notebook size — PLAIN	$5.00
F-0712	S-W	10" Notebook size — WHITE	5.50
☆→F-0713	S-FC	10" Notebook size — FOREST CAMOUFLAGE	6.00
F-0714	PC-MC	36 PC Units with 1 large liner and warning labelling.	$193.00
☆→F-0715	RLB-12	12 single bags for individual issue	$ 1.11
☆→F-0716	RLB-1500	1,500 loose liner bags for mass issue	$135.00

2. Maximum Order Limitation: **$10,000**
3. Minimum Order: 1 Unit
4. Geographic Coverage: **48 contiguous States and District of Columbia**
5. Point of Production: **Los Angeles, Los Angeles County, California**
6. Discount from List Prices or Statement of Net Price: **See Net Pricing, Page 2**
7. Quantity Discounts: None
8. Prompt Payment Terms: **2%-10 days, net 30**
9a. Government commercial credit card accepted: **Yes**
9b. Discount for payment by Government commercial credit card: **No**
10. Foreign Items: None
11. Time of Delivery: **30 days for up to 5,000 units**
12. F.O.B. point: **Destination**
13. Ordering address: **Personal Commode, P.O. Box 102, Highland, California 92**
14. Payment address: **Personal Commode, P.O. Box 102, Highland, California 92**
15. Warranty Provision: **Compliance with Clause 552.246-17**
16. Export packing charges: N/A
17. Terms and conditions of Government commercial credit card acceptance: **See 9a**
18. Terms and conditions of rental, maintenance and repair: N/A
19. Terms and conditions of installation: N/A
20. Terms and conditions of repair parts: N/A
21. List of service and distribution points: N/A
22. List of participating dealers: N/A

DUE TO EXTRAORDINARY SITUATIONS ONLY F-07 IS AVAILABLE BUT AT (5.00) F-0711 PRICES

Post Disaster Human Ecology Mass Care Toilet System (MCTS)

(Each MCTS contains 36 Personal Commodes, each with 3 liner bags; 1 large disposition liner bag; warning labelling. Biohazard/Odor Eliminating Desiccant available on request.)

- *provides immediate sanitation/recovery/containment, customer convenience, optimum use of available manpower, and immediate cost-effective response.*
- *immediate and effective control of dysentery, cholera and other related diseases due to insect vector and multiple-seat-contact; and offensive odors.*

— Field/Outdoor Scenario —

Conditions/Circumstances and Response:

Long term (3+ days anticipated) camp environment.

a. Assign an MCTS monitor.
b. Deploy MCTS' to pre-designated areas and maintain a suggested five hundred (500) feet from food storage, food preparation, living or medical attention areas.
c. Place MCTS in an open large liner bag on level ground. In wet conditions, cover MCTS with an open large liner bag.
d. Remove box of (1,500) liner bags and all Personal Commodes.
*e. Deploy "Personal Enclosure(s)" in MCTS immediate area.
**f. Issue Personal Commodes and liner bags as situation dictates.
g. Instruct everyone as to where and how to dispose of used/sealed waste liner bags (in large disposition liner provided).
h. Seal full large disposition liner bags and inform local health officials of your immediate disposition requirements.

— Multiple/Ground Floor School Scenario —

Conditions/Circumstances and Response:

1. **Temporary loss (3+ days anticipated) of main water pressure; toilets disabled.**
   a. Assign an MCTS monitor.
   b. Instruct staff/students at all floor levels to refrain from using toilets.
   c. Place MCTS' in existing restrooms.
   d. Remove box of (1,500) liner bags and all Personal Commodes.
   e. Issue Personal Commodes and liner bags as situation dictates.
   f. Instruct everyone as to where and how to dispose of used/sealed waste liner bags (in large disposition liner provided).
   g. When full, seal large disposition liner bags and remove to final disposition area. Inform local health officials of your immediate disposition requirements.

2. **Partial or entire loss of structure integrity; temporary to long-term evacuation.**
   a. Assign an MCTS monitor(s).
   b. Instruct staff/students at all floor levels to refrain from using toilets.
   c. Deploy MCTS' to pre-designated areas and maintain a suggested five hundred (500) feet from food storage, food preparation, living or medical attention areas.
   d. Remove box of (1,500) liner bags and all Personal Commodes.
   *e. Deploy "Personal Enclosure(s)" in MCTS immediate area.
   **f. Issue Personal Commodes and liner bags as situation dictates.
   g. Instruct everyone as to where and how to dispose of used/sealed waste liner bags (in large disposition liner provided).
   h. When full, seal large disposition liner bags and remove to final disposition area. Disposition area should be a suggested five hundred (500) feet from food storage, food preparation, living or medical attention areas. Inform local health officials of your immediate disposition requirements.

In an extended emergency, additional waste liner bags and/or Personal Commodes may be available through your local American Red Cross.
"Personal Enclosure" is a tent-like, one person, water-resistant cover designed for temporary privacy (available at additional cost).
TS available under GSA # GS-07F-5175A, FSC Group 4510, NIIS #F-0714 PC-MC (Personal Commode Mass Care)

P.O. Box 102 • Patton, California 92369-0102 • Telephone and FAX (714) 425-0124

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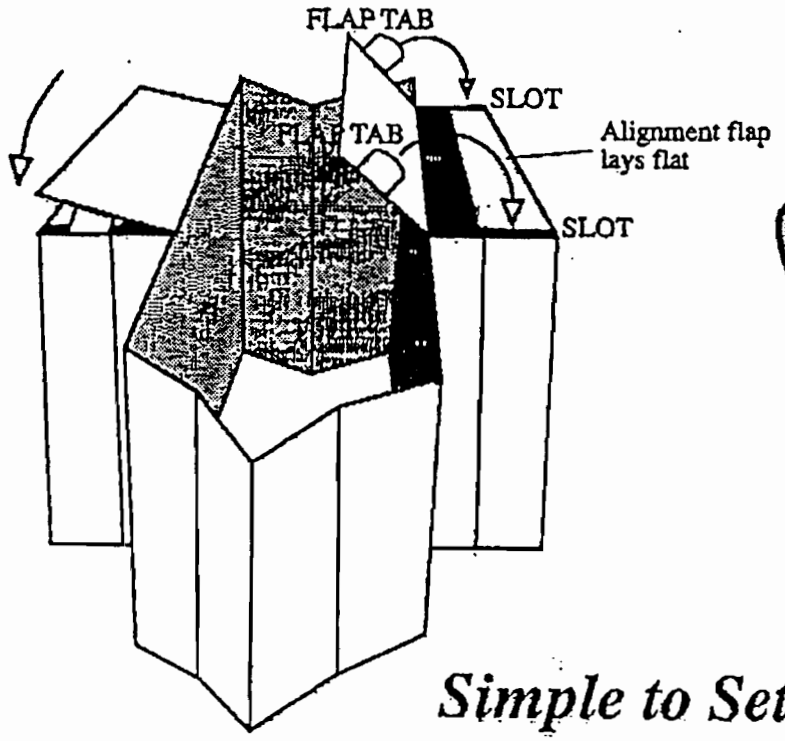
NEW SUPPLY ITEM!

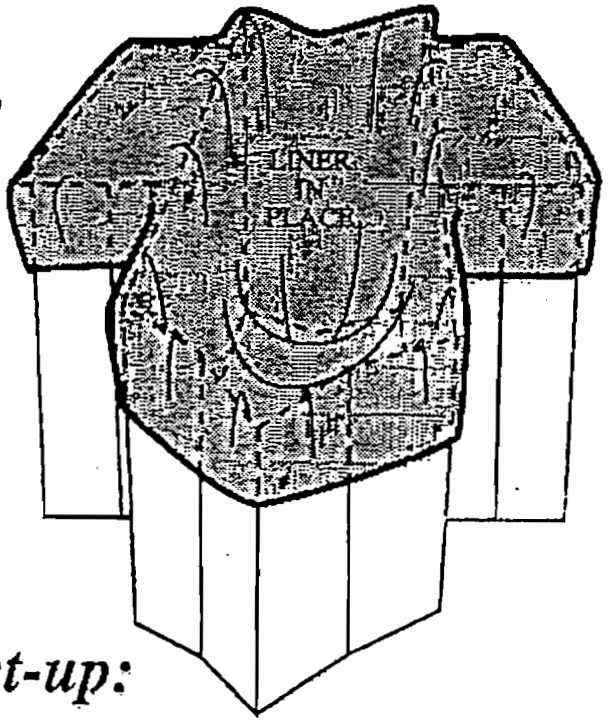
The Personal Commode human ecology toilet and seat is notebook size, one pound (1 lb.), reusable, degradable, recyclable and will support anyone up to 1,200 lbs. Three (3) human ecology liner bags and a resealable carry bag are included.

Personal Commode Mass Care (PC-MC) human waste management system* for:

- Military encampments, mobility, construction, etc.
- Post Disaster Disease Control (cholera, hepatitis, etc.)
- Building water and power outages

TO ORDER SEE NEW ITEM INTRODUCTORY SCHEDULE (NIIS) OR GSA PRICE LIST





Simple to Set-up:

As a seat: expand P.C. on level ground. Insert seat flap tabs into seat slots. Test that unit is secure and stable.

As a toilet: tuck a liner into the chamber and cover the seat flaps. Center your weight and adjust the width for comfort.

THE GENUINE
PERSONAL COMMODE

*Wet environment information available

MADE IN THE U.S.A.

DEPARTMENT OF THE ARMY
44TH MEDICAL BRIGADE (FORWARD)
SOUTH DADE COUNTY GOVERNMENT CENTER
MIAMI, FLORIDA 33220-0001

AVFH-XA-PM 18 September 1992

MEMORANDUM FOR

JTF-Andrew Surgeon
XVIII Airborne Corps Surgeon
Cdr, 55th Medical Grp
Cdr, 32nd MEDSOM
HQ, 44th Medical Brigade (Rear)

SUBJECT: Guidance for Bottled Water Consumption

1. Preventive medicine units in conjunction with the state water testing laboratory have identified numerous containers of bottled water which have developed bacterial contamination. The problem appears to be related to the containers being left outside in the direct sunlight or covered with a tarp or plastic. The warm water apparently acts as an incubator which facilitates the reproduction of any bacteria which might have survived the bottling process.

2. Although no cases of enteric diseases attributable to bottled water have been noted the following guidance is provided to lessen the risk of water-borne disease:

a. Water should not be stored in direct sunlight nor should it be stored outside under tarps or plastic covering.

b. Water should not be considered potable if the expiration date has passed.

c. Water should not be consumed if the seal is broken or the water is cloudy or discolored.

d. Water which has been stored in direct sunlight and/or under tarps should be considered non-potable if not consumed in seven (7) days.

AFVH-XA-PM
SUBJECT: Guidance for Bottled Water Consumption

3. POC for further information is the undersigned at 1-800-972-4791 ext 12 or 31; or (cellular) 305-240-3763.

DALE A. CARROLL
COL, MC
Preventive Medicine Officer

DEPARTMENT OF THE ARMY
HEADQUARTERS, 155TH MEDICAL DETACHMENT
FORT BRAGG, NORTH CAROLINA 28307

AFVH-XA-M 14 September 1992

MEMORANDUM FOR Commander, 44th Medical Brigade,
ATTN: COL Carroll

SUBJECT: Bacterial Test Results of Bottled Water

1. Total Coliform, Fecal Coliform, and Specific Plate Count (SPC) tests were completed on 60 brands of bottled water used for the emergency relief effort. Please provide guidance for corrective action on brands with positive results.

2. The 155th Medical Detachment collected sealed samples of various types of bottled water consumed by the civilian and military population in the Disaster Area. The State of Florida Health and Rehabilitative Services Laboratory (HRS Lab) completed the bacterioanalysis of each sample.

3. The following criteria was used to distinguish positive samples that may need corrective action.

   a. Positive reaction to a presence/absence Total Coliform test (Coli-Alert)

   b. Positive reaction to a presence/absence Fecal Coliform test (UV/Coli-Alert)

   c. >50,000 colonies/100ml of unspecified bacteria present in a Specific Plate Count culture.

4. The results of the tests are provided at the enclosure.

5. POC for this information is the undersigned at 1-305-240-3812.

Enclosure

AARON J. SILVER
1LT, MS
Commanding

cf:
CDR, 44TH MED BDE
CDR, 55TH MED GRP

BRANDS OF H_2O WITH POSITIVE RESULTS

(1) DHL EXPRESS LXE TOTAL COLIFORM (P)

(2) SYFO 100% PURIFIED WATER TOTAL COLIFORM(

(3) SUNRISE MOUNTAIN WATER TOTAL COLIFORM (P)

(4) GATORAID DONATED WATER (P) TOTAL COLIFORM

(5) JANET LEE DRINKING WATER (P) TOTAL COLIFORM

(6) Great Bear NATURAL SPRING WATER (P) TOTAL COLIFORM

(7) GREEN MOUNTAIN WATER (P) TOTAL COLIFORM

(8) DEPARTMENT OF FORESTRY DONATED WATER (P) Coliform

(9) NEW LIFE PURE SPRING WATER TNTC SPC TEST

(10) RAINDROP DRINKING WATER TNTC SPC TEST

(11) Coca-Cola DONATED WATER (SPRITE CAP) TNTC SPC TE

(12) MINEHAHA SPRING WATER TNTC SPC TEST

(13) FOOD CLUB DISTILLED WATER (P) TOTAL COLIFORM + TNTC SPC

(14) PRESTIGE PREMIUM DRINKING WATER TNTC SPC TEST

(15) HAPPY VALLEY DRINKING WATER TNTC SPC TEST

(16) GASTAESON FARM SPRING WATER - 600,000 col/100mL SPC TES
(P) TOTAL COLIFORM

(17) ARLINGTON SPRINGS WATER TNTC SPC TEST

(18) SUPERBRAND DISTILLED WATER TNTC SPC TEST

(19) ALPINE SPRING WATER Co. TNTC SPC TEST

(20) VOLVIC BOTTLED WATER (P) TOTAL COLIFORM

TOTAL COLIFORM TEST ⇒ COLI-ALERT / 24 Hrs INCUBATIO

FECAL COLIFORM TEST ⇒ NO SAMPLES TESTED POSITIVE

Andrew's Hamican Bottle H2O

O S.P.C: Date Received 9-9-92. Date Setup 9-9-92 Wednesday 11:AM

Dilutions =	1 ml	.1 ml.	
22028	<1	<1	
22029	TNTC	TNTC	← New Life Pure Spring H_2O
22030	<1	<1	
22031	893	70	
22032	<1	<1	
22033	55	5	
22034	<1	<1	
22035	TNTC	300/Est pin point colonies.	
22036	<1	<1	
22037	<1	<1	
22038	TNTC	TNTC	RAINDROP DRINKING H_2O
22039	TNTC ?	(35) (24)	240/ml Great Bear Natural Spring H_2O Pos-Coliform
22040	<1	<1	
22041	TNTC	TNTC	Coca-Cola (SPRITE)
22042	2	<1	
22043	(TNTC)	? LA	>1000
Ice	<1	<1	

Tuesday + Wednesday O.P.

All Controls A.R; Stout; Control Enal = <1