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Memorandum For Record

Purpose is to document the Wastewater Treatment Plant inspection by Tom Hodgini (IO) and (b)(6) on 14 June 2007.

(b)(6) escorted us in our inspection. We inspected the process starting at the head works where the raw wastewater enters the plant to the point where the effluent leaves the plant. We also inspected the solids handling/treatment processes including the digester operation and sludge drying beds. The inspection started at about 8:45 AM and was completed about 10:45 AM. Photos of the various processes were taken.

Our observations noted the following:

The head works consisting of preliminary treatment processes to remove large materials and grit was new, upgraded in 2005. One of the grit chambers had just been brought back on line after being out of service for over a year due to a broken coupling.

Primary settling occurred in four rectangular clarifiers. One was being completely renovated including replacing the mechanism used to remove the settled solids with a less maintenance intensive equipment.

Two trickling filters were used to provide secondary treatment. The filter distribution arm appeared to uniformly distribute the wastewater over the filter media and the biological growths on the filter media appeared normal.

The secondary clarifiers were operational but the chemical (poly aluminum chloride)) intended to be used intermittently to enhance the removal of solids was not being used. There was no polymer in storage tank. (b)(6) indicated that the chemical feed pump and piping had been removed.

There were two chlorine contact chambers (referred to by the operators as the "detention basins"). One had a large amount of scum and solids on the surface. The chambers are equipped with a scum collector and baffle located at the discharge end to collect this material before discharge through the weir to the outfall. The scum collector had not been recently operated to skim off the scum, solids or free oil (if any). We verified that the collector worked.

The effluent discharging over the weir from the chlorine contact chamber did not have an oil sheen, floating solids or foam.

Two of the three digesters used to stabilize sludge were operational. Primary digester number 1 was down for cleaning and repairs.

We inspected the digester biogas system. We observed the digester gas piping that was removed from a secondary digester and the temporary flexible gas piping installed in its place. The bolts on the VARAC spark arrester on primary digester #2 were painted

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over indicating that no maintenance had been performed. (b)(6) explained that it required periodic disassembly to perform preventative maintenance. We also observed the oil water separator used to remove the oil released by the compressor serving the biogas system. (b)(6) explained that they had recently found it bypassed and the oil filter was missing. This was allowing up to 5 gallons of oil a week to escape into the digesters.

The sludge drying beds were under a canopy. The process depends upon air drying rather than an under drain system. A new tractor/loader was stored at the site to be used to handle and aerate the sludge by turning it over periodically using a tiller attachment. The tiller appeared new and not used.

During the inspection we noted various safety protection measures in place including safety railings throughout, warning signs (confined space, hard hat and eye protection required). The grounds were uncluttered. We also noted an operator wearing personal protective equipment (hearing and eye protection) while washing down a primary clarifier. No health issues or measures were observed.

In the afternoon, following the WWTP process inspection, (b)(6) reviewed the operator log books consisting of 3 bound books covering the period of 26 April 2001 to 11 February 2005 and 3 bound books covering the period of 3 Jul 3006 to 17 Apr 2007. One additional log book from an earlier period was in the file cabinet but was not reviewed.

The purpose of reviewing the log books was to determine the nature of entries made and in particular if operators have been noting the visual conditions of the effluent leaving the plant (foam, solids, oil sheen). The review consisted of a random sampling of about 5 to 10% of the pages.

While it was common for the operators to note both normal and unusual conditions in the various treatment process such as: "Nasty slimy scum (in the) primaries (and) oil sheen (in the) secondaries (clarifiers) & detention (basin)", a 28 Oct 06 entry. None of log book entries reviewed documented the visual condition of the effluent leaving the plant at the weir.

The log book also had an unusual entry unrelated to the purpose of a log book. On 5 Oct 2006: "I called (b)(6)., (b)(6) & talked to (b)(6) & (b)(6) about rumor going around that I am out to kill (b)(6) (b)(6) told me this morning....."

After reviewing the operator log books, (b)(6) reviewed the Monthly Discharge Monitoring Reports and Facility Engineer Operating Logs for the period of Jun 2005 through May 2007. The review identified pH excursions in 2006 and 2007.

(b)(6) verified that the WWTP had Wastewater Treatment Plant Operation and Maintenance Manuals.

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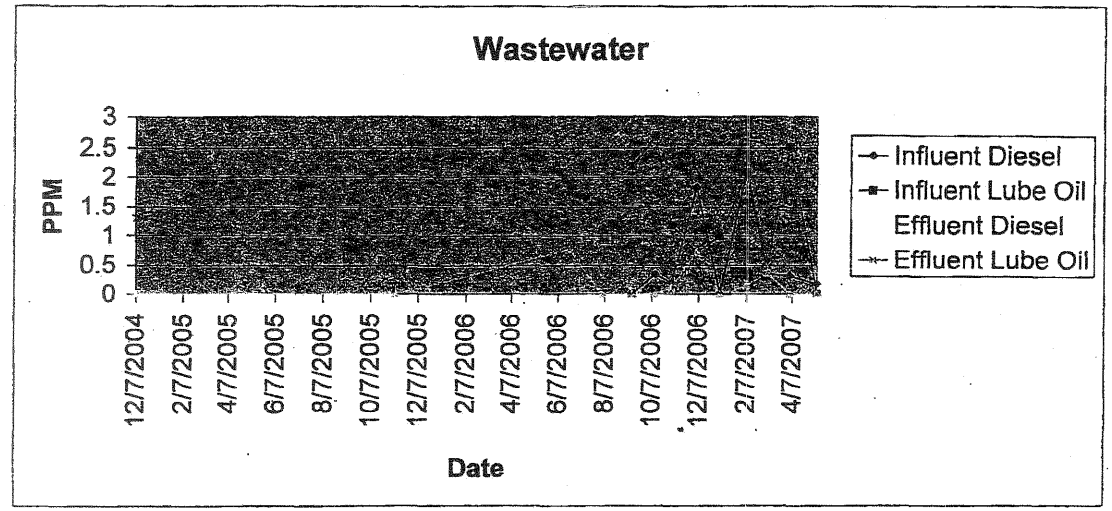
Fort Lewis Wastewater Treatment Plant Analytical Results						
	TPH-Dx				TPH-Gx	
Date	Influent (ppm)		Effluent (ppm)		Influent	Effluent
	Diesel	Lube Oil	Diesel	Lube Oil		
7-Dec-04			ND	1.3		
8-Nov-05			ND	0.78		
21-Jun-06			0.78	2.01		
2-Aug-06			ND	0.65		
11-Sep-06	ND	2.2	ND	ND	ND	ND
11-Oct-06	0.35	2.69	ND	0.96	0.6	ND
1-Nov-06	0.2	1.19	0.12	0.59	0.2	ND
4-Dec-06	1.82	0.72	0.73	0.36	0.26	ND
3-Jan-07	ND	0.99	ND	0.58		
7-Feb-07	2.09	2.09	0.15	0.63		
6-Mar-07	0.35	0.56	0.37	0.5		
3-Apr-07	0.323	2.51	ND	0.757		
8-May-07	0.18	ND	ND	ND		
Average	0.76	1.62	0.43	0.83	0.35	ND

Practical Quantitation Limit for the methods:
PQL for Diesel is 0.1ppm
PQL for Lube Oil is 0.5ppm
PQL for TPH-Gx is 0.25 ppm



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WATER/EXT. WATER SEWER/WWTP ACTIONS
Report Current as of 23 April 2007

I. Quick Wins:

1. 2 April – The WWTP repaired alternate non-potable water pump, which was claimed to be NMC since Oct 2004.

2. 5 April – (b)(6) received his back pay that was owed for additional overtime.

3. 10 April – The WWTP instituted and conducted a weekly operations meeting to increase supervisor involvement and communication among all the employees. Also provided and posted the new plant mission and vision statement, and focused on new operator log procedures to increase plant PM and Operations rates.

4. 11 April – The WWTP ordered a new non-potable water pump, which will add a backup pump in storage (see quick win a.)

5. 11 April – The WWTP scoped a contract with ESD to begin common area custodial cleaning for the latrines in the WWTP, to begin in May 2007.

6. 12 April – The WTP re-installed lockers where they were located at the WTP.

7. 12 April – The WWTP identified and ordered repair/replacement parts for Vogelsang sludge thickener pump. The parts are due in late April.

8. 12 April – The Exterior Water and Sewer shop have approved IJO to construct spill containment around sewer manhole near 1C25 for Skookum to dump Port potty waste. It is currently being designed by the system manager.

9. 12 April – The O&M Division now has a permanent timekeeper with experience in place.

10. 12 April – The WTP has a coordinated process between GIS and O&M to stem the loss of information on utility lines. Process in place.

11. 17 April – WTP employees provided its list of parts to be purchased.

12. 17 April – WWTP conducted an operations meeting to discuss new daily operations procedures and posted the pre-treatment schedule.

13. 18 April – Environmental Division drafted an SOP/Policy Letter regarding witnessing unauthorized dumping into a drain, and an SOP/Policy Letter regarding witnessing garbage on post. In addition, ED created wallet-size card (Water on one side, Garbage on the other) for Earth Day distribution.

14. 18 April – PW contracted work for the movement of biosolids at the WWTP to empty beds to accommodate the repairs of the drying bed roofs is on-going. Four of the beds were moved over the weekend and the work will be completed NLT end of April 07.

15. 18 April – WWTP operators drew down wastewater in one of the grit chambers in the headworks in order to troubleshoot the pump failure. We have an approved work order to received additional support from the other shops for specialty equipment and confined space expertise. We are planning to execute this project next Monday.

16. 18 April– Digester #1 compressor has been installed and testing began on Tuesday. It will come back in line NLT end of June.

17. 19 April - Ordered parts requested from WTP.

18. 19 April - Telemetry contractor (S&B) is schedule to provide technical assistance and repair on Monday, 23 April.

19. 19 April - Reassigned one GSA vehicle to the WWTP, in order to provide back-up vehicle for the operators. This fulfills all vehicle requirements all three water-related shops.

20. ***7 May - Ordered and received replacement check valve for #2 primary effluent sludge pump last week, supposedly requested by the lead operator in Feb. We will install today.***

21. 7 May - Contract to replace electronic signal from wells 20, 22, & 23 ready to be awarded.

22. 7 May - Reservoir/Well status board installed at WTP.

23. 7 May - Color printer installed at building 7913, Water & Sewer Shop, to print GIS for utilities locating.

24. 7 May - Service orders for Water & Sewer Shop now printing at building 7913, Water & Sewer Shop, instead of printing at WTP.

25. 7 May - Work in-progress by CI Shop installing concrete containment on manhole at building 1C25 for Skookum to dump porta potty waste.

26. On-going Issues (COB):

~~27. Why/How/Who ordered TV/DVD/ $500 printer. How much, who approved? QUESTION ANSWERED.~~

~~a. (4 April) (b)(6) approved for use in training and converting VHS sewer line recording to DVD, and larger screen to view camera imagery. Cost was $1400 for both TV, and VHS/DVD recorder.~~

~~b. (5 April- RWH) I visited the site today and formed the opinion that this device would be better used in a more group setting. I also observed a safety VHS tape on the counter to folks to review. Difficult for some to review if it is behind closed doors. While Al voiced concerns about items like this walking away, I think we need to trust our employees. We will work this issue at the team building on Monday.~~

c. (11 April DR) The TV/DVD will be placed in a common area for training use. Decision will be made which building to set the TV/DVD up in. Water & Sewer Shop, building 7913 may be a more likely area to use, because of more available space.

~~28. Who authorized Room Build at water plant? $/Who/PW/Code? QUESTION ANSWERED.~~

~~a. (4 April) No construction approval, built by Al Long using PW materials. Two walls were built on personal time.~~

~~b. (5 April – (b)(6)) My personal inspection of these walls leads me to believe that they are done to code (still need a little bit of trim). I am of the opinion that the supervisor should have a private office. (b)(6) has discussed with Al about doing unauthorized work.~~

29. Letter for formal investigation – working

~~30. Why the lockers were removed this weekend and placed in storage bldg? QUESTION ANSWERED.~~

~~a. (4 April) Lockers were brought in from either salvage or dumpster. AL requested employees to relocate these lockers to adjacent buildings. No action on behalf of employees, therefore Al took action himself. Each employee has two full size lockers located in the clean-up shower room.~~

~~b. (5 April (b)(6)) I put eyes on this situation today. The lockers in the shower room are NOT full size. The lockers I saw in the out bldg were in great condition. In discussions with one employee, all they want to a place to keep their own personal stuff. Makes sense to me. Will work issue at team building session on Monday.~~

~~c. (11 April (b)(Lockers are being re-installed where they were located and will be completed 12 April. CLOSED~~

~~31. Why were good chairs and conference table removed from WWTP? Only to have the chairs put in storage building and the table put in Al's office? QUESTION ANSWERED.~~

~~a. (4 April) Good chairs are from the WWTP and were removed from there do to abuse and mis-use by the operators. Employees were using them as step ladders, getting food and waste products on them, and were returning them to the conference area unclean. Several discussions with employees failed to affect desired results; therefore they were replaced with metal chairs, and placed in storage.~~

~~b. (5 April (b)(6)) We will work this issue at team building session on Monday. If this is a non-issue for WTP folks, then I will coordinate with Nate.~~

c. (11 April (b)(6)) Took a new table and 6 new metal chairs out of storage and placed them into the new WWTP conference room).

32. What efforts were made to set Supervisor up for success in his new leadership role? (4 April) I need to work this with (b)(6) for a more accurate answer.

33. How frequently does Chain of Command visit either site and talk to workers? QUESTION ANSWERED.

a. (5 April) (b)(6) was at the WWTP shortly before mid Dec. (b)(6) was at the WTP in late Dec in talked with (b)(6)

b. (19 April NEB) The WWTP Supervisor conducts weekly operations meetings.

~~34. Why is there no money for parts? QUESTION ANSWERED.~~

~~a. (5 April (b)(6)) Money is available for parts. We need to peel back the hide on this one a bit and understand what the issue is. (b)(6) will explore with WTP operators on Monday. Nate will continue to explore with WWTP operators.~~

b. (19 April (b)(6)) Thus far instituting new request and operations procedures for the WWTP, we have only received one request for parts for the Vogelsang pumps. Those parts were immediately ordered without any issues. Funds are available. The issue is more of process communications and follows through on the requests.

~~35. Who was removed from positions of leadership in the past? (4 April (b)) (b) was reassigned upon his request, from a supervisor position to lead position. This was due to a conflict between Al and his former O&M Division Chief. QUESTION ANSWERED.~~

II. Other Requirements:

1. When and how was pre treatment plan briefed? To whom? What level? WWTP/Water QUESTION ANSWERED.

a. (4 April (b)(6), (b)) states that he briefed the pre-treatment plan to his personnel (WWTP) at the start of the contract (last qtr of 2006). This was done to alert the plant staff that they would likely be in discussions with CHPPM personnel as they started the plant evaluation. In addition, Al states that he had individual discussions with employees including (b)(6) and (b)(6) (b)(6), that he specifically recalls.

b. (5 April (b)(6)) (b)(6) will post SOW at WWTP and will continue discussion with operators at meetings.

c. (10 April (b)(6)) Discussed the plan at our weekly ops meeting.

d. (19 April (b)) Posted the timeline in the operators' board.

~~2. Back hoe – Why a BMW when only needed Hyundai (Cost/Cap) (4 April –DR) Backhoe purchase of $150k. Purpose: Capable of reaching depth of 22ft. If next size down was selected, unit could only reach 16ft depth. If this was selected, shop would have to task Roads and Grounds for use of the Grade All or more specialized equipment. This looks like a smart thing to have done to me (the purchase). This was programmed as a high priority equipment buy in the normal execution of our large~~

~~equipment purchases. Approval was by (b)(6) and (b)(6) equipment manager. This was the correct item to buy. QUESTION ANSWERED.~~

3. Why 6 TMPs when only 3 employees on shift at any time? QUESTION ANSWERED.

a. (4 April – (b)(6) (b)(6) will research – something does not seem correct here.

b. (19 April – (b)(6) Reassigned one GSA vehicle to the WWTP, in order to provide back-up vehicle for the operators. This completes the need for vehicle requirements all three shops.

4. Need briefing and timeline for pre treatment plan. (4 April (b)(6)) The draft report for the functional evaluation was received and comments were submitted to CHPPM. The staff will brief to employees following approval of draft. QUESTION ANSWERED.

a. Functional Evaluation:	Draft Feb 07	Final April 07
b. SOPs:	Draft May 07	Final July 07
c. Pretreatment Plan:	Draft July 07	Final Sept 07

5. Need quick wins in the process – not at the end of process - moved answers to this question to the front of this document. QUESTION ANSWERED.

6. Actions need to be commended down to the lowest level.

a. (18 April (b)( ) WWTP continues to conduct weekly operations meetings for the past two weeks, in order to provide information down to the operators. Along with the new daily operations procedures, PWU-105, updated 17 April 07, it will give operators more opportunities to get information and have more voice in the operation of the plant.

b. (19 April (b)(6)) WWTP posted the conclusion and recommendations of draft CHPPM report that outlines plant efficiencies.

7. ~~Need to brief me a plan on water reservoirs for summer and current status of all reservoirs and repair plan. Bottom line: We currently have and will maintain sufficient fire flow and water to meet our projected water load throughout the summer. I will pass this along at the Monday team meeting. QUESTION ANSWERED.~~

~~a. (5 April RWH) Donovan Reservoirs (2) Contract awarded and underway. One reservoir completed and accepted. Second is currently awaiting mod for tar removal.~~

~~b. Old Miller Hill (2) Contract awarded with Donovan Reservoirs. Work has not started on these reservoirs.~~

~~c. Ross Hill (2) Contract awarded. One reservoir completed and undergoing testing. This unit will be back in service NLT May. Second has been drained and work is commencing.~~

~~d. Davis Hill (2 reservoirs). Scheduled for contract award in FY07.~~

~~e. Noble Hill (2 reservoirs). Scheduled for contract award in FY07.~~

~~f. New Miller Hill (1 reservoir). Scheduled for contract award in FY07.~~

8. Inspections of North Fort wash rack. Waste removal frequency? Authorized utilization? Short term, intermediate and long term. (18 April (b)( ) PW Water Program and System groups sat down today to discuss the way ahead for this issue. We will use ED dollars to contract for pre-treatment feasibility study that will include a study and analysis of existing technologies in order to improve all the

installation's wash racks. Waste is removed on as needed basis. There is an automatic sensor that alarms, when the waste oil tank is at certain level. Once alarmed, the Action Services contractor is called to pump and remove the oil.

9. SOP/Policy Letter - Formal 3-5 step process what to do if anyone sees dumping into a drain (5 April RWH) ENRD has action (Crawford). Product in 2 weeks.

10. SOP/Policy Letter - Formal 3-5 step process what to do if anyone sees garbage on post (5 April RWH) ENRD has action (Crawford). Product in 2 weeks.

~~11. Make a wallet size card (Water on one side, Garbage on the other) and distribute starting Earth Day(5 April RWH) ENRD has action (Crawford). Product in 2 weeks.~~

12. Education program for all employees on the topic (expandable to units)

13. Follow up on Porta Potty dumping site. Needs construction done (5 April RWH) site visit by Hanna and Robinson – needs construction job to ensure compliance – can be done in-house. DR will submit SO Friday and start process. Schedule will be designed once environmental spill requirements are defined.

~~14. Big concern of loss of information on utility lines on Lewis due to construction (5 April RWH) RWH and DR with support from PW IT (T Hansen) will review processes and implement necessary improvements.~~

~~PW implemented a new procedure for marking utility field maps and requesting changes to utilities data sets. As of 12 April each utility map book produced shall include an instruction page describing the process for markup and change requests. Additionally, each page will have the same directions in abbreviated form in its legend area.~~

~~The procedure for requesting changes includes marking incorrect or abandoned features using black X marks and marking new or corrected features using red ink. Each deletion or addition shall be initialed and dated. Map sheets will be returned to the GIS department for input into the corporate GIS database. Newly updated, replacement mapbook pages will be produced. The turn around time is less than 4 days depending on the volume of changes.~~

~~This procedure has been fielded in recently produced water/wastewater/stormwater map series produced 12 April 2007. Email notification was sent to the PW O&M Division chief for distribution to all utility shops.~~

15. EPA vs. State regulation comparison chart. SOP on what we do and don't do. Chose 1 standard and follow it. (5 April RWH) I laid out a regulatory review matrix that I wanted followed. Will be written in 2 weeks, 1 week for editing and peer review, 1 week for on-site education. Coordination completed with (b)(6)

16. Requested parts and equipment list that they feel they need to do their job. Must/Need/Would Like.

a. *(7 May NEB) Currently working on gathering a list of tools needed for the WWTP operators. We will order as soon as we get the request.*

b. *(7 May NEB) Currently working to upgrade the CL17 samplers to provide automatic and more accurate measure of both influent and effluent flows. We are gathering a list of parts and suppliers.*

c. *(7 May (b)) Ordered and received replacement check valve for #2 primary effluent sludge pump last week, supposedly requested by the lead operator in Feb. We will install today.*

d. *(7 May (b)( ) Service order to replace the leaking cover of the primary effluent sludge pump room was submitted last month. New cover is on order for the metal shop.*

e. (19 April (b)) Ordered parts requested from WTP. (7 May DR) Parts & tools requested have been received and distributed.

17. (19 April DR) Telemetry contractor (S&B) is schedule to provide technical assistance and repair on Monday, 23 April. (7 May (b)) – Main Control Panel (Big Blue Panel) at WTP serviced by S&B contractor on Apr. 23. All issues were repaired except for one. Alarm communication line failure still needs to be resolved. Coordinating a meeting with DOIM and S&B Contractor. Will provide date when meeting is established.

a.

b. (12 April (b)) Upon instituting new shift change/daily log procedures on 10 April, received only one written request from an operator (Liedes) for Vogelsang sludge thickener pumps that he says that they identified two months ago. I submitted the request for Barb Z. to order 11 April. *(7 May (b)) – The parts are still on order.*

18. *Institute a new "dumping permit" that authorizes organizations to dump into our sanitary system. We are currently working to outline procedures similar to a dig permit. Our internal suspense for implementation is by end of 4th quarter, FY07.*

Utility_Update_Instruction.pdf

EXHIBIT 8

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Exhibit 8

DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT COMMAND
UNITED STATES ARMY GARRISON, FORT LEWIS
BOX 339500, MAIL STOP 1AA
FORT LEWIS WASHINGTON 98433-9500

REPLY TO
ATTENTION OF

IMWE-LEW-ZB

JUN 19 2007

MEMORANDUM FOR Mr. Tom Hodgini, Assistant to the Deputy, IMCOM West (NW), 1 Rock Island Arsenal, Rock Island, IL 61299-6200

SUBJECT: AR 15-6 Investigation, RE: Fort Lewis' Waste Water Treatment Plant

1. I appreciate your visit to Fort Lewis to look at the Waste Water Treatment Plant. I know you spent long hours asking many people questions, learning the procedures of the plant, and getting to understand the big picture of all the challenges.

2. Fort Lewis has a great reputation of protecting the environment. We have earned this reputation by our actions. It has been years since Fort Lewis has violated any environmental law or permit. Our leadership is committed to a safe environment.

3. I would also like you to know that the senior leadership at Fort Lewis was not aware of all the issues, nor the seriousness of the allocations. But once the leadership was aware, many actions were taken immediately. Below I would like to address these actions.

a. COL Murphy, Garrison Commander, initiated a Commander's Inquiry. I have included a copy of the executive summary of this report.

b. We removed the supervisor in question and replaced him with a systems engineer.

c. Once a test sampling found oil in the sludge, Public Works started testing on a recurring basis, even though it is not required by any environmental requirement.

d. We have directed that the supervisor in question receive coaching, mentoring and supervisory training.

e. The interim plant supervisor, mentioned in b. above has assessed the plant, and its operations and has aggressively ordered parts and equipment, as well as made some very good changes in the operations.

f. Since September 2006, we have aggressively worked with the Washington State Department of Ecology to sign a memorandum of agreement with the goal of having an environmentally approved pre-treatment plan.

IMWE-LEW-ZB
SUBJECT: AR 15-6 Investigation, RE: Fort Lewis' Waste Water Treatment Plant

g. We have the US Army Center for Health and Preventive Medicine (CHPM) under contract to perform a detailed plant assessment.

h. Our Directorate of Information Management (DOIM) is about completed installing fiber optics to employee email connectivity.

4. Again, thank you for taking the time to come to Fort Lewis and see our operations. I look forward to your report so if there are lessons learned or 'best practices' that we can implement, we can start immediately.

(b)(6)

Encl
as

Deputy to the Garrison Commander

EXHIBIT 9

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Exhibit 9

DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT AGENCY
HEADQUARTERS, UNITED STATES ARMY GARRISON
BOX 339500, MAIL STOP 16
FORT LEWIS WASHINGTON 98433-9500

REPLY TO
ATTENTION OF

IMWE-LEW-PL-S

7 June 2007

MEMORANDUM FOR Garrison Commander, ATTN: IMWE-LEW-ZA, Box 339500, Fort Lewis, WA 98433-9500

SUBJECT: AR 15-6 Investigation Concerning Hiring Actions Taken in Reference to Army Vacancy WTEU5004308 for Utility Systems Repairer-Operator Supervisor, WS-4742-10 and Specific Management Practices at the Fort Lewis Wastewater (WWTP) and Water Treatment Plants (WTP).

1. On 17 April 2007, I was appointed as the AR 15-6 Investigating Officer (IO) for (1) the hiring actions taken in reference to Army vacancy WTEU05004308 for Utility Systems Repairer-Operator Supervisor, WS-4742-10 and (2) specific management practices at the Fort Lewis Wastewater (WWTP) and Water Treatment Plants (WTP). I have conducted a thorough investigation of the circumstances surrounding both issues. My observations, conclusions, and recommendations are provided in the following format: issues, facts, findings, and recommendations.

2. ISSUE – Hiring actions taken in reference to Army vacancy WTEU05004308 for Utility Systems Repairer-Operator Supervisor, WS-4742-10.

a. FACTS.

(1) 30 April 2005 – Date of most recent Base System Civilian Evaluation Report for (b)(6) Utility Systems Repairer-Operator WS-4742-10, Maintenance and Repair (M&R) Division, Directorate of Public Works (b)(6) (b)(6) has unrated supervisory time from 4 September 2005 to present. (b)(6) supervisor is (b)(6) Chief, M&R Division, (b)(6) (Tab 1J).

(2) July 2005 - (b)(6)(b)(6) the incumbent of the Utility Systems Repairer-Operator Supervisor WS-4742-10 position voluntarily resigned from the position.

(3) 5 August 2005 – Request for Personnel Action (RPA) number 05AUG9EULDPWXX775645 submitted by (b)(6) (b)(6), on behalf of (b)(6). RPA requested non-competitive, temporary not to exceed (NTE) 120 day (2 January 2006) promotion of (b)(6), under position description (PD) number EU200383. (Tab 1B).

(4) 4 September 2005 – Notification of Personnel Action (SF50) for (b)(6) non-competitively promoted (b)(6) from Utility Systems Repairer-Operator

WG-4742-09 to Utility Systems Repairer-Operator Supervisor WS-4742-10 with a NTE date of 2 January 2006 based on RPA number 05AUG9EULDPWXX775645. Neither the Fort Lewis Civilian Personnel Advisory Center (CPAC) nor the West Civilian Personnel Operations Center (WCPOC) verified (b)(6) held the certifications required by PD number EU200383 prior to processing this action. (Tab 1B).

(5) 29 November 2005 – RPA number 05NOV9EULDPWXX004308 submitted by (b)(6) Administrative Services Specialist, on behalf of (b)(6) (b)(6). RPA requested a competitive, temporary NTE 365 day, recruit-fill action for Utility Systems Repairer-Operator Supervisor, WS-4742-10 under PD number EU200383. (Tab 1C)

(a) RPA limited recruiting sources to current Fort Lewis employees.

(b) RPA stated that position could be non-competitively extended until implementation of the MEO.

(c) RPA listed a by-name request for (b)(6). Listing a by-name request is not a prohibited personnel practice. The individual who is listed by-name must still qualify for the referral list and the hiring official is under no obligation to select the individual is he/she appears on the referral list.

(d) Gatekeeper Checklist for RPA number 05NOV9EULDPWXX004308 identified (b)(6) as the hiring official.

(6) (b)(6) assisted (b)(6) with the drafting and uploading of his resume into the Army Resume Builder website. (b)(6) provided (b)(6) with a copy of the RPA and the PD prior to the vacancy announcement. (b)(6) called (b)(6) at his residence on 24 December 2005 to notify him that the vacancy announcement was posted and to ensure he self nominated for the vacancy. (b)(6) (b)(6) claims she was directed by her supervisor, (b)(6) to take these actions. She also claims that (b)(6) directed her not to notify other employees of the vacancy announcement. Although (b)(6) claims cannot be determined to be fact, her sworn statement (Tab 13) is consistent with (b)(6) sworn statement (Tab 16) on these issues and there appears to be no pre-existing relationship or motivation for her to use her personal time on Christmas Eve, 24 December 2007 to notify an employee of a vacancy. (b)(6) denies (b)(6) claims in his sworn statement (Tab 15).

(7) 16 December 2005 – RPA number 05DEC9EULDPWXX048567 submitted by (b)(6), Administrative Services Specialist, on behalf of (b)(6) RPA requested permanent promotion of (b)(6). (Tab 1D).

(8) 23 December 2005 – Vacancy Announcement number WTEU05004308 advertising for temporary NTE 365 day position as Utility Systems Repairer-Operator Supervisor, WS-4742-10 under PD number EU200383 released on Army Vacancy Announcement Board website by (b)(6), (b)(6) (Tab 1E).

MEMORANDUM FOR Garrison Commander
SUBJECT: AR 15-6 Investigation Concerning Hiring Actions Taken in Reference to Army Vacancy WTEU5004308 for Utility Systems Repairer-Operator Supervisor, WS-4742-10 and Specific Management Practices at the Fort Lewis Wastewater (WWTP) and Water Treatment Plants (WTP).

(a) Vacancy announcement was open from 23 December 2005 to 27 December 2005. The hiring official selected a five day announcement period. While this is the shortest announcement period, it is not unusual for hiring officials to request a short announcement period. The fact that the announcement was open over the Christmas holidays was not a hiring official decision but rather a result of the timed action processing system used by WCPOC which requires WCPOC personnel to process a vacancy announcement within a certain number of days. Although vacancy announcements are not opened or closed on a Federal Holiday, the open period of a vacancy announcement can include a Federal Holiday. (Tab 10).

(b) On 23 December 2005, (b)(6) notified (b)(6) via email that the vacancy announcement had been posted on the Army Vacancy Announcement Board website.

(c) (b)(6) email included two additional statements:

1. "Please get this to anyone that you know of that might be interested in being considered for this position."

2. "Please let me know on Tuesday if you feel this needs to be extended to be open for a longer period of time".

(d) Vacancy announcement listed the following conditions of employment:

1. Must possess a valid Washington State driver's license.

2. NOTE: Must possess and maintain a Group III waste water certification issued by the State of Washington. Special Requirements. Must be able to obtain within 2-years and maintain a current State of Washington Water Distribution Manager III certification. Must be able to obtain within 2-years and maintain a current State of Washington Water Treatment Plant Operator II certification.

(e) Vacancy announcement specified the following under the section marked "Other Information""

1. Position may be filled by temporary promotion not to exceed 1 year.

2. Temporary promotion may be made or extended up to a maximum of five years.

3. Competitive temporary promotion may be made permanent without further competition.

(9) 28 December 2005 – Web Based Referral List for Vacancy Announcement number WTEU05004308 and RPA number 05NOV9EULDPWXX004308 issued by (b)(6) to (b)(6) and (b)(6) (b)(6) Fort Lewis (b)(6) The referral list included four candidates: (b)(6), (b)(6), (b)(6), and (b)(6). (Tab 1F).

(10) 28 December 2005 – Referral List Candidate Selection documents that (b)(6) selected (b)(6) to fill Vacancy Announcement number WTEU05004308 based on "knowledge, skills, and experience." (Tab 1G).

(11) 29 December 2005 – (b)(6), (b)(6) extended job offer to (b)(6). (b)(6) accepted job offer for WS-4742-10, Utility Systems Repairer-Operator Supervisor, temporary promotion NTE 2 January 2006. (Tab 1G).

(12) 3 January 2006 – Notification of Personnel Action (SF50) for (b)(6) extended temporary promotion NTE date from 2 January 2006 to 2 January 2007 based on RPA number 05NOV9EULDPWXX004308. Neither (b)(6) nor (b)(6) verified (b)(6) held the certifications required by PD number EU200383 prior to processing this action. (Tab 1G).

(13) 2 April 2006 – Notification of Personnel Action (SF50) for (b)(6) removed temporary limitation to promotion action under Vacancy Announcement WTEU05004308 dated 23 December 2005. This action made (b)(6) promotion permanent without competition as was authorized under the Vacancy Announcement: "Competitive temporary promotion may be made permanent without further competition." Neither (b)(6) nor WCPOC verified (b)(6) held the certifications required by PD number EU200383 prior to processing this action. (Tab 1I).

(14) The following chart depicts the historical sequence of the PD number and certification requirements for the supervisory position for which (b)(6) was hired:

Classified Date	PD Number	Replaces PD Number	Series/Grade	POSITION DESCRIPTION REQUIREMENTS			
				WA State Driver's License	WWTP Operator	Water Distribution Manager	WTP Operator
3 FEB 94	EUL2053	EUZ6056	WS-4742-09	YES	Group III	N/A	N/A
13 JUL 04	EU178523	N/A	WS-4742-09	YES	Group III	Group III	Group II
27 AUG 04	EU182461	EUL2053	WS-4742-10	YES	Group III	Group III	Group II
20 OCT 04	EU186946	N/A	WS-4742-10	YES	Group III	Group III	Group II
4 APR 05	EU200383	EU185551*	WS-4742-10	YES	Group III	2 Years to Obtain Group III	2 Years to Obtain Group II

*PD number EU185551 is not available in the FASCLASS system for review and a hardcopy could not be obtained from either CPAC or WCPOC.

There is no substantive difference between PD number EU186946 and PD number EU200383 except for the addition of the 2 year period to obtain the necessary Water Distribution Manager Group III and Water Treatment Plant Operator Group II certifications. (Tab 1A). (b)(6) explained the new certification requirements, stating: "To the best of my knowledge, certification requirements were changed in order to make the position available to a wider range of applicants and get the position filled as soon as possible before the hiring freeze. PW management was afraid there would be no eligible candidates because of the unique requirements but by giving eligible applicants two years to obtain certification, the position might be more

attractive to those whose experience/education met all other requirements. Management did not want to waste time by posting the announcement with the statement that applicants "must posses" specific certifications with the possibility of no eligible applicants then have to re-announce with the two year certification period adjustment. It was all about timing because the MEO implementation was right around the corner and management wanted to get someone on board before the freeze." (Tab 29).

(15) (b)(6) stated in the resume which was used to select him for the position that he holds the following certifications: Wastewater Treatment Plant Operator II, Water Distribution Manager III, and Water Treatment Plant Operator III. (Tab 1F). When (b)(6) was first promoted into the position on a non-competitive, temporary basis on 4 September 2005, he did not meet the conditions of employment specified by PD EU200383; specifically he did not hold a Waste Water Treatment Plant Operator Group III certification. When (b)(6) was subsequently competitively temporarily promoted on 3 January 2006, he still did not meet the conditions of employment. It is the responsibility of (b)(6) in coordination with the prospective employee and the hiring official to verify the prospective employee meets the conditions of employment prior to hiring. (b)(6) did not verify (b)(6) met the conditions of employment on the 3 January 2006 competitive temporary promotion action because the employee was already in the position on a non-competitive temporary promotion. Based on the fact that the employee was already in the position, (b)(6) assumed the conditions of employment were verified at the time of the first non-competitive temporary promotion action on 4 September 2005.

(16) (b)(6) previously held a supervisory position at the Water Treatment Plant (WTP) from 29 May 1994 to 11 October 1998. There was eight months of unrated supervisory time from 2 January 1998 to 14 October 1998. This was the time period immediately proceeding (b)(6) voluntary change to a lower grade from a supervisory position to a non-supervisory position. (Tab 1J).

(a) 29 May 1994 – RPA number DEH-94-651 was a recruit-fill action that promoted (b)(6) from Utility Systems Repairer-Operator WS-4742-09, PD number Z3100, to Water Treatment Plant Operator Supervisor WS-5409-08, PD number L2049. (Tab 1H). PD number L2049 specified the following special requirements:

1. Must possess and be able to maintain a current State of Washington Water Distribution manager III certification.
2. Must possess or be able to obtain and maintain a current State of Washington Water Treatment Plant Operator II certification.
3. Must possess or be able to obtain Washington State driver's license.

(b) 29 May 1994 – Notification of Personnel Action (SF50) promoted (b)(6) from Utility Systems Repairer-Operator WS-4742-09, PD number

Z3100, to Water Treatment Plant Operator Supervisor WS-5409-08, PD number L2049 based upon merit promotion announcement 086 dated 2 May 1994. (Tab 1I).

(c) 11 October 1998 – RPA number 98LPWK004738 was a voluntary change to lower grade action that moved (b)(6) from Water Treatment Plant Operator Supervisor WS-5409-08, PD number EUL2049, to Maintenance Mechanic WG-4749-09, PD number EU88140. According to the RPA remarks, "Employee requested voluntary Change to Lower Grade based on medical reasons (stress)." (Tab 1H). Interviews with WTP employees indicate that (b)(6) voluntarily changed to a lower grade in lieu of being removed by his supervisor, (b)(6) (Retired); Chief of Production Division, for failure to adequately perform supervisory duties (Tab 26).

(d) 11 October 1998 – Notification of Personnel Action (SF50) changed (b)(6) to a lower grade from Water Treatment Plant Operator Supervisor WS-5409-08, PD number EUL2049, to Maintenance Mechanic WG-4749-09, PD number EU88140 based upon RPA 98LPWK004738. (Tab 1I).

(17) (b)(6) completed Leadership Education and Development (LEAD) training on 22 July 1994. On 21 February 2006, (b)(6) recommended that (b)(6) complete the Human Resources (HR) for Supervisors course. (b)(6) declined to permit (b)(6) to complete the training stating that (b)(6) "did not need this training as he previously had supervisory experience and was being coached." (Tab 1K).

b. FINDINGS.

(1) (b)(6) did not meet a condition of employment, possession of a Waste Water Treatment Plant Operator Group III Certification, when he was non-competitively temporarily promoted to Utility Systems Repairer-Operator Supervisor WS-4742-10 on 4 September 2005 with a NTE date of 2 January 2006. (b)(6) did not meet this same condition of employment when he accepted a competitive temporary promotion for the same position on 3 January 2006 with a NTE date of 2 January 2007. (b)(6) did not meet this same condition of employment when his promotion was made permanent on a non-competitive basis on 4 April 2006. (Tab 16). Neither the (b)(6) nor the (b)(6) verified (b)(6) met the conditions of employment. (Tabs 1, 2, 10 and 19).

(2) (b)(6) actions related to vacancy announcement number WTEU05004308 provided (b)(6) with an unfair advantage over other potential applicants for the position.

(a) Although (b)(6) was the best qualified candidate of the four candidates on the vacancy announcement referral list (Tab 1F), the referral list did not include other qualified candidates who were interested in applying but did not do so because they were unaware of the vacancy (Tabs 4, 5, and 6). While it is an

individual's responsibility to maintain a resume in the Army Resume Builder website and self-nominate for vacant positions, (b)(6) was aware that a majority of his employees did not have access to internet connected computers at either their residence or their work site. Consequently, employees relied on the hardcopy posting of vacancy announcements on office bulletin boards to know when vacancies were opened. Although management was not required to do so, they established a precedent prior to vacancy announcement number WTEU05004308 of posting hardcopy vacancy announcements on office bulletin boards. Vacancy announcement number WTEU05004308 was not posted on the office bulletin board. (Tabs 19, 20, and 29).

(b) (b)(6) received preference to other potential candidates in that he was notified over the telephone of the vacancy announcement by (b)(6) at the direction of (b)(6). No other potential candidates received telephone notifications of the vacancy announcement from (b)(6). (Tabs 13 and 16).

(c) At the direction of (b)(6), (b)(6) assisted (b)(6) with the drafting, revision and uploading of his resume into the Army Resume Builder website. (b)(6) assisted with both content and process. (Tabs 13 and 16).

(d) PD number EU200383 appears to have been classified just six months after PD number EU186946 solely to reduce the certification requirements for the position. (Tab 1A).

(e) The fact that (b)(6) directed the initiation of RPA number 05DEC9EULDPWXX048567 requesting permanent promotion of (b)(6) prior to the posting of Vacancy Announcement number WTEU05004308 suggests that (b)(6) pre-selected (b)(6) for the position. (Tab 1D).

(f) (b)(6) previously held a supervisory position at the WTP from 29 May 1994 to 11 October 1998. (b)(6) voluntarily left his supervisory position and changed to a lower graded non-supervisory position citing the medical condition of stress as the reason. (b)(6) was aware that (b)(6) voluntarily left his supervisory position but stated he "did not know why he left". (Tab 15).

(3) (b)(6) has not received a rating since 30 April 2005. (b)((b)(6) has not provided a rating for (b)(6) supervisory time from 4 September 2005 to present. (Tab 1J).

c. RECOMMENDATIONS.

(1) Request (b)(6) immediately modify their local procedures to ensure conditions of employment are verified in writing for all recruit-fill and promotion actions regardless of the nature of recruit-fill or promotion action (i.e. competitive, non-competitive, temporary, or permanent). Ensure procedures include retention in the individual's official personnel file (OPF) of any written verifications that the

individual meets the conditions of employment.

(2) Direct DPW to ensure all supervisory personnel complete the HR for Supervisors course offered by CPAC. Prevent DPW supervisors from functioning as hiring officials until they complete the HR for Supervisors course.

(3) Direct DPW to work in coordination with CPAC to develop a targeted training class for Administrative Support Assistants which focuses on what you can and cannot do to assist an individual with the resume, self-nomination and hiring process. Ensure all (b)(6) Administrative Support Assistants receive training NLT 90 days from the date of this report.

(4) Recommend the appointing official request CPAC initiate notice of proposed removal for (b)(6) for failure to meet a condition of employment.

(5) Recommend the appointing official determine whether formal disciplinary action is warranted for (b)(6).

3. ISSUE – Specific management practices at the Fort Lewis Wastewater (WWTP) and Water Treatment Plants (WTP).

a. SUB-ISSUE – Failure to use the proper oil in the WWTP compressor.

(1) FACTS.

(a) The WWTP employees cannot agree on what type and weight of oil is required for the WWTP gas compressor. (Tabs 4, 5, 6, 7, 8, 9 and 16).

(b) The Operations and Maintenance Instruction Manual (O&M Manual) for the Sliding Vane Gas Compressor and Accessories dated May 1999 does not mandate an oil type and weight; however, it does specify suggested oils. The suggested oil for wet compressor service is Chevron – EP Industrial 220x or Gulf – Marine Engine Oil 220. (Tab 24Q).

(c) All the WWTP employees stated that they have previously used an unsuitable oil In the WWTP gas compressor because it was all they had available in on-hand supplies. (b)(6) stated that "employees may have used the incorrect oil by grabbing the wrong can. We keep multiple oils on site and it's their job to use the correct oil. Using the incorrect oil is an employee self made decision. There is always a way for them to get the correct oil. I had the authority to purchase the correct oil at any time using the government purchase card. I don't recall employees asking me to buy oil for the gas compressor." (Tabs 4, 5, 6, 7, 8, 9 and 16).

(c) (b)(6) submitted an exhibit 6 request to (b)(6) for 30 gallons of Gulf-Marine Engine Oil 220 on 6 December 2005 (Tab 24Q). (b)(6) (b)(6) declined to process the request because it was "an idiotic request". (Tab 16). (b)(6)

(b)(6) did not annotate the exhibit 6 with the denial but rather simply did not action the request.

(2) FINDINGS.

(a) Although the O&M Manual is not prescriptive, the suggested oil should be used to ensure the proper functioning of the gas compressor.

(b) There have been occasions when a suitable oil type and weight has not been available in on-hand supplies. There have been occasions when (b)(6) (b)(6) has failed to action employee requests to order a suitable oil type and weight.

(3) RECOMMENDATIONS.

(a) Direct DPW to order sufficient quantities of the proper oil so that there is enough on-hand supplies to deal with unplanned maintenance emergencies.

(b) Direct DPW to educate WWTP employees on what oil type and weight is required.

(c) Direct DPW to visibly post what oil type and weight is required on or in close proximity to the WWTP gas compressor.

b. SUB-ISSUE – Allegations arising from the WWTP daily entry logs.

(1) FACTS.

(a) (b)(6) published guidance to WWTP employees on how to fill out the WWTP daily entry logs on 23 December 2005. (Tab 16O).

(b) (b)(6) wrote inappropriate comments in the WWTP daily entry logs prior to his promotion to Utility Systems Repairer-Operator Supervisor, WS-4742-10 on 4 September 2005. Those comments include:

1. 8 April 2005 - Referred to (b)(6) as "Lab Monkey" and (b)(6) as "Luda Fisk Buoy". (Tab 16O).

2. 6 August 2004 – "Raining like a cow with a serious balder leak. May need boat soon." (Tab 16O).

3. 18 October 2003 – "Turned the whole business over to (b)(6) (referring to (b)(6) and the fool took it." (Tab 16O).

4. 29 November 2002 – "Turning the place over to Yippy Ki Ya (referring to (b)(6) (Tab 16O).

5. 11 October 2002 - Referred to (b)(6) as "Lab Monkey". (Tab 16O).

6. 25 December 2001 - "This verse is like the first, everything is humming along fine with no broken pipes due to freezing. Luda Fisk Buoy (referring to (b)(6) is taking over. My god watch over him cause he needs all the help he can get." (Tab 16O).

(c) (b)(6) admits to writing inappropriate comments and personal attacks in the WWTP daily entry logs. (Tab 16).

(d) A review of all the WWTP daily entry logs from 4 September 2005 to 30 April 2007 did not reveal any inappropriate comments written by Mr. Long.

(2) FINDINGS. As an employee of the WWTP, (b)(6) wrote inappropriate comments in the WWTP daily entry logs. While the comments were inappropriate and unprofessional, they were infrequent and were more a failed attempt at humor than harassment. After assuming supervisory responsibilities, (b)(6 (b)(6) did not write inappropriate comments in the WWTP daily entry logs.

(3) RECOMMENDATIONS.

(a) Direct DPW to ensure (b)(6) and all WWTP employees complete annual EEO and EO training.

(b) Direct DPW to train (b)(6) and WWTP personnel on how to complete the WWTP daily entry logs. DPW published revised WWTP daily log entry guidance on 17 April 2007; however, (b)(6) and WWTP employees may not have been trained on what is and is not acceptable to enter into the log.

c. SUB-ISSUE - Improper refusal to allow plant operators to sample the sludge removed from No. 1 digester by Cascade and transferred to the drying beds, on or about 14 November 2006.

(1) FACTS.

(a) Cascade was contracted to effect repairs to digester number one. Before Cascade made the repairs, they had to remove the water and residual sludge from the digester. (Tabs 30 and 31).

(b) Cascade took samples of the sludge after the diatomaceous earth was added. Those tests results for those samples revealed suspiciously high levels of oil. There are no chain of custody documents for the samples taken by Cascade and Cascade has declined to provide details on their sampling methodology. (Tabs 30 and 31).

(c) WWTP employees are responsible for testing sludge at the beginning, middle and end of a normal sludge bed pour. (Tabs 4, 5, 6, 7, 8, and 9). A sludge bed pour resulting from repairs to the digesters is not considered to be a normal sludge bed pour.

(d) All of the WWTP employees were interviewed. None of the interviewed employees stated that they attempted to take samples and were denied the opportunity. (b)(6) stated that the proper tests were not conducted but she did not state that she was prevented from taking samples. (Tabs 4, 5, 6, 7, 8, and 9).

(2) FINDINGS.

(a) Although WWTP employees did not sample the sludge handled by Cascade/Alkai, I found no indication that WWTP employees were prevented from doing so.

(b) Making a distinction between sampling standards for normal sludge bed pours and sludge bed pours resulting from contract repair work is unnecessary and confusing.

(3) RECOMMENDATIONS. Direct DPW to implement a single testing standard for all sludge bed pours.

d. SUB-ISSUE – Safety violations in connection with repairs to a swing arm on the floating lid of Digester No. 3.

(1) FACTS.

(a) In the Spring of 2006, (b)(6) made repairs to the swing arm of the floating lid of digester number three. (b)(6) made those repairs with (b)(6) (b)(6) and (b)(6) (Tab 23).

(b) Ms. (b)(6) contacted the Installation Safety Office (ISO) to report a safety violation related to the repairs. (b)(6) (b)(6) (b)(6), conducted a site visit. Although a safety investigation report was not generated at the time, (b)(6) generated a Memorandum for Record (MFR) (Tab 17) at the direction of (b)(6), (b)(6)

(c) The MFR specified that safety hazards were present. It stated that the supervisor, (b)(6) "did not report to the Operator on duty as per their SOP, the supervisor was not qualified to make repairs, he was not using non-sparking tools, and he needed to have a crane to remove the broken part, as it was on a building roof and would be dangerous to carry down the stairs."

(d) Neither (b)(6) (Tab 16) nor (b)(6) (Tab 23) believed the

manner in which they conducted the repairs was unsafe.

(2) FINDINGS. (b)(6) failed to follow proper safety procedures when he undertook repairs to the swing arm on the floating lid of digester number three. Specifically, he failed to follow the WWTP SOP and check in with the plant operator prior to making any repairs, he failed to use non-sparking tools while working in an area where gas could be present, and he failed to use a lift or crane to move the broken standpipe as is required for heavy and awkward items.

(3) RECOMMENDATIONS.

(a) Direct DPW to retrain all WWTP, WTP and Outside Water and Sewer personnel on proper safety procedures for repair work at the WWTP.

(b) Recommend the appointing official determine whether formal disciplinary action is warranted for (b)(6) based on his disregard for the safety, health and welfare of his subordinate employees.

e. SUB-ISSUE – Failure to properly document sewage backups on or about 3 January 2007.

(1) FACTS.

(a) All current employees of the WWTP, WTP and Outside Water and Sewer were interviewed. None could agree on what procedures, if any, should be used to document sewage backups. (Tabs 4, 5, 6, 7, 8 9, 21, 22, 23, 24, 25, 26, 27 and 28).

(b) On 3 January 2007 there was a sewage backup at the Eagle View 1, Eagle View 2 and Murray Creek lift stations as a direct result of an area wide power outage caused by a wind storm. The lift stations did not have backup generator power, so when the power went out the lift stations failed. The sewage backed up and there was spillage into American Lake. (Tab 21).

(c) The National Pollutant Discharge Elimination System (NPDES) Permit Number WA-002195-4 effective 1 February 2004 through 1 February 2009, is the permit under which the WWTP operates. The NPDES permit requires that the permittee (Fort Lewis) report occurrences of noncompliance to the United States Environmental Protection Agency, Region 10, by telephone within 24 hours from the time the permittee becomes aware of the circumstances. Specifically, "any overflow prior to the treatment works, whether or not such overflow endangers health or the environment or exceeds any effluent limitation in the permit." (Tab 11).

(d) I was unable to confirm whether or not the sewage backup on 3 January 2007 was telephonically reported to the United States Environmental Protection Agency, Region 10, within 24 hours.

(2) FINDINGS. None. I could find no requirement to document sewage backups in writing. The only requirement was to notify the United States Environmental Protection Agency, Region 10, by telephone within 24 hours from the time the permittee becomes aware of the circumstances of the non-compliance.

(3) RECOMMENDATIONS. Although outside the scope of this investigation, it may be advisable to explore backup power solutions for lift stations so that future power outages do not lead to sewage back ups.

f. SUB-ISSUE – Improperly leaving the WWTP unattended.

(1) FACTS.

(a) The NDPES permit does not require the WWTP to be attended 24/7. (Tab 11).

(b) WWTP employees universally believe there is a requirement to man the WWTP 24/7. (Tabs 4, 5, 6, 7, 8 and 9).

(c) The WWTP is left unattended when there is a single employee on shift and he/she is called out to deal with a lift station alarm. (Tabs 4, 5, 6, 7, 8 and 9).

(2) FINDINGS. There is no written requirement which specifies the WWTP must be attended 24/7.

(3) RECOMMENDATIONS. Direct DPW to determine if a 24/7 manning requirement is prudent or necessary to effectively and efficiently execute WWTP operations. If prudent or necessary, DPW should modify the WWTP SOP to specify the 24/7 manning requirement and adjust manpower and lift repair call procedures accordingly.

g. Use of improper procedures to treat water at Donovan Reservoir.

(1) FACTS.

(a) When the service life of the lining for Donovan Reservoir ended, an individual job order contract was executed to replace the lining of Donavon Reservoir. The contract was awarded to Centennial contractors. (Tabs 30 and 31).

(b) After starting the removal process of the existing lining, Centenial contractors discovered the presence of poly chlorinated byphenals (PCB's) in the sealant used to affix the existing lining. (Tabs 30 and 31).

(c) Once (b)(6) was notified by Centennial contractors of the presence of PCB's in the waste products from the lining removal and

replacement project, (b)(6) ordered tests to determine if PCB's were released into the drinking water supply. The tests were conducted and did not reveal the presence of PCB's. Archived tests results are maintained by (b)(6) (Tab 31).

(d) Centennial contractors released PCB contaminated material chunks onto the surface ground immediately surrounding Donovan Reservoir. Centennial contractors released PCB contaminated particles into the atmosphere. (Tabs 30 and 31).

(e) (b)(6) and (b)(6) provided advice to Centennial contractors on the industry standards for proper waste management and removal of PCB contaminated materials. (Tabs 30 and 31).

(f) Centennial contractors is responsible for brining the work site back to its original condition. Once Centennial contractors completes their work, DPW personnel will verify site cleanliness through testing. (Tabs 30 and 31).

(2) FINDINGS.

(a) Centennial contractors released PCB's into the atmosphere and onto the surface ground when they removed the existing lining of Donovan Reservoir. PCB's were not released into the drinking water supply. (Tabs 30 and 31).

(b) As a direct result of a lack of sufficient manpower, there is an oversight disconnect between contracted projects and the Environment and Engineering Division of DPW. The Environment and Engineering Division does not conduct routine oversight of contracted projects but rather defers to the contractor for environmental compliance issues. This oversight disconnect results in confusion as to what standards must be followed on contracted projects.

(3) RECOMMENDATIONS.

(a) Once Centennial contractors completes their work on the Donovan Reservoir site, conduct thorough testing to ensure site cleanliness.

(b) Direct DPW to work with Army Corps of Engineers to develop and execute a collaborative oversight and quality assurance/quality control program administered by government employees for all individual job order contracts which are assessed as having the potential to negatively impact the environment.

h. Failure of PW management to make regular site visits to the WWTP and WTP.

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(1) FACTS.

(a) According to employees, (b)(6) managers; (b)(6) and (b)(6) rarely visited the WWTP and WTP. Some employees have never met anyone in DPW management (Tab 21). (b)(6) went so far as to say, "That's a joke. No one comes out here. We never see them." (Tab 22). (b)(6) commented that, "I don't even think they know where our shop is." (Tab 26).

(b) (b)(6) and (b)(6) both indicated that they have sporadically visited employees at the WWTP and WTP when responding to specific issues. They typically visited during day shift hours and therefore employees working swing and night shifts may not have seen (b)(6) and (b)(6) during their visits. (Tabs 15 and 32).

(c) There is no written requirement which specifies how frequently DPW managers should visit their geographically separated work sites.

(2) FINDINGS. Although some employees are content with the frequency of visits from DPW managers, most expressed a desire to have their second ((b)(6) (b)(6) and third line ((b)(6)) supervisors visit their work sites at least twice a year. This is a reasonable request of senior managers and can be used as an opportunity to improve communication between DPW management and employees.

(3) RECOMMENDATIONS. Direct DPW managers to conduct a minimum of two site visits per year to each of their geographically separated work sites. Ensure at least one site visit a year is during swing shift or night shift hours.

i. Improper budgeting causing a shortage of repair parts and equipment at the WWTP and WTP.

(1) FACTS.

(a) According to (b)(6) DPW managers and supervisors do not receive an annual funding distribution letter to manage and execute. (Tab 12). When managers and supervisors require non-pay funding, they:

1. Use the Government Purchase Credit Card (GPCC) if the request is for supplies or parts and the total cost is under two thousand five hundred dollars

2. Submit a service order request if the request is for service and the total cost is under two thousand dollars or under forty man hours

3. Submit an individual job order contract if the request is for service or repair and the total cost is over two thousand dollars or over forty man hours

(b) According to (b)(6), Director, Directorate of

Resource Management (DRM), no requests for repair parts for the WWTP were denied in FY 2006 or FY 2007 due to lack of funds. (Tab 14).

(c) When an employee identifies a requirement to order a repair part or a piece of equipment, he/she fills out an exhibit 6 and turns it in to (b)(6). (b)(6) does not notify the requesting employee of the disposition of the exhibit 6 request. When the request is denied by (b)(6), he does not notify the requesting employee. When the request is delayed due to funding availability, (b)(6) does not notify the requesting employee. (Tabs 4, 5, 6, 7, 8 9, 21, 22, 23, 24, 25, 26, 27 and 28).

(d) Although most employees claim there was and is a shortage of repair parts, none could point to a specific example of a request for a repair part which was denied. Most employees stated that their requests for repair parts are simply ignored or not actioned by (b)(6). There was and is no formal mechanism by which (b)(6) notifies employees of the status of their requests for repair parts or equipment. (Tabs 4, 5, 6, 7, 8 9, 21, 22, 23, 24, 25, 26, 27 and 28).

(e) (b)(6) is the GPCC holder for the WWTP. (b)(6) (b)(6) Boiler Plant, is the approving official for Ms. (b)(6) GPCC account. He took over as the approving official for (b)(6) account when (b)(6) left. (b)(6) should have taken over as the approving official once he was hired to fill the supervisor position vacated by (b)(6). As the supervisor of the WWTP, WTP and Outside Water and Sewer, (b)(6) should be the approving official for the GPCC account. (b)(6) is not the approving official because he has not completed the required GPCC approving official training despite being in the supervisor position since 4 September 2005. (Tab 12).

(f) On 9 February 2007, (b)(6) purchased a Samsung High-Design 40 inch Flat-Panel LCD HDTV and stand from Sears. The exhibit 6 was signed by the approving official, (b)(6) on 3 February 2007. (b)(6) justification for the purchase of the Samsung High-Design 40 inch Flat-Panel LCD HDTV was to provide employees with on-site video training on: Confided spaces, deadly places; Confided spaces, survival by permit; No injury, no accident?; Pole top and bucket truck safety; Lockout-tagout procedures. Since its purchase, the Samsung High-Design 40 inch Flat-Panel LCD HDTV has been locked in (b)(6) private office at the WTP. The training videos and supporting materials have not been made available to the employees. (Tab 12M).

(2) FINDINGS.

(a) Employees who request repair parts or equipment are not kept informed by their supervisor, (b)(6), of the status of their request. This failure to communicate in kind with employees who are required to make written requests leads to the perception that funds are being mismanaged.

(b) (b)(6) is not executing appropriate supervisory oversight of (b)(6) GPCC account. (b)(6) should be the approving official for (b)(6) GPCC account and should ensure appropriate GPCC account documents are maintained.

(c) (b)(6) purchase of the Samsung High-Design 40 inch Flat-Panel LCD HDTV from Sears constitutes misuse and abuse of the GPCC. Purchase should have been executed with a mandatory source or under a blanket purchase agreement through DoD Emall. Sears is neither a mandatory source nor part of the blanket purchase agreement. (b)(6) misrepresented the intended use of the television. If the true intent was to make training materials available to employees located at three geographically separated work site locations, then he could easily have purchased three smaller televisions and three sets of training materials so that employees at each work site had ready access. Instead, (b)(6) purchased a single television and located it inside his locked office so that employees could not access it in his absence. Furthermore, (b)(6) has yet to make the training materials available to employees.

(3) RECOMMENDATIONS.

(a) Direct (b)(6) to have supervisors and managers implement a work group process or procedure that keeps requesting employees informed as to the status of their requests for repair parts or equipment.

(b) Direct Internal Review conducts a 100% audit of GPCC records for (b)(6) GPCC for FY2006 and FY2007.

(c) Remove the television and training materials from (b)(6) office and relocate the television and training materials to an area that is accessible to employees.

(d) Direct (b)(6) be retrained on GPCC holder responsibilities through attendance at the Department of Contracting (DOC) sponsored GPCC holder class.

(e) Recommend the appointing official determine whether formal disciplinary action is warranted for (b)(6) in accordance with USD Memorandum, Subject: Government Charge Card Disciplinary Guide for Civilian Employees dated 29 December 2003.

j. Failure to correct deficiencies at the portable latrine dumping site at North Fort.

(1) FACTS.

(a) The portable latrine dumping site was originally located on the grounds of the WWTP. The site was determined to be unusable for portable latrine

dumping as a result of engineering concerns which threatened the safe operation of the WWTP. Specifically, Soldiers were dumping live rounds into the portable latrines and when the portable latrines were subsequently dumped at the WWTP site the live rounds would damage the WWTP pumps. (Tab 16).

(b) The portable latrine dumping site was moved to a manhole feed in front of the Outside Water and Sewer Building 7913. The port-a-potty trucks currently dump directly into this manhole. During dumping operations, there is occasionally spillage on the asphalt surrounding the manhole. The WA State Department of Ecology directed a concrete containment be built to appropriately manage and mitigate sewage spillage. A temporary solution of surrounding the manhole with sandbags was implemented; however, this solution was not accepted by the WA State Department of Ecology because sewage spillage onto the sandbags could not be effectively cleaned. (Tab 21).

(c) A new portable latrine dumping site located at I Street is under construction to meet the requirement to have a concrete containment for sewage spills. Until the site is completed, dumping operations will continue in front of the Outside Water and Sewer Building 7913. (Tabs 21 and 26).

(d) The new portable latrine dumping site located at I Street was identified over two years ago and is still not completed. (Tabs 21 and 26).

(2) FINDINGS. None.

(3) RECOMMENDATIONS. Direct DPW to complete construction of the new portable latrine dumping site by the end of FY2007.

3. During the course of my investigation, several matters arose which were outside the scope of the investigation but warrant documentation.

a. Several employees of the WWTP and the WTP alleged that unspecified individuals may be stealing government tools from work sites. A criminal inquiry into this matter may be warranted.

b. Through observations, discussions with employees, supervisors and managers, and review of WWTP log entries, I believe that some WWTP employees are not performing their jobs in accordance with their position descriptions and that some WWTP employees are failing to meet minimum performance standards. A management review of position descriptions, employee performance standards and actual employee performance may be warranted.

MEMORANDUM FOR Garrison Commander
SUBJECT: AR 15-6 Investigation Concerning Hiring Actions Taken in Reference to Army Vacancy WTEU5004308 for Utility Systems Repairer-Operator Supervisor, WS-4742-10 and Specific Management Practices at the Fort Lewis Wastewater (WWTP) and Water Treatment Plants (WTP).

4. Point of contact is the undersigned at (253) 967-0458 or greta.powell@us.army.mil.

GRETA M. POWELL
Chief, Fort Lewis Installation
Security Office

EXHIBIT 11

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Exhibit 11

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (b)(6) • email (b)(6)
504 E Sprague Ste. D • Spokane WA 99202 • (b)(6) • Fax (b)(6) • email (b)(6)

FORT LEWIS

(b)(6)

BLDG 2012--AFZH-PWE-MS17 PROJECT: WWTP
FORT LEWIS, WA 98433

Certificate of Analysis

Petroleum -NWTPH-HCID by GC/FID (8015 modified)

Sample Name:	WWTP-EFL-1
Sample Location:	
Sampling Date:	2/24/2004
Sampling Time:	10:00
Date Received:	2/25/2004
Extraction Date:	3/5/2004
Lab #:	04X0360-01
Matrix:	WASTE WATER
Analysis Date:	3/10/2004
Analyst:	SAT

Comments:

Analyte	Result	Estimated Amount
Gasoline	< 0.25 mg/L by HCID	
Diesel	< 0.63 mg/L by HCID	
Lube Oil	< 0.63 mg/L by HCID	
NWTPH-HCID Surrogate (Hexacosane) Percent Recovery		*54.6*
Surrogate Acceptance Range: 50 - 150 %		

Sample Name:	WWTP-EFL-2
Sample Location:	
Sampling Date:	2/24/2004
Sampling Time:	10:00
Date Received:	2/25/2004
Extraction Date:	3/5/2004
Lab #:	04X0360-02
Matrix:	WASTE WATER
Analysis Date:	3/10/2004
Analyst:	SAT

Comments:

Analyte	Result	Estimated Amount
Gasoline	< 0.25 mg/L by HCID	
Diesel	< 0.63 mg/L by HCID	
Lube Oil	< 0.63 mg/L by HCID	
NWTPH-HCID Surrogate (Hexacosane) Percent Recovery		*55.2*
Surrogate Acceptance Range: 50 - 150 %		

Lab Supervisor: _____

Report Date: 12-Mar-04

EXHIBIT 12

Memorandum For Record:

Conference Call, June 19, 2007, with U.S. Army Center for Health Promotion and Preventative Medicine (USACHPPM) to discuss Wastewater Treatment Plant (WWTP) Performance Evaluation Report for the Solo Point Wastewater Treatment Plant conducted 29 November-7 December 2006.

Participants: IMCOM West: Tom Hodgini and (b)(6)
USACHPPM: (b)(6), (b)(6), (b)(6), and (b)(6)

1. They indicated the purpose of the study was to evaluate the performance of the WWTP and verify compliance. General conclusions were the WWTP has been compliant with the permit except for pH excursions and each treatment unit/process was performing properly.

2. Verified that the performance evaluation team did not observe any oil sheen passing over the effluent weir in the chlorine contact chamber (exiting the WWTP) during their on-site study.

3. Clarified that the gasoline, diesel, and heavy oil concentrations can be added to determine the Total Petroleum Hydrocarbon concentration, also concentrations reported as "lubricating oil" are the same as "heavy oil".

4. Verified that the term "trace amounts" is a judgment call. The language used in the permit is standard permit language.

5. In their opinion the trace amounts of the two semi-volatile organic compounds (Bis{2-ethylhexyl}phthalate and naphthalene), the trace amount of chloroform (a volatile organic compound) and the trace amount of alpha chlordane (a pesticide) found in the effluent did not constitute a permit violation. Except for alpha chlordane, Washington State does not have Toxics Substances Criteria (TSC) for these compounds for the protection of aquatic life. The concentration of chlordane (estimated at 0.0059 to 0.0079 parts per billion) exceeded the chronic TSC of 0.004 parts per billion. The TSC does not apply to the effluent but to the receiving water outside the outfall mixing zone. Due to the low concentration in the effluent and the allowable mixing zone, it is highly unlikely that the discharge violates the chronic TSC.

6. Their opinion was this is not an unlawful discharge. The detection of these compounds could warrant additional sampling and the information should be submitted to the EPA to determine if these compounds represent unacceptable quantities. Fort Lewis may be preparing to submit the data to the EPA based upon enquires made to USACHPPM.

Exhibit 12

EXHIBIT 13

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Exhibit 13

Memorandum
For Record

Purpose: to document telephone conversation on 22 June between Tom Hodgini (IO), (b)(6) and (b)(6).

1. Requested further information regarding reasons for four out-of-service treatment components identified in the final draft USACHPPM Wastewater Treatment Plant Performance Evaluation.

a. (b)(6) explained that the inoperable influent fine screen was actually the grit chamber auger. The USACHHPM reference to fine screen was in regard to the lack of a hoist system to remove it.

b. The primary clarifier identified as out-of-service since Oct 2006 is the clarifier currently being renovated under a contract.

c. The digester is the same as the one currently out of service for cleaning and repair.

d. The chlorine contact chamber was likely out-of-service during Feb-Mar 2007 due to quarterly maintenance when the chambers are drained and cleaned.

2. The discovery of the by-passed oil-water separator with a missing filter was made by an engineering technician assisting Mr. Barto. The discovery occurred within a few days of the IO's inspection. The bypass was corrected but the separator will not be fully functional until the required filter is obtained. They are procuring the filter and the proper 10W40 non-emulsifying oil.

3. Verified that the polymer feed system, piping and pump, had been removed. This is needed to feed the polymer into the splitter box just upstream of the two secondary clarifiers.

4. Verified that the discovery of the second failed auger on second grit chamber occurred shortly after the IO inspection. Verified that the failed auger should have been evident from routine observation of the amount of grit being removed.

5. Verified that the "spark arrester in his memo was the VARAC gas head. He explained that the manufacturer's representative indicated that semi-annual maintenance is necessary and includes cleaning and servicing the internal filter.

6. Clarified that all tools thus far requested by the operators and already procured by the management have only been specialty tools, not the hand tools provided to each operator.

Exhibit 13

7. Verified that he found that the WWTP had a few repair parts scattered around the WWTP and not central managed. He is working to establish central management of and stock needed parts.

EXHIBIT 14

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Exhibit 14

Memorandum
For Record

Purpose: to document telephone conversation on 26 June between Tom Hodgini (IO), (b)(6) and (b)(6)

1. Requested the status of corrective actions of 3 deficiencies identified in the Workplace Exposure Assessment Review conducted in Aug 2006 by the Industrial Hygiene Service. (Exhibit)

a. The WWTP has 23 confined spaces. Several were unmarked. Status: (b)(6) will determine if the unmarked spaces have been corrected. (Update, 28 Jun 07, (b)(6) verified that they had not been corrected and he will take action to appropriately mark them NLT 1 Sept 07).

b. The WWTP did not have air monitoring equipment to support its in-house confined space entry permit system. Status: Currently there are two monitoring devices on hand at the wastewater treatment plant. Two people (b)(6) and (b)(6) are qualified to use the devices. Training is scheduled on 3 July 2006 to train all WWTP operators in operating the air monitoring devices and conducting confined space entry operations. (b)(6) indicated that currently the operators do not do any in-house confined space entries themselves. When necessary, other shops, with trained employees, are called to carry out the tasks in the confined space.

c. The confined space SOP was not on the premise. Status: The SOP will be placed on the premise concurrent with the July 07 training.

2. Requested clarification and status of apparent safety related concerns identified in the USACHPPM report

a. Cracks and evidence of leaking gas was observed on the cover/roof of digester #2: Status: Industrial Hygiene tested the cracks for gas leaks on 26 Jun 2007. None was detected. The cracks are minor and appear cosmetic. There is evidence that repairs were made previously by the COE contractor. The programmed 2008 project to clean and repair digester #2 will address the cracks in the project scope.

b. A safety stairway, platform and safety railing is needed on the grease vault. Status: Work Order DEU344, dated 3 May 2004 was revised on 24 April 2007 to address this issue. The Life Safety Engineer will make the determination based upon risk of what corrections, if any are required.

c. A catwalk is needed at the drying beds for sludge sampling. Status: No action is planned. The catwalk would be for operator convenience in collecting the samples.

3. Requested status of permanent repair to the gas piping on digester #3. Status: Currently not scheduled for permanent repair.

Exhibit 14

4. Does (b)(6) have any knowledge of a disease risk associated with working at the WWTP that requires inoculations? No knowledge.

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Exhibit 15

EXHIBIT

DEPARTMENT OF THE ARMY
MADIGAN ARMY MEDICAL CENTER
TACOMA, WASHINGTON 98431-1100

REPLY TO
ATTENTION OF:

MCHJ-PV-IH

27 June 2007

MEMORANDUM FOR Chief, Public Works, Utilities Division, Wastewater Treatment Plant, AFZH-PWU, ATTN: (b)(6), Fort Lewis, WA 98433.

SUBJECT: Results of the Industrial Hygiene Survey conducted at the Wastewater Treatment Plant, Building 7500.

1. Purpose. This memorandum provides results and recommendations based on the Industrial Hygiene Survey, conducted by Greg Porter, Industrial Hygiene Section, at the Wastewater Treatment Plant on 26 Jun 07.

2. References.

a. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), 2007.

b. Title 29, Code of Federal Regulations (CFR), 1999 rev, Section 1910.134, Respiratory Protection.

c. Title 29, Code of Federal Regulations (CFR), 1999 rev, Section 1910.1000, Air Contaminants.

3. Findings.

a. (b)(6) and (b)(6) Public Works, contacted the MAMC Industrial Hygiene Section to assist with the assessment of three potential health hazards that were identified at the Wastewater Treatment Plant (WWTP). This survey was conducted on 26 Jun 07 by (b)(6) (b)(6), (b)(6) and (b)(6)

b. Digester 2 has an oil/water separator compressor that must be drained multiple times a day. This process is located on the top of the digester in a small mechanical room. The compressor filter unit must be drained to remove the waste oil. This is performed manually by plant personnel. A valve is turned to drain waste oil into a bucket. Initially, the waste oil is forced out under pressure, and then it begins to spit out the oil with natural gas until ultimately the oil is completely removed and only gas is released. An Industrial Scientific TMX412 Multi-gas Meter (SN:9505055-015) was used to measure the percent methane, hydrogen sulfide concentration, and percent oxygen in the room during this operation. After most of the oil was removed, it took approximately 2-3 seconds from the time the oil began spitting out until it was cleared of oil and

Exhibit 15

was releasing only gas. Within this 2-3 seconds, the methane was 2.5% (25,000 ppm) or 50% of the lower explosive limit (LEL) in the worker's breathing zone, and had displaced the oxygen content from 20.8% to 20.2%. The hydrogen sulfide concentration was 6 ppm. Because it is somewhat subjective on when the oil is completely drained (i.e. one person may drain it until it is spitting oil out, whereas another may drain it until it has stopped spitting any drops at all and then a bit longer to ensure it is empty), further monitoring was conducted. Within 5-6 seconds after the valve was opened allowing gas to escape, methane was 3.8 percent (38,000 ppm or 76% of the LEL), the oxygen had been displaced in the room to 19.6%, and the hydrogen sulfide concentration was 26 ppm. This short duration almost reached the LEL in a room where an electric motor was operating. All monitoring was performed with the door open. This is a RAC 1 eminent hazard due to the great potential for an explosion from the methane gas being ignited by sparks from the electric motor.

b. OSHA does not regulate methane as an air contaminant, however, ACGIH's TLV (Reference 2.a.) recommends an 8-hr time weighted average (TWA) concentration of 1000 ppm for methane as it is an aliphatic hydrocarbon gas. Due to the short durations of the exposures, it is unlikely that personnel would exceed the time weighted average for the day. The greater hazard from the methane is the potential for an explosion or the displacement of oxygen. OSHA considers an environment with an oxygen content below 19.5% as oxygen deficient, and requires a full-face pressure demand SCBA or supplied air respirator for the operation (Reference 2.b.). While the oxygen content was not quite below the 19.5% level, it is likely that it could be if the valve was open any longer than 5-6 seconds with gas entering the room. This would also be approximately the same time the LEL would likely be reached for the methane. OSHA has set a ceiling concentration of 20 ppm for hydrogen sulfide, with a one time 10 minute per work-shift peak of up to 50 ppm if no other exposures occur. ACGIH recommends an 8-hr TWA TLV of 10 ppm with a 15-minute Short Term Exposure Limit (STEL) of 15 ppm. The concentration in the room exceeded these limits.

c. Digester 2 had minor cracks and fissures in the concrete top, and there were some concerns expressed about the potential for methane and hydrogen sulfide gases escaping through these cracks into the atmosphere. While it is likely that a miniscule amount of gas does escape through these cracks, and also through the concrete itself because it is porous, it is not likely to be high enough concentrations to be of concern. There were no identified odors or other localized evidence on the top of the digester that would indicate a problem. There was some evidence that some areas of the top had been resurfaced, and the areas with visible cracks could be resurfaced as well if there is further concern.

d. A pair of gloves were ordered several years ago for removing crucibles and Petri dishes from the laboratory ovens. These gloves were listed by the supplier as non-asbestos containing, however, a sample of the glove material reportedly revealed that it was 30% chyrsotile. These gloves were recently turned in for disposal prior to this survey when they discovered they contained asbestos, however, pictures and accounts from personnel indicated that they were seldom used and were in excellent condition. The employee in the laboratory that purchased the gloves stated that she was the only one who had ever used them, and she seldom did because, like the other laboratory personnel, she preferred to use the tongs to remove the samples from the ovens. Based on the information available, it appears that little exposure from these gloves had occurred, if any. The employee was counseled that she could go to the Occupational Health Clinic to document her current condition and that these gloves had been in the laboratory if desired. She declined this as she stated that she was not concerned based on the good condition of the gloves and very infrequent use. She has been informed that she maintains the right to visit the clinic if she changes her mind.

4. Recommendations.

a. Ensure all personnel that perform the duty of draining the waste oil from the oil/water separator filter unit are trained to shut the valve immediately when it starts to spit the oil out instead of flowing; i.e. gas starts to escape from the filter unit. This requires that the unit will not be fully drained. A half face respirator with acid gas cartridges should be worn where there are intermittent or short duration exposures to hydrogen sulfide. This recommendation is a temporary measure until corrective actions are taken to remove this function from being performed manually in this room.

b. Take immediate corrective actions to remove the requirement for personnel exposures to the hazards from methane, hydrogen sulfide and oxygen deficient conditions during the draining of the filter unit. Options discussed with (b)(6) included plumbing the filter drain outside the room so it can vent into the atmosphere, or preferably into a tank so that there would be no exposure to the personnel. If it is plumbed out to the atmosphere, it may have environmental implications that require regulatory actions, and the procedure of not fully draining the unit, but draining it until gas starts to be released and oil spits out will still be required to reduce the potential for hydrogen sulfide exposures. A half face respirator with acid gas cartridges would still be worn due to intermittent or short duration exposures to hydrogen sulfide. It was also discussed that ultimately it would be best from a safety and environmental aspect if this process could be replaced with an oil-free system as is on the other digester.

MCHJ-PV-IH
SUBJECT: Results of the Industrial Hygiene Survey conducted at the Wastewater Treatment Plant, Building 7500.

5. For further inquiries please contact (b)(6) at 968-4337.

(b)(6)

Chief, Industrial Hygiene Service
Department of Preventive Medicine

CF:
Ft. Lewis Safety Office, ATTN: (b)(6)

EXHIBIT 16

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Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

VALIDATION CARD FOR CERTIFICATE OF COMPETENCY

WATER WORKS OPERATOR CERTIFICATION

Certificate No.	Valid for Year:
004400	2007

Name (b)(6)

Classification(s) CCS, WDM 3, WTPO 3

DEPARTMENT OF ECOLOGY

WASTEWATER OPERATOR CERTIFICATION PROGRAM

Validation Card

(b)(6)

CERTIFICATE NO.	EXPIRES	GROUP
6898	12/31/2007	II

Your current progessional growth end date is: 12/31/2006

Exhibit 11a

EXHIBIT 17

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Exhibit 17

DEPARTMENT OF THE ARMY
Vacancy Announcement Number: WTEU05004308

Opening Date: December 23, 2005 **Closing Date:** December 27, 2005

Position: UTILITY SYSTEMS REPAIRER-OPERATOR SUPERVISOR, WS-4742-10
Salary: $29.31 - $34.20 Hourly
Place of Work: Public Works, Fort Lewis, WA
Position Status: Temporary Position Not to Exceed: 1 year -- Full Time
Number of Vacancy: 1

Duties: Supervises employees in accomplishing the work of an organizational. Plans use of subordinate workers, equipment, facilities and materials. Establishes deadlines, priorities and work sequences. Investigates work related problems such as excessive costs or low productivity. Supports and explains management programs to subordinates. Recommends disciplinary actions, promotions, reassignments, awards and other personnel actions. Works with the Quality Control Manager to establish and implement the shop Quality Control Plan. Has a working knowledge of the work performed by subordinates, to include Utility Systems Repairers and Plumbers. Operates and maintains all units of a sewage disposal plant and other wastewater and stormwater facilities. Sewage plant provides for pretreatment, primary and secondary treatment and separate sludge digestion. Performs installation, maintenance and repair of sanitary sewer collection systems, storm drain systems and water distribution sytems.

About the Position: Fort Lewis is the US Army¿s Power Projection Platform for the west coast. The units it supports are directly engaged on the Global War on Terror. The selecting official is the Chief of the Maintenance and Repair Division, Public Works, Fort Lewis, WA

Who May Apply: (Click on Who May Apply)
- Army employees serving on career or career conditional appointments.

Qualifications: Click on link below to view qualification standard.
Trades and Labor
- Qualifying experience is experience in a sanitary sewer collection plant, storm drain and water distribution systems, which provided the knowledge of how the various systems and equipment work. NOTE: Must possess a valid Washington State drivers license. Must possess and maintain a Group III waste water certification issued by the State of Washington. SPECIAL REQUIREMENTS: Must be able to obtain within 2-years and maintain a current State of Washington Water Distribution Manager III certification. Must be able to obtain within 2-years and maintain a current State of Washington Water Treatment Plant Operator II certification.

- Experience and training that furnish the knowledges, skills, and abilities needed to perform the duties of this position consistent with accepted practices of the trade. Ability to use and maintain

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appropriate tools and equipment. Ability to read, understand, and apply instruction and other materials related to the job.

- Ability to do the work of the position under normal supervision.
- Ability to lead or supervise employees engaged in technical work related to this position.
- The experience described in your resume will be evaluated and screened for the Office of Personnel Management's basic qualifications requirements, and the skills needed to perform the duties of this position as described in this vacancy announcement.

Other Information:(Click on Other Information)

- Selection is subject to restrictions resulting from Department of Defense referral system for displaced employees.
- Position may be filled by temporary promotion not to exceed. 1 year
- Temporary promotion may be made or extended up to a maximum of five years.
- Competitive temporary promotion may be made permanent without further competition.
- Permanent Change of Station (PCS) expenses are not authorized.

Other Advantages: Fort Lewis is located in the southern Puget Sound Region of Western Washington State. While the installation is less than an hour from Seattle and Seatac International Airport, the alpine playgrounds of Mt. Rainier and the Cascade Mountains are within an easy drive as are Pacific Ocean beaches. Local housing in close proximity to the base is readily available. Nearby Tacoma, a city of over 200,000, includes a four year branch of the Univ of Washington, plus other education opportunities.

Other Requirements:(Click on Other Requirements)

- A medical examination is required.
- License/Certification: WA drivers license and other licesnes listed in Qualifications section
- One-year supervisory probationary period required.

How to Apply: (Click on How to Apply)

- Resumes must be received by the closing date of this announcement.
- Self-nomination must be submitted by the closing date.
- Resume must be on file in our centralized database.
- Announcements close at 12:00am (midnight) Eastern Time.

If your resume is currently in our central database, you may click here to Self Nominate

Click here to use the Army Resume Builder to create your resume. Follow the instructions in this vacancy announcement to apply for the job.

Point of Contact: Central Resume Processing Center, 410-306-0137,
(b)(6)

EXHIBIT 18

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THE DEPARTMENT OF DEFENSE IS AN EQUAL OPPORTUNITY EMPLOYER

Position Description

PD#: EU200383 **Replaces PD#:** EU185551
Sequence#: 971285

UTILITY SYSTEMS REPAIRER-OPERATOR SUPERVISOR

WS-4742-10

Servicing CPAC: FORT LEWIS, WA
Installation: EUBAW12KAAAQCC
US ARMY GARRISON FORT LEWIS
PUBLIC WORKS
OPERATIONS & MAINTENANCE DIVISION
WWTP & WATER TREATMENT PLANT BRANCH

FORT LEWIS, WA AQCC

Agency: ARMY
MACOM: BA
Command Code: BA
US ARMY INSTALLATION MANAGEMENT AGENCY

Region: WEST

Citation 1: OPM JGS UTILITY SYS REPAIRER-OPER, 4742, JUL 93
Citation 2: OPM JGS PLUMBER, 4206, MAR 69
Citation 3: OPM JGS WATER TREATMENT PLNT OPER, 5409, MAY 92
Citation 4: OPM JGS WASTEWATER TREATMENT PLNT, 5408, MAY 92
Citation 5: OPM JGS WATER TREATMENT PLNT OPER, 5409, MAY 92
Citation 6: OPM JGS / SUPERVISORS, TS-66, DEC 92
PD Library PD: NO
COREDOC PD: NO

Classified By: (b)(6)
Classified Date: 04/04/2005

FLSA: E
Career Program: 00
Functional Code: 00
Competitive Area: FL
Competitive Level: 0005
Bus Code: 8888
PD Status: VERIFIED

Drug Test Required: NO
Financial Disclosure Required: NO
Requires Access to Firearms:
Position Sensitivity: 1
Emergency Essential: N

DCIPS PD: NO
Acquisition Position: NO
Interdisciplinary: NO
Target Grade/FPL: 10
Career Ladder PD: NO

Duties:

SUPERVISORY CONTROLS
Supervisor provides broad instructions, priorities, policies and time limits. Work is reviewed to assure an adequate quantity and quality of work as well as efficient accomplishment of work within established priorities and controls.

MAJOR DUTIES
Supervises employees directly or through subordinate lead positions in accomplishing the work of an organizational segment or group. The incumbent supervises employees in several stationary locations on the installation and also supervises a mobile team as well. The occupations and nonsupervisory grade levels that best reflect the nature of the overall work operations supervised are WG-4742-09, GS-0404-09, WG-4206-07, and WG-4749-09.

1. Planning. Plans use of subordinate workers, equipment, facilities and materials on a weekly or month-to-month basis. Establishes deadlines, priorities and work sequences. Plans assignments based on general schedules, methods and policies set by supervisor. Coordinates work with supporting or related work functions controlled by other supervisors. Determines the number and types of workers needed to accomplish projects. Redirects individual workers and resources to accomplish unanticipated work (e.g., work resulting from 'open and inspect' types of work orders). Informs higher level supervisors of the need to revise work schedules and re-estimate labor and other resources. Participates in initial planning of work schedules, budget requests, staffing needs, and other similar estimates. (35%)

2. Work Direction. Investigates work related problems such as excessive costs or low productivity and determines causes. Implements corrective actions to resolve work problems. Recommends solutions to staffing problems, engineering requirements, and work operations directed by other supervisors. Assigns work to subordinates and provides any necessary technical guidance. (20%)

3. Administration. Supports and explains management programs to subordinates. Recommends disciplinary actions, promotions, reassignments, awards and other personnel actions. Prepares performance standards and formal appraisals for subordinates. Selects or participates in the selection for vacancies. Advises and counsels workers on how to improve their performance and explains new work techniques. Investigates grievances and complaints, resolves them informally, and notifies supervisors of important/serious ones. As required, participates in union negotiations. Assures safety and housekeeping practices are observed. Maintains work reports and records. Approves sick and annual leave and prepares leave schedules. Determines training needs and arranges for accomplishment of such training. (20%)

4. Quality Control. Works with the Quality Control Manager to establish and implement the shop Quality Control Plan. Performs scheduled and unscheduled inspections of work in progress. Maintains a record of each inspection showing the results, any deficiencies noted and their probable cause (poor workmanship, lack of training, insufficient staff, insufficient skill levels, etc.). Initiates action to correct deficiencies and to correct their underlying cause (initiates or increases training, increases supervisory control, etc.). Maintains a record of the foregoing actions taken to alleviate quality problems. Develops a training plan for each critical skill level required to generate quality products and services. Performs a trend analysis of shop quality and provides data to supervisor and other engineering and quality control personnel for further analysis and evaluation. Meets with selected customers upon completion of shop work for the purpose of receiving performance feedback. Passes customer comments on to shop employees. (25%)

Performs other duties as assigned.

Must possess a valid Washington State driver's license.

NOTE: The employee must possess and maintain a Group III waste water certification issued by the State of Washington. Special Requirements. Must be able to obtain within 2-years and

maintain a current State of Washington Water Distribution Manager III certification. Must be able to obtain within 2-years and maintain a current State of Washington Water Treatment Plant Operator II certification.

Evaluation:

1. REFERENCES: a. OPM JGS/Supervisors, TS-66, Dec 92
b. OPM JGS Utility Systems Repairer-Operator, 4742, Jul 93
c. OPM JGS Plumber, 4206, Mar 69

2. DETERMINATION OF TITLE AND CODE: This job involves the supervision of employees engaged in trades and labor work. The occupation that best reflects the overall nature of work operations supervised is Utility Systems Repairer-Operator. Thus, the appropriate title and code is Utility Systems Repairer-Operator Supervisor, WS-4742.

3. DETERMINATION OF GRADE:

Factor I, Nature of Supervisory Responsibility. This position carries out supervisory responsibilities that match those described for Situation #2.

Factor II, Level of Work Supervised. WG-09 is selected. Work at this level is performed by Utility Systems Repairer-Operator, WG-4742-09 positions, which carry out the primary mission of the work operations.

Factor III, Scope of Work Operations Supervised. Level C is assigned, as discussed below.

Subfactor A, Scope of Assigned Work Function and Organizational Authority. The position meets the criteria for Level A-2 (45 points).

Subfactor B, Variety of Functions. Level B-4 (60 points) is assigned. The position supervises work in occupations in the WG-4742 and 4749 codes, at grade WG-09. In addition, this position supervises work in occupations in the GS-0404-09 and 1105-05 positions.

Subfactor C, Workforce Dispersion. Level C-2 (15 points) is assigned. The position supervises work at two different plant locations and at various other outlying locations throughout a large military base.

A total of 120 points converts to Level C, for Factor III.

Initial Grade Determination: Situation #2 combined with WG-09 as the Level of Work Supervised and Level C as the Scope of Work Operations Supervised equates to WS-10, according to the Grading Table on page 23 of Reference a.

4. FINAL GRADE DETERMINATION: WS-10.

5. CLASSIFICATION: Utility Systems Repairer-Operator Supervisor, WS-4742-10.

6. FLSA DETERMINATION: Exempt. The position meets all criteria for the Executive category.

EXHIBIT 19

VOL I

Exhibit 19

Chapter 173-230 WAC
CERTIFICATION OF OPERATORS OF WASTEWATER TREATMENT PLANTS

WAC

DISPOSITION OF SECTIONS FORMERLY CODIFIED IN THIS CHAPTER

173-230-030 Duties of the board. [Statutory Authority: RCW 70.95B.040. 87-22-006 (Order 87-36), § 173-230-030, filed 10/23/87; 78-11-016 (Order DE 78-16), § 173-230-030, filed 10/11/78; Order 73-30, § 173-230-030, filed 11/9/73.] Repealed by 99-24-117 (Order 98-18), filed 12/1/99, effective 1/1/00. Statutory Authority: Chapter 70.95B RCW.

173-230-050 Certification prerequisites. [Statutory Authority: RCW 70.95B.040. 87-22-006 (Order 87-36), § 173-230-050, filed 10/23/87. Statutory Authority: Chapter 70.95B RCW. 82-09-056 (Order DE 82-07), § 173-230-050, filed 4/16/82. Statutory Authority: RCW 70.95B.040. 78-11-016 (Order DE 78-16), § 173-230-050, filed 10/11/78; Order 73-30, § 173-230-050, filed 11/9/73.] Repealed by 99-24-117 (Order 98-18), filed 12/1/99, effective 1/1/00. Statutory Authority: Chapter 70.95B RCW.

173-230-060 Applications. [Order 73-30, § 173-230-060, filed 11/9/73.] Repealed by 82-09-056 (Order DE 82-07), filed 4/16/82. Statutory Authority: Chapter 70.95B RCW.

WAC 173-230-010 What is the purpose of this regulation? When wastewater treatment plants are properly operated, public health and the state's waters are protected. Operators must meet minimum standards to assure they are competent to operate and maintain wastewater treatment plants. This rule establishes the requirements for obtaining a wastewater certificate and for the level of certificate required for an operator in responsible charge of a treatment plant. An operator in responsible charge of a wastewater treatment plant must be certified at a level that is equal to or greater than the classification of the wastewater treatment plant.

[Statutory Authority: Chapter 70.95B RCW. 99-24-117 (Order 98-18), § 173-230-010, filed 12/1/99, effective 1/1/00. Statutory Authority: RCW 70.95B.040. 87-22-006 (Order 87-36), § 173-230-010, filed 10/23/87. Statutory Authority: Chapter 70.95B RCW. 82-09-056 (Order DE 82-07), § 173-230-010, filed 4/16/82. Statutory Authority: RCW 70.95B.040. 78-11-016 (Order DE 78-16), § 173-230-010, filed 10/11/78; Order 73-30, § 173-230-010, filed 11/9/73.]

WAC 173-230-020 Definitions. (1) "Activated sludge process" means a biological wastewater treatment process in which a mixture of wastewater and activated sludge is agitated and aerated. The activated sludge is subsequently separated from the treated wastewater by sedimentation and wasted or returned to the process as needed.

(2) "Biofiltration" means the process of passing a liquid through a biological filter that contains fixed media on surfaces which develop zoogleal films that absorb and adsorb fine suspended, colloidal, and dissolved solids and release end products of biochemical action.

(3) "Certificate" means the certificate of competency issued by the director stating that an individual has met the requirements for a specific classification in the wastewater treatment plant operator's certification program.

(4) "Certificate holder" means the individual to whom a certificate is issued.

(5) "CEU" means continuing education unit that is a nationally recognized unit of measurement similar to college credit. One CEU is awarded for every ten contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction, and qualified instruction.

(6) "College credits" means credits earned toward a college degree or in course work that is relevant to the operation of a wastewater treatment plant. College credit also means CEUs. Forty-five CEUs equals forty-five quarter credits equals thirty semester credits.

(7) "Department" means the Washington state department of ecology.

(8) "Director" means the director of the department of ecology or the director's designee.

(9) "Extended aeration" means a modification of the activated sludge process that uses long aeration periods and long mean cell residence times for aerobic digestion of the biological mass by endogenous respiration and promotes the growth of nitrifying organisms.

(10) "GED" means a General Education Development certificate issued by a recognized education institution. A GED is equivalent to a high school diploma.

(11) "Group" and "class" for the purpose of operator certification and wastewater treatment plant classification are the same.

(12) "Lagoon" means any large holding or detention pond, usually with earthen dikes that is used to contain wastewater while sedimentation and biological stabilization occurs.

(13) "OIT" means operator-in-training. This is the entry level certification classification offered by the department.

(14) "Operating experience" means the routine performance of duties, on-site in a wastewater treatment plant, that affect plant performance or effluent quality.

(15) "Operator" means an individual who performs routine duties, on-site at a wastewater treatment plant, that affect plant performance or effluent quality.

(16) "Operator in charge of each shift" means the individual on-site at a wastewater treatment plant whose primary responsibility is to operate the wastewater treatment plant on a regularly run shift. The operator in charge of each shift is subordinate to the operator in responsible charge.

(17) "Operator in responsible charge" means the individual who is routinely on-site and in direct charge of the overall operation of a wastewater treatment plant.

(18) "Owner" means in the case of:

- A town or city, the city or town acting through its chief executive officer or the lessee if operated under a lease or contract;
- A county, the chairman of the county legislative authority or the chairman's designee;
- A sewer district, board of public utilities, association, municipality or other public body, the president or chairman of the body or the president's or chairman's designee;
- A privately owned wastewater treatment plant, the legal owner.

(19) "Primary wastewater treatment" means unit processes consisting of one or more of the following: Screening, comminution and grinding, flotation, precipitation, sludge pumping, and disinfection. Treatment consists of clarification followed by removal, treatment, and disposal of sludge.

(20) "Reciprocity" means the exchange of a valid out-of-state wastewater treatment plant operator's certificate achieved by passing a written examination for an equivalent level of certification without further examination.

(21) "Tertiary" means advanced physical/chemical or biological treatment of wastewater significantly beyond the conventional secondary stage to remove additional suspended and dissolved substances. These substances may include phosphorus and nitrogen, a high percentage of suspended solids, dissolved inorganic solids, toxic compounds, microorganisms, and complex organic compounds.

(22) "Wastewater certification program coordinator" means an employee of the department who is appointed by the director and who administers the wastewater treatment plant operator certification program.

(23) "Wastewater collection system" means any system of lines, pipes, manholes, pumps, liftstations, or other facilities used to collect and transport wastewater.

(24) "Wastewater treatment plant" means a facility used to treat any liquid or waterborne waste of domestic origin or a combination of domestic, commercial or industrial origin, and that, by its design, requires the presence of an operator for its operation. It does not include any facility used exclusively by a single family residence, septic tanks with subsoil absorption, industrial wastewater treatment plants, or wastewater collection systems.

(25) "Wetlands treatment" means those wetlands intentionally constructed and managed for the primary purpose of wastewater treatment.

[Statutory Authority: Chapter 70.95B RCW. 99-24-117 (Order 98-18), § 173-230-020, filed 12/1/99, effective 1/1/00. Statutory Authority: RCW 70.95B.040. 87-22-006 (Order 87-36), § 173-230-020, filed 10/23/87. Statutory Authority: Chapter 70.95B RCW. 82-09-056 (Order DE 82-07), § 173-230-020, filed 4/16/82. Statutory Authority: RCW 70.95B.040. 78-11-016 (Order DE 78-16), § 173-230-020, filed 10/11/78; Order 73-30, § 173-230-020, filed 11/9/73.]

WAC 173-230-040 To whom does this rule apply? This rule applies to anyone who owns or operates a wastewater treatment plant.

The operator in charge of the wastewater treatment plant must be certified at least at a level equal to or higher than the classification of the plant. When the plant is operated on more than one daily shift, the operator in charge of each shift must be certified at a level not lower than one level below the classification of the plant.

All individuals operating wastewater treatment plants who are not required to be certified are encouraged to seek certification.

[Statutory Authority: Chapter 70.95B RCW. 99-24-117 (Order 98-18), § 173-230-040, filed 12/1/99, effective 1/1/00. Statutory Authority: RCW 70.95B.040. 87-22-006 (Order 87-36), § 173-230-040, filed 10/23/87. Statutory Authority: Chapter 70.95B RCW. 82-09-056 (Order DE 82-07), § 173-230-040, filed 4/16/82. Statutory Authority: RCW 70.95B.040. 78-11-016 (Order DE 78-16), § 173-230-040, filed 10/11/78; Order 73-30, § 173-230-040, filed 11/9/73.]

WAC 173-230-061 Levels of certificates and qualifications. (1) There are five levels of certification offered by the department to individuals who meet minimum qualifications. Those minimum qualifications include required levels of education and experience.

(2)

Qualification Requirements for Operator Certification				
Certification level	**Education required**	**Experience required**	**Substitutions allowed for education**	**Substitutions allowed for experience**
Operator-in-Training	High school diploma or GED	3 months	One year of excess operating experience may be used for one year of high school or two years of grade school.	May use 3 college credits or CEUs in course work related to wastewater treatment plant operation for experience.
Group I	High school diploma or GED	1 year	One year of excess operating experience may be used for one year of high school or two years of grade school.	None.
Group II	High school diploma or GED	3 years	One year of excess operating experience may be used for one year of high school or two years of grade school.	May use relevant work experience or credits or CEUs for one year and six months of the operating experience.
Group III	High school diploma or GED and 2 years of college (90 credits or CEUs)	4 years with at least 2 years operating experience at a Class II plant	May use excess operating experience for college at a rate of one year of excess operating experience for half of the college (one year). Three years of excess operating experience may be used for the second year of college.	May use relevant work experience and/or excess credits for 2 years of the operating experience.

Qualification Requirements for Operator Certification				
Certification level	Education required	Experience required	Substitutions allowed for education	Substitutions allowed for experience
Group IV	High school diploma or GED and 4 years of college (180 credits or CEUs)	4 years with at least 2 years at a Class III plant	May use excess operating experience for college at a rate of one year of excess operating experience for one year of college for up to half of the college (two years). Three years of excess operating experience may be substituted for one year of college. This rate may be used for the remaining two years of college.	May use excess operating experience for credits. May use related work experience and/or excess credits for 2 years of the operating experience.

(3) Relevant work experience may be substituted for up to one-half of the operating experience required to qualify for the Group II, III and IV levels. This includes:

(a) Environmental or operations consultant;

(b) Environmental or an engineering branch of federal, state, county, or local government;

(c) Wastewater collection system operator;

(d) Water distribution system operator and/or manager;

(e) Wastewater pump station operator; or

(f) Water treatment plant operator.

Other related work experience may include building and equipment maintenance, boiler operation, machinist, laboratory technician, engineering, welding, or other related fields on a case-by-case basis with a written description of the duties performed on the job by the applicant.

(4) College credits substituted for an operating experience requirement cannot also be applied to the education requirement.

[Statutory Authority: Chapter 70.95B RCW. 99-24-117 (Order 98-18), § 173-230-061, filed 12/1/99, effective 1/1/00. Statutory Authority: RCW 70.95B.040. 87-22-006 (Order 87-36), § 173-230-061, filed 10/23/87. Statutory Authority: Chapter 70.95B RCW. 82-09-056 (Order DE 82-07), § 173-230-061, filed 4/16/82.]

WAC 173-230-065 How do I apply? Any person seeking certification must submit a completed application and fees to the department. Application forms are available from the wastewater certification program coordinator.

Applicants must meet minimum education and experience requirements to be eligible for examination or reciprocity. Applicants accepted for examination will be scheduled and notified of the date, place, time, and cost of the examination.

If the application is denied, the applicant will be notified of the reason for the denial.

[Statutory Authority: Chapter 70.95B RCW. 99-24-117 (Order 98-18), § 173-230-065, filed 12/1/99, effective 1/1/00.]

WAC 173-230-070 Examination. (1) The department will use written examinations to determine the competency of operators. If examinations are prepared by an organization other than the department, the applicant shall pay any costs associated with the use of the exam.

(2) Examinations will be held at least three times annually at places and times set by the department.

(3) The wastewater certification program coordinator or designee will score all exams. The applicant will be notified of the score.Examinations will not be returned to the applicant.

(4) Certificates will be issued to applicants who pass a written examination.

(5) An applicant who fails to pass the examination must reapply for further examination.No individual will be allowed to retake the same examination more than twice consecutively.

[Statutory Authority: Chapter 70.95B RCW. 99-24-117 (Order 98-18), § 173-230-070, filed 12/1/99, effective 1/1/00. Statutory Authority: RCW 70.95B.040. 87-22-006 (Order 87-36), § 173-230-070, filed 10/23/87. Statutory Authority: Chapter 70.95B RCW. 82-09-056 (Order DE 82-07), § 173-230-070, filed 4/16/82; Order 73-30, § 173-230-070, filed 11/9/73.]

WAC 173-230-080 Certificate term and renewal conditions. An owner may request a temporary certificate for an individual when the designated certified operator unexpectedly vacates the position. This request must be made in writing to the wastewater certification coordinator and must include an application

and fee. The department may issue a temporary certificate at its discretion. A temporary certificate may not exceed a one-year period, is nonrenewable, and cannot be transferred to another individual.

(1) Except for a temporary certificate, a certificate is valid from January 1 until December 31 of the same year or the year designated by the department.

(2) Except for a temporary certificate, a certificate is renewable only when the certificate holder demonstrates and provides documentation to the department of continued professional growth in the field. The department will mail renewal notices to all certificate holders eligible to renew before the certificate expires.

(3) Each certificate holder must accomplish one of the following activities during a three-year period ending December 31, 1979, and each three-year period after that date.

(a) Accumulate a minimum of three CEUs or college credits in coursework relevant to the field;

(b) Advance by exam to a higher level of certification in Washington's wastewater treatment plant operator's certification program. Advancement from OIT to Group I certification will not fulfill this requirement;

(c) Achieve certification by examination in the waterworks certification program administered by the Washington department of health in the water treatment plant operator, water distribution manager, or the cross connection control specialist classifications;

(d) Achieve certification by examination or advance by examination to a higher level in Washington's voluntary wastewater collection system operator's certification program administered by the Washington Wastewater Collection System Personnel Association.

(4) It is the responsibility of each certificate holder to meet the professional growth requirement and document that growth to the department before December 31 of the last year of the three-year period described in subsection (3) of this section. The department will mail a written notice to each certificate holder who has not fulfilled the continued professional growth requirement. If this requirement is not satisfied, the certificate is not renewable. Failure to renew a certificate for any reason will be handled as described in WAC 173-230-100.

(5) The department may collect renewal fees for a period not to exceed three calendar years. The department will notify certificate holders who are eligible for renewal as described in subsection (2) of this section the amount of fees owed and the date the fees must be paid.

[Statutory Authority: Chapter 70.95B RCW. 99-24-117 (Order 98-18), § 173-230-080, filed 12/1/99, effective 1/1/00. Statutory Authority: RCW 70.95B.040. 87-22-006 (Order 87-36), § 173-230-080, filed 10/23/87. Statutory Authority: Chapter 70.95B RCW. 82-09-056 (Order DE 82-07), § 173-230-080, filed 4/16/82; Order 73-30, § 173-230-080, filed 11/9/73.]

WAC 173-230-090 Fees. (1) Applications for certification by examination or reciprocity or a temporary certificate will be accepted for processing only when accompanied by a fee of fifty dollars.

(2) Applications for reexamination will be accepted for processing only when accompanied by an application fee. The department may waive a portion of the application fee for reexamination.

(3) Application fees are nonrefundable.

(4) Applications for certificate renewals will be accepted for processing only when accompanied by a renewal fee of thirty dollars for each year of renewal.

(5) All receipts will be paid into the state general fund.

[Statutory Authority: Chapter 70.95B RCW. 99-24-117 (Order 98-18), § 173-230-090, filed 12/1/99, effective 1/1/00. Statutory Authority: RCW 70.95B.090 (1) and (2) and chapter 70.95B RCW. 91-13-058 (Order 90-61), § 173-230-090, filed 6/17/91, effective 7/18/91. Statutory Authority: RCW 70.95B.040. 87-22-006 (Order 87-36), § 173-230-090, filed 10/23/87; 78-11-016 (Order DE 78-16), § 173-230-090, filed 10/11/78; Order 73-30, § 173-230-090, filed 11/9/73.]

WAC 173-230-100 Suspension and revocation of a certificate. (1) When a certificate is not renewed, the director will notify the certificate holder that the certificate is suspended for sixty days. If the certificate is not renewed during the suspension period, the director will mail a written notice of revocation to the owner of the wastewater treatment plant employing the individual as last known by the department and to the certificate holder at the address last known by the department. The notice of revocation mailed to the certificate holder will be sent by certified mail. If, during the revocation notice period, the certificate is not renewed, the certificate will be revoked ten days after the notice is mailed.

(2) Certificates may also be revoked when the director finds:

(a) Fraud or deceit in obtaining the certificate.

(b) Gross negligence in the operation of a wastewater treatment plant.

(c) Violation of the requirements of this chapter or the statute it implements or of any lawful rule, regulation or order of the department.

(3) No revocation will be made under subsection (2) of this section unless the operator has been notified that revocation is proposed, been advised of the reason and been given an opportunity to appear before the director and be heard on the matter.

(4) A certificate will be suspended immediately when the director is notified by the department of social and health services that a person is not in compliance with a support order or a residential or visitation order. If the person has continued to meet all other requirements for reinstatement during the suspension, the certificate will be reissued when the director is notified by the department of social and health services that the person is in compliance with the order.

If a certificate is revoked, the individual must meet all conditions of certification including application, fees, and passing a written examination to become certified.

(5) If revocation was made due to subsection (2) of this section, the operator will not be eligible to reapply for a certificate for one year from the date the revocation became final.

[Statutory Authority: Chapter 70.95B RCW. 99-24-117 (Order 98-18), § 173-230-100, filed 12/1/99, effective 1/1/00. Statutory Authority: RCW 70.95B.040. 87-22-006 (Order 87-36), § 173-230-100, filed 10/23/87. Statutory Authority: Chapter 70.95B RCW. 82-09-056 (Order DE 82-07), § 173-230-100, filed 4/16/82. Statutory Authority: RCW 70.95B.040. 78-11-016 (Order DE 78-16), § 173-230-100, filed 10/11/78; Order 73-30, § 173-230-100, filed 11/9/73.]

WAC 173-230-110 Reciprocity. The director may waive examinations for applicants holding valid wastewater treatment plant operators certificates or licenses issued by other states that have equivalent standards as determined by the department or its designee.

(1) Applications for reciprocity will be considered for approval only when the department receives confirmation from the certifying authority of the state or province in which the applicant is certified that the certificate is currently valid and was earned by passing a written examination. A copy of the exam passed by the applicant must also be released for review by the department or its designee.

(2) Certificates will be issued to each reciprocity applicant who meets the minimum education and experience requirements for the certification level requested and who passes a written examination comparable to Washington's exam as determined and approved by the director.

[Statutory Authority: Chapter 70.95B RCW. 99-24-117 (Order 98-18), § 173-230-110, filed 12/1/99, effective 1/1/00. Statutory Authority: RCW 70.95B.040. 87-22-006 (Order 87-36), § 173-230-110, filed 10/23/87. Statutory Authority: Chapter 70.95B RCW. 82-09-056 (Order DE 82-07), § 173-230-110, filed 4/16/82; Order 73-30, § 173-230-110, filed 11/9/73.]

WAC 173-230-120 Appeals. Decisions of the director under this chapter may be appealed within thirty days from the date of notice to the pollution control hearings board as required by chapter 43.21B RCW and chapter 371-08 WAC.

[Statutory Authority: Chapter 70.95B RCW. 99-24-117 (Order 98-18), § 173-230-120, filed 12/1/99, effective 1/1/00; Order 73-30, § 173-230-120, filed 11/9/73.]

WAC 173-230-130 Violations. Violation of this chapter is a misdemeanor. Each day of operation in violation constitutes a separate offense. Upon conviction, violators are subject to fines not exceeding one hundred dollars for each offense. Injunctions may be obtained for continuing violations.

[Statutory Authority: Chapter 70.95B RCW. 99-24-117 (Order 98-18), § 173-230-130, filed 12/1/99, effective 1/1/00; Order 73-30, § 173-230-130, filed 11/9/73.]

WAC 173-230-140 Classification of wastewater treatment plants. The director shall classify all wastewater treatment plants according to the following criteria.

Treatment Plant Classification Criteria		
Treatment type	**Design flow MGD**	**Classification**
Primary	≤ 1	I
	> 1 ≤ 10	II
	> 10 ≤ 20	III
	> 20	IV

Treatment Plant Classification Criteria		
Treatment type	Design flow MGD	Classification
Lagoon (Nonaerated)	All	I
Lagoon (Aerated)	≤ 1	I
	> 1	II
Biofiltration	≤ 1	II
	> 1 ≤ 10	III
	> 10	IV
Extended aeration	≤ 5	II
	> 5	III
Activated sludge	≤ 1	II
	> 1 ≤ 10	III
	> 10	IV
Wetlands	≤ 1	I
	> 1 ≤ 5	II
	> 5	III
Tertiary	≤ 5	III
	> 5	IV

Plants may be classified in a group different than indicated in this section if:

(1) They have characteristics that make operation less complex or more difficult than other similar plants of the same flow range; or

(2) The conditions of flow or the use of the receiving waters require an unusually high degree of plant operational control; or

(3) They use an approved method of wastewater treatment that is not included in this section.

Beginning January 2000, the department may issue a one-time provisional certificate to the certified operator in responsible charge of a plant or the certified operator in charge of a shift at the plant only if the plant's rating level increased solely due to the adoption of the treatment type and design flow rating system. The provisional certificate will not apply if the rating of a plant increases due to an upgrade, to a change to treatment processes, or to flow. The provisional certificate will be issued only for the operation of a specific plant and may not be transferred if that certified operator leaves employment with that plant.

The holder of a provisional certificate must continue to meet all certificate renewal requirements.

[Statutory Authority: Chapter 70.95B RCW. 99-24-117 (Order 98-18), § 173-230-140, filed 12/1/99, effective 1/1/00. Statutory Authority: RCW 70.95B.040. 87-22-006 (Order 87-36), § 173-230-140, filed 10/23/87; 78-11-016 (Order DE 78-16), § 173-230-140, filed 10/11/78; Order 73-30, § 173-230-140, filed 11/9/73.]

EXHIBIT 20

VOL I

Exhibit 20

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • (b)(6)
TTY 711 or (b)(6) (for the speech or hearing impaired)

January 23, 2006

(b)(6)
Department of the Army
Installations Management Agency
Box 339500, Mail Stop 17
Fort Lewis WA 98433-9500

Dear (b)(6);

I have received your request for a temporary Group III certification for the Fort Lewis Wastewater Treatment Plant. Washington State Department of Ecology (Ecology) does not have authority over the Fort Lewis Wastewater Treatment Plant. Therefore it is unnecessary to issue a temporary certificate to the facility.

If you have any questions, please call me at (b)(6) or toll free in the state at 1-(b)(6) or email (b)(6)

Sincerely,

(b)(6)

(b)(6), Coordinator
Wastewater Operator Certification
Water Quality Program

cc: (b)(6)

EXHIBIT 21

VOL I

Exhibit 21

Army Regulation 420–49

Facilities Engineering

Utility Services

Headquarters
Department of the Army
Washington, DC
28 April 1997

UNCLASSIFIED

Contents (Listed by paragraph and page number)

SUMMARY of CHANGE

AR 420-49
Utility Services

This revision--

- Combines seven existing utility regulations into a single regulation.
- Changes proponent for this regulation to Assistant Chief of Staff for Installation Management (ACSIM).
- Changes the title to "Utility Services."
- Announces the transfer of responsibility for vertical lift devices to AR 420-70 (Buildings and Structures).
- Replaces the term "facilities engineer" with "Director of Public Works" (para 1-4f).
- Allows use of municipal, regional, and private utility service contractors where their use provides environmental, pollution control, and other operational advantages to the Army (para 2-1a).
- Encourages installation to participate in local and regional utilities planning organizations (para 2-1a).
- Requires installations to develop a utilities management plan (para 2-1d).
- Requires installations to develop and maintain utility system maps (para 2-1d).
- Requires installations to develop and implement emergency response plans for each type of utility service (para 2-1f).
- Transfers responsibility for Hazardous, Toxic, and Radiological waste to AR 200-1 (para 2-2c).
- Requires certification of utility plant operators (para 2-4).
- Requires installations to train all personnel involved in the design, construction, or management of gas distribution systems (para 2-4b).
- Requires solid waste disposal to be based on Integrated Solid Waste Management (para 3-2a).
- Requires installations to develop and implement an installation solid waste management plan (para 3-2b).
- Recommends source reduction to reduce volume of solid waste stream (para 3-3b).

- Requires a Qualifying Recycling Program, where LCC effective, to reduce volume of waste stream (para 3-3e).

- Broadens local authority for boiler and heating plant staffing (para 6-3f).

- Requires installations to design, construct, operate and maintain gas distribution systems in accordance with the requirements of title 49 of the Code of Federal Regulations, part 192 (para 6-8a).

- Transfers responsibility for fire alarm systems to AR 420-90 (Fire Protection).

- Revises management control provisions in accordance with AR 11-2. This regulation contains key management controls that must be evaluated (app C).

- Prescribes the following forms: DA Form 3916 (Daily Log of Truck Trips for Refuse Collection and Disposal), DA Form 3917 (Refuse Collection and Disposal), DA Form 4141 (Facilities Engineering Operating Log (Water--General), DA Form 4178 (Facilities Engineering Operating Log (Sewage--Supplementary), DA Form 4247 (Facilities Engineering Operating Log (Sewage--General), and DA Form 4374 (Repairs and Utilities Operating Log (Water--Supplementary).

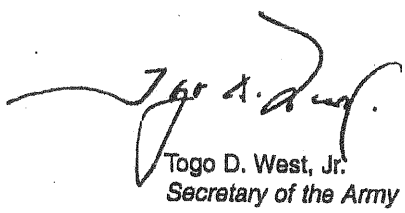
Headquarters
Department of the Army
Washington, DC
28 April 1997

*Army Regulation 420–49

Effective 28 May 1997

Facilities Engineering

Utility Services



Togo D. West, Jr.
Secretary of the Army

History. This publication is a revision and consolidation. Because the structure of the entire revised text of several regulations has been reorganized, no attempt has been made to highlight changes from the earlier regulations.

Summary. This revision combines AR 420–15 (Certification of Utility Plant Operators and Personnel Performing Inspection and Testing of Vertical Lift Devices), AR 420–43 (Electrical Services), AR 420–46 (Water Supply and Wastewater), AR 420–47 (Solid and Hazardous Waste Management), AR 420–49 (Heating, Energy Selection and Fuel Storage, Distribution, and Dispensing Systems), AR 420–54 (Air-Conditioning and Refrigeration), and AR 420–55 (Food Service and Related Equipment) into a single Army regulation. The consolidated regulation establishes policies, criteria, and procedures for facilities engineering responsibilities for utilities management and services. It describes the responsibilities, regulatory requirements, and procedures for providing and managing utility services at Army installations in a safe, efficient, and environmentally sound manner.

Applicability.

a. This regulation applies to all commanders of major Army commands, major subordinate commands, field operating agencies, installations, and activities under the control of the Department of the Army by ownership, lease, or similar instrument, under the following conditions of use:

(1) Active installations and activities used by the Regular Army, those held in an inactive or standby condition for future use by the Regular Army, and those in an excess category (see AR 405–90 for further guidance).

(2) Installations and activities that are Government owned and Government operated.

(3) Installations and activities that are Government owned and contractor operated (see AR 700–90).

(4) Installations and activities that receive Federal support that are in full-time or intermittent use by the Army National Guard (ARNG), U.S. Army Reserve (USAR), or Reserve Officers Training Corps.

(5) In areas outside of the Continental United States (OCONUS), this regulation applies to all Federal departments and agencies that are tenants on an Army installation. This includes foreign official organizations under joint-use agreements and any governmental or private organization licensed to operate within an Army installation.

b. This regulation does not apply to—

(1) Installations and activities, or parts thereof, licensed (that is, not federally operated) to any Commonwealth or State of the United States, to the Commonwealth of Puerto Rico, to the District of Columbia, to the Territory of the Virgin Islands, and the Territory of Guam for use by the Army National Guard.

(2) Civil works functions of the U.S. Army Corps of Engineers.

(3) National cemeteries.

(4) Facilities occupied by Army activities as tenants (not located on Army installations) that are supported by another Government agency. (An example is facilities occupied by an Army activity supported by the General Services Administration.)

Proponent and exception authority. The proponent of this regulation is the Assistant Chief of Staff for Installation Management (ACSIM). The proponent has the authority to approve exceptions to this regulation that are consistent with controlling law and regulation. Proponents may delegate this approval authority, in writing, to a division chief under their supervision within the proponent agency in the grade of colonel or the civilian equivalent.

Army management control process. This regulation contains management control provisions and identifies key management controls that must be evaluated.

Supplementation. Supplementation of this regulation and the establishment of command and local forms are prohibited without prior approval from the Assistant Chief of Staff for Installation Management: ATTN DAIM–FDF–U, ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT, 600 ARMY PENTAGON, WASHINGTON DC 20310–0600.

Suggested improvements. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to ATTN DAIM–FDF–U, ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT, 600 ARMY PENTAGON, WASHINGTON DC 20310–0600.

Distribution. Distribution of this publication is made in accordance with initial distribution number (IDN) 093484, intended for command levels C, D, and E for Active Army, Army National Guard, and U.S. Army Reserve.

*This regulation supersedes AR 420–15, 5 June 1975; AR 420–43, 27 November 1987; AR 420–46, 1 May 1992; AR 420–47, 1 December 1984; AR 420–49, 22 June 1990; AR 420–54, 5 November 1990; and AR 420–55, 23 April 1990. The following forms are rescinded: DA Form 416, January 1955; DA Form 3941, October 1972; DA Form 3995, December 1972; DA Form 4367, April 1975; and DA Form 4448, November 1975.

UNCLASSIFIED

Contents (Listed by paragraph and page number)

Chapter 1
Introduction

1–1. Purpose
This regulation establishes policies and responsibilities for operation, maintenance, repair, and construction of facilities and systems for the efficient and economical management of utility services (which includes water supply, wastewater, solid waste (nonhazardous), electric, heating and cooling, refrigeration, and food service equipment) at Army installations.

1–2. References
Required and related publications are listed in appendix A. Prescribed and referenced forms are also listed in appendix A.

1–3. Explanation of abbreviations and terms
Abbreviations and special terms used in this regulation are explained in the Glossary.

1–4. Responsibilities
a. The Assistant Secretary of the Army for Installations, Logistics and Environment. The Assistant Secretary of the Army for Installations, Logistics, and Environment (ASA (I,L&E)) establishes policy and provides program direction and guidance for utility services.

b. The Assistant Chief of Staff for Installation Management. The Assistant Chief of Staff for Installation Management (ACSIM) is responsible for Department of the Army (DA) staff supervision and technical guidance for facilities engineering and housing functions. The ACSIM formulates DA policy guidance, objectives, criteria, and standards for facilities engineering and housing functions. The ACSIM will—

(1) Ensure this regulation is consistent with current Federal regulations governing utility services.

(2) Provide DA Staff supervision and technical policy direction for utility services.

(3) Provide guidance and direction to major Army commands (MACOMs) on the implementation of this Army regulation (AR).

(4) Provide DA policy guidance and criteria for selecting energy sources to be used for Army facilities.

c. Major Army command commanders. Commanders of major Army commands (MACOMs) are responsible for ensuring that technical direction, policies, and procedures at their installations are in accordance with this AR.

d. The Chief of Engineers. The Chief of Engineers (COE) is responsible for the design and construction of facilities for utility services.

e. Installation commanders. The installation commander is responsible for providing utility services in compliance with applicable standards, laws, and regulations. The installation commander is responsible for developing and implementing an Installation Utilities Management Plan that will provide safe, efficient, reliable, and Life Cycle Cost (LCC) effective utility services to the installation, all sub-installations, and support and tenant activities. The utilities management plan will include modernization and privatization programs where applicable.

f. Director of Public Works. The Director of Public Works (b)(6) is the principal staff officer reporting to the garrison commander, or appropriate commander at outside of the Continental United States (OCONUS) installations, who is responsible for all utility functions. The (b)(will—

(1) Provide safe, efficient, reliable, and LCC effective utility services that provide for the health and well-being of soldiers and their families and other assigned personnel and enable the installation to meet mission requirements.

(2) Review all installation and tenant construction, alteration, and repair projects to ensure they are adequate and compatible with existing utility systems, energy conservation goals, and the installation master plan.

(3) Review utility services and utility service contracts annually to ensure requirements are in accordance with installation needs.

(4) Coordinate with the Staff Judge Advocate on interpretation of statutes and regulations impacting utilities management.

(5) Coordinate with the installation medical authority (IMA) on utility service planning (for example, Memorandum of Agreement (MOA) for design review).

(6) (b)(6) Coordinate provost marshal.

g. The Commanding General, U.S. Army Aviation and Troop Command. The Commanding General, U.S. Army Aviation and Troop Command (ATCOM), is responsible for depot maintenance of service station-type dispensing pumps and systems and arrangements for provision of repair parts.

h. The Commanding General, U.S. Army Petroleum Center. The Commanding General, U.S. Army Petroleum Center (USAPC), will—

(1) Train and certify qualified coal samplers (Technical Bulletin (Engineering) (TB ENG) 249).

(2) Develop requirements schedules.

(3) Develop requirements policy.

(4) Submit requirements to Defense Fuel Supply Center (DFSC), Defense Logistics Agency.

Chapter 2
Utility Services

2–1. Army policy
Army policy is to provide safe, reliable, efficient, and LCC cost effective utility services that promote the health and welfare of the soldier and the soldier's family, of the civilian and contractor work force, and of retirees and that provide the capability for installations to accomplish assigned missions.

a. Army policy is to obtain utility services from local, municipal, or regional (public and private) authorities, rather than expand, build, or operate and maintain Army-owned utility systems. Environmental considerations, legal liabilities, manpower shortages, and reduced funding for operation and mission requirements can make it more advantageous for the Army to obtain utility services from local, municipal, regional and private service contractors. Installations should participate in local, municipal, and regional utility planning organizations. The use of local, municipal, or regional (public and private) utility systems where the LCC exceeds that of an Army-owned utility system requires ACSIM approval.

b. In providing utility services, Army installations will comply with all applicable Federal laws and regulations. Applicability of State and local laws and regulations to installation utility services will be referred to the installation Staff Judge Advocate General for interpretation. Army installations that are OCONUS will comply with the final governing standards (FGS) issued by the Department of Defense (DOD) Executive Agent for the host nation concerned. The FGS may be predicated on the Overseas Environmental Baseline Guidance Document. Department of Defense Directive (DODD) 6050.16 authorizes the Executive Agent to establish and enforce environmental compliance standards.

c. Long term (up to 30 years) utility contracts may be entered into with a third party that will build, own, and operate utility systems with private venture capital, to provide utility services to an Army installation. Congress encourages the DOD to aggressively pursue third-party financing before any future large utility plants are authorized for military construction funding. Guidance is provided in the Defense Energy Program Policy Memorandum titled, "Private-Sector Financed Defense Energy Contracts," under section 2394, title 10, United States Code (10 U.S.C. 2394). To determine the LCC of a private-sector proposal, only those costs and benefits that are directly associated with the proposal should be used in the economic analysis.

d. Installations will develop and implement an Installation Utilities Management Plan (IUMP.) The installation plan will consider current Army utilities strategy by incorporating key elements into its

plan. The plan will document current utility practices; evaluate current and future installation and tenant needs based on installation mission, size, economic and environmental considerations; identify required resources; and outline a strategy to implement the selected program options. The IUMP will include utility system maps and sections on energy, solid waste management, corrosion control, and emergency response, as well as other plans required by this regulation. Guidance on preparing the plan is in Public Works Bulletin (PWB) 420–10–08 and Engineers Technical Letter (ETL) 1110–3–404.

e. Installations will conduct utility vulnerability analyses and prepare remedial action plans to ensure mission support in event of disruption to major utility systems.

f. Installations will develop and implement emergency response plans for each type of utility service. The [redacted] will develop these plans in coordination with the local utility, the provost marshal, and the installation emergency and disaster relief activities.

g. Installations should participate in local and regional utility resource planning organizations to become a good neighbor and partner in helping solve utility issues.

h. All large repair, alteration, and Military Construction, Army (MCA), projects for utility services will include an analysis of privatization opportunities.

i. Nonappropriated fund (NAF) facilities are defined as "Federal Buildings" and will be managed in compliance with all applicable energy and water conservation laws and regulations.

2–2. General

a. Operation, maintenance, and repair of utility systems and facilities will be in accordance with AR 420–10 and DA PAM 420–8.

b. Construction projects will be in accordance with AR 415–15 and AR 420–10. Where required by Federal or State law, construction projects will be submitted to State regulatory authorities for review prior to being included in the Military Construction Program budget request.

c. Environmental protection and enhancement and hazardous, toxic, and radioactive waste management will be in accordance with AR 200–1.

d. Energy conservation programs and reduction targets will be in accordance with AR 11–27.

e. Contracts for the acquisition and resale of utility services will be in accordance with AR 420–41 and AR 215–1.

f. Installation master planning will be in accordance with AR 210–20.

g. All excavations, including fence post holes (regardless of by whom made), will be coordinated with the [redacted] Locations of all underground lines will be verified and all permits will be obtained prior to beginning work.

h. The most LCC effective approach will be performed in accordance with AR 11–18 and the Memorandum of Agreement on Criteria/Standards For Economic Analyses/Life Cycle Costing For MilCon Design.

2–3. Safety and occupational health

Utility systems and facilities will be designed, operated, and maintained so as to protect the health and safety of the military and civilian work force in accordance with AR 385–10.

2–4. Utility plant operators

Utility plant operators and maintenance and supervisory personnel will be provided sufficient training to operate and maintain the utility plants in a safe, reliable, and efficient manner. Utility plant operators and maintenance personnel will meet Federal, State, local or host nation certification requirements for the State or host nation in which they are located.

a. Operator training and certification. Utility operators will be trained and certified in accordance with applicable existing Federal, State, local, or host nation standards. In the absence of Federal, State, local, or host nation certification requirements for boiler plant operators, the Fourth Class Power Engineer Certification Program of the National Institute for the Uniform Licensing of Power Engineers, Inc., will be the governing requirement.

b. Installations with gas. Installations with gas (natural gas, manufactured gas, and vaporized liquified petroleum gas (LPG) products; that is, propane and propane/air mixtures) distribution systems will establish procedures to provide training for personnel working on or involved with the design, construction, or management of these systems. The training will provide all personnel with general knowledge of part 192, title 49, of the Code of Federal Regulations (49 CFR 192). The training will also provide specific knowledge and capabilities to individuals in the areas of their assigned duties relating to the functions identified in 49 CFR 192. Special training, such as welding of steel gas pipe and joining plastic pipe by fusion or operation and utilization of gas leak detection equipment, will be obtained from sources qualified to teach these subjects. Contracts involving gas systems will specify that only qualified gas system workers will be used.

Chapter 3
Solid Waste Management

3–1. Solid waste management policy

This chapter establishes policy and criteria for the operation, maintenance, repair, and construction of facilities and systems for efficient and economical solid (non-hazardous) waste management including source reduction, re-use, recycling, composting, collection, transport, storage, and treatment of solid waste.

a. Solid waste management (SWM) will be in accordance with the Solid Waste Disposal Act (SWDA) of 1976, as amended, 42 U.S.C. 6901, et seq. (commonly referred to as the Resource Conservation and Recovery Act (RCRA)), the National Environmental Policy Act (NEPA) (42 U.S.C.A. 4321, et seq.), and applicable Environmental Protection Agency (EPA), State, and local regulations and requirements.

b. Regulated medical waste management will be in accordance with AR 40–5 and AR 40–61.

c. Operations, maintenance, and repair of SWM facilities and/or equipment for collection, handling, and compacting will be in accordance with AR 420–18 and TM 5–634.

d. Design criteria and standards for sanitary landfills will be in accordance with 40 CFR 258 and the U.S. Army Corps of Engineers architectural and engineering instructions (AEI).

e. Army-owned and -operated SWM facilities (landfills, incinerators, recycling centers, and so forth) will not be used as a municipal or regional SWM facility or as the SWM facility for surrounding communities.

f. Solid waste dumping at unauthorized sites is prohibited. Unauthorized dump sites will be controlled and mitigated in accordance with the integrated solid waste management plan. Scavenging and picking through refuse in containers, dumpsters, or landfills is prohibited.

3–2. Integrated solid waste management

a. Army solid waste policy is based on the concept of Integrated Solid Waste Management (ISWM). Planning for ISWM is designed to minimize the initial input to the waste stream through source reduction, reducing the volume of the waste stream requiring disposal through re-use and recycling, and finally disposing of solid waste through the effective combination of composting, incineration, or landfill treatment. Full implementation of the ISWM concept and the coordinated evaluation of all elements of the solid waste stream from source generation to disposal will result in an effective installation SWM program.

b. Installations will develop and implement an installation ISWM plan. The installation ISWM plan will document current waste management practices; evaluate current and future needs based on installation mission, size, and economic and environmental considerations; identify required resources; and outline a strategy to implement the selected program options. The installation ISWM

plan will be reviewed and updated as required. Guidance on development of ISWM plans is available from the U.S. Army Center for Public Works (USACPW).

c. To reduce the volume of the waste stream, enhance pollution abatement and conserve natural resources, ISWM plans will include the following:

(1) Source reduction programs to reduce the initial amount of material coming onto the installation or generated by the installation and ultimately requiring disposal to the solid waste stream.

(2) Qualifying recycling programs (QRPs) in accordance with the Military Construction Codification Act (Public Law 97–214, 10 U.S.C. 2577).

(3) Yard waste management programs encompassing minimum lawn maintenance, native planting, and organic composting.

d. The cost for ISWM services will be held to a minimum through comprehensive solid waste management, planning, and an effective solid waste reduction and recycling program. An LCC analysis will be performed to determine the most cost effective approach to ISWM.

3–3. Source reduction, source separation, resource recovery, re-use, recycling, and composting.

a. The ISWM plan will establish or expand source reduction, source separation, resource recovery, re-use, and a QRP to reduce the waste stream volume, enhance pollution control, and conserve natural resources when such programs are LCC effective. The installation should determine what markets exist, if any, and the costs and prices associated with the markets. Technical information on ISWM is in Public Works Technical Bulletin (PWTB) 420–49–08.

b. Source reduction should be used to reduce the initial input to the solid waste stream by specifying that the minimum packing and packaging materials be used for items shipped to the installation. Industrial and administrative processes should be evaluated to reduce waste. Technical information on source reduction is in PWTB 420–49–02.

c. Source separation should be used to remove recyclable, recoverable, and marketable materials in order to reduce the quantity of solid waste material requiring landfill disposal.

d. Installations are encouraged to establish re-use programs to reduce the amount of material requiring disposal action.

e. Installations will implement a QRP, where LCC effective. Installations having several recycling programs will incorporate them into a single installation QRP. Activities operating under special funding categories, such as commissaries, post exchanges, and industrial funds, may have a separate recycling program or donate their recyclable materials to the installation QRP. A QRP is a program where the installation commander has established—

(1) Procedures for segregating and collecting specific materials intended to be recycled;

(2) Methods for maintaining fiscal accountability of funds received from the sale of recycled materials and the disbursal of these funds; and

(3) A process to review all projects funded from the proceeds of the sale of recycled materials.

f. The Defense Logistics Agency (DLA) is responsible for the sale of recyclable materials generated from an appropriated fund source (DOD assets.) With the approval of the MACOM, an installation may directly sell recyclable materials acquired with appropriated funds if the direct sale is expected to be cost effective (see DODI 4715.4).

g. When the Defense Reutilization and Marketing Service (DRMS) sells materials for the installation, it uses DOD 4160.21–M to return funds to the installation and DOD Directive 7310.1 for financial accounting procedures. One hundred (100) percent of the proceeds from the sale of recyclable materials at an installation with a QRP will be credited to the installation F3875 Budget Clearing Account (Suspense).

h. The distribution of proceeds from a QRP will be in accordance with the Military Construction Codification Act (Public Law 97–214, 10 U.S.C. 2577). Proceeds will be used to reimburse the installation for costs incurred by the installation in operating and maintaining the QRP. After reimbursement of these costs, installation commanders may use up to 50 percent of the remaining sale proceeds for pollution abatement, energy conservation, occupational safety, and health activities. Any remaining proceeds may be transferred to the installation Morale, Welfare, and Recreation Fund, a nonappropriated fund (see AR 215–1).

i. Composting is a means to divert large portions of the waste stream from landfills. Composting can provide materials suitable for soil conditioners, landscape mulch, backfill, resurface material for eroded areas, and landfill cover. General guidance on composting is contained in EPA publication EPA/530–R95–023, *Decision-Makers Guide to Solid Waste Management,* published August 1995. Information on composting of yard waste is contained in the EPA Publication EPA/530–SW–89–038, *Yard Waste Composting,* published April 1989.

j. Environmental considerations of source reduction, re-use, and resource recovery/recycling shall be in accordance with AR 200–1. All recycling and composting facilities shall be designed and operated to comply with all applicable Federal, State, and local wastewater discharge, air emission, and occupational safety and health requirements. Technical guidance is provided in PWTB 420–47–06, PWTB 420–47–07, PWTB 420–49–07, and PWTB 420–49–08.

3–4. Solid waste collection and storage

a. Solid waste will be collected on a regular and systematic basis from designated pickup stations. Collection frequency will be established in accordance with TM 5–634. The collection frequency will be kept to the minimum required to maintain sanitary conditions while performing the required collection service at the lowest possible cost.

b. Special collection schedules and special handling procedures should be established for unique installation activities (special events and parades), bulky waste, or waste that is different from what is normally collected and disposed. Reimbursement from waste generators for the cost of collecting solid waste that requires special handling can be required.

c. Curbside or service-drive solid waste collection will be used unless another method provides a cost or environmental advantage to the Army. The use of other than curbside or service-drive collection will be supported by an economic analysis, which will be retained at the installation.

d. Unit relocation, building demolition, new construction, base closure and rehabilitation action, seasonal peak workloads, mission changes, and ISWM planning can affect the number of containers and collection schedules required to dispose of solid waste. In-house operations and solid waste collection and disposal contracts should be reviewed for cost savings whenever significant quantities of solid waste collections are reduced. This review will include field verification to ensure that these provided services use the minimum number of containers, collect at the minimum collection frequency, and charge the lowest possible cost.

e. Garbage and refuse collection containers should be cleaned as often as necessary to prevent insect and rodent harborage and to maintain sanitary conditions. Individual users are responsible for washing residential-type garbage cans.

3–5. Thermal processing of solid (non-hazardous) waste

a. Thermal processing facilities will be designed and operated to comply with all applicable Federal, State, and local wastewater discharge, air emission, and occupational safety and health requirements. The surrounding environment will be kept clean to prevent the spread of disease and the breeding of disease vectors. Installations will retain a permanent record of major considerations and design rationale leading to project authorization and construction.

b. The thermal processing facility will be operated and maintained in accordance with design requirements. Only waste for which the facility has been specifically designed and permitted will be accepted. The facility operator is responsible for preparing a [illegible] approved standing operating procedure (SOP). This SOP is

required reading for all plant personnel. It will be available at the facility as a reference and describe the following:

(1) The various tasks to be performed.
(2) Operating procedures.
(3) Safety precautions for various areas of the facility.
(4) Waste excluded from thermal processing.
(5) Environmental requirements.

3–6. Land disposal of solid (non-hazardous) waste

a. EPA regulations (40 CFR Parts 257 and 258) and State and local land disposal criteria will be used in the design of all non-hazardous solid waste land disposal sites (including sites for construction debris, ash, tree stumps and brush disposal). Details concerning the site selection, design, operation, monitoring, and maintenance of landfills are published in 40 CFR 258, the AEI, and TM 5–634. Installations will retain a permanent record of major considerations and design rationale leading to project authorization and construction.

b. Controls will be established to ensure that only waste specified in the permit and for which the facility has been specifically designed will be accepted. The surrounding environment will be kept clean to prevent the spread of disease and the breeding of disease vectors. Pesticide containers will be disposed of in accordance with AR 420–76.

c. Recovery of landfill gases for energy utilization purposes is encouraged when cost effective.

d. Construction and demolition debris should be recycled when possible. Construction and demolition debris landfills may be located on Army installations where they are LCC effective. Construction and demolition debris landfills will be operated in accordance with applicable Federal and State regulations.

e. The installation master plan will be annotated to record the exact location and legal description (including monitoring plan and type of liners) of closed and open landfills. This information will be provided to the appropriate U.S. Army Corps of Engineers District to update the installation real estate records.

f. Projects for new solid waste sanitary landfills or the expansion of existing sanitary landfills on Army installations will not be programmed where a municipal or regional system is available until all alternatives to the Army constructing a new solid waste sanitary landfill or expanding an existing one are fully explored. This analysis will be submitted in the project documentation, including the LCC analysis comparing the proposed construction of an Army-owned and -operated landfill or expansion of an existing landfill with the municipal or regional system.

3–7. Equipment and personnel safety

a. ISWM activities will be conducted according to applicable safety standards. Recycling, composting, thermal processing facilities, and landfills will be designed, operated, and maintained so as to protect the health and safety of operating personnel.

b. Safety standards for solid waste operational personnel will be established in coordination with the installation safety office. Operating procedures will be reviewed at least annually to ensure compliance with applicable safety standards.

c. The equipment used to compact, collect, and transport solid waste or materials separated for recycling will be operated and maintained to minimize health and safety hazards to SWM personnel and the public.

d. Solid waste collection containers and vehicles will be washed as necessary to remove putrescible waste residue to prevent nuisances and the propagating or attracting of flies, mosquitoes, and rodents.

3–8. Petroleum, oils, and lubricants

a. Used petroleum, oils, and lubricants (POL) will be disposed of in accordance with AR 200–1. Used oil management is governed by 40 CFR 279 or State regulations. Used POL will not be used as a dust suppressant.

b. The generator of used POL products is responsible for providing appropriate collection facilities, adequate used POL collection operations, and appropriate environmental safeguards when handling used POL products. Generators are responsible for ensuring that prohibited solvents are not mixed with waste oil or POL products. The installation Hazardous Waste Management Plan (HWMP) and the Spill Prevention Control and Countermeasures Plan (SPCCP) describe generator responsibilities and operational procedures for POL storage sites.

c. Central facilities may be provided for recycling or treatment of used POL products through the DRMO when enough used POL generators exist to make a central POL collection facility LCC effective. A study should be made to determine the most cost effective method of collecting and disposing used POL products. The segregation, collection, storage, recycling, and treatment of used POL products will be done in accordance with AR 200–1.

d. Recovery and recycling of used POL products will be maximized to protect the environment and conserve energy and natural resources. Closed-loop recycling, where used POL products are re-refined by a contractor and returned to the generator, is the preferred method of recycling. Used POL products may also be sold through a QRP where allowed by State law. Care should be taken to keep POL products of different sources and radically different properties separate to ensure homogeneous batches for turn-in. Handling, storage, and disposal practices will be environmentally safe and acceptable. Accidental discharges will be handled in accordance with AR 200–1 and the installation Spill Contingency Plan (SCP).

e. The use of used POL products in Army heating plants will be in accordance with Public Law (PL) 94–163, the Code of Federal Regulations (40 CFR 266, subparts D and E), and AR 200–1.

Chapter 4
Water Supply and Wastewater

4–1. Water supply and wastewater policy

This chapter establishes policy and criteria for the operation, maintenance, repair, and construction of distribution, collection, treatment, and disposal facilities for water supply, wastewater, stormwater, and industrial waste.

a. Potable water will be supplied in accordance with the Safe Drinking Water Act (SDWA) of 1974 as amended in 19 June 1986 (PL 99–339) and in October 1988 by the Lead Contamination Control Act (PL 100–572) (42 U.S.C. 300f, et seq.) and all applicable State and local regulations. Sanitary control and surveillance of potable water supplies will be in accordance with AR 40–5 and TB MED 576 or applicable State and local regulations. Army installations that are OCONUS and classified as suppliers of water will comply with the standards in the National Primary Drinking Water Regulation and the final governing standards issued by the DOD Executive Agent for the host nation concerned. The theater surgeon may approve OCONUS requests for deviation from the CONUS drinking water standards. Requests will be submitted to the theater surgeon.

b. Treatment of wastewater and non-point source (NPS) pollution control and abatement will comply with the applicable parts of the Clean Water Act (CWA), as amended (33 U.S.C. 1251, et seq.), AR 200–1, and AR 420–74. Measures for NPS pollution control will be included in all construction, installation operations, and land management plans and activities.

c. Water supply and wastewater services will be provided at the lowest LCC consistent with installation and mission requirements, efficiency of operation, reliability of service, and environmental considerations. The cost for these services will be held to a minimum through comprehensive water resource planning, management, and an effective water conservation program.

d. Wastewater sludge disposal will be in accordance with section 405 of the Water Quality Act of 1987 (33 U.S.C. 1342 (p)).

e. Discharges of stormwater associated with industrial activities

will be in accordance with section 402(p) of the Water Quality Act of 1987 (33 U.S.C. 1342(p)).

f. Prevention and control of surface and ground water pollution will be in accordance with AR 200–1 and AR 420–74.

g. Operation, maintenance, and repair of water supply systems and wastewater systems will be in accordance with Technical Manual (TM) 5–660 and TM 5–665.

h. Design criteria and standards for water supply systems and for wastewater collection, treatment, and disposal systems will be in accordance with the AEI. Alteration and construction projects will be submitted for review by State regulatory authorities where required by law.

i. Maintenance and repair of road drainage facilities, including stormwater drains, will be in accordance with AR 420–72.

4–2. Federal, State, local, and host nation authorities

a. Army installations and activities will cooperate with Federal, State, local and host nation regulatory authorities in the supply of drinking water and in the control and abatement of surface and underground water pollution by wastewater discharges from Army installations and activities.

b. Army installations located in States that have underground injection control, wellhead protection, and sole source aquifer programs will comply with applicable State or local program requirements.

c. At OCONUS locations, commanders of Army installations or activities will cooperate with host country regulatory agencies and will comply with the substantive standards that relate to the supply of drinking water and the control and abatement of surface and underground water pollution by wastewater discharges from Army installations or activities.

4–3. Water resource management

a. A Water Resource Management Plan (WRMP), as part of the IUMP, will be prepared for each installation. The WRMP will include a water supply contingency plan for national or local emergencies (enemy attack, mobilization, subnormal service, main breaks, fires, and so forth). Contingency plans should be in accordance with American Water Works Association (AWWA) Manual No. 19, TB MED 576, and primacy State guidance.

b. The installation WRMP will include an effective water conservation program that includes elements such as water re-use, water metering, and landscape management. Water meters will be provided in new construction in accordance with the AEI. Judicious placement of water consumption meters during major renovation or repair projects will provide data for water resource planning and conservation programs. The WRMP should be reviewed and updated, as required, with the Capital Investment Strategy in accordance with AR 210–20.

c. The Installation will maintain the data necessary to protect installation water rights.

d. The use of computer modeling tools (such as Installation Water Resources Analysis and Planning System (IWRAPS)) is encouraged for analyzing and forecasting installation water resource management requirements.

4–4. Public notification

a. Public notification is required by the Safe Drinking Water Act, as amended. A Public Notification Plan will be prepared for each installation. The Public Notification Plan should be prepared in accordance with EPA 570/9–89–002. The [illegible] will coordinate the plan with the installation Public Affairs Office, the IMA, and the Staff Judge Advocate.

b. A standing operating procedure (SOP) for alerting personnel in emergencies and clearly defining the duty of key individuals during the emergency should be prepared for each installation.

c. Personnel and organizations connected to the installation water supply will be notified of any actual or anticipated noncompliance with water quality standards. Noncompliance includes excessive contaminant levels as well as inadequate surveillance procedures or frequencies. Water supply personnel and organizations will be notified of all approved variations in water quality or exemptions to surveillance criteria. The Command Health Report (Requirement Control Symbol (RCS) MED–3) (see AR 40–5) should be used to report violations, variances, and exemptions through command channels to ATTN DASG–HS, THE SURGEON GENERAL, 5111 LEESBURG PIKE, FALLS CHURCH VA 22041–3258.

d. The Public Notification Plan and the SOP for alerting personnel should be reviewed annually and updated as needed.

e. All violations will be reported using the RCS DD–M(SA) 1485 (Environment Management by Objective (MBO)) report, and all projects required to correct violations of the SDWA or CWA as amended will use RCS DD–M(SA) 1383 (Environmental Protection Control Report).

4–5. Water supply and wastewater system maintenance

a. Accurate and complete water supply distribution system and wastewater collection system maps should be prepared and kept current.

b. Periodic inspections and preventive maintenance of water supply and wastewater disposal systems, storage tanks, and cathodic protection systems should be done in accordance with TM 5–660, TM 5–665, and Air Force Manual (AFM) 85–5.

4–6. Engineered management systems

Management tools (such as W–PIPER) are available to identify infrastructure problems, define maintenance and repair requirements, and direct resources to maximize return on investment. The use of these tools for water supply and wastewater systems is strongly encouraged. Information and assistance can be obtained from the USACPW.

4–7. Water supply treatment and surveillance

a. Installation commanders will provide facilities to disinfect water supplies in accordance with TB MED 576 and TM 5–660. Commanders will comply with applicable parts of the Safe Drinking Water Act of 1974 (42 U.S.C. 300f, et seq.), as amended, or the FGS issued by the DOD Executive Agent for the host nation.

b. In coordination with the IMA, [illegible] personnel will disinfect new and repaired water mains, storage tanks, wells, and equipment in accordance with American Waterworks Association (AWWA) Standards AWWA C651–86, AWWA C652–86, AWWA C653–87, and AWWA C654–87, following construction, repairs, installation of taps, or contamination situations.

c. Flush water distribution systems as necessary to remove accumulated debris in accordance with TM 5–660. A systematic flushing plan of the water distribution lines must provide adequate scouring velocities.

d. The composition and recommended concentration of all additives, including those for corrosion or scale control, should be known and tested for on a regular basis.

e. Obtain approval from the IMA before any chemical additives are used in the potable water supply. Additives used in potable water supplies will be AWWA or National Sanitation Foundation approved.

f. The EPA has authority to grant individual States primary enforcement responsibility over Federal facilities. Army installations located within States that have been granted primary enforcement responsibility will comply with applicable requirements promulgated by State regulatory authorities. Army installations located within States without such primary enforcement responsibility will comply with applicable requirements promulgated by EPA.

g. Operational analysis (for example, turbidity) will be conducted in accordance with frequencies and methodologies specified in TM 5–660 or as required by the regulatory authority in those States granted primacy.

h. Microbiological analysis will be conducted in accordance with applicable standards promulgated by the authority exercising primacy over the installation. Samples should be collected and analyzed by State-certified technicians and laboratories. Installations are encouraged to apply to their respective regulatory authorities for

certification of [illegible] laboratory facilities. The IMA is responsible for providing medical oversight (health risk), quality assurance, and technical assistance regarding water supplies. With respect to microbiological monitoring, the IMA will ensure that sampling and analysis is performed by a certified laboratory. This means the IMA may perform the compliance monitoring or provide oversight to another laboratory conducting the regulatory monitoring. In addition, the IMA may conduct random sampling and microbiological analysis of the installation water supply as part of its oversight and quality assurance responsibility.

i. Chemical, pesticide, and radiological analysis will be conducted at frequencies prescribed in accordance with applicable parts of 40 CFR 141, State or local requirements, and TB MED 576. Data requested by regulatory authorities should be forwarded to the regulatory authorities in a timely manner. Copies of all analytical results for the potable water system should be submitted (including OCONUS installations) to the IMA for medical review/evaluation. The IMA is responsible for sending the results to ATTN MCHB-DE-W, US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE, ABERDEEN PROVING GROUND MD 21010–5422, for the Army's Drinking Water Surveillance Program data base.

j. Tests should be conducted periodically to verify that disinfectant (for example, chlorine) residuals and corrosion and scale control additives are at the recommended concentrations to ensure adequate disinfection and to prevent corrosion. Periodic testing is required on both manual and automatic water treatment systems.

k. A cross-connection control program will be established at each installation. Cross-connection control plans will be prepared to regulate those areas in the distribution system where potable water may come in contact with nonpotable water. The plan will list the existing and potential cross connections and develop a plan for the installation of backflow prevention devices, as well as a schedule for testing, inspection, and maintenance. A routine inspection and maintenance program for backflow prevention devices performed by State certified personnel will include backflow prevention devices for those facilities that have the potential to contaminate the water supply system (for example, pest control shops, photographic laboratories, and medical facilities). Design, operation, and maintenance of cross-connection control components will be in accordance with TM 5–660 and TB MED 576.

l. Adequate pressures will be maintained, measured, and recorded in distribution systems in accordance with primacy State requirements and TM 5–660.

m. The USACPW can provide technical and operational assistance for water supply systems. The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) can provide technical support in resolving any drinking water treatment and distribution water quality concerns affecting consumer health. The USACHPPM maintains a laboratory certified by Federal and many State regulatory authorities for doing analyses to support specially requested services delineated in TB MED 576.

4–8. Wastewater treatment and surveillance

a. All discharges from Army installations or activities to municipal wastewater treatment facilities will comply with applicable pretreatment standards. The [illegible] will establish pretreatment standards for tenants on Army installations and for off-post facilities that discharge wastewater to the installation wastewater treatment facilities.

b. Wastewater treatment plant effluent will be treated to meet National Pollutant Discharge Elimination System (NPDES) permit requirements.

c. Army installations will comply with requirements of the Federal Water Pollution Control Act of 1972 as amended by the Water Quality Act of 1987 (33 U.S.C. 1251, et seq.). All water quality monitoring (including toxicity testing) will be done in accordance with NPDES permit requirements. Technical assistance to help meet NPDES permit requirements is available from the USACPW, USACHPPM, or the U.S. Army Corps of Engineers supporting district.

d. Drains should not be used in close proximity to toxic or hazardous storage areas. Drains, where required, will be designed to retain accidental spills or be connected to a wastewater treatment facility capable of safely disposing of spilled materials.

e. Periodic inspections should be made of nondomestic wastewater sources (for example, laboratories, boiler plants, cooling towers, photographic developing facilities, oil/water separators, and other small treatment systems) to ensure that these wastes are being handled properly.

f. Pest control facilities will be in accordance with AR 420–76.

4–9. Water softening

a. Treatment facilities for softening of the water supply may be installed at fixed installations and activities if the hardness exceeds 200 parts per million (ppm), expressed as calcium carbonate ($CaCO_3$), and if the treatment facilities can be provided economically. Since portions of the Army community may require restricted sodium intake for medical reasons, installations installing sodium cycle ion exchange systems will notify the supporting IMA.

b. Softening to less than 100 ppm may be required for special purposes and services; however, treatment for corrosion control may also be required. Some of the special applications where this level of softening may be needed are laundries, hospitals, boiler plants, central food facilities, and so forth.

4–10. Scale and corrosion control

a. An effective corrosion control management program that includes water treatment for scale and corrosion and cathodic protection for water tanks and underground metallic structures will be maintained.

b. Scheduled water distribution system inspections should be made to observe, evaluate, and record scale deposits and deterioration caused by corrosion. Guidance provided in TM 5–660 should be used for determining the adequacy of scale and corrosion control.

c. Adequate corrosion control will be performed to minimize lead and copper concentrations in first draw tap waters, if necessary, in accordance with Federal (40 CFR 141, subpart H), primacy State, or FGS requirements.

d. External surfaces that are in contact with soil and all internal surfaces of steel water storage tanks should be protected from corrosion by a cathodic protection system in accordance with the AEI.

e. Metallic water supply and metallic wastewater collection lines should be bonded and coated in accordance with the AEI. Corrosion protection of underground metallic water supply mains and wastewater collection lines will be in accordance with ETL 1110–3–404.

f. Cathodic protection systems should be inspected and maintained in accordance with National Association of Corrosion Engineers (NACE) standards RP 0169–92 and RP 0388–95. Cathodic protection system rectifiers should be tested on a monthly basis and the total system annually.

g. Assistance in establishing a chemical analysis program, determining corrective actions, or making recommendations for changes in treatment practices for more effective scale and corrosion control can be furnished by the USACPW.

h. Installation of nonchemical devices such as magnetic, electromagnetic, and similar devices that claim to soften water or reduce scale in water systems, heating and cooling systems, or boilers are prohibited.

4–11. Terminal water supplies

The following precautions will be exercised to prevent potable water system contamination at Army installation piers and docks:

a. Water connections from the potable water system to any vessel will be installed and operated under the supervision of the individual in charge of the installation water system.

b. Connections from the installation potable water system to vessels with power to operate fire pumps or other water pumps will be provided with approved backflow prevention devices.

c. Hose lines from the installation potable water system may be carried or used for fire protection aboard any vessel, provided that no connection is made to the vessel water system and that the hose lines are so secured as to prevent discharge or submergence when they are not in use.

4–12. Metering

a. Well water. Drawdown or water-level testing gages will be installed in active deep wells to provide daily operating data for development of underground water supplies and determining pumping schedules.

b. Purchased water (reference AR 420-41). Purchased water will be metered as determined locally to meet installation needs.

c. Sale of water. Meters will be furnished, installed, and properly maintained by the purchaser to determine the quantity of water sold, and the purchaser will be billed accordingly. Where a permanent meter cannot be installed, the quantity of water delivered will be estimated and billed accordingly. Temporary metering will be installed periodically to more accurately estimate the consumption in heavy usage facilities.

d. Operational control.

(1) Water flow meters should be installed for operational control at the following locations:

(a) Each water supply well.

(b) Each source of surface water supply where chemical treatment is required.

(c) Each connection delivering water to any other installation or Government agency, except as provided in paragraph *c* above.

(d) Each connection where water flow records are needed for planning and management purposes.

(e) Each connection where treated water supplied by a surface water treatment facility enters a distribution system.

(2) Electrical meters should be installed for operational control at water supply and wastewater treatment plants. The meters may be a watthour or other type of recording device (such as a timing element) to measure electrical energy used or to record the number of hours of pump operation.

e. Major water users. Major water users, such as boiler plants, large industrial users, and housing areas should be metered to provide data for water resource planning. Metering at other sites should be done as required to determine reimbursement costs, conservation benefits, or resource management data.

4–13. Swimming pools and natural bathing areas

a. Utility services, equipment operation, and operating supplies for nonappropriated fund operated pools will be furnished in accordance with AR 210–53.

b. The [illegible] is responsible for maintenance, repair, and alteration of installed swimming pool and natural bathing area equipment. The [illegible] is not responsible for the control of swimmers, cleaning of the pool, or janitorial services.

c. Operation, maintenance, and repair of swimming pools and natural bathing areas will be in accordance with TM 5–662 and TB MED 575.

Chapter 5
Energy Source Selection

5–1. Energy policy

This chapter prescribes policy and criteria for the selection and use of energy sources for the following purposes: for cooking, process equipment, and incineration and in heating systems, heating plants, and boiler plants to generate steam, hot water, or warm air at Army installations and activities. All generation, distribution, and use of fixed facilities energy and water will be done in the most efficient manner. The IUMP will show how energy conservation goals will be achieved.

5–2. Fuel selection

a. Energy sources will be selected with careful consideration of national reserves, local fuels availability, and LCC analysis. Use of renewable energy sources (waste products, solar, wind, geothermal, refuse-derived fuel (RDF), and wood) is encouraged. Special consideration will be given to the use of coal, in accordance with 10 U.S.C. 2690, where its use is LCC effective.

b. The energy source selected for new heating systems, or for fuel conversions, will be the most LCC effective fuel available for that system. The economic analysis of both in-house and privately funded alternatives will include economic assumptions used to perform the evaluations. A sensitivity analysis, comparing the effects of changes in initial investment and operating costs, will be included to enable reviewing officials to fully evaluate how changes in assumptions affect the project's viability.

c. Large central plants will be designed with multiple fuel capability where LCC effective.

d. The minimum supply of the backup fuel will be determined by the installation [illegible] Local conditions and ready availability of fuels for emergency situations will be the criteria used to determine the quantities required for on-site storage.

5–3. Solid fuels

This section establishes policies and procedures to ensure solid fuels (anthracite, bituminous, sub-bituminous, and lignite coal) are of the technical quality required to meet the needs of Army power and heating plants.

a. Coal and solid fuel specifications. The [illegible] will ensure that coal requirements are correctly estimated; analytical and size specifications are technically adequate for power and heating plants; solid fuels accepted meet specifications or when they do not meet specifications, appropriate action is taken; and solid fuels are handled and stored properly to minimize degradation.

b. Inspection, sampling, and receipt of solid fuels.

(1) Solid fuels received at an installation will be visually inspected and samples taken by a qualified coal sampler who has been certified for proficiency by USAPC. Inspections will be accomplished in accordance with TM 5–675. Samples will be collected and prepared in accordance with TB ENG 249. The name of the individual performing the inspection and sampling and the individual's Certificate of Proficiency Number will be placed in the appropriate space on DD Form 250 (Materiel Inspection and Receiving Report).

(2) Appropriate records reflecting the quality of solid fuels accepted will be maintained for 1 year.

c. Operating procedures and equipment. Solid fuels operating procedures and equipment descriptions and usage are described in TM 5–675. Solid fuels handling equipment and conveyor trucks are classified as special design items and will be obtained in accordance with AR 420–18. The [illegible] is responsible for maintenance and repair of motor truck or platform-type scales at coal yards, that are exclusively for weighing solid fuel.

5–4. Permanently installed petroleum product storage, distribution, and dispensing systems

a. Petroleum product storage, distribution, and dispensing system policy.

(1) This section prescribes policies, criteria, and responsibilities for the maintenance and repair of fixed petroleum product storage, distribution, and dispensing systems such as pipelines, pumping stations, bulk and operating storage, service stations, and aircraft fueling facilities. Petroleum product storage, distribution, and dispensing systems will meet national pollution emissions requirements and applicable State and local requirements.

(2) Adequate maintenance will be provided to ensure maximum safety and efficiency, economical operation, and normal life expectancy of the equipment. The using organization is responsible for preventive and minor maintenance and operation of facilities for the storage, dispensing, and distribution of liquid petroleum products.

(3) The extremely hazardous nature of petroleum products and

potential environmental impact resulting from system failures requires that a repair and construction hazard analysis be made to determine the degree of risk associated with maintenance and repair deferral (see AR 385–10). Risk assessment codes will be assigned and hazardous situations eliminated on a "worst-first" basis.

(4) Tanks will be cleaned, maintained, and cathodically protected in accordance with industry practice and applicable safety standards (National Fire Protection Association (NFPA) Standard No. 327, American Petroleum Institute (API) publication Recommended Practices (RP) 2015). Fuel tanks not needed will be removed and disposed of in accordance with local, State, and national laws and governing regulations.

b. Hazards.

(1) Toxic, fire, and explosive hazards of petroleum products will be brought to the attention of personnel concerned with the operation and maintenance of these facilities.

(2) Patching or hot-work on POL tanks will be done under the supervision of individuals who understand the potential for fire and explosion, assisted by workers sufficiently skilled to carry out the necessary operations safely, the work will be started only after the characteristics of the previous contents of the tank or container have been determined. National Fire Protection Association (NFPA) and American Petroleum Institute (API) publications provide guidance for the safeguarding of tanks where patching or hot-work is proposed.

c. Inactive installations. Processing and maintaining permanently installed petroleum products storage, distribution, and dispensing systems at inactive installations and sections of these systems not required for current operations will be in accordance with AR 210–17. Present legislation and Army policy (EPA and AR 200–1) regarding this potentially hazardous issue will be complied with.

Chapter 6
Heating Systems

6–1. Heating system policy

This chapter establishes policy and criteria for the efficient and economical operation, maintenance, repair, and construction of facilities and systems for boiler plants; space heating systems; domestic water heating systems; and systems used for distribution of fuel gas, steam, hot water, and process equipment.

a. The type, number, and size of heating units or plants to be used for a new or conversion facility will be based on a thorough evaluation of the heating requirements for the anticipated life of the buildings to be constructed and served. Consideration will be given to interconnecting existing central plant systems or large building systems to supply new building requirements.

b. Design and construction of these facilities will be in accordance with applicable parts of the AEI.

c. Operation, maintenance, and repair of these facilities will be in accordance with the manufacturer's instructions for specific equipment. Additional information on the operation, maintenance, and repair of these facilities is contained in TM 5–642, TM 5–643, TM 5–644, TM 5–646, TM 5–650, TM 5–651, TM 5–678, and TM 5–745.

d. All fuel-burning facilities will meet national pollution emissions requirements and applicable State and local requirements.

e. Installations will establish effective corrosion control programs to include the following:

(1) Inspection of utilities plants, systems, and structures to determine the cause of any failures.

(2) Utilization of corrosion-resistant materials in replacement and new installations where LCC effective.

(3) Procedures for the proper operation and maintenance of cathodic protection systems. Guidance for corrosion control can be obtained from TM 5–811–4 and TM 5–811–7. The USACPW can provide assistance in developing corrosion-control programs.

f. The [illegible] will review and approve all proposed connections, extensions, alterations, or attachments to a building's heating system.

6–2. Space heating temperature standards

a. Space heating temperature standards will be in accordance with the AR 11–27.

b. Heating is not permitted in warehouse sections that do not contain material or equipment requiring protection from freezing or from condensation and where warehousing of stored goods is the only operation.

c. Heated makeup air may be provided for process rooms, paint shops, drying rooms, dining facilities, and the like. The quantity of outside air to be heated and temperature to be maintained will be in accordance with the AEI.

6–3. Boiler and heating plants—operation, maintenance, and safety

a. Boiler and heating plants will be operated and maintained in a safe and efficient manner.

b. The length of the heating season for providing heat to facilities for personal comfort will be determined by the installation commander, based on local conditions.

c. Central boiler and heating plant and building mechanical room equipment, outside distribution systems, and the main distribution systems in buildings will be marked with color banding and/or titles in accordance with ANSI Standard 13.1.

d. All high-pressure steam boilers (above 15 psi) and all high temperature water (HTW) boilers (above 250 degrees Fahrenheit (°F) temperature) in active use will be inspected in accordance with the Code of Boiler and Pressure Vessel Inspectors (BPVI) and the American Society of Mechanical Engineers. Inspections must be performed by persons certified in accordance with BPVI standards. The recommendations of these safety inspections will be reviewed and appropriate actions taken to correct deficiencies. Boiler inspection services are available through USACPW contracts.

e. Gas- or oil-fired heating units may be equipped with automatic controls and firing systems and safety devices that will require minimum operational surveillance.

f. Constant operator attendance in large central steam boiler plants and high temperature water systems, and large automatic commercial building type systems will be established by the installation, based on the local requirements. If roving plant operators are used, operational visits will be of a duration required to observe a complete cycle of operation and perform the scheduled operator preventive maintenance. Criteria for staffing should be the following: criticality of service; size and complexity of the equipment; extent of the maintenance responsibility required by operators; whether "in plant" maintenance is used; the availability of local shop support; and plant location. The critical factors in determining staffing requirements will be the safe, efficient and reliable operation of the equipment.

6–4. Boiler water treatment

a. Boiler water and steam distribution systems will be treated in accordance with TM 5–650. Only those chemicals identified in TM 5–650 and in this regulation will be used. Other chemicals will not be used without approval from USACPW (CECPW–ES).

b. Contracts with third-party chemical suppliers should include provision for appropriate steam, condensate, and water treatment to ensure that the Army distribution systems and end-use facilities are not at risk from the use of the chemically treated energy medium.

c. Installations will submit a minimum of one boiler water and one condensate sample from high-pressure plants each month for boiler water quality assurance analysis. Boiler water quality assurance services are available through USACPW contracts. Installations will follow the boiler water sampling schedule outlined in TM 5–650.

d. Overseas commands may use the USACPW boiler water analysis services when desirable. Overseas commands not using this service will establish procedures for local performance of similar surveillance services.

e. Installations with high pressure steam boilers will use at least one condensate corrosion tester per high pressure boiler per year. Corrosion testers are available through USACPW contracts.

6–5. Corrosion control

a. Condensate return line corrosion will be held to a minimum by using deaeration and dealkalizing equipment, where their installation is economically justified. Where this is inadequate or not economically justified, an amine-type treatment will be used. The amines (neutralizing type), cyclohexylamine, diethylaminoethanol (DEAE), or morpholine will be selected and used in accordance with TM 5–650.

b. Steam treated with chemicals will not be used directly for humidification or cooking purposes. A heat exchanger will be installed to provide chemical-free steam at these locations.

6–6. Domestic hot water supply

a. Water heating and storage tank capacities will be in accordance with the AEI.

b. Hot water supply systems will be operated to provide water at the points of use and with temperatures as follows:

(1) Automatic dish washing in food service facilities: 140°F. Final rinse for dishes and utensils in all food service applications: 180°F.

(2) Child care centers: See AR 608–10 for water temperature requirements for child-occupied spaces.

(3) Commercial type laundries: 180°F.

(4) Administrative and other facilities: 110°F. maximum.

c. Where a two temperature or multiple temperature water supply is needed in food service or medical and laboratory facilities, lower temperature source generators with "boosters" to the higher temperatures in close proximity to the point of use will be used to the maximum extent practical. The storage and distribution of water above 150°F with distribution and blending to lower temperatures at point of use is not permitted.

6–7. Safety devices

a. Boilers, furnaces, water heaters, unfired pressure vessels and tanks, gas storage, and distribution systems are generally equipped with the safety devices necessary to protect the equipment against damage and prevent hazards to life and property. These devices (temperature- and pressure-relief valves, low-water cutoffs, safety water feeders, limit controls, and similar devices) will be well maintained and tested in accordance with the manufacturer's recommendations to assure proper operation.

b. Pressure relief or safety valves on low pressure steam or hot water boilers will only be adjusted by a boiler inspector or other qualified plant personnel. Where changes are made in the type of fuel or firing equipment, the safety relief or relief valve capacity will be verified for adequacy under the new conditions.

c. Safety valves and devices for both low- and high-pressure boilers will be in accordance with sections I and IV of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code. At OCONUS installations, host nation standards or ASME codes, whichever are more stringent, will be followed.

6–8. Gas distribution systems

a. Gas distribution systems on Army installations will be designed, installed, inspected, operated, and maintained in accordance with 49 CFR 192 and the Department of Transportation Guidance Manual for Operators of Small Gas Systems. Technical information is provided in Corps of Engineers Guide Specification (CEGS) CEGS–02685, CEGS–15488, and TM 5–654.

b. Each installation owning a gas distribution system will prepare an operations and maintenance plan and an emergency plan, as specified in 49 CFR 192, subpart L. Paragraphs on reports required by the Department of Transportation are not applicable to Army owned gas distribution systems. If the installation gas distribution system is not Army owned, the installation will coordinate with the appropriate authorities to assure that the gas distribution system is being operated and maintained in accordance with 49 CFR 192 and that emergency plans have been coordinated and integrated with appropriate Army organizations.

6–9. Heat distribution systems

a. Heat distribution systems for 201°F and above will be designed in accordance with TM 5–653 and TM 5–810–17 and will be selected in the following order of preference:

(1) Above ground.

(2) Shallow concrete trench.

(3) Direct buried.

b. Direct buried systems will only be used where aesthetics or functional requirements preclude the use of above ground or shallow concrete trench systems (for example, where the water table is above the bottom of the trench). Buried Class A sites will use preapproved drainable, dryable, air pressure testable steel conduit systems.

Chapter 7
Air conditioning and refrigeration

7–1. Air conditioning and refrigeration policy

This chapter establishes policies, procedures, and responsibilities for mechanical refrigeration and space conditioning systems in new and existing facilities. Space conditioning may include air conditioning, evaporative cooling, dehumidification, or mechanical ventilation equipment.

7–2. Air conditioning criteria

a. Air conditioning requirements for comfort cooling will be evaluated and approved by the installation commander based on local conditions.

b. Space conditioning temperature standards will be in accordance with AR 11–27.

c. Design and construction criteria of space conditioning equipment will be in accordance with the AEI.

d. Heat pumps may be air source, water source, or ground- coupled type and will be certified under the Air Conditioning and Refrigeration Institute (ARI) Heat Pump Certification Program.

e. Operation, maintenance, and repair of air conditioning, evaporative cooling, dehumidification, and mechanical ventilation equipment will be performed by certified technicians and will be in accordance with TM 5–671.

7–3. Occupant-owned equipment

a. Army policy is to provide Government furnished air conditioning to eligible facilities in lieu of occupant- or resident-owned equipment. However, where funds are not available and the facility is eligible for air conditioning, the installation commander may authorize installation of occupant-owned air conditioning units. Installation will be at the expense of the occupant or resident.

b. At Government expense, the [illegible] may install a 120/240-volt receptacle of the proper current rating for the unit. In OCONUS installations, an equivalent receptacle suitable for the local voltage will be used.

c. The occupant or resident is responsible for the installation, maintenance, repair, and eventual removal of the unit.

7–4. Donated units

Army policy is to provide Government furnished air conditioning to eligible facilities in lieu of donated units. However, where funds are not available and the facility space is eligible for air conditioning, the installation commander may approve air conditioning units donated for specific use in medical facilities if they are given by private individuals and non-Government groups (for example, veterans organizations and fraternal groups). Donations will be in accordance with AR 1–100 and 10 U.S.C. 2601.

7–5. Central air conditioning plant

The decision to use a large central refrigeration plant with distribution system or multiple units with no associated distribution system will be made locally, based on installation-specific requirements. The system selected will be the most LCC effective system that provides safe and reliable service to meet user needs. Critical facilities (for example, communication or computer areas) that require year-round air conditioning may require special consideration. When this type of equipment is served by a central plant, it may be provided with an auxiliary system to serve the critical smaller load when the central plant is shut down or otherwise would not be needed.

7–6. Refrigeration

a. This section defines installation and maintenance policy for mechanical refrigeration equipment used for, but not limited to, the following applications:

(1) Reach-in, walk-in, and domestic refrigerators.
(2) Cube and flake ice machines.
(3) Ice cream cabinets.
(4) Water coolers.
(5) Ice manufacturing plants.
(6) Refrigerated storage plants.
(7) Frozen storage plants.

b. Projects for refrigeration equipment will be designed in accordance with the AEI.

c. Refrigeration equipment, refrigerated warehouse facilities, and frozen storage plants will be installed, operated, and maintained in accordance with industry standards or TM 5–670 and TM 5–671.

d. Automatic control and alarm devices should be provided for all warehouse-type refrigeration equipment. Only manual reset controls will be used for high-pressure-shut-off controls.

e. In refrigerated warehouse facilities, temperatures will be in accordance with the ASHRAE Handbook of HVAC Systems and Applications. These temperatures should be maintained on a continuous 24-hour basis. Equipment is shut off only when necessary for repairs. In central meat-cutting plants, temperatures will be in accordance with the ASHRAE Handbook of HVAC Systems and Applications. Alterations or additions to any system will not be made that permit temperatures lower than those specified in the design as finally approved.

f. Both an indicating thermometer and a temperature recorder should be provided for each refrigerated storage space and each frozen storage space greater than 1,000 cubic feet. Charts for the temperature recorder will be for at least 24 hours but not more than 1 week (7 days). These charts should be retained for a minimum of 6 months.

Chapter 8
Electric

8–1. Electric systems operation, maintenance, repair, and construction

This chapter establishes policy and criteria for purchased electrical power, electric power generation plants, auxiliary electric power generators, and the control and distribution of electrical power.

a. Installation electrical facilities and equipment will be in accordance with the AEI. At installations where privatization is being considered, exterior electrical equipment should be compatible with local utility company design, construction, installation, and maintenance standards and criteria.

b. Maintenance and repair will be in accordance with National Fire Protection Association (NFPA) 70B, TM 5–683, TM 5–684, TM 5–685, and TM 9–1300–206. Safety procedures described in NFPA 70E, TM 5–682, EM 385–1–1, and the National Electrical Safety Code (NESC) will be followed while performing maintenance and repair.

c. As part of the IUMP, an installation power system analysis will be conducted at least every 5 years or sooner if major changes have been made. The analysis will include—

(1) Load flow analysis, including the projected loads for the next 5 years.
(2) Fault study.
(3) Protection coordination study.
(4) Power factor correction study.

d. Lightning protection systems will be installed, maintained, and tested in accordance with TM 5–811–3, TM 9–1300–206, and Military Handbook (MIL HDBK) 419A. Lightning protection systems will be installed on explosives storage and handling facilities as specified in AR 385–64 and TM 9–1300–206. Lightning protection systems will be installed on command, control, communication, and computer facilities or other facilities containing high-value electronic equipment.

8–2. Electrical supply standards

The following electrical supply standards apply to Army installations:

a. Installations will purchase electric power from utility companies in the most LCC effective manner. Installation reliability requirements may be accomplished by using multiple utility company feeders, auxiliary generators, or a combination of both. The installation should purchase electric power at the highest available voltage.

b. Electrical power will be supplied to the user at the standard utilization voltage, or the applicable standard when a choice is available. The following guidance applies:

(1) Supply electric power at a voltage that is within +/- 5 percent of nominal voltage. Voltage-correcting equipment will be installed only when the user's equipment will not function acceptably at the utility supplied voltage range. Voltage-correcting equipment will be installed and maintained by the user to meet specific equipment requirements.

(2) [(b)(6)] eliminate proper operation of installed equipment.

(3) Capacitors (static condensers) should be installed for power factor compensation (correction) when the cost of installation can be amortized within 10 years. To avoid any possible harmful effects of a leading power factor, install automatic switching whenever a leading power factor could exist under some load conditions.

c. Electrical power will be supplied at the frequency available from the electricity supplier. Frequency converters to supply another frequency will be installed and maintained by the user to meet specific equipment requirements.

d. Equipment proponents will check with the [(b)(6)] concerning the electrical characteristics available on the installation before procuring electrical equipment or equipment having electrical components.

8–3. Exterior electrical systems

a. Transmission and distribution line guidance follows.

(1) *Overhead lines.* Exterior lines will be installed overhead except as noted in (2) below. Yellow guide guards should be used as required (see AR 385–30). Wood poles and other wood members of the overhead distribution system will be treated with a preservative as specified in TM 5–684.

(2) *Underground lines.* Underground lines may be installed when they are LCC effective or where overhead lines—

(a) Could result in hazard to life or property.
(b) Interfere with other facilities.
(c) Are impractical, as in congested areas.
(d) Would be unsightly, as determined by installation architectural and design guides.
(e) Would enhance distribution system reliability.

b. Underground lines will be installed at security perimeter fence crossings, at storage or operating facilities for nuclear weapons and components, and at other sensitive security areas.

c. Installation of equipment (such as primary junction boxes, circuit breakers, or transformers) in manholes and underground vaults will be avoided, except at airfields where clearance is required.

8–4. Lighting

The most LCC effective light sources that meet user requirements will be used.

a. Where required by the National Electrical Code (NEC) or the Life Safety Code, emergency lights will be permanently connected to the electrical system, without the use of attachment caps and receptacles.

b. Red identification lights will be installed on poles and other supports carrying exterior fire alarm boxes.

c. The [illegible] will maintain and repair the following:

(1) Obstruction lights and their supply systems on buildings and other structures except communications towers.

(2) Security and aviation lighting and their supply systems (see FM 19–30).

(3) Interior storage battery-type automatic emergency lights, both unit and central battery-type.

8–5. Communications facilities

Communications equipment classified as equipment in place is not the responsibility of the [illegible] (see AR 37–1). The [illegible] will maintain and repair the following communications-related items:

a. Footings for communications poles and for communications towers.

b. Poles and towers used jointly for power and communications.

c. Underground duct lines used for power and communications (either separately or jointly owned). This includes manholes, handholes, pull boxes, and other similar access points that are parts of the underground duct lines.

d. The use of a common envelope or trench, or adjoining manholes, handholes, pull boxes, or similar access points with one or more common walls without openings, as specified in TM 5–811–1, is encouraged. Do not install power and communications cables in the same conduit or access point.

8–6. Grounding facilities

The [illegible] will—

a. Maintain, repair, and test grounds and grounding systems for real property. The user will install, maintain, repair, and test grounds and grounding systems for other than real property carried on [illegible] records.

b. Test grounds and grounding systems in accordance with TM 5–684, TM 9–1300–206, and the NEC.

c. At all U.S. Army Intelligence and Security Command (INSCOM) and U.S. Army Information Systems Command (USAISC) facilities, ensure that any changes to grounding systems are in accordance with the guidance contained in Military Standard (MIL-STD) 188–124A and Military Handbook (MIL HDBK) 419A.

8–7. Electronic security systems

a. Electronic security systems will be in accordance with TM 5–853–4. The Intrusion Detection Systems (IDS) Mandatory Center of Expertise (MCX), U.S. Army Engineering and Support Center (CEHNC), Huntsville, AL, is available to provide assistance. The installation of commercial IDS should be coordinated with the responsible provost marshal or physical security office as specified in AR 190–13.

b. The [illegible] will furnish and install the following:

(1) A dedicated power circuit in conduit to the system control unit.

(2) A conduit (or other raceway) for signal conductors within the structure from the protected area to a maximum of 5 feet outside the structure.

(3) Conduit connecting the system components.

8–8. Auxiliary generators

a. Emergency and standby generators. This section applies to generators, regardless of type, which are classified as installed equipment (real property). Emergency and standby generators will be installed in accordance with the provisions of NFPA 70. As defined in NFPA 70, optional standby generators will be provided to support authorized facilities or activities when approved by the installation commander.

b. Operations and maintenance. The [illegible] will operate, maintain, repair, and test auxiliary generating units that are classified as real property on [illegible] records in accordance with manufacturer recommendations.

8–9. Uninterruptible power supply units

a. Authorized uninterruptible power supply units. This section applies to uninterruptible power supply (UPS) units, regardless of type, that are installed equipment (real property). Uninterruptible power supply units are authorized only for the support of critical electronic, automatic data processing, and communications equipment that requires continuous electrical power for proper operation.

b. Operations and maintenance. The [illegible] will operate, maintain, repair, and test UPS units that are classified as real property on [illegible] records in accordance with manufacturer recommendations.

8–10. Prime Power Program

The Prime Power Program (PPP) loans 750 kW and 1,500 kW generators and 4.5 mW plants for use in emergencies or for other needs, such as peak shaving. Send requests for loans or information to ATTN CECPW–M–LP, US ARMY CENTER FOR PUBLIC WORKS, 7701 TELEGRAPH ROAD, ALEXANDRIA VA 22315–3862. Include all pertinent data concerning the use of the equipment and personnel required, as specified in AR 700–128.

Chapter 9
Food Service and Related Equipment

9–1. Food service and related equipment policy

This chapter establishes policy and criteria for the efficient and economical operation, maintenance, repair, and construction of food service facilities and related equipment.

a. Equipment used for the removal of vapors, grease, and heat from commercial cooking equipment will comply with the NFPA Standard 96. Personnel who perform maintenance and repair on both the commercial and family housing type cooking equipment will become thoroughly familiar with the NFPA Standard 96.

b. Gas fired food services equipment will be in accordance with NFPA Standard 54, The National Fuel Gas Code.

c. Design and construction criteria for food service and related equipment will be in accordance with the AEI.

d. Energy conservation and improved energy efficient equipment for food service and related equipment will be in accordance with AR 11–27.

e. The use of raw (direct contact) steam for heating food and hot water is not permitted. A steam-generating heat exchanger will be installed where steam is used for direct cooking or where any contact with food is possible.

9–2. Responsibilities for food service equipment

a. The U.S. Army Quartermaster Center and School (USAQMC&S) is responsible for the Army Food Service Program (AR 30–1), except for hospital and nonappropriated fund dining facilities. The USAQMC&S will assist in planning, reviewing, and justifying programs for military construction, minor construction, operations and maintenance, space allocations, and functional equipment layouts and criteria. The USAQMC&S will recommend authorization criteria and type-description for troop support equipment. Common table of allowances (CTA) 50–909 prescribes allowances for food service and related equipment for dining facilities, Army vessels, fire stations, air and crash detachments, hospital food service facilities, and other appropriated fund facilities.

b. The [illegible] is responsible for—

(1) Installing, removing, and providing scheduled maintenance

(other than operator maintenance) and repair for all food service and related equipment in accordance with TM 5–636 or the equipment manufacturer's manuals. Maintenance and direct support schedules will be established in accordance with the equipment manufacturer recommendations.

(2) Initially training food service personnel in operation and operator (first echelon) maintenance of all new installed food service equipment.

(3) Making the final determination of repairability for equipment replacement. Upon determining that the equipment is not economically repairable, the [illegible] in coordination with the food adviser, will specify in writing the basis for the decision. The signed written statement that equipment is uneconomically repairable will be provided through the installation food advisor to the appropriate installation supply activity as the basis for requisitioning the equipment.

(4) Providing cost data on repairs to equipment (parts and labor) to the installation food advisor when required.

c. The [illegible] is not responsible for—

(1) Supply, maintenance, and repair of furniture for dining facilities.

(2) Operator maintenance of food service and related equipment.

9–3. Requisitions for replacement or acquisition

Requisitions for food service and other related equipment will be coordinated with the [illegible] to ensure that proposed equipment is compatible with available space and utilities and that energy efficiency has been considered in the equipment selection. The [illegible] will certify that funds are or will be made available for removal and installation of equipment. The requisitions will reflect minimum essential requirements within the prescribed allowances (CTA 50–909) and follow procedures as prescribed for new and replacement equipment in AR 30–1.

9–4. Grease interceptors

a. Food service personnel are responsible for cleaning grease interceptors located within a dining facility. The [illegible] is responsible for monitoring the operation, maintenance, cleaning, and repair of outside grease interceptors. The [illegible] will establish guidelines for the disposal of materials from cleaned traps. Designated containers will be made available and truck-mounted sludge disposal tanks used whenever possible. Residue will be disposed of in accordance with procedures established by the [illegible] The repair of grease interceptors is a [illegible] function.

b. Grease interceptors will not be installed on drainage piping from garbage grinders, nor are they required in hospital ward serving kitchens or floor pantries.

9–5. Ventilation hoods in dining facilities

a. Ventilation hoods and ductwork will be provided to capture and discharge vapor to the outdoors and recover energy from all conditioned discharge air where cost effective.

(1) Systems that serve cooking equipment such as ranges, deep-fat fryers, griddles, tilting fry pans, woks, ovens, steam jacketed kettles, and toasters (grease-laden vapor producers) will use corrosion-resistant materials and be designed and installed in accordance with NFPA Standard 96.

(2) Systems that exhaust saturated air (water vapor) from equipment such as dishwashers, pressure cookers, coffee urns, steam hot food tables, pot and pan sinks, and are separate from the systems handling grease-laden vapors, will use corrosion-resistant ducts and hoods and will be in accordance with NFPA Standard 90A.

(3) Clean out opening locations and construction details as well as electrical requirements and fire safety features will be in accordance with NFPA Standard 96.

(4) Installed ventilation hoods and related parts will be cleaned in accordance with NFPA Standard 96, chapter 8. Ducts will be cleaned as required, depending on severity of system use and grease accumulation, using resources available to the [illegible] or by commercial contract as determined locally. Food service personnel are responsible for cleaning filters and areas of the exhaust system up to the filters.

b. Hood construction requirements and details and guidance concerning other aspects of food service facility design, including that for family housing kitchen equipment, will be in accordance with the AEI and TB MED 530.

Chapter 10
Reports and Records

10–1. Reporting

All installations will comply with the monitoring and reporting requirements established by applicable Federal, State, and local laws and regulations and the Facilities Engineering Technical Data report (see AR 420–16).

10–2. Solid waste records

The forms listed below are used to record data on solid waste activities. These forms are available through Army publications channels.

a. DA Form 3916 (Daily Log of Truck Trips for Refuse Collection and Disposal). Entries recording refuse weight (tons) will be made daily by collection truck drivers. All entries will be totalled monthly on DA Form 3917 (Refuse Collection and Disposal) by collection supervisors.

b. DA Form 3917 (Refuse Collection and Disposal). Quantities of refuse collected and disposed will be reported in units of weight (tons) (see TM 5–634).

c. DA Form 2788–R (Technical Data Feeder Report). The data from DA Form 3917 will be used to prepare parts of DA Form 2788–R. The DA Form 2788–R will show the quantity of refuse collected and disposed, the quantity of material recycled, and the proceeds from sales. (See AR 420–16.)

10–3. Water and wastewater records

a. Number, kind, and frequency of records. The minimum number, kind, and frequency of water supply and wastewater operating tests and records required for completion of the [illegible] Operating logs, DA Form 4141 (Facilities Engineering Operating Log (Water—General)), DA Form 4374 (Repairs and Utilities Operating Log (Water—Supplementary)), DA Form 4247 (Facilities Engineering Operating Log (Sewage—General)), and DA Form 4178 (Facilities Engineering Operating Log (Sewage—Supplementary)) should be accomplished in accordance with the schedules shown in TM 5–660, TM 5–662, and TM 5–665. Reasonable requests by regulatory authorities to review specific operating records will be honored.

b. Army drinking water surveillance program data. Army installations should provide copies of all drinking water regulatory compliance data to the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) to be included in the Army Drinking Water Surveillance Program data base.

10–4. Heating plant records

Operating logs will be maintained for each high pressure boiler plant to monitor and review the plant's critical parameters and boiler water treatment procedures in accordance with TM 5–650.

Appendix A
References

Section I
Required Publications

a. Government.

(1) Statutes. Copies of these statutes may be found in a legal office or law library compiled under "United States Code."

Energy Policy and Conservation Act
PL 94–163. (Cited in para 3–8*e*.)

Federal Water Pollution Control Act (FWPCA)
As amended by Clean Water Act of 1977 and the Water Quality Act of 1987 (33 U.S.C. 1251, et seq.). (Cited in paras 4–1*b*, 4–1*d*, 4–1*e*, and 4–8*c*.)

General Gift Funds
10 U.S.C. 2601. (Cited in para 7–4.)

Lead Contamination Control Act of October 1988
PL 100–572. (42 U.S.C. 300f, et seq.). (Cited in para 4–1*a*.)

Military Construction Codification Act
PL 97–214. (Cited in paras 3–2*c*(2) and 3–3*h*.)

National Environmental Policy Act (NEPA)
(42 U.S.C.A. 4321, et seq.) (Cited in para 3–1*a*.)

Resource Conservation and Recovery Act (RCRA) of 1976
42 U.S.C. 6901, et seq. (Cited in para 3–1*a*.)

Restriction on Fuel Sources for New Heating Plants
10 U.S.C. 2690. (Cited in para 5–2*a*.)

Safe Drinking Water Act
As amended (19 June 1986 (PL 99–339)). (Cited in paras 4–1*a*, 4–4*a*, and 4–7*a*.)

(2) *The Code of Federal Regulations.* The Code of Federal Regulations may be found in a legal office or law library. Copies may be purchased from the U.S. Government Printing Office: SUPERINTENDENT OF DOCUMENTS, GOVERNMENT PRINTING OFFICE, WASHINGTON DC 20402.

40 CFR 141
National Primary Drinking Water Regulations. (Cited in paras 4–7*i* and 4–10*c*.)

40 CFR 143
National Secondary Drinking Water Regulations. (Cited in para 4–1*a*.)

40 CFR 257
Criteria for Classification of Solid Waste Disposal Facilities and Practices. (Cited in para 3–6*a*.)

40 CFR 258
Criteria for Municipal Solid Waste Landfills. (Cited in paras 3–1*d* and 3–6*a*.)

40 CFR 260
Hazardous Waste Management System: General. (Cited in Glossary.)

40 CFR 266
Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities. (Cited in para 3–8*e*.)

40 CFR 279
Standards for the Management of Used Oil. (Cited in para 3–8*a*.)

49 CFR 192
Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards. (Cited in paras 2–4*b*, 6–8*a*, and 6–8*b*.)

b. Military.

Air Force Manual (AFM) 85–5
Maintenance and Operation of Cathodic Systems. (Cited in para 4–5*b*.)

AR 1–100
Gifts and Donations. (Cited in para 7–4.)

AR 11–18
The Cost and Economic Analysis Program. (Cited in para 2–2*h*.)

AR 11–27
Army Energy Program. (Cited in paras 2–2*d*, 6–2*a*, 7–2*b*, and 9–1*d*.)

AR 30–1
The Army Food Service Program. (Cited in paras 9–2*a* and 9–3.)

AR 37–1
Army Accounting and Fund Control. (Cited in para 8–5.)

AR 40–5
Preventive Medicine. (Cited in paras 3–1*b*, 4–1*a*, 4–4*c*, and 4–7*k*.)

AR 40–61
Medical Logistics Policies and Procedures. (Cited in para 3–1*b*.)

AR 190–13
The Army Physical Security Program. (Cited in para 8–7.)

AR 200–1
Environmental Protection and Enhancement. (Cited in paras 2–2*c*, 3–3*j*, 3–8*a*, 3–8*d*, 3–8*e*, 4–1*b*, 4–1*f*, 5–4*c*, and 6–1*d*.)

AR 210–17
Inactivation of Installations. (Cited in para 5–4*c*.)

AR 210–20
Master Planning for Army Installations. (Cited in paras 2–2*f* and 4–3*b*.)

AR 210–53
Participation by Army, Navy, Marine Corps and Air Force Organizations in Nonappropriated Funds. (Cited in para 4–13*a*.)

AR 215–1
Nonappropriated Fund Instrumentalities and Morale, Welfare, and Recreation Activities. (Cited in paras 2–2*e* and 3–3*i*.)

AR 385–10
Army Safety Program. (Cited in paras 2–3 and 5–4*a*(3).)

AR 385–30
Safety Color Code Markings and Signs. (Cited in para 8–3*a*(1).)

AR 385–64
Ammunition and Explosives Safety Standards. (Cited in para 8–1*d*.)

AR 415–15
Army Military Construction Program Development and Execution. (Cited in para 2–2*b*.)

AR 420–10
Management of Installation Directorates of Engineering and Housing. (Cited in paras 2–2*a* and 2–2*b*.)

AR 420–16
Facilities Engineering Reports. (Cited in paras 10–1 and 10–2*c*.)

AR 420–18
Facilities Engineering Materials, Equipment and Relocatable Buildings Management. (Cited in paras 3–1*c* and 5–3*c*.)

AR 420–41
Acquisition and Sales of Utilities Services. (Cited in paras 2–2*e* and 4–12*b*.)

AR 420–72
Surfaced Areas, Bridges, Railroad Track and Associated Appurtenances. (Cited in para 4–1*i*.)

AR 420–74
Natural Resources; Land, Forest, and Wildlife Management. (Cited in paras 4–1*b* and 4–1*f*.)

AR 420–76
Pest Management. (Cited in paras 3–6*b* and 4–8*f*.)

AR 420–90
Fire Protection. (Cited in Summary of Change.)

AR 608–10
Child Development Services. (Cited in para 6–6*b*(2).)

AR 700–128
Prime Power Program. (Cited in para 8–10.)

Architectural and Engineering Instructions (AEI), U.S. Army Corps of Engineers
(Cited in paras 3–1*d*, 3–6*a*, 4–1*h*, 4–3*b*, 4–10*d*, 4–10*e*, 6–1*b*, 6–2*c*, 6–6*a*, 6–6*b*(3), 7–2*c*, 7–6*b*, 8–1*a*, 9–1*c*, and 9–5*b*.) AEIs are available from ATTN CEHNC–ED–ES–I, US ARMY ENGINEERING AND SUPPORT CENTER HUNTSVILLE, PO BOX 1600, HUNTSVILLE AL 35807–4301.

CTA 50–909
Field and Garrison Furnishings and Equipment. (Cited in paras 9–2*a* and 9–3.)

DA PAM 420–8
Facilities Engineering Management Handbook. (Cited in para 2–2*a*.)

Defense Energy Program Policy Memorandum
Private-Sector Financed Defense Energy Contracts (Third- Party Contracting for Energy—10 U.S.C. 2394). (Cited in para 2–1*c*.)
This memorandum is available from the Deputy Under Secretary of Defense (Industrial Affairs): ATTN IA/I/E&E, OFFICE OF THE DEPUTY UNDER SECRETARY OF DEFENSE, 400 ARMY-NAVY DRIVE, ARLINGTON VA 22202–2884.

DOD 4160.21–M
Defense Reutilization and Marketing Manual. (Cited in para 3–3*g*.)
Department of Defense publications are available from the DEFENSE TECHNICAL INFORMATION CENTER, 8725 JOHN J KINGMAN ROAD SUITE 0944, FORT BELVOIR VA 22606.

DODD 6050.16
DOD Policy for Establishing and Implementing Environmental Standards at Overseas Installations. (Published 20 September 1991; cited in para 2–1*b*.)
This directive is available from the Defense Technical Information Center (see the address above).

DODD 7310.1
Disposition of Proceeds From DOD Sales of Surplus Personal Property. (Cited in para 3–3*g*.)
This directive is available from the Defense Technical Information Center (see the address above).

DODI 4715.4
DOD Policy for Pollution Prevention. (Published 18 June 1996; cited in para 3–3*f*.)

EM 385–1–1
Safety and Health Requirements Manual. (Cited in para 8–1*b*.)
This publication is available from ATTN CEHNC–ED–ES–I, US ARMY ENGINEERING AND SUPPORT CENTER HUNTSVILLE, PO BOX 1600, HUNTSVILLE AL 35807–4301.

Memorandum of Agreement on Criteria/Standards For Economic Analyses/Life Cycle Costing For Milcon Design.
(Cited in para 2–2*h*.)
Available from ATTN CEMP–EC, US ARMY CORPS OF ENGINEERS, 20 MASSACHUSETTS AVENUE, WASHINGTON DC 20314–1000.

MIL–HDBK–419A
Grounding, Bonding, and Shielding for Electronic Equipment and Facilities Basic Theory. (Cited in paras 8–1*d* and 8–6*c*.)
Available from COMMANDING OFFICER, NAVAL PUBLICATIONS AND FORMS CENTER, 5801 TABOR AVENUE, PHILADELPHIA PA 19120.

MIL–STD–188–124A
Grounding, Bonding, and Shielding for Common Long Haul/ Tactical Communication Systems. (Cited in para 8–6*c*.)
Available from the Naval Publications and Forms Center (see the address above).

TB ENG 249
Repairs and Utilities: Coal Sampling. (24x microfiche; cited in paras 1–4*h*(1) and 5–3*b*(1).)

TB MED 530
Occupational and Environmental Health Food Service Sanitation. (Cited in para 9–5*b*.)

TB MED 575
Swimming Pools and Bathing Facilities. (Cited in para 4–13*c*.)

TB MED 576
Occupational and Environmental Health Sanitary Control and Surveillance of Water Supplies at Fixed Installations. (Cited in paras 4–1*a*, 4–3*a*, 4–7*a*, 4–7*i*, 4–7*k*, and 4–7*m*.)

TM 5–634
Solid Waste Management. (Cited in paras 3–1*c*, 3–4*a*, and 3–6*a*.)

TM 5–636
Kitchen Equipment: Repairs and Utilities. (Cited in para 9–2*b*(1).)

TM 5–650
Repairs and Utilities: Central Boiler Plants. (Cited in paras 6–1*c*, 6–4*a*, 6–4*c*, 6–5*a*, and 10–3*a*.)

TM 5–653
Steam, Hot Water and Gas Distribution Systems: Inspection and Preventive Maintenance Service. (Cited in para 6–9*a*.)

TM 5–660
Maintenance and Operation of Water Supply, Treatment and Distribution Systems. (Cited in paras 4–1*g*, 4–5*b*, 4–7*a*, 4–7*c*, 4–7*g*, 4–7*k*, 4–7*l*, 4–10*b*, and 10–3*a*.)

TM 5–662
Swimming Pool Operation and Maintenance. (Cited in paras 4–13*c* and 10–3*a*.)

TM 5–665
Operation and Maintenance of Domestic and Industrial Wasteswater Systems. (Cited in paras 4–1*g*, 4–5*b*, and 10–3*a*.)

TM 5–670
Repairs and Utilities for Refrigeration Air Conditioning, Mechanical Ventilation and Evaporative Cooling. (Cited in para 7–6*c*.)

TM 5–671
Repairs and Utilities: Preventive Maintenance for Refrigeration, Air-Conditioning, Mechanical Ventilation, and Evaporative Cooling. (Cited in paras 7–2*e* and 7–6*c*.)

TM 5–675
Repairs and Utilities: Solid Fuels Operations. (Cited in paras 5–3*b* and 5–3*c*.)

TM 5–682
Facilities Engineering: Electrical Facilities Safety. (Cited in para 8–1*b*.)

TM 5–683
Facilities Engineering: Electrical Interior Facilities. (Cited in para 8–1*b*.)

TM 5–684
Facilities Engineering: Electrical Exterior Facilities. (Cited in paras 8–1*b*, 8–3*a*(1), and 8–6*b*.)

TM 5–685
Facilities Engineering: Operation, Maintenance, and Repair of Auxiliary Generators. (Cited in para 8–1*b*.)

TM 5–810–17
Heating and Cooling Distribution Systems. (Cited in para 6–9*a*.)

TM 5–811–1
Electric Power Supply and Distribution. (Cited in para 8–5*d*.)

TM 5–811–3
Electrical Design: Lightning and Static Electricity Protection. (Cited in para 8–1*d*.)

TM 5–853–4
Security Engineering Electronic Security System. (Cited in para 8–7*a*.)

TM 9–1300–206
Ammunition and Explosives Standards. (Cited in para 8–1*d* and 8–6*b*.)

c. Other.

(1) *Air Conditioning and Refrigeration Institute.*

Air Conditioning and Refrigeration Institute Heat Pump Certification Program
(Cited in para 7–2*e*.)
This publication may be obtained from AIR CONDITIONING AND REFRIGERATION INSTITUTE, 1501 WILSON BOULEVARD, ARLINGTON VA 22209.

(2) *American Petroleum Institute.*

RP 2015
Cleaning Petroleum Storage Tanks. (Cited in para 5–4*a*(4).)
This publication is available from AMERICAN PETROLEUM INSTITUTE, 2101 L STREET NW, WASHINGTON DC 20037.

(3) *American Society of Heating, Refrigerating, and Air Conditioning Engineers.*

ASHRAE Handbook of HVAC Systems and Applications
(Cited in para 7–6*e*.)
This publication may be obtained from AMERICAN SOCIETY OF HEATING REFRIGERATION AND AIR CONDITIONING ENGINEERS, 1791 TULLIE CIRCLE NE, ATLANTA GA 30329.

(4) *American Society of Mechanical Engineers.*

Section 7, Rules for Inspections: Care of Power Boilers
(Cited in para 6–3*d*.)
These rules are available from the AMERICAN SOCIETY OF MECHANICAL ENGINEERS, UNITED ENGINEERING CENTER, 345 EAST FORTY-SEVENTH STREET, NEW YORK NY 10017.

(5) *American Water Works Association.* The AWWA standards listed below may be obtained from the AMERICAN WATER WORKS ASSOCIATION, 666 WEST QUINCY AVENUE, DENVER CO 80235.

AWWA C651–86
Disinfecting Water Mains. (Cited in para 4–7*b*.)

AWWA C652–86
Disinfection of Water-Storage Facilities. (Cited in para 4–7*b*.)

AWWA C653–87
Disinfection of Water Treatment Plants. (Cited in para 4–7*b*.)

AWWA C654–87
Disinfection of Wells. (Cited in para 4–7*b*.)

AWWA Manual No. 19
Emergency Planning for Water Utility Management. (Cited in para 4–3*a*.)

(6) *National Association of Corrosion Engineers.* The publications listed below are available from NACE INTERNATIONAL, PO BOX 218340, HOUSTON TX 77218–8340.

NACE RP 0169–92
Control of External Corrosion on Underground or Submerged Metallic Piping Systems. (Cited in para 4–10*f*.)

NACE RP 0388–95
Impressed Current Cathodic Protection of Internal Submerged Surfaces of Steel Water Storage Tanks. (Cited in para 4–10*f*.)

(7) *National Electrical Safety Code.*

National Electrical Safety Code
(Cited in paras 8–1*b* and 8–6*b*.)
Available from the National Fire Protection Association (see address below).

(8) *National Fire Protection Association.* The publications listed below are available from the NATIONAL FIRE PROTECTION ASSOCIATION, BATTERYMARCH, QUINCY MA 02269–9101.

NFPA Standard 54
The National Fuel Gas Code. (Cited in para 9–1*b*.)

NFPA 70
National Electrical Code. (Cited in para 8–8*a*.)

NFPA 70B
Electrical Equipment Maintenance. (Cited in para 8–1*b*.)

NFPA 70E
Standard for Electrical Safety Requirements for Employee Workplaces. (Cited in para 8–1*b*.)

NFPA Standard 90A
Installation of Air Conditioning and Ventilating Systems. (Cited in para 9–5*a*(2).)

NFPA Standard 96
Installation of Equipment for the Removal of Grease Laden Vapors from Commercial Cooking Equipment. (Cited in paras 9–1*a*, 9–5*a*(1), 9–5*a*(3), and 9–5*a*(4).)

NFPA No. 327
Standard Procedures for Cleaning or Safeguarding Small Tanks and Containers. (Cited in para 5–4*a*(4).)

(9) *National Institute for the Uniform Licensing of Power Engineers, Inc.*

Requirements for Fourth Class Power Engineer Certification Program
(Cited in para 2–4*a*.)
Requirements are available from the NATIONAL INSTITUTE FOR THE UNIFORM LICENSING OF POWER ENGINEERS INC, 1436 FRITZ ROAD, VERONA WI 53593.

Section II
Related Publications

A related publication is a source of additional information. The user does not have to read it to understand this regulation.

a. Military.

AR 200–2
Environmental Effects of Army Actions.

AR 608–10
Child Development Services.

CEGS 02685
Gas Distribution Systems.

CEGS 15488
Gas Piping Systems.

ETL 1110–3–404
Utilities Systems Planning—Installation Comprehensive Planning. This publication is available from the U.S. Army Engineering and Support Center, Huntsville: ATTN CEHNC–ED–ES–I, US ARMY ENGINEERING AND SUPPORT CENTER HUNTSVILLE, PO BOX 1600, HUNTSVILLE AL 35807–4301.

PWB 420–10–08
Facilities Operation, Maintenance, and Repair Guidance for Base Realignment and Closing Installations.
Public Works bulletins and Public Works technical bulletins are available from from U.S. Army Center for Public Works: ATTN CECPW–P, US ARMY CENTER FOR PUBLIC WORKS, KINGMAN BUILDING, 7701 TELEGRAPH ROAD, ALEXANDRIA VA 22315–3862.

PWTB 420–47–06
Waste Reductions Methods for Food Service Personnel at Army Installations. Available at the address above.

PWTB 420–47–07
Office Waste Reduction Methods at Army Installations. Available at the address above.

PWTB 420–49–02
Source Reduction Planning. Available at the address above.

PWTB 420–49–07
Solid Waste Options. Available at the address above.

PWTB 420–49–08
Integrated Solid Waste Management. Available at the address above.

TM 5–642
Operator and Maintenance, Small Heating Systems.

TM 5–643
Repairs and Utilities: Preventive Maintenance for Heating Plants and Systems.

TM 5–644
Boiler Heating; Repairs and Utilities.

TM 5–646
Space Heaters; Repairs and Utilities.

TM 5–651
Central Boiler Plants; Inspection and Preventive Maintenance Services.

TM 5–654
Maintenance and Operation of Gas Systems.

TM 5–678
Repairs and Utilities: Petroleum, Oils, and Lubricants (POL).

TM 5–745
Heating, Ventilating, Air Conditioning and Sheet Metal Work.

TM 5–811–4
Engineering and Design: Corrosion Control.

TM 5–811–7
Electrical Design, Cathodic Protection.

b. Other.

(1) *Environmental Protection Agency.* Evironmental Protection Agency publications listed below may be obtained from ENVIRONMENTAL PROTECTION AGENCY, TS–789, 401 M STREET SW, WASHINGTON DC 20460.

EPA/530–SW–89–038
Yard Waste Composting. (Published April 1989.)

EPA/530–R95–023
Decision-Makers Guide to Solid Waste Management. (Published August 1995.)

EPA 570/9–89–002
Environmental Protection Agency Handbook General Public Notification For Public Water Systems.

(2) *Required reports.*

RCS: DD–M(SA)1383
Environmental Protection Control Report.

RCS: DD–M(SA) 1485
Environment Management By Objective (MBS) Report.

RCS: MED–3
Command Health Report.

Section III
Prescribed Forms

DA Form 3916
Daily Log of Truck Trips for Refuse Collection and Disposal. (Prescribed in para 10–2*a*.)

DA Form 3917
Refuse Collection and Disposal. (Prescribed in para 10–2.)

DA Form 4141
Facilities Engineering Operating Log (Water—General). (Prescribed in para 10–3*a*.)

DA Form 4178
Facilities Engineering Operating Log (Sewage—Supplementary). (Prescribed in para 10–3*a*.)

DA Form 4247
Facilities Engineering Operating Log (Sewage—General). (Prescribed in para 10–3*a*.)

DA Form 4374
Repairs and Utilities Operating Log (Water—Supplementary). (Prescribed in para 10–3*a*.)

Section IV
Referenced Forms

DA 11–2–R
Management Control Evaluation Certification Statement

DA 2788–R
Technical Data Feeder Report

DD Form 250
Materiel Inspection and Receiving Report

Appendix B
Materials for Disposal by Army Activities

The following materials will not be turned in to DRMO for disposal. Disposal of these materials is the responsibility of the generating activity.

B–1. Toxicological, biological, radioactive, and lethal chemical warfare materials that, by U.S. law, must be destroyed

Disposal of the by-products of such material is the responsibility of the DOD component generating the waste, with assistance from DLA.

B–2. Materials, such as radioactive substances and controlled medical items, that cannot be disposed of in their present form because of military regulations

This category of materials would include those instances in which military regulations require the obliteration of all markings that could relate an excess material to its operational program. Once the appropriate actions are taken by the turn-in activity to meet regulatory requirements, the resulting material could then be turned in to the servicing DRMO.

B–3. Municipal-type garbage, trash, and refuse resulting from residential, institutional, commercial, agricultural, and community activities that the (b)(routinely collects

B–4. Contractor-generated materials that are the contractor's responsibility for disposal under the terms of the contract

Wastes, generated by a contractor operator at a Government-owned, contractor-operated (GOCO) activity, which are related to the production of ammunition and generated by authority of the Plant Utilization Policy, are not DRMS responsibilities.

B–5. Sludge resulting from municipal wastewater treatment facilities and water treatment facilities

B–6. Sludge and residues generated as a result of industrial plant processes or operations

The hazardous waste generators are responsible for—

a. Disposal of sludge and residues resulting from industrial waste treatment facilities.

b. Commingled materials, resulting from industrial plant facilities, that are accumulated into commingled storage for disposition instead of processing through industrial waste treatment facilities.

B–7. Refuse and other discarded materials that result from mining, dredging, construction, and demolition operations

B–8. Unique wastes and residues of a nonrecurring nature that research and development experimental programs generate

Appendix C
Management Control Evaluation Checklist

C–1. Function

The function covered by this checklist is installation utilities.

C–2. Purpose

The purpose of this checklist is to assist the Director of Public Works in evaluating the key management controls outlined below. It is not intended to cover all controls.

C–3. Instructions

Answers must be based on the actual testing of key management controls (for example, document analysis, direct observation, sampling, simulation, other). Answers that indicate deficiencies must be explained and corrective action indicated in supporting documentation. These key management controls must be formally evaluated at least once every 5 years. Certification that this evaluation has been conducted must be accomplished on DA Form 11–2–R (Management Control Evaluation Certification Statement). A copy of this form is located at the back of this publication.

C–4. Test questions

a. General.

(1) Where LCC effective, are utility services obtained from local, municipal, or regional (public and private) authorities?

(2) Do installations participate in local, municipal, and regional utility planning organizations?

(3) Do utility services comply with all applicable Federal, State, and local standards, laws, and regulations?

(4) Are applicability of State and local laws and regulations for installation utility services referred to the installation Staff Judge Advocate General for interpretation?

(5) Do OCONUS Army installations comply with the final governing standards (FGS) issued by the Department of Defense (DOD) Executive Agent for the host nation concerned?

(6) Has an Installation Utilities Management Plan (IUMP) been developed and implemented?

(7) Have a utility vulnerability analyses and remedial action plans been prepared to ensure mission support in event of disruption to major utility systems?

(8) Have emergency response plans for each type of utility service been prepared?

(9) Do installations with gas (natural gas, manufactured gas, and vaporized LPG products, that is, propane and propane/air mixtures) distribution systems provide training for personnel working on or involved with the design, construction, or management of these systems in accordance with 49 CFR 192?

(10) Is all work properly classified in accordance with AR 420–10?

b. Certification of utility plant operators.

(1) Are all utility plant operators and maintenance personnel licensed by governing authorities with certification or licensing programs that meet Army or applicable State and local standards?

(2) Are contract personnel properly and currently licensed by the appropriate authority of the political subdivision in the vicinity?

c. Solid waste management.

(1) Are proper storage containers used and are pick-up stations located for maximum efficiency for the storage, collection, and transportation of nonhazardous waste?

(2) Are collection operations periodically evaluated to ensure the most efficient operation?

(3) Does all equipment used for solid waste collection meet standards for operational safety published in Federal regulations and guidelines, Army guidelines, and host country guidelines and regulations?

(4) Are source separation, resource recovery, and recycling programs determined to be life cycle cost-effective prior to establishment or expansion of such programs?

(5) Are management policies and procedures for the recycling program established?

(6) Are new or expanded facilities justified?

(7) Does the design of new or expanded facilities comply with current engineering standards and all Federal, State, and local regulations or host country regulations?

(8) Are thermal processing facilities and landfills operated and maintained efficiently and safely in accordance with Federal, State, or local standards?

(9) Are proper disposal arrangements made for ash and residue from thermal processing facilities so the materials will be disposed of in an environmentally safe manner?

d. Water supply and wastewater.

(1) Are monitoring equipment and billing procedures the most feasible and necessary for the Government for the purchase and sale of water and wastewater services?

(2) Is quality control of water supply, treatment, storage, and distribution facilities and wastewater collection and treatment systems maintained?

(3) Are laboratory facilities properly certified?

(4) Is usefulness of active deep wells maximized?

(5) Are appropriate water supply conservation analyses systematically conducted?

(6) Will water supply and wastewater facility operation and maintenance continue in times of national or local emergencies?

(7) Are water users protected?

(a) Are water users notified of any actual or anticipated noncompliance with water quality, including microbiological, chemical, pesticide and radiological analyses reports; excessive contaminant levels; inadequate procedures or frequencies; and all approved or requested variations in water quality or exemptions to surveillance criteria?

(b) Is the Health Command Report (RCS MED–3) (AR 40–5) used to report all violations, variations, and exemptions in water quality and variations and violations of an exemption to wastewater facility surveillance requirements to the MACOM?

(8) Are inspections conducted and acted upon?

(a) Are results of water and wastewater facility inspections and water quality tests conducted by Federal and State agencies reported?

(b) Are all major operational changes that are recommended in inspection reports recorded and acted on?

(c) Are inspection reports submitted to HQDA and maintained in appropriate files?

(9) Is quality maintained over water supply and wastewater facility operations?

(a) Are variations in water quality or exemptions to water surveillance criteria as recorded in analysis reports reviewed?

(b) Are variations and violations of any exemption to wastewater facility surveillance criteria, as reported in the Command Health Report, reviewed?

(c) Are those variations that will not pose a risk to water users approved?

(d) Is technical assistance and/or directives to correct reported violations provided?

e. Heating, energy selection, and fuel storage, distribution, and dispensing systems.

(1) Are all fuel-burning facilities equipped with air pollution abatement equipment or using the type of fuel that meets the Federal, State, or local requirements for environmental pollution abatement?

(2) Are energy conservation programs established in accordance with this regulation and AR 11–27?

(3) Has an effective corrosion control program been established in accordance with this regulation and TM 5–811–4?

(4) Is the most economical grade of coal or oil used consistent with air pollution abatement criteria for coal-burning or multi-grade oil-burning equipment?

(5) Are piping and valves in central boiler plants, outside distribution systems, and in main distribution system(s) in buildings marked with color banding and/or titles to indicate contents or purpose?

(6) Are Government-owned and operated boilers and boilers operated by private contractors inspected by qualified inspectors of a recognized insurance company or other agency ca pable of performing such work?

(7) Are heating and cooling distribution systems properly maintained?

(8) Are water softeners and soft water supplies for central laundries, mess halls, hospitals, dental clinics, laboratories, and other facilities provided in accordance with TM 5–813–3?

(9) Are safety procedures outlined in this regulation and TM 5–652 for the supply, storage, and distribution of natural and LP gases complied with?

(10) Are periodic leakage tests on underground gas distribution systems performed per TM 5–652?

(11) Is boiler water monitored and treated as required?

(12) Are chemicals used for boiler water treatment purposes or for corrosion prevention purposes in condensate-return lines procured on the basis of a single chemical content, provided that other chemicals in the product do not exceed 10 percent by weight of the total chemical ingredients?

(13) Are energy sources for conversions or new construction selected with careful consideration of national reserves, balance of payments, economics, availability, and the extent that sources are renewable in the natural environment?

(14) Are contingency plans prepared for potential interruptions of existing and proposed sources of energy?

(15) Are patching and hot work operations on tanks performed safely? Are personnel aware of potential hazards and following safety practices and precautions for patching and hot work operations?

f. Air conditioning and refrigeration.

(1) Is air conditioning, refrigeration, and ventilation equipment in compliance with the AEI?

(2) Is operation, maintenance, and repair of air conditioning, evaporative cooling, dehumidification, and mechanical ventilation equipment in accordance with TM 5–671?

(3) Are automatic controls and alarms properly installed in appropriate facilities?

(4) Are facilities safeguarded by testing, inspecting and maintaining automatic controls and alarms on a regular scheduled basis?

(5) Are gas masks available where toxic refrigerants are used?

g. Electric service.

(1) Are all electric services and equipment in accordance with the National Electric Code?

(2) Is maintenance on all electric services and equipment in accordance with NFPA 70B, TM 5–683, TM 5–684, TM 5–685, TM 9–1300–206, and the National Electrical Safety Code (NESC)?

(3) Is a power system analysis of the installation conducted at least every 5 years?

h. Food service and related equipment.

(1) Is food service and related equipment in accordance with this regulation and CTA 5–911?

(2) Is food service and related equipment compatible with utility characteristics (including electrical voltage, phases, frequency, and current available; gas type and pressure; or water pressure and capacity if applicable)?

(3) Are health and safety standards adhered to for equipment installation?

(4) Is equipment properly installed in accordance with National Fire Protection Association Standards?

(5) Have user training programs been developed and conducted for the operation, preventive maintenance, and energy conservation of food service and other related equipment?

C–5. Supersession

This checklist replaces the checklists for AR 420–15, AR 420–46, AR 420–47, AR 420–49, AR 420–54, and AR 420–55, previously published in DA Circular 11–87–4, and for AR 420–43, previously published in DA Circular 11–93–1.

C–6. Comments

Help make this a better tool for evaluating management controls. Submit comments to the Assistant Chief of Staff for Installation Management: ATTN DAIM–FDF–U, ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT, 600 ARMY PENTAGON, WASHINGTON DC 20310–0600.

Glossary

Section I
Abbreviations

ACSIM
Assistant Chief of Staff for Installation Management

AEI
U.S. Army Corps of Engineers architectural and engineering instructions

AFM
Air Force manual

API
American Petroleum Institute

AR
Army regulation

ARI
American Refrigeration Institute

ARNG
Army National Guard

ASA(I,L,&E)
Assistant Secretary of the Army (Installations, Logistics, and Environment)

ASHRAE
American Society of Heating, Refrigeration, and Air Conditioning Engineers.

ASME
American Society of Mechanical Engineers

ASTM
American Society for Testing and Materials

ATCOM
U.S. Army Aviation and Troop Command

AWWA
American Waterworks Association

BPVI
Boiler and Pressure Vessel Inspectors

CEGS
Corps of Engineers Guide Specification

CEHNC
U.S. Army Engineering and Support Center

CFR
Code of Federal Regulations

CG
commanding general

COE
Chief of Engineers

CONUS
Continental United States

CTA
common table of allowances

CWA
Clean Water Act

DA
Department of the Army

DEAE
diethylaminoethanol

DFSC
Defense Fuel Supply Center

DLA
Defense Logistics Agency

DOD
Department of Defense

DODD
Department of Defense directive

(b)(
Director of Public Works

DRMO
Defense Reutilization and Marketing Office

DRMS
Defense Reutilization and Marketing Service

EPA
U.S. Environmental Protection Agency

ETL
Engineers technical letter

FGS
final governing standards

FWPCA
Federal Water Pollution Control Act

GOCO
Government-owned, contractor-operated

HQDA
Headquarters, Department of the Army

HTW
high-temperature water

HWMP
Hazardous Waste Management Plan

IDS
Intrusion Detection System

IMA
Installation Medical Authority

INSCOM
U.S. Army Intelligence and Security Command

ISWM
Integrated Solid Waste Management

IUMP
Installation Utilities Management Plan

IWRAPS
Installation Water Resources Analysis and Planning System

LCC
life cycle cost

LPG
liquified petroleum gas

MACOM
major Army command

MBO
management by objective

MCA
Military Construction, Army

MCX
Mandatory Center of Expertise

MDA
Memorandum of Agreement

MSWLF
municipal solid waste landfill

NACE
National Association of Corrosion Engineers

NAF
nonappropriated fund

NEC
National Electrical Code

NEPA
National Environmental Policy Act

NESC
National Electrical Safety Code

NFPA
National Fire Protection Association

NPDES
National Pollutant Discharge Elimination System

NPS
non-point source

OCONUS
outside Continental United States

OSHA
Occupational Safety and Health Act

PAM
pamphlet

PL
public law

POL
petroleum, oils, and lubricants

ppm
parts per million

PPP
Prime Power Program

PWB
Public Works bulletin

PWTB
Public Works technical bulletin

QRP
qualifying recycling program

RCRA
Resource Conservation and Recovery Act

RCS
Requirement Control Symbol

RDF
refuse derived fuel

RP
recommended practice

SCP
Spill Contingency Plan

SDWA
Safe Drinking Water Act

SOP
standing operating procedure

SPCCP
Spill Prevention Control and Countermeasures Plan

SWDA
Solid Waste Disposal Act

SWM
solid waste management

TB
technical bulletin

TB MED
technical bulletin, medical

TM
technical manual

UPS
uninterruptible power supply

USACHPPM
U.S. Army Center for Health Promotion and Preventive Medicine

USAISC
U.S. Army Information Systems Command

USACPW
U.S. Army Center for Public Works

USAPC
U.S. Army Petroleum Center

USAQMC&S
U.S. Army Quartermaster Center and School

USAR
U.S. Army Reserve

USC
United States Code

WRMP
Water Resource Management Plan

Section II
Terms

Air conditioning
A method of reducing air temperature by mechanical means. Air conditioning may be done with either mechanical or absorption refrigeration systems and equipment.

Alternate fuel
The energy source for which a plant is equipped to operate either simultaneously with the primary fuel or instead of the primary fuel with minor adjustments to the combustion equipment.

Auxiliary generators (auxiliary generating units)
Electric power sources, other than prime power generating units, used to supply electricity on a temporary, regular, or uninterruptible basis. Includes motor-generators, frequency converters, engine-driven or turbine-driven conventional generators, uninterruptible power supplies, fuel cells, solar photovoltaic generators, and wind generators.

Base power system
The Army-owned portion of an electrical distribution system. It consists of a source of electricity (generator, intake station from an off-post source, or both), lines, transformers, and associated control and protective devices needed to distribute electric power and provide exterior lighting throughout the installation. The system is carried on the Inventory of Military Real Property as facilities classes 136, 810, 811, 812, and 813.

Bulk waste
Large items of solid waste, such as household appliances, furniture, large auto parts, trees, branches, stumps, and other oversize waste, for which large size precludes or complicates handling by normal solid waste collection, processing, or disposal methods.

Cell
Compacted solid waste enclosed by natural soil or cover material in a land disposal site. (40 CFR 241)

Central air-conditioning plant
A single-point source (one location) of refrigeration that may supply one or more air handling units or fan-coil units. A central plant will be a single integrated system serving all the permissible spaces of a building or group of buildings.

Closed landfill
A sanitary landfill where all cells have been completely utilized, the disposal of solid waste has ended, and the owner or operator has closed in accordance with the approved facility closure plan and all applicable closure requirements (40 CFR 260).

Coal
For purposes of this regulation, the designation *coal* includes anthracite, bituminous, sub-bituminous, culm, and lignite.

Commercial solid waste
All types of solid waste (excluding hazardous waste) generated by stores, offices, clubs, cafeterias, dining facilities, warehouses, and other non-manufacturing activities. This includes non-processing waste generated at industrial facilities such as packing waste and paper products. Construction and demolition waste are not included in this category.

Composting
Composting is the controlled biological decomposition of organic solid waste under aerobic conditions.

Construction
a. The erection, installation, or assembly of a new facility.
b. The addition, expansion, extension, alteration, conversion, or replacement of an existing facility.
c. The relocation of a facility from one installation to another.
d. Installed equipment made a part of the facility, related site preparation, excavation, filling, landscaping, or other land improvements.

Construction and demolition waste
The waste building materials, packaging and rubble resulting from construction, alteration, remodeling, repair, and demolition operations on pavements, houses, buildings, and other structures.

Conversion
Removal of installed energy utilization (fuel-burning) equipment and installation of equipment to use a different energy source. Included under the designation *conversion* are the following:
a. Change in energy source in a repair project.
b. Replacement of a boiler or furnace with a new unit that uses a different energy source.
c. The expansion of an existing plant or system by the addition of boilers or heating equipment using an energy source other than that used in the plant or system being expanded. Selection of a different fuel from that being used in the existing plant must be economically supportable (LCC basis).
d. A change in energy source to meet air pollution emission standards.

Note. The addition of dual-fuel capability to existing systems is not considered a conversion for purposes of this regulation.

Dehumidifying
The reducing, by any process, of the quantity of water vapor within a given space, regardless of dry bulb temperature.

Dual-fuel plant
Heating unit, boiler, or power plant which has been completely and permanently equipped to use either of two energy sources at any time with only minor operational changes required to switch from one energy source to the other. In these cases, one energy source will be designated as the *primary fuel* and the second as the *alternate fuel.*

Emergency generators
Auxiliary generators used as alternate temporary sources of power. They operate either manually or automatically to supply electricity when the normal supply fails. They are sometimes called standby generators.

Energy source
Includes all types of solid, liquid, and gaseous fuels, electricity, refuse-derived fuels, solar and geothermal energy, and other technically feasible alternatives. Also, includes heat or fuel source that is available as a by-product of electrical power generation or process operation.

Equipment in place
Any fixed property that is not real property on the [(b)(] records.

Evaporative cooling
The process by which the dry bulb temperature of the air is reduced while the wet bulb temperature remains constant.

Existing landfill
A sanitary landfill that is in existence, operation, or both. An existing landfill may be divided into cells for operation, planning, and management purposes.

Facility
A building, structure, or other real property improvement. Ships at sea, aircraft in the air, or forces on maneuvers are not subject to this regulation.

Failed or failing landfill
A sanitary landfill from which the ground or surface water is being polluted and consequently causing non-compliance with pollution control standards or regulations, or both.

Food service and related food service equipment
a. Food service equipment includes mechanical, cooking, and other equipment, excluding utensils used in preparing, processing, and serving foods.
b. Related food service equipment includes items of equipment used in support of the preparation, processing, serving, and preservation of foods; disposition of garbage; and cleaning of wares. For example, dish and pot and pan washing equipment and ventilation hoods are related food service equipment items.
c. Installed air conditioning, refrigeration (for example, built-in reefers), and ventilation equipment, other than hoods, will not be classified as food service or related food service equipment.
d. Food packaging and processing equipment used in commissaries are not food service equipment.

Frequency converters
Electrically driven generators (either rotary or solid state) in which the input and output frequencies are different and the input and output voltages and number of phases may be the same or different.

Gas
Any gas, including, but not limited to, natural gas, manufactured gas, and evaporated LPG products (propane or propane/air mixtures), that is distributed through a pipe line.

Hazardous waste
A solid waste not specifically excluded from the restrictions of Federal regulations (42 U. S.C. 6901, et seq. that meets the criteria listed in 40 CFR 261 or is specifically named as a hazardous waste in Federal regulations.

Heating installations and plants
Plants generating steam, hot water, or warm air may consist of one or more furnaces, boilers, or hot water generators. The designation includes all such units in the plant, building, or room (for example, three 100 MBTU boilers, either in a separate heating plant or in a mechanical room in a building, constitute a 300 MBTU heating plant).

High-grade paper
Letterhead, dry copy paper, miscellaneous business forms, stationery, typing paper, tablet sheets, and computer printout paper and cards commonly sold as white ledger, computer printout, and tab card grade by the wastepaper industry. High-grade paper is included in the commercial solid waste category.

Household hazardous waste
Waste resulting from products purchased by the general public for household use that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may pose a substantial known or potential hazard to human health or the environment when improperly treated, disposed of, or otherwise managed.

Humidity control
The controlling, by any process, of the quantity of water vapor within a given space, regardless of dry bulb temperature.

Installed equipment
Real property on the records of the [(b)(including all permanently attached equipment normally considered parts of structures.

Integrated Solid Waste Management
Army solid waste policy is based on the concept of Integrated Solid Waste Management (ISWM). The concept of ISWM is designed to minimize the initial input to the waste stream through source reduction, reduce the volume of the waste stream requiring disposal through re-use and recycling, and finally dispose of solid waste through the effective combination of incineration, composting, and landfill disposal.

Leachate
Liquid that has percolated through solid waste and has extracted dissolved or suspended materials from it.

Mechanical ventilation
The process of using mechanical means to continuously replace with outside air the air in any space in a building.

Municipal solid waste landfill
A discrete area of land or an excavation, on or off an installation, that receives household waste and that is not a land application unit, surface impoundment, injection well, or waste pile. A municipal solid waste landfill unit also may receive other types of waste, such as commercial solid waste or industrial waste.

New landfill
A sanitary landfill that is not designed as a part of the initial plan of an existing landfill or is newly created without an existing landfill contiguous to it. Any natural or manmade boundaries, for example, surface waters, roads, railroads, adjoining to the existing landfill, will not preclude the status of the contiguity.

Office waste
Solid waste generated in the buildings or rooms in which the affairs of business, professional persons, or branches of Government, are carried on. Excluded is waste generated in cafeterias, snack bars, or other food preparation and sales areas, and waste separated by medical personnel.

Primary fuel
The major energy source currently in use in the boilers or heating equipment.

Power plants
Plants generating steam or high-temperature water for the production of electric power or compressed air.

Qualifying recycling programs
Organized operations that require concerted efforts to—
a. Divert or recover scrap or waste from waste streams.
b. Identify, segregate, and maintain the integrity of the recyclable materials to maintain or enhance the marketability of the materials.

Recoverable resources
Materials that have useful physical or chemical properties after serving their original purposes. Recoverable resources can be re-used or recycled for the same or for other purposes.

Recyclable materials
The term *recyclable materials* includes materials diverted from the solid waste stream and the beneficial use of such materials. Recycling is further defined as the result of a series of activities by which materials that would become or otherwise remain waste, are diverted from the solid waste stream by collection, separation, and processing and are used as raw materials in the manufacture of goods sold or distributed in commerce or the reuse of such materials as substitutes for goods made of virgin materials. Examples of recyclable materials include (but are not limited to) the following: paper, food waste, plastic, glass, all cardboard and other packaging materials, newspapers, and empty food and beverage containers. Recyclable materials also include scrap (including ferrous and nonferrous scrap) and firing range expended brass and mixed metals gleaned from firing range cleanup that do not require demilitarization. Items requiring demilitarization or mutilation prior to sale are not recyclable materials. For the purpose of this regulation, the following materials are not recyclable materials and will not be sold through a QRP: precious metals; Government-furnished materials; hazardous waste (including household hazardous waste); machine parts; electrical components; unopened containers of unused oil, solvents, or paints; and repairable items that have not progressed through the disposal cycle.

Recycling
The series of activities, including collection, separation, and processing, by which products or other materials are recovered from the solid waste stream for use in the form of raw materials in the manufacture of new products other than fuel for producing heat or power by combustion.

Refuse derived fuel
Processed refuse and waste suitable for use as a primary or secondary fuel in solid-fuel boilers.

Residential solid waste
Includes garbage, rubbish, trash, and other solid waste resulting from the normal activities of households.

Resource recovery
The process of obtaining materials or energy from solid waste or used POL product.

Resource recovery facility
Any physical plant that processes residential, commercial, or institutional solid waste biologically, chemically, or physically and recovers useful products (such as shredded fuel, combustible oil or gas, steam, metal, or glass) for resale or re-use.

Re-use
The use of a product more than once in its same form for the same purpose; for example, a soft-drink bottle is reused when it is returned to the bottling company for refilling.

Sanitary landfill
A land disposal site employing an engineered method of disposing of solid waste on land in a manner that minimizes environmental hazards by spreading the solid waste in thin layers, compacting the solid waste to the smallest practical volume, and applying and compacting cover material at the end of each operating day (40 CFR 241)

Site footprints
Original dimensions of the sanitary landfill (existing or closed).

Sludge
The accumulated semi-liquid suspension of settled solids deposited from wastewater or other fluids in tanks or basins.

Solid fuel
For purposes of this regulation, the designation *solid fuel* includes all solid fossil fuels (see coal) and RDF.

Solid waste
Garbage, refuse, sludge, and other waste materials not excluded by Federal regulations. Any solid, liquid, semi-solid, or contained gaseous materials resulting from institutional, industrial, commercial, mining, agricultural, or community operations and activities. They are discarded or being accumulated, stored, or treated prior to being discarded. Infectious waste materials are not included in this category for purposes related to recycling. A material is discarded if it is abandoned (and not used, re-used, reclaimed, or recycled) by being disposed of, burned, or treated.

Source reduction
Source reduction programs can reduce the volume of the solid waste stream. Reducing the amount of material that reaches the installation and will require disposal is an effective and efficient means to reduce solid waste volume. Consideration should be given to how items are packaged when choosing products. The minimum packaging that will ensure safe arrival and meet installation storage and handling needs should be selected.

Source separation
The separation of materials at their point of generation by the waste generator.

Space conditioning
The simultaneous control of any or all factors of temperature, humidity, motion, distribution, or purity of the air within a structure. As used in this regulation, it does not include heating.

Standby fuel
The energy source used when the primary fuel is interrupted.

Treatment
Any method, technique, or process (including neutralization) designed to change the physical, chemical, or biological character or composition of any hazardous waste.

Unit
A boiler, furnace, hot water generator, or similar energy converting device. Tandem energy generating hook-ups designed to match variable loads are considered a "unit," with a capacity equal to the sum of the parts.

Utility plants
Heating, refrigeration, air conditioning, liquid and gas fuel storage, distribution, and dispensing, electric generating, water and waste treatment plants, including all systems (for example, apparatus and equipment) necessary to provide utility services and to control environmental pollution.

Utility services/utilities
Utility services/utilities includes all the facilities and systems that provide water supply, wastewater, solid waste (nonhazardous) management and disposal, electric power, heating, cooling, and refrigeration.

Vector
A carrier, usually an arthropod, that is capable of transmitting a pathogen from one organism to another.

Yard waste
Grass and shrubbery clippings, tree limbs, leaves, and similar organic materials commonly generated in residential yard maintenance (also known as green waste).

Section III
Special Abbreviations and Terms
This section contains no entries.

Index

This index is organized alphabetically by topic and by subtopic within a topic. Topics and subtopics are identified by paragraph number.

MANAGEMENT CONTROL EVALUATION CERTIFICATION STATEMENT

For use of this form, see AR 11-2; the proponent agency is ASA(FM).

1. REGULATION NUMBER

2. DATE OF REGULATION

3. ASSESSABLE UNIT

4. FUNCTION

5. METHOD OF EVALUATION *(Check one)*

a. CHECKLIST		b. ALTERNATIVE METHOD *(Indicate method)*
APPENDIX *(Enter appropriate letter)*		

6. EVALUATION CONDUCTED BY

a. NAME *(Last, First, MI)*	b. DATE OF EVALUATION

7. REMARKS *(Continue on reverse or use additional sheets of plain paper)*

8. CERTIFICATION

I certify that the key management controls in this function have been evaluated in accordance with provisions of AR 11-2, Management Control . I also certify that corrective action has been initiated to resolve any deficiencies detected. These deficiencies and corrective actions *(if any)* are described above or in attached documentation. This certification statement and any supporting documentation will be retained on file subject to audit/inspection until superseded by a subsequent management control evaluation.

a. ACCESSABLE UNIT MANAGER

(1) TYPED NAME AND TITLE	b. DATE CERTIFIED
(2) SIGNATURE	

EXHIBIT 22

VOL I

Exhibit 22

Hodgini, Thomas J CIV USA IMCOM

,n: (b)(6) Mr CIV USA IMCOM
nt: Thursday, June 21, 2007 2:58 PM
(b)(6) USAEC'
Cc: Hodgini, Thomas J CIV USA IMCOM; (b)(6)
Subject: RE: Ft. Lewis WWTP Issue (UNCLASSIFIED)

Thanks, (b)(6) This is helpful. (b)(6)

(b)(6)
Region Counsel
Installation Management Command
West Region
(b)(6) DSN 421-2098
FAX (b)(6)

-----Original Message-----
From: (b)(6) USAEC [mailto: (b)(6)]
Sent: Thursday, June 21, 2007 2:44 PM
To: Prins, Richard E Mr CIV USA IMCOM
Subject: FW: Ft. Lewis WWTP Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED

reats: NONE

. Prins:

Attached is the email string I received from our Water Team Leader here at AEC; as you can see, there appears to be some unfortunate "vagueness" associated with the requirements for a WWTP operator. (b)(6) email below outlines what are, I believe, the salient bits. The bottom line, in my opinion, is that there is no requirement that a federal WWTP operator in the state of Washington must meet the state operator requirements.

First, Washington state is not approved to regulate federal facilities (her first link outlines this point). Secondly, the Washington state adminstrative code provisions, which she cites, do not carve out federal facilities as "unreglatable" by the state of Washington, but make for some interesting wiggle room, depending upon levels of experience.

However, it doesn't appear that our internal EPAS checklists necessarily recognize the distinction about plant operator certifications and the jurisdictions in which they are found. Stated another way, I don't believe EPAS differentiates between states that can regulate federal facilities and those that can't. So, we may have an EPAS "violation" but no state violation.

iope this is somewhat helpful.

icerely,

(b)(6)

U.S. Army Environmental Command
Office of Counsel
(b)(6)
DSN 584-2375
fax (b)(6)
(b)(6)

From: (b)(6) USAEC
Sent: Tuesday, June 19, 2007 4:11 PM
To: (b)(6) USAEC
(b)(6)
Subject: RE: Ft. Lewis WWTP Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

https://www.denix.osd.mil/denix/DOD/Library/Assessment/State/state.html

just checked the State of Washington EPAS State-specific Assessment Manual (January 2007). Says similar text to what Sal found:

On page 18 of the manual, the "REGULATORY REQUIREMENT" is:
WA.20.4.WA. Operators of wastewater treatment plants are required to meet certification requirements (WAC 173-230-040) [Revised December 2000].

There are 2 EPAS "REVIEWER CHECKS" listed against the requirement:

1. "Verify that the operator in charge of the wastewater treatment plant has a valid certification for at least the same classification as the wastewater treatment plant being operated.

Verify that, when the plant is operated on more than one daily shift, the operator in charge of each shift is certified at a level not lower than one level below the classification of the plant."

om: (b)(6)
nt: Tuesday, June 19, 2007 3:27 PM
: (b)(6)
Cc: (b)(6)
Subject: FW: Ft. Lewis WWTP Issue (UNCLASSIFIED)
Importance: High

Classification: UNCLASSIFIED

Caveats: NONE

got your voice mail message. hopefully you are checking your email.

Sal typed up some information that she found. I am also trying to get the EPAS TEAM Guide (someone is helping me "find" it on the web - the longtime EPAS POCs are out right now). Sal and I thought that the Washington state TEAM guide should have information about certification - it would possibly be one of the things that an EPAS assessor would have to check.

---

rom: (b)(6) [mailto:van_(b)(6)
nt: Tuesday, June 19, 2007 3:19 PM
: (b)(6) USAEC
: (b)(6) ; (b)(6)
Subject: Ft. Lewis WWTP Issue

(b)(6),

According to the EPA website, the state of Washington is not "approved" to regulate Federal facilities: http://cfpub.epa.gov/npdes/statestats.cfm <http://cfpub.epa.gov/npdes/statestats.cfm> (Walt mentioned this webpage before and seemed to think that it was overcast by some other regulation or agreement that either Legal or IMCOM knew of).

The Washington Administrative Code states that owners and operators "in responsible charge" of WWTPs have to be certified at or above the classification level of the plant: http://www.ecy.wa.gov/pubs/wac173230.pdf <http://www.ecy.wa.gov/pubs/wac173230.pdf> (check out the "WAC 173-230-040 To whom does this rule apply?" section on page 3). But then the same code indicates that operators who are "not required to be certified are encouraged to seek certification" (???). This could be a loophole for operators of Federal facilities???

here is also a loophole for "experienced operators" from the Washington ate Dept. of Ecology - Wastewater Operator Certification Program:

perating Experience Policies

Ecology may consider the following types of work experience as satisfying the operation experience requirements for wastewater treatment plant operator certification:

a) Experience in monitoring and operating computer systems used to control the operation of wastewater treatment plants.

b) Experience in the operation and maintenance of industrial wastewater treatment facilities may be substituted for up to half the operating experience requirement for Group II, III, and IV applicants. Group I applicants may not substitute any portion of the operating experience requirement with related experience or education. "Operating experience," as defined in Chapter 173-230 WAC, "means the routine performance of duties, on-site in a wastewater treatment plant, that affect the plant performance or effluent quality."

2. To calculate an applicant's total amount or operating experience, the certification coordinator may project experience to the date of the requested examination.

May 2002"

It's a stretch but it's all I could come up with in such a short time! If you have any questions feel free to call me either here in the office or at 443-570-1001.

Thanks!

(b)(6)

(b)(6)

0-297-2438 (M,T,Th)

(b)(6) (W,F)

(b)(6) (cell)

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

EXHIBIT 23

VOL I

Exhibit 23

DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT AGENCY
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT LEWIS
BOX 339500, MAIL STOP 17
FORT LEWIS WASHINGTON 98433-9500

REPLY TO
ATTENTION OF

December 13, 2005

Public Works

Department of Ecology
Cashiering Section
Attn: (b)(6)
P.O. Box 5128
Lacey, WA 98509-5128

Dear (b)(6);

According to Chapter 173-230 WAC Certification of Operations of Wastewater Treatment Plants, the Fort Lewis Public Works Wastewater Treatment Operator must maintain a Group III certification level.

The former Fort Lewis Public Works Wastewater Treatment Operator recently departed the position. In accordance with WAC 173-230-061 Levels of certifications and qualifications, Fort Lewis Public Works is requesting a temporary Group III certification for the current Wastewater Treatment Operator, (b)(6). Please see the enclosed application package and required application fees.

Thank you for your assistance in this matter.

Sincerely,

(b)(6)

Chief, Environmental Compliance Branch

EXHIBIT 24

VOL I

Exhibit 24

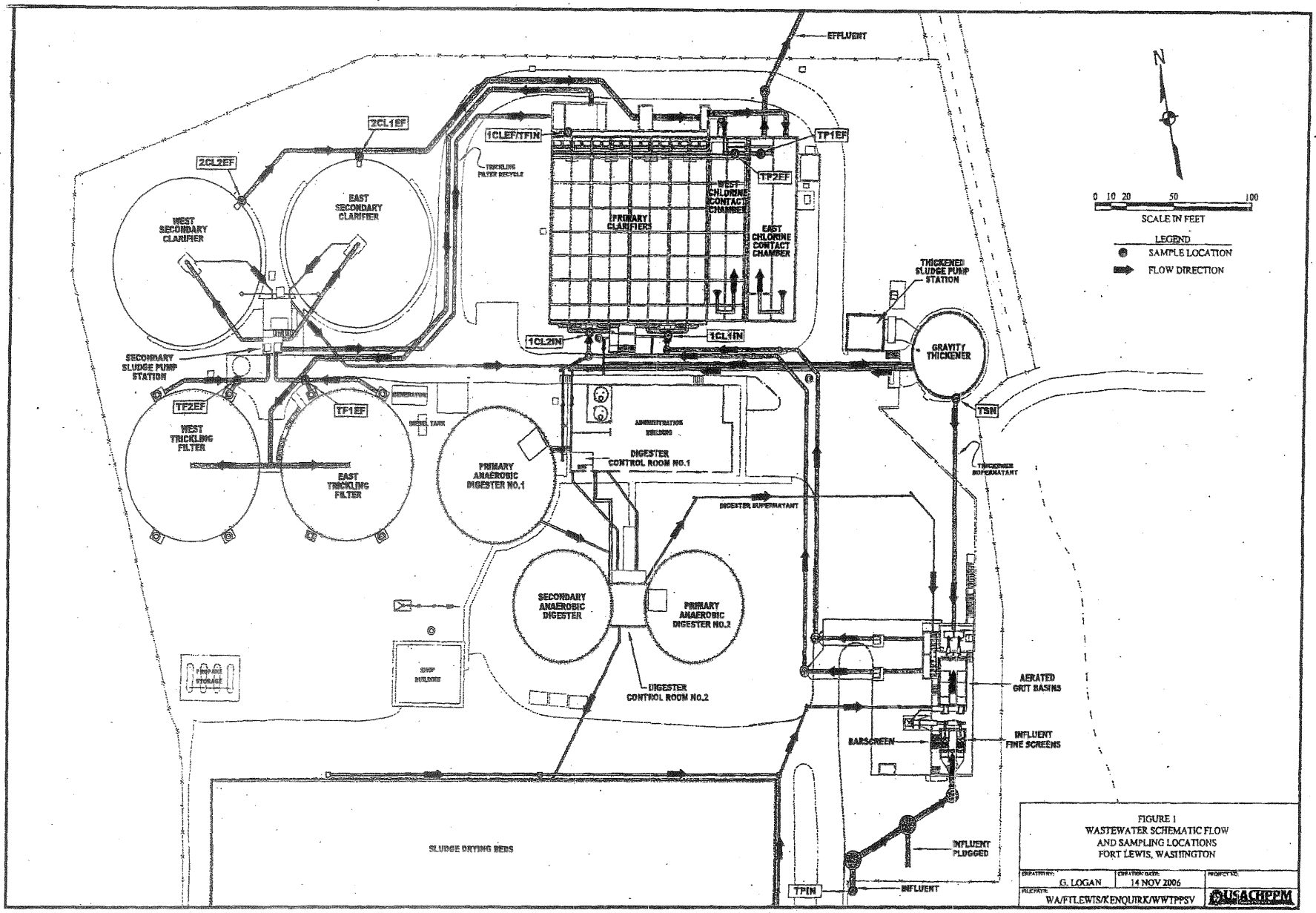


Exhibit 24

Exhibit 24

EXHIBIT 25

VOL I

Exhibit 25

Stanuszek, Joe CIV USA IMCOM

: (b)(6) CIV USA IMCOM
: Friday, June 22, 2007 9:48 AM
(b)(6) USA IMCOM
Cc: (b)(6) CIV USA IMCOM; Hodgini, Thomas J CIV USA IMCOM
Subject: RE: NOV's

(b)(6)

There have been no NOV's issued. The only correspondence from the EPA was the warning letter which I already gave you a copy.

(b)(6)

-----Original Message-----
From: (b)(6) CIV USA IMCOM
Sent: Friday, June 22, 2007 5:09 AM
To: (b)(6) E CIV USA IMCOM
Cc: (b)(6) CIV USA IMCOM; Hodgini, Thomas J CIV USA IMCOM
Subject: NOV's

(b)(6)

I need to confirm, since our interview last week, that Fort Lewis has not received any Notices of Violation or other formal enforcement actions from EPA regarding the April-May 2006 and April 2007 pH excursions.

(b)(6)

.ronmental Engineer - Public Works Division

Installation Management Command - West Region

IMWE-PWD-E

PHONE (b)(6)

DSN (b)(6)

FAX (b)(6)

EXHIBIT 26

VOL I

Exhibit 26

DEPARTMENT OF THE ARMY
OFFICE OF THE GENERAL COUNSEL
104 ARMY PENTAGON
WASHINGTON, DC 20310-0104

OPERATIONS & PERSONNEL
Facsimile Cover Sheet

Date: May 30, 2007

To: (b)(6), IMCOM
Fax: (b)(6) **Phone:** (b)(6)

To: (b)(6), DASA (ESOH)
Fax: (b)(6) **Phone:** (b)(6)

To: (b)(6) AFCG-JA
Fax: (b)(6) **Phone:** (b)(6)

To: (b)(6) SAIG
Fax: (b)(6) **Phone:** (b)(6)

To: (b)(6) SAIG-ZXL
Fax: (b)(6) **Phone:** (b)(6)

To: (b)(6) DACS-ZDV-HR
Fax: (b)(6) **Phone:** (b)(6)

Number of Pages INCLUDING this Cover: 12

From: Cassandra Tsintolas Johnson
Associate Deputy General Counsel
(Human Resources)

Telephone Numbers	**Commercial:**	(b)(6)	**DSN:**	(b)(6)
Facsimile Numbers	**Commercial:**	(b)(6)	**DSN:**	

Subject: Whistleblower Investigation – Fort Lewis Public Works, Fort Lewis, WA (OSC File Numbers DI-07-1058 thru DI-07-1070)

DEPARTMENT OF THE ARMY
OFFICE OF THE GENERAL COUNSEL
104 ARMY PENTAGON
WASHINGTON DC 20310-0104

Suspense: June 29, 2007
May 30, 2007

MEMORANDUM FOR U.S. Army Installation Management Command, ATTN: (b)(6) (b)(6) Office of the Staff Judge Advocate, 2511 Jefferson Davis Highway, Taylor Building NCR, Arlington, Virginia 22202-3926

SUBJECT: Whistleblower Investigation—Fort Lewis Public Works, Fort Lewis, Washington (OSC File Numbers DI-07-1058 through DI-07-1070)

Enclosed for your action is a May 24, 2007 letter from the Office of Special Counsel (OSC), requesting an investigation of the noted allegations and a report pursuant to 5 U.S.C.1213(c) (1) and (g).

The Special Counsel has concluded that there is substantial likelihood that information provided by 12 current and former employees of the Department of the Army, Public Works, Fort Lewis, Washington, that the Fort Lewis waste water treatment plant is discharging unacceptable and unlawful quantities of oil and other contaminants into the waters of Puget Sound, in violation of laws and regulations and the plant's operating permit. Based on this information, the Special Counsel determined that there is a substantial likelihood that the information the whistleblowers provided to the OSC discloses violations of laws and regulations, gross mismanagement, and a substantial and specific danger to public health and safety. The whistleblowers' allegations are of particular concern to the OSC since Puget Sound harbors a wide variety of marine life, and large quantities of seafood are harvested from Puget Sound every year for human consumption, and the whistleblowers maintain that the oil and other contaminants threaten the viability of the local ecosystem and pose a substantial and specific danger to public health and safety.

The whistleblowers also allege that management fails to conduct proper testing and monitoring of the water treated at the plant, fails to properly maintain and replace the plant's equipment, and does not take adequate measures to protect employees against occupational health and safety risks. Lastly, the whistleblowers allege gross mismanagement on the part of the Plant Supervisor, Mr. Long, in that he is not qualified to be plant supervisor because he does not possess the appropriate level III certification and requires operators to abandon the waste water treatment plant in order to perform work at other locations on the base, in violation of the waste water treatment plant's permit, and jeopardizes public health and safety as there should always be an operator present in the event that the plant malfunctions or breaks down or another emergency situation arises.

SUBJECT: Whistleblower Investigation—Fort Lewis Public Works, Fort Lewis, Washington (OSC File Numbers DI-07-1058 through DI-07-1070)

The whistleblowers submitted documents in support of their allegations to the OSC. The OSC faxed the initial correspondence to the Secretary of the Army but mailed via Federal Express the original correspondence and the enclosures/attachments that are approximately 75 pages long. To date, we have not received those documents. As soon as I receive them, I will forward them to you.

A final response describing any actions taken to address the allegations should be prepared for the signature of the Assistant Secretary of the Army (Manpower and Reserve Affairs) (ASA (M&RA)) who has been delegated the authority by the Secretary of the Army to review, sign and submit written reports of investigations of information and related matters transmitted to the Department of the Army by the Special Counsel, in accordance with Title 5, United States Code (U.S.C.), § 1213(c), (d) and (g). The final response should be submitted to this office AS SOON AS POSSIBLE BUT NOT LATER THAN June 29, 2007.

The Army's response will be available to the public and information contained in the Army response will be made public unless classified or prohibited from release by law or by Executive order requiring that information be kept secret in the interest of national defense or the conduct of foreign affairs. Therefore, our response and any supporting investigative report should be prepared in a manner intended to facilitate public understanding of the allegations and Army's response thereto.

The requirements specified in 5 U.S.C. § 1213(d) (copy enclosed) may be used as a guideline and should include findings, conclusions and corrective action. In all cases, please furnish for our review all backup materials supporting the proposed response that will be used to prepare the official response for the Secretary of the Army.

When you forward your report to me, please do so in hard copy. Additionally, by email to me, please provide the electronic version of the report, including the findings, conclusions and corrective action, but not the backup/supporting documentation.

Please note that should you encounter any problems with the inquiry/investigation and preparation of the subject report, kindly call me as soon as possible to discuss. In some instances, ancillary issues that arise during the course of the investigation may require follow up action.

In conducting your investigation into the allegations, please ensure that the methods and process used are compatible with engaging in a fair and open "dialog" with the OSC regarding the subject allegations and that there are no restrictions or limitations placed on the use or disclosure of the information gathered and relied upon to support the final Army report.

SUBJECT: Whistleblower Investigation—Fort Lewis Public Works, Fort Lewis, Washington (OSC File Numbers DI-07-1058 through DI-07-1070)

Additionally, the potential use of your report to support any disciplinary actions against individuals based on misconduct should also be considered when structuring your investigation and preparing your report.

Lastly, note that copies of the final Army report, along with comments on the report from the individuals making the disclosures and any comments or recommendations by the OSC will be sent to the President and the appropriate oversight committees in the Senate and House of Representatives pursuant to 5 U.S.C. § 1213(e)(3). Additionally, the Army's final report and any comments to it will be made available to the public. Accordingly, please structure your report so that no restrictions or limitations are placed on its dissemination or the disclosure of the information upon which it relies.

By statute, the agency has sixty (60) days from receipt of the OSC letter to provide the required report. If necessary, I will seek an extension of the date for our reply to the Special Counsel. As soon as it becomes apparent that more time beyond the suspense noted above will be needed to complete your report, you should forward to me an interim response requesting the extension and indicating the reasons for the request and the date by which I can expect to receive your final response. As you can understand, once your report is forwarded to me, I will need additional time to staff the proposed response to the OSC and finalize the Army's report.

If you have any questions, please do not hesitate to contact me at 703-695-0562. Additionally, my email address is (b)(6)

(b)(6)

Associate Deputy General Counsel
(Human Resources)

Enclosure

CF: DASA (ESOH), Mr. Addison Davis
AFCG-JA, COL Karl Goetzke
DAJA-LE, Ms. Diane Nugent
SA IG, COL Rosaline Carderelli
SAIG-ZXL-COL John Kent
DACS-ZDV-HR, Ms. Lolita Myers

U.S. OFFICE OF SPECIAL COUNSEL
1730 M Street, N.W., Suite 218
Washington, D.C. 20036-4505

FACSIMILE COVER SHEET

TO:

Name: The Honorable Pete Geren	
Title: Acting Secretary	
Organization: Department of the Army	
Office / Location: Washington, D.C.	
Telephone: (b)(6)	**Fax:** (b)(6)

FROM:

Name: (b)(6)	
Organization: Office of Special Counsel	
Office / Location: Washington, D.C.	
Telephone: (b)(6)	**Fax:** (b)(6)

Date: May 24, 2007	**Number of pages, including this cover sheet: 8**

Message: Original and enclosures to follow by Federal Express delivery

If you did not receive the total number of pages shown, please call (b)(6) at (202) (b)(6).

7051493

U.S. OFFICE OF SPECIAL COUNSEL
1730 M Street, N.W., Suite 300
Washington, D.C. 20036-4505

May 24, 2007

The Special Counsel

The Honorable Pete Geren
Acting Secretary of the Army
101 Army Pentagon
Washington, DC 20310-0101

Re: OSC File Nos. DI-07-1058 through DI-07-1070

Dear (b)(6);

Pursuant to my responsibilities as Special Counsel, I am referring to you a whistleblower disclosure from 12 present and former employees of the Department of the Army, Public Works, Fort Lewis, Washington. The whistleblowers allege that the Fort Lewis waste water treatment plant is discharging unacceptable quantities of oil and other contaminants into the waters of Puget Sound, in violation of laws and regulations and the plant's operating permit. As Puget Sound harbors a wide array of marine life, and large quantities of seafood are harvested from Puget Sound every year for human consumption, the whistleblowers maintain that the oil and other contaminants threaten the viability of the local ecosystem and pose a substantial and specific danger to public health and safety. The whistleblowers' allegations are described in greater detail in the attached Report of Disclosures.

The U.S. Office of Special Counsel (OSC) is authorized by law to receive disclosures of information from federal employees alleging violations of law, rule, or regulation, gross mismanagement, gross waste of funds, an abuse of authority, or a substantial and specific danger to public health or safety. 5 U.S.C. § 1213(a) and (b). As Special Counsel, if I find, on the basis of the information disclosed, that there is a substantial likelihood that one of these conditions exists, I am required to advise the appropriate agency head of my findings, and the agency head is required to conduct an investigation of the allegations and prepare a report. 5 U.S.C. § 1213(c) and (g).

As set forth in the attached Report of Disclosures, I have concluded that there is a substantial likelihood that the information the whistleblowers provided to OSC discloses violations of laws and regulations, gross mismanagement, and a substantial and specific danger to public health and safety. As previously stated, I am referring this information to you for an investigation of the whistleblowers' allegations and a report of your findings within 60 days of your receipt of this letter. By law, the report must be reviewed and signed by you personally. Should you delegate your authority to review and sign the report to the Inspector General, or any other official, the delegation must be specifically stated and must include the authority to take the actions necessary under 5 U.S.C. § 1213(d)(5). Without this information, I would hasten to add that the report may be found deficient. The requirements of the report are set forth at 5 U.S.C. § 1213(c) and (d). A summary of § 1213(d) is enclosed. As a matter of policy, OSC also

requires that your investigators interview the whistleblowers as part of the agency investigation whenever the whistleblowers consent to the disclosure of their names.

In the event it is not possible to report on the matter within the 60-day time limit under the statute, you may request in writing an extension of time not to exceed 60 days. Please be advised that an extension of time is normally not granted automatically, but only upon a showing of good cause. Accordingly, in the written request for an extension of time, please state specifically the reasons the additional time is needed. Any additional requests for an extension of time must be personally approved by me.

After making the determinations required by 5 U.S.C. § 1213(e)(2), copies of the report, along with any comments on the report from the person making the disclosure and any comments or recommendations by this office will be sent to the President and the appropriate oversight committees in the Senate and House of Representatives owing to the requirements set forth in 5 U.S.C. § 1213(e)(3).

Unless classified or prohibited from release by law or by Executive Order requiring that the information be kept secret in the interest of national defense or the conduct of foreign affairs, a copy of the report and any comments will be placed in a public file in accordance with 5 U.S.C. § 1219(a).

Please refer to our file number in any correspondence on this matter. If you need further information, please contact (b)(6) Chief, Disclosure Unit, at (202) 254-3604. I am also available for any questions you may have.

Sincerely

(b)(6)

Enclosures

U.S. OFFICE OF SPECIAL COUNSEL
1730 M Street, N.W., Suite 218
Washington, D.C. 20036-4505
202-254-3600

REPORT OF DISCLOSURES REFERRED FOR INVESTIGATION
OSC FILE NOS. DI-07-1058 through DI-07-1070

I. SUMMARY

Twelve present and former employees of the Department of the Army, Public Works, Fort Lewis, Washington, disclosed to OSC violations of laws and regulations, gross mismanagement, and a substantial and specific danger to public health and safety. Specifically, the whistleblowers allege that the Fort Lewis waste water treatment plant is discharging unacceptable quantities of oil and other contaminants into the waters of Puget Sound, in violation of laws and regulations and the plant's operating permit, and thereby creating a substantial and specific danger to public health and safety. They also allege that management fails to conduct proper testing of the water treated at the plant, fails to properly maintain and replace the plant's equipment, and does not take adequate measures to protect employees against occupational health and safety risks.

II. THE INFORMATION DISCLOSED

The 12 present and former employees, who have consented to the release of their names, are (1) (b)(6), Biological Science Lab Technician (who has worked at Fort Lewis for 10 years), (2) (b)(6) Utility Systems Repairer/Operator (30 years), (3) (b)(6) Utility Systems Repairer/Operator (22 years), (4) (b)(6)(b)(6), Secretary, Fire Department (1 year), (5) (b)(6) Waste Water Treatment Plant Repairer/Operator (7 years), (6) Cindy Winston, Plumber, Water and Sewer (19 years), (7) (b)(6) (b)(6), former Utility Systems Repairer/Operator (retired; worked 30 years), (8) (b)(6), former Exterior Plumber (retired; worked 37 years), (9) (b)(6) Exterior Plumber (26 years), (10) (b)(6), former Plumber (retired; worked 25 years), (11) (b)(6), Purchasing Agent (18 years), (12) (b)(6) Predmore, former Plumber (retired; worked 25 years).[1] (b)(6) and (b)(6) possess a state certification level III for waste water treatment plant operation, and (b)(6), (b)(6), and (b)(6) are certified at level II.

A. Unlawful Discharge of Contaminants

The whistleblowers allege that, since May of 2006, the Fort Lewis waste water treatment plant has been discharging unacceptable quantities of oil and other contaminants into the waters of Puget Sound, in violation of the Clean Water Act, 33 U.S.C. § 1251 *et seq.*, and the plant's

[1] In order to arrange interviews with the individuals who have retired from federal service, please contact their attorney Joan Mell at Miller, Quinlan, & Auter, 1019 Regents Blvd., Suite 204, Fircrest, Washington 98466; telephone number (253)565-5019, fax number (253)564-5007.

National Pollutant Discharge Elimination System (NPDES) permit. According to the whistleblowers, the plant releases up to 55 pounds of oil into the waters of the Puget Sound every day. The Clean Water Act prohibits discharging oil or hazardous substances into navigable waters at quantities "the discharge of which may be harmful to the public health or welfare or the environment of the United States, including but not limited to fish, shellfish, wildlife, and public and private property, shorelines and beaches." See 33 U.S.C. § 1321(b)(4). According to 40 CFR § 110.3, discharges of oil that the Environmental Protection Agency (EPA) has determined to be "harmful to the public health or welfare or the environment" include those that violate applicable water quality standards or those that "cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines . . ." The whistleblowers state that lab tests have repeatedly demonstrated that the levels of oil and other contaminants in the effluent[2] water exceed the limits established by the plant's NPDES permit, and they also assert that they have frequently observed an oily sheen on the effluent water.

The whistleblowers advise that the presence of excess oil in the water clogs the machinery, and thereby renders the plant less efficient and decreases its ability to successfully remove other contaminants from the water, such as salmonella, E. coli, and other strains of bacteria, fungi, and other pathogens. They further explain that the oil and other contaminants that are released from the plant have a detrimental impact upon the entire ecosystem of Puget Sound. Puget Sound harbors a wide array of marine life, including salmon, shellfish, seabirds, and sea otters, the viability of which is threatened by pollutants from the waste water treatment plant. The pollutants from the plant also affect the safety of the human food supply, as large quantities of seafood are harvested from Puget Sound for human consumption.

The whistleblowers also allege that excessive amounts of oil have accumulated in the plant's sludge, i.e. the biosolids that settle out of the influent water. They explain that, after settling, the sludge remains in the plant's digesters, where it is treated and broken down by microorganisms. After being treated in the digesters for several months, the sludge is then stored in the plant's drying beds, until it is eventually removed to be used as fertilizer throughout the base. According to the whistleblowers, government contractor Alkai, who was retained to transfer sludge from the digesters to the drying beds, tested the sludge and reported that the oil content was extremely high, at approximately two percent. The whistleblowers explain that, when the sludge contains a high oil content, the oil is continuously re-circulated throughout the plant, as influent water passes through the digesters. Moreover, the whistleblowers advise that the sludge is used as fertilizer throughout Fort Lewis; therefore, the presence of high levels of oil in the sludge poses a danger to public health, as the sludge is used to fertilize vegetable gardens and lawns where children play.

The whistleblowers attribute the high levels of oil present in the effluent water and the sludge to multiple factors. First, they explain that numerous sites on the base, such as the motor pools and lift stations, are not properly disposing of oil, diesel fuel, and jet petroleum products. Consequently, the discarded oil products drain into the sewer system where they join the

[2] "Effluent" refers to the water that the waste water treatment plant releases into Puget Sound after it has been treated.

influent[3] waste that enters the waste water treatment plant.[4] Next, the whistleblowers advise that, pursuant to 40 C.F.R. Part 403 and Washington State's Dangerous Waste Regulations Chapter 173-303 WAC, the plant is supposed to have a pre-treatment facility in place for removing oil from the influent before it reaches the plant; however, the plant currently does not pre-treat the influent water. They further maintain that the type of oil the waste water treatment plant purchases to lubricate the digester gas compressors emulsifies easily, thereby clogging the system. The operators have repeatedly asked management to procure a non-emulsifying oil for the compressors in order to minimize contamination; however, management has refused to do so. The whistleblowers also state that the oil/water separators at the plant are not maintained properly, and, as a result, the separators are unable to adequately remove oil from the influent water. In addition, the whistleblowers assert that they repeatedly asked management to purchase polymers to help break down the oil; however, management refused to purchase them.

B. Failure to Maintain Equipment

Next, the whistleblowers state that the plant's inability to adequately process the incoming oil is caused in part by the fact that the plant's equipment is old and in poor condition. The whistleblowers contend that much of the equipment at the plant should be replaced, including the primary sludge pumps, the effluent pumps, the nonpotable pumps, the chlorination pumps, the headworks screens, and the grit collector. In addition, the operators maintain that they do not have many of the tools necessary for repairing and maintaining the plant's equipment, including wrenches and chain saws. On numerous occasions, they asked (b)(6) Plant Supervisor, to procure necessary maintenance tools, yet he refused to do so. The whistleblowers further assert that Mr. Long also refuses to procure replacement parts for pumps and other equipment, and, as a result, the plant currently does not have any replacement parts in stock.

The whistleblowers further advise that the situation worsens during the winter rainy season, when the waste water treatment plant is overburdened by incoming rainwater. According to the whistleblowers, as a Class II facility, the waste water treatment plant is only authorized to treat up to 7.6 million gallons of water per day. Nevertheless, the whistleblowers report that, last winter, the plant frequently exceeded its flow capacity, especially on days when it rained. For example, they report that, on or about January 9, 2007, the plant recorded a flow level of 11 million gallons. The whistleblowers attribute the problem to the fact that the base's rainwater collection system is old, and, consequently, much of the rainwater leaks into the sewer system and becomes part of the influent water treated by the plant. The whistleblowers explain that, when the permissible flow level is exceeded, biosolids do not have sufficient time to settle properly. Consequently, a significant quantity of biosolid waste ends up in the effluent water that is released into Puget Sound.

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[3] "Influent" refers to the waste water, containing raw sewage and other contaminants, that flows into the plant for treatment.

[4] In order to remedy this particular problem, the whistleblowers recommend that the base institute an oil recycling program and educate its employees on the proper methods for collecting and disposing of oil.

C. Failure to Properly Test and Monitor Water

The whistleblowers state that the foregoing problems are compounded by the fact that the plant managers do not conduct mandatory testing of the water at the plant and are not properly recording test results. They maintain that regular testing and reporting of test results would facilitate remediation of the situation. (b)(6) advises that, among other routine tests, the plant's NPDES permit requires the plant to test the level of oil and grease in the effluent every six months, and whenever an operator requests additional testing. The operators assert that they frequently request additional testing, yet management refuses to comply with these requests. The plant's NPDES permit also requires the plant to record the levels of any toxic pollutant found in the water or in the biosolid sludge on the monthly Discharge Monitoring Report (DMR), which is submitted to the EPA, yet the whistleblowers allege that this is not occurring. Lastly, when the Fort Lewis Environmental Department conducts lab tests, it fails to report the test results to the operators or the lab technician, even though the operators and lab technician have specifically requested the information on multiple occasions. The whistleblowers state that the NPDES permit requires that test results be reported to the operators, to enable the operators to make necessary adjustments in treatment, such as determining the correct amount of chemicals to add to the water.

D. Gross Mismanagement by Plant Supervisor

In addition, the whistleblowers allege that (b)(6) is not qualified to be plant supervisor. Pursuant to State of Washington credentialing requirements, the waste water treatment plant is classified as a grade II plant; therefore, the plant supervisor is required to possess a level III certification. According to the whistleblowers, (b)(6) only possesses a level II certification.

The whistleblowers report that (b)(6) frequently requires operators to abandon the waste water treatment plant in order to perform work at other locations on the base. As a result, the plant is often left unattended. For example, (b)(6) alleges that, at 9:00 pm on March 24, 2007, (b)(6) instructed him to leave the plant in order to clean a sewer elsewhere on base. (b)(6) states that he spent two hours cleaning the sewer, and then returned to the plant at 11:00 pm. Because (b)(6) was the sole operator on duty at the plant that night, he states that the plant was left unmanned for two hours while he was away. Similarly, the whistleblowers allege that, on January 14 or 15, 2007, (b)(6) left the plant to address a sewer backup problem. He instructed the sole operator assigned to the plant, (b)(6), to accompany him, thereby leaving the plant unattended for three hours. The whistleblowers assert that this practice violates the waste water treatment plant's permit and jeopardizes public health and safety, as there should always be an operator present in the event that the plant malfunctions or breaks down or another emergency situation arises.

E. Occupational Safety and Health Hazards

According to the whistleblowers, (b)(6) has repeatedly exhibited a flagrant disregard for employee safety, and has jeopardized the safety of employees on numerous occasions. For

example, (b)(6) frequently assigns the plant staff to perform dangerous work at the outfalls; however, he has not provided them with critical confined space entry training. They also contend that (b)(6) often fails to notify plant employees when contractors perform maintenance work on gas lines. It is critical that employees be informed whenever flammable gas is present in the building, so that they will refrain from using welding tools or performing other types of work that could create sparks to ignite the gas and cause an explosion. (b)(6) also fails to hold monthly safety meetings, in violation of Occupational Safety and Health Administration requirements and the plant's Standard Operating Procedures.

(b)(6) further reported that, since 2005, the lid on digester number two has been cracked, allowing toxic sewer gas to continually leak from the digester. He advised that an exhaust fan then blows the gas into the gas compressor room, where the operators are exposed to the gas. (b)(6) stated that operators enter the gas compressor room at least twice a day to perform maintenance, and they generally stay in the room at least five or ten minutes each time. The whistleblowers report that, as a result of inhaling the gas, they often experience dizziness, headaches, and lightheadedness, and they believe that long-term exposure to the gas may potentially cause permanent damage to the nervous system.

Finally, the whistleblowers state that they have repeatedly reported the aforementioned problems and violations to (b)(6) and his supervisor (b)(6) Project Manager; however, neither (b)(6) nor (b)(6) have taken adequate corrective action.

Copies of documents submitted by the whistleblowers in support of their allegations are enclosed.

III. THE SPECIAL COUNSEL'S FINDINGS

Given the whistleblowers' apparent expertise regarding the matters they have disclosed, the detail they have provided, and their first-hand knowledge of many of the incidents they have described, I have concluded that there is a substantial likelihood that the information the whistleblowers provided to OSC discloses violations of laws and regulations, gross mismanagement, and a substantial and specific danger to public health and safety.

EXHIBIT 27

VOL I

Exhibit 27

DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT AGENCY
HEADQUARTERS, UNITED STATES ARMY GARRISON
BOX 339500, MAIL STOP 17
FORT LEWIS WASHINGTON 98433-9500

August 23, 2006

Public Works

US Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle WA 98101
ATTN: OCE-133

Dear (b)(6):

This letter is in response to your Warning Letter and Request for Information dated 7 August 2006.

Your letter states that your office did not receive a written report of the pH exceedences that occurred at our WWTP in April and May of 2006. Enclosed please find a copy of the signed report, dated 9 June 2006, that was sent to (b)(6) of your office. In addition, you will find enclosed a copy of the follow-up letter that was sent to your office on 7 July, including test results of samples taken.

Your letter makes reference to a fuel spill. It has come to my attention that the Washington Department of Ecology has also embraced this unfounded allegation, and has gone so far as to conduct inspections of our CWA wastewater treatment systems under the thinly disguised facade of a RCRA inspection. It is troubling to Fort Lewis that a federal regulatory agency like EPA is willing to give this level of credence to an allegation based only on rumor and innuendo. It may interest you to know that these allegations were originally brought by a Fort Lewis contractor being terminated for failure to perform. Nevertheless, in response to these allegations and the interest by our regulators, Fort Lewis launched a comprehensive investigation. Despite a serious, concentrated effort, Fort Lewis was unable to substantiate that any spill occurred during this period. The investigation did, however, bring to light various situations on the installation that could have contributed oil products to our wastewater. We found a contractor cleaning vehicles, who was discharging excessive oil and grease to a large oil-water separator without adequate pretreatment; and we found another oil-water separator at our Directorate of Logistics that has apparently been inappropriately used by another contractor as a receptacle for oily wastes from cleaning other oil-water separators. Although of concern, these examples are not spills or intentional releases. Given these facts, it will not be possible to provide you with the separate spill report you requested. This does not mean that a spill did not occur; it simply means that Fort Lewis could find no direct evidence of one. In itself, this is not surprising, since the potential sources are many and there was a significant time gap between the alleged event and the investigation. This gap and the performance of the staff at the Fort Lewis Wastewater Treatment Plant (WTTP) during the upset and subsequent

investigation are matters of greater concern than whether or not the upset was caused by a spill.

Fort Lewis is a performance track organization with a solid ISO 14001 compliant Environmental Management System. That system was engaged as part of the investigation process, and all environmental problems discovered as a result of that investigation were subjected to a root cause analysis and corrective actions were initiated. These actions were not ordered because of a contract dispute, or because of Ecology's inspection, or because of your letter: they were ordered because our own EMS requires us to correct deficiencies and systemic problems and report the results to our leadership.

Here is a brief summary of the two major problems identified, and actions taken:

Problem 1: pH upset

a. Root Cause (1): standard operating procedures for reporting and handling slugs and upsets at WWTP insufficient, not being followed, or both. This problem may extend to other plant functions.

Corrective actions: (1) Contract with USACHPPM ($100k, FY06) to provide a complete and comprehensive functional analysis of the WWTP, update existing SOPs and provide new SOPs for plant operations as needed, and train all plant operators in their proper use.

b. Root Cause (2): Previous plant supervisor left without a continuity book, or providing sufficient training for his replacement. Major reorganization and reduction in force at Public Works is causing disgruntled employees at WWTP.

Corrective Action (2): Ensure better communication and information dissemination to plant personnel. Ensure SOPs are entered into EMS document control system and kept updated. Conduct weekly staff meetings which may include training sessions.

Problem 2: Hydrocarbons were detected in biosolids and WWTP effluent. Oil is at low enough concentrations so that there is no effluent permit violation (visible sheen), but high enough to make composting our biosolids problematic.

a. Root Cause (1): leaking compressor in digester

Corrective Action (1): repair compressor

b. Root Cause (2): oil entering plant from upstream sources

Corrective Action (2): (1) contract with USACHPPM to create a Pretreatment Program for implementation at Fort Lewis ($100k, FY06). (2) Immediately inspect all oil-water separators on Fort Lewis. Report all deficiencies for resolution. (3) Change current operational practices by our contractor, Action Services, to prevent discharge of product wastes at the oil water separator at building 9586.

All corrective actions mentioned above have been initiated. In addition to these measures, Fort Lewis has also initiated interim monitoring for hydrocarbons for WWTP influent, effluent, and biosolids. Monitoring of influent and effluent will be conducted monthly, and biosolids will be tested as beds are poured. Influent and effluent results will be reported on our monthly DMRs. Monitoring will be continued as long as necessary, until our new pretreatment system is implemented and results are consistently within acceptable limits.

The Army is very serious about its mission, and at Fort Lewis, our mission demands solid environmental performance. We absolutely must ensure that Fort Lewis is as ready 20 years from now as it is today to train and field soldiers to protect the country. I assure you that Fort Lewis is serious about protecting the resources and environment that are so essential to that mission.

Sincerely,

(b)(6)

Deputy Director
Public Works

DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT AGENCY
HEADQUARTERS, UNITED STATES ARMY GARRISON
BOX 339500, MAIL STOP 17
FORT LEWIS WASHINGTON 98433-9500

REPLY TO
ATTENTION OF

June 9, 2006

IMNW-LEW-PW

EPA, Region 10
Attn: Kim Ogle
1200 6th Ave, MS OC-133
Seattle, WA 98101

Ms. Ogle,

On 8 June, the Environmental Protection Agency, Region 10 was contacted to notify the Office of Compliance that the effluent pH for the Fort Lewis Solo Point Wastewater Treatment Plant (WWTP) has exceeded a daily measurement of 6.0 as required by NPDES Permit Number WA-002195-4.

The WWTP operators informed the Environmental Compliance Branch of the situation on 7 June when the Daily Monthly Report (DMR) was completed. The cause of the low pH may have been an unknown chemical that effected the roughing filters at the WWTP. The operation of the roughing filters has been addressed and the pH has returned to permitted levels.

Date	pH
17 May	5.9
19 May	5.4
20 May	5.6
21 May	5.9
24 May	5.8
25 May	5.9

Fort Lewis is a performance track organization with a solid Environmental Management System (EMS). That EMS has a process for solving these problems and ensuring they don't happen again. Fort Lewis has engaged the process to identify the root cause of the occurrence and determine the best resolution. As a precautionary measure, Fort Lewis will test the WWTP effluent for hydrocarbons. The EPA office will be notified once the results are available. Fort Lewis will keep EPA informed on the solutions to the incident.

Fort Lewis takes issues of this nature very seriously. Our organization can be trusted to deal decisively and promptly regarding this incident.

Sincerely,

RANDALL W. HANNA
Deputy Director
Public Works

DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT AGENCY
HEADQUARTERS, UNITED STATES ARMY GARRISON
BOX 339500, MAIL STOP 17
FORT LEWIS WASHINGTON 98433-9500

REPLY TO
ATTENTION OF

July 7, 2006

IMNW-LEW-PWE

EPA, Region 10
Attn: PCS Data Entry Team
1200 6th Ave, OW-133
Seattle, WA 98101

Subject: Wastewater Effluent, NPDES Permit # WA-002195-4

To whom it concerns:

An unknown chemical affected the roughing filters at the Fort Lewis Solo Point Wastewater Treatment Plant (WWTP) in May. As a precautionary measure, Fort Lewis tested the WWTP effluent for hydrocarbons. The results for the wastewater effluent sample are enclosed.

If you have questions about this report, please contact (b)(6) at 253-967-2837, or email (b)(6)

Sincerely,

(b)(6)

Chief, Environmental and
Natural Resources Division

enclosures

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

FORT LEWIS
(b)(6)
AFZH-AWE, MS-17, BOX 339500
FORT LEWIS, WA 98433

PROJECT: WWTP

Certificate of Analysis

Petroleum -NWTPH-D Extended by GC/FID (8015 modified)

Sample Name:	WW-20060621-TPHDX
Sample Location:	
Sampling Date:	6/21/2006
Sampling Time:	12:35
Date Received:	6/22/2006
Extraction Date:	6/23/2006
Lab #:	06X2024-01
Matrix:	WASTE WATER
Analysis Date NWTPH-D:	6/26/2006
Analyst:	SAT

Analyte	Result	Units	PQL
Diesel	0.78	mg/L	0.1
Lube Oil	2.01	mg/L	0.5

NWTPH-D Surrogate (Hexacosane) Percent Recovery 85.4
Surrogate Acceptance Range: 50-150

Comments:

Lab Supervisor: (b)(6)

Report Date: 06-Jul-06

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

7 AUG 2006

Reply To
Attn Of: OCE-133

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

WARNING LETTER AND REQUEST FOR INFORMATION

(b)(6)

Environmental and Natural Resources Division
Department of the Army
Box 339500, Mail Stop 17
Fort Lewis, Washington 98433-9500

Re: NPDES Noncompliance - Fort Lewis Army Base
Permit Number WA - 0021504

Dear (b)(6)

The National Pollutant Discharge Elimination System ("NPDES") permit WA-0021054 ("Permit") issued to the Fort Lewis Army Base effective February 1, 2004, specifies that the pH of the discharge from the Fort Lewis Water Pollution Control Plant must not be less than 6.0 standard units. In April and May of 2006, the Fort Lewis Army Base discharged wastewater from the Fort Lewis Water Pollution Control Plant which had pH levels of 5.4 and 5.9 standard units, respectively. These discharges exceeded the pH limit contained in the Permit and are therefore violations of the Permit and of the Clean Water Act.

The Permit also requires the Fort Lewis Army Base to provide a written report of the violation within five days from the time the base became aware of each of the violations. The written report must contain a description of the violation and the causes; the period of violation; estimated time the violation is expected to continue; and steps taken and planned to reduce, eliminate, and prevent reoccurrence of the violations. Based on our records, we have not received the written reports for these violations.

If you have not already done so, please take any and all appropriate measures necessary to prevent reoccurrence of these violations. Please also provide us with the written reports containing the information required by the Permit as specified above. It has also come to our attention that a spill of some type of fuel to the Fort Lewis Water Pollution Control Plant had occurred around the time of these violations. Please provide a separate written report with a detailed description of the spill including, but not limited to, what was spilled, when the spill occurred, amount involved, impact of the spill on the Fort Lewis Water Pollution Control Plant, and any relationship between the spill and the pH exceedances.

Part II.E. of the Permit also requires representative sampling of the discharge. It reads in part as follows: The Permittee shall conduct monitoring sufficient to characterize the nature and quantity of the pollutants discharged. Please provide a report of your monitoring effort to characterize the discharge from the Fort Lewis Water Pollution Control Plant following the spill of the fuel. If the Fort Lewis Army Base had not conducted any such monitoring, please notify us as such.

The EPA is requesting the information contained in this letter under the authority of Section 308 of the Clean Water Act, 33 U.S.C. § 1318. Please do not hesitate to contact us with any questions regarding this letter or other matters related to your compliance with the Clean Water Act. If you have any questions, please call Chae Park at 206-553-1441.

Sincerely,

(b)(6)

M

Office of Compliance and Enforcement

cc: Pinky Feria, DOE - SW Regional Office

EXHIBIT 28

VOL I

Exhibit 28

DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT COMMAND
UNITED STATES ARMY GARRISON, FORT LEWIS
BOX 339500, MAIL STOP 17
FORT LEWIS WASHINGTON 98433-9500

REPLY TO
ATTENTION OF

24 April 2007

IMNW-LEW-PW

United States Environmental Protection Agency
Region 10
ATTN: PCS Data Entry Team
1200 Sixth Avenue, OW-133
Seattle, Washington 98101

To Whom It Concerns:

This letter is to follow up on the notification of an exceeded daily measurement for effluent pH per the Fort Lewis Permit WA-002195-4.

The evening of 21 April, the pH at the Wastewater Treatment Plant (WWTP) dropped to a pH of 5.9. As of 22 April, the pH is above 6.0. The influent pH is normal. There is a construction project at the WWTP in progress at the moment which may be a potential cause that may be affecting the trickling filters.

Fort Lewis is a Performance Track organization and takes these incidents very seriously. Fort Lewis has engaged the process to identify the root cause and determine the best corrective action for the occurrence.

For more information, please contact (b)(6) at (b)(6) or email at (b)(6)

Sincerely,

(b)(6)

Director of Public Works

DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT COMMAND
UNITED STATES ARMY GARRISON, FORT LEWIS
BOX 339500, MAIL STOP 17
FORT LEWIS WASHINGTON 98433-9500

REPLY TO
ATTENTION OF

20 April 2007

IMNW-LEW-PW

United States Environmental Protection Agency
Region 10
ATTN: PCS Data Entry Team
1200 Sixth Avenue, OW-133
Seattle, Washington 98101

To Whom It Concerns:

This letter is to follow up on the notification of an anticipated noncompliance and an exceeded daily measurement for effluent pH per the Fort Lewis Permit WA-002195-4. Your office was notified by phone and email on 19 April of the anticipated noncompliance for effluent pH. The effluent pH exceeded the daily measurement of 6.0 on 19 April. Your office was notified by phone on 19 April and again on the morning of 20 April.

The evening of 19 April, the pH at the Wastewater Treatment Plant (WWTP) dropped to a pH of 5.8. By 6:00am on 20 April, the pH was at 6.0. The influent pH is normal. The pH started dropping on Tuesday. There is a construction project at the WWTP in progress at the moment which may be a potential cause that may be affecting the trickling filters.

Fort Lewis is a Performance Track organization and takes these incidents very seriously. Fort Lewis has engaged the process to identify the root cause and determine the best corrective action for the occurrence.

For more information, please contact (b)(Barto at (b)(6) or email at (b)(6)

Sincerely,

(b)(6)

Director of Public Works