



**DEPARTMENT OF THE  
NAVY**

OFFICE OF THE ASSISTANT  
SECRETARY  
(INSTALLATIONS AND ENVIRONMENT)  
1000 NAVY PENTAGON  
WASHINGTON, D.C. 20350-1000

Mr. Steven Geil  
Project Manager, Metal Products and Machinery Rule  
U.S. Environmental Protection Agency  
Metal Products and Machinery Industry Survey  
13908 Lee-Jackson Highway  
Suite 1000  
Chantilly, VA 20151-3202

Re: DOD SURVEYS ON THE METAL PRODUCTS AND MACHINERY  
(MP&M)  
INDUSTRY CATEGORY

Dear Mr. Geil:

Enclosed is a summary of DoD comments and the service responses to the Metal Products and Machinery (MP&M) surveys. This information is provided in response to the Environmental Protection Agency's (EPA) letter of 21 April 1998, Metal Products and Machinery Phase II Survey for Federal Facilities.

The military services took three different approaches in completing the MP&M survey. Navy selected twenty-two representative installations by industrial sector. For the sector specified (e.g., aircraft), the installation provided a summary of activities covered under the sector. Marine Corps elected to have five representative installations identify all MP&M activities on the installation and completed separate surveys for each activity covered by an industrial sector. Army and Air Force selected four and six representative installations respectively. Each installation submitted an aggregate survey of MP&M activities (specific installations were not identified). (*Note: An installation is defined as a collection of facilities. A facility may contain one or more MP&M activities.*)

A summary of the service responses is provided as enclosure (1). The actual surveys are provided as enclosure (2). We will be happy to discuss any questions you may have concerning the surveys. My point of contact is Ms. Maude Bullock, Office of the Chief of Naval Operations, (703) 602-1738, email: [bullockm@n4.opoav.navy.mil](mailto:bullockm@n4.opoav.navy.mil).

*Elsie L. Munsell*  
ELSIE L. MUNSELL

Deputy Assistant Secretary of the Navy  
(Environment and Safety)

Encl: (1) Summary of military service responses  
(2) Surveys from Navy, Army, Air Force, and Marine Corps

Copy to: (w/o enclosures)  
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**SUMMARY OF DOD SERVICES' MP&M RESPONSES**

A summary of the military services' surveys reveals the following:

- (1) The average volume of MP&M process wastewater discharged by the military services ranges from 2,485,199 to 28,202,923 gallons per year with the maximum discharge coming from Air Force industrial activities (Attachment 1).
- (2) Navy installations discharged from 0 to 14,965,000 gallons of MP&M process wastewater per year. The average discharge from those installations discharging wastewater is 2,485,199 gallons per year. The maximum MP&M process wastewater discharge was generated from the Stationary Industrial Equipment sector (Attachment 2).
- (3) Fifty percent of the Navy activities surveyed did not use or discharge water from their MP&M processes (Attachment 2).
- (4) Army installations discharge from 230,160 to 54,228,000 gallons of MP&M process wastewater per year with an average discharge of 19,959,728 gallons per year (Attachment 3). The sector generating the most wastewater cannot be identified from the installations surveyed.
- (5) Air Force installations discharge from 78,000 to 95,000,000 gallons of MP&M process wastewater per year with an average discharge of 28,202,923 gallons per year (Attachment 4). The sector generating the most wastewater cannot be identified

from the installations surveyed.

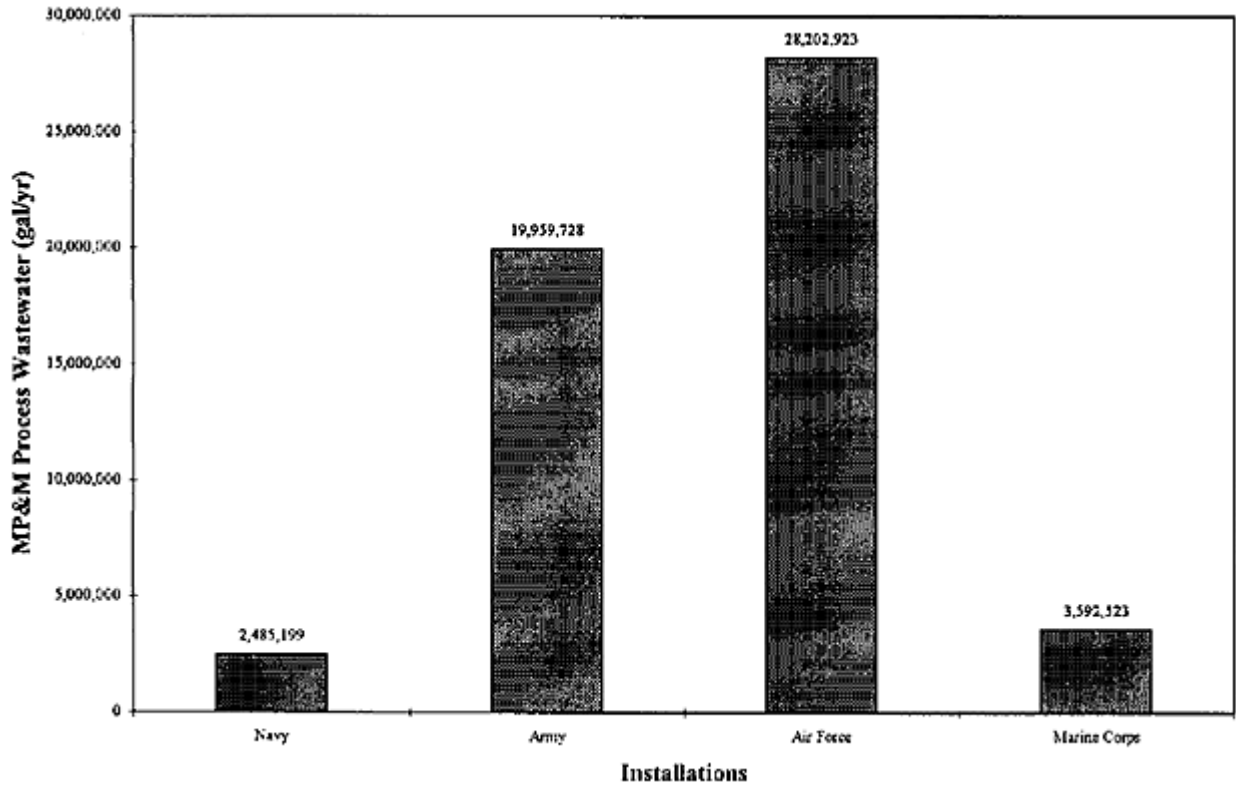
- (6) Marine Corps installations discharge from 56,979 to 13,319,365 gallons of MP&M process wastewater per year. The average discharge from those installations discharging wastewater is 3,592,523 gallons per year. The maximum MP&M process wastewater discharge was generated from the Ships and Boats sector (Attachment 5).
- (7) Fifty-five percent of the entities surveyed discharged their wastewater to a Federally Owned Treatment Works (FOTWs) or Industrial Wastewater Treatment Plant (IWTP) (Attachment 6).
- (8) Eighty-six percent of the entities surveyed performed "other" unit operations rather than the six major unit operations identified in the survey (Attachment 7).
- (9) Thirty-one percent of the entities surveyed have no wastewater treatment units and thirty-eight percent use an Oil Skimming/Chemical Emulsion Breaking wastewater treatment unit - one of the ten choices identified in the survey (Attachment 8).
- (10) Forty-seven percent of the entities surveyed have no pollution prevention systems and thirty-four percent have pollution prevention systems other than the five major systems identified in the survey (Attachment 9).

Enclosure (1)

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Attachment 1

**Average Volume of MP&M Process Wastewater Discharged by Services in  
1996**



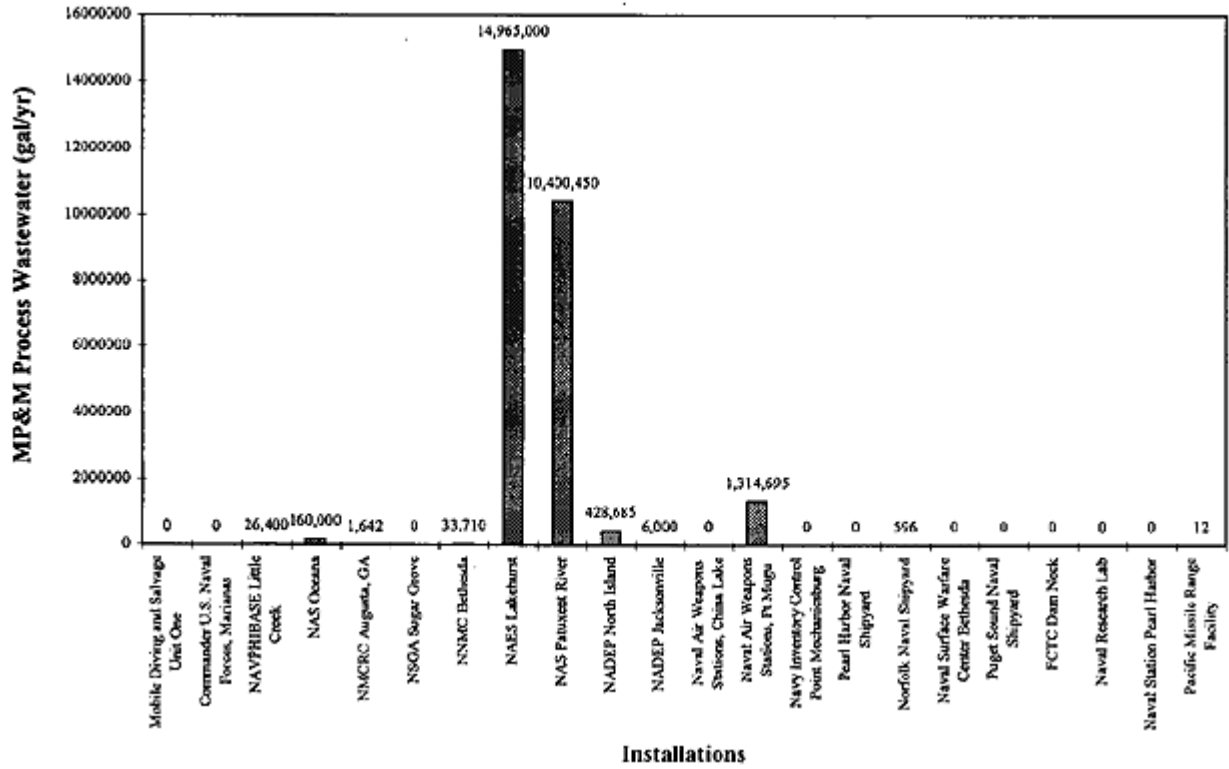
Based on total of 37 representative installations: 22 Navy Installations, 4 Army Installations, 6 Air Force Installations, and 5 Marine Corps Installations

Enclosure (1)

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Attachment 2

**Amount of MP&M Process Wastewater Discharged by Navy Installations  
in 1996**

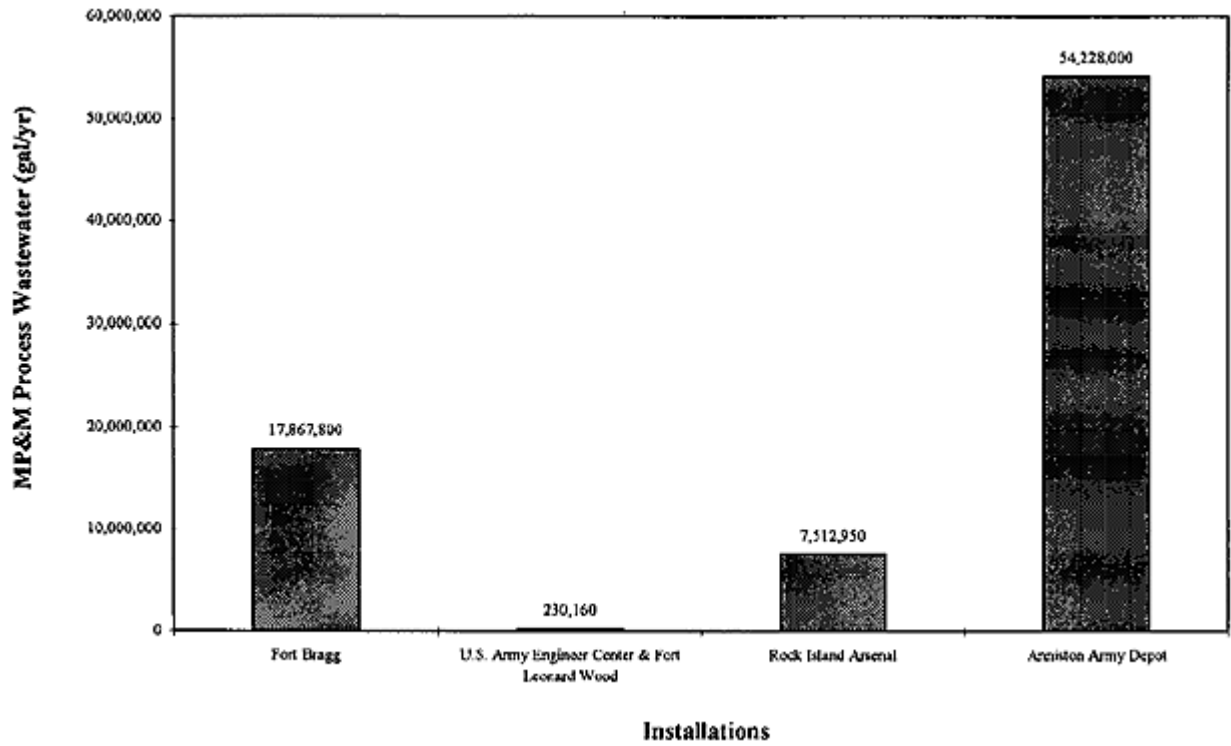


Based on 22 representative Navy Installations (chosen for specific MP sector)  
 Three largest installation discharges under Stationary Industrial Equipment and aircraft sectors

Enclosure (1)

Attachment 3

**Amount of MP&M Process Wastewater Discharged by Navy Installations in 1996**



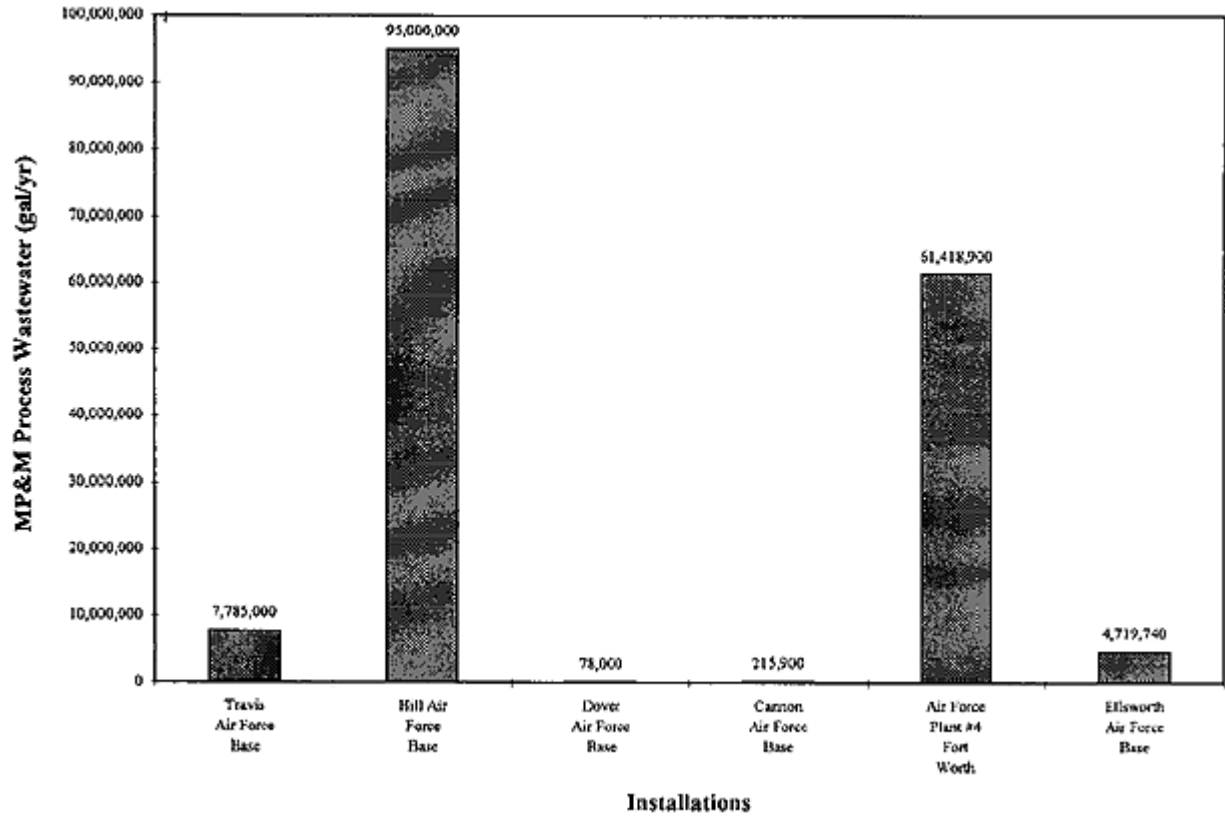
Based on 4 representative Army Installations

Enclosure (1)

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Attachment 4

**Amount of MP&M Process Wastewater Discharged by Navy Installations  
in 1996**



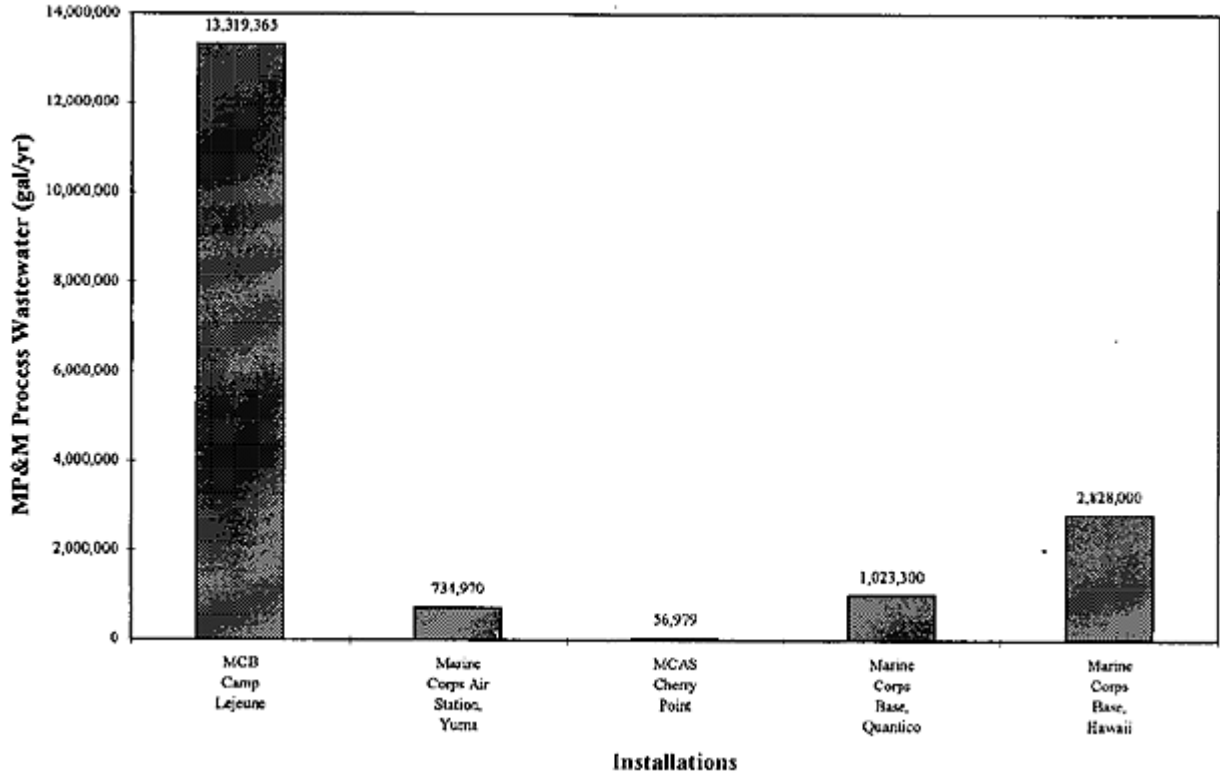
Based on 6 representative Air Force Installations

Enclosure (1)

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Attachment 5

**Amount of MP&M Process Wastewater Discharged by Navy Installations  
in 1996**



Based on 5 representative Marine Corps Installations (and 55 activities performed at these installations)

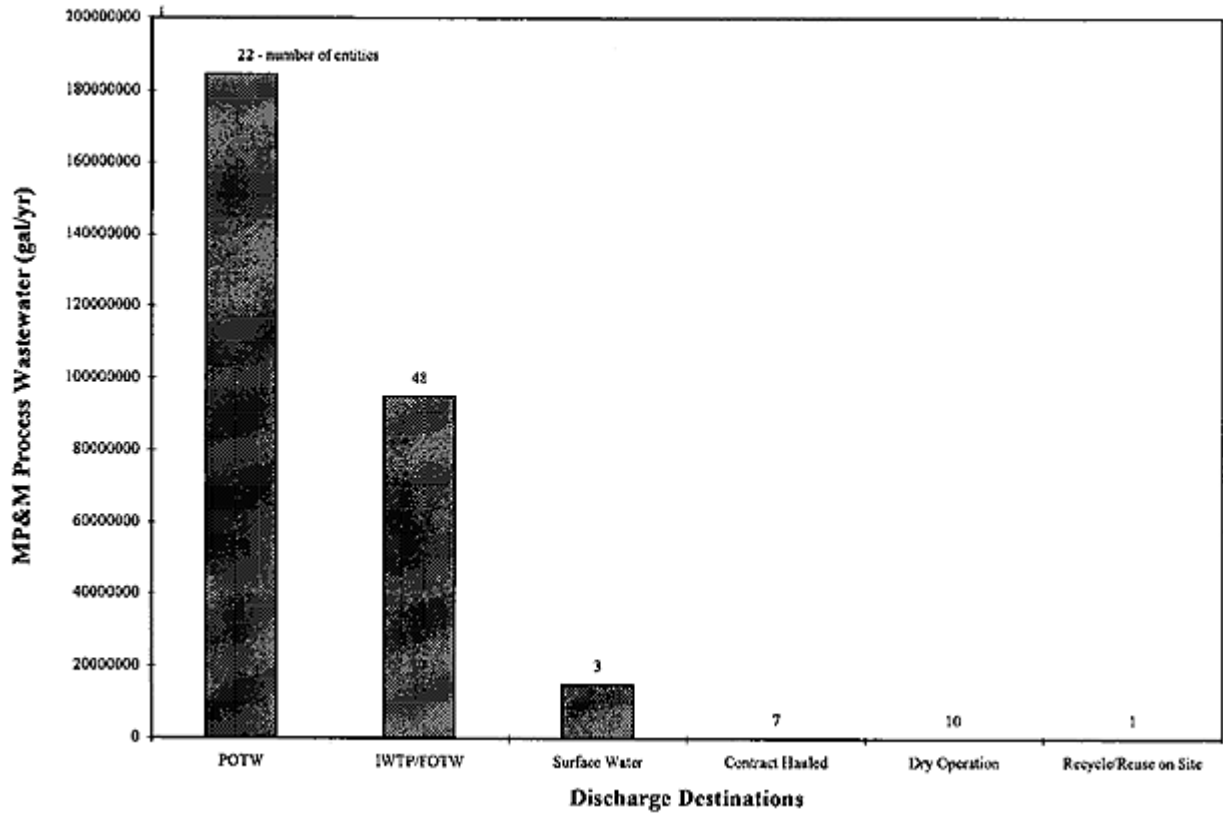
Enclosure (1)

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Attachment 6

**Total DoD Volume of MP&P Process Wastewater Discharged to Various Destinations**





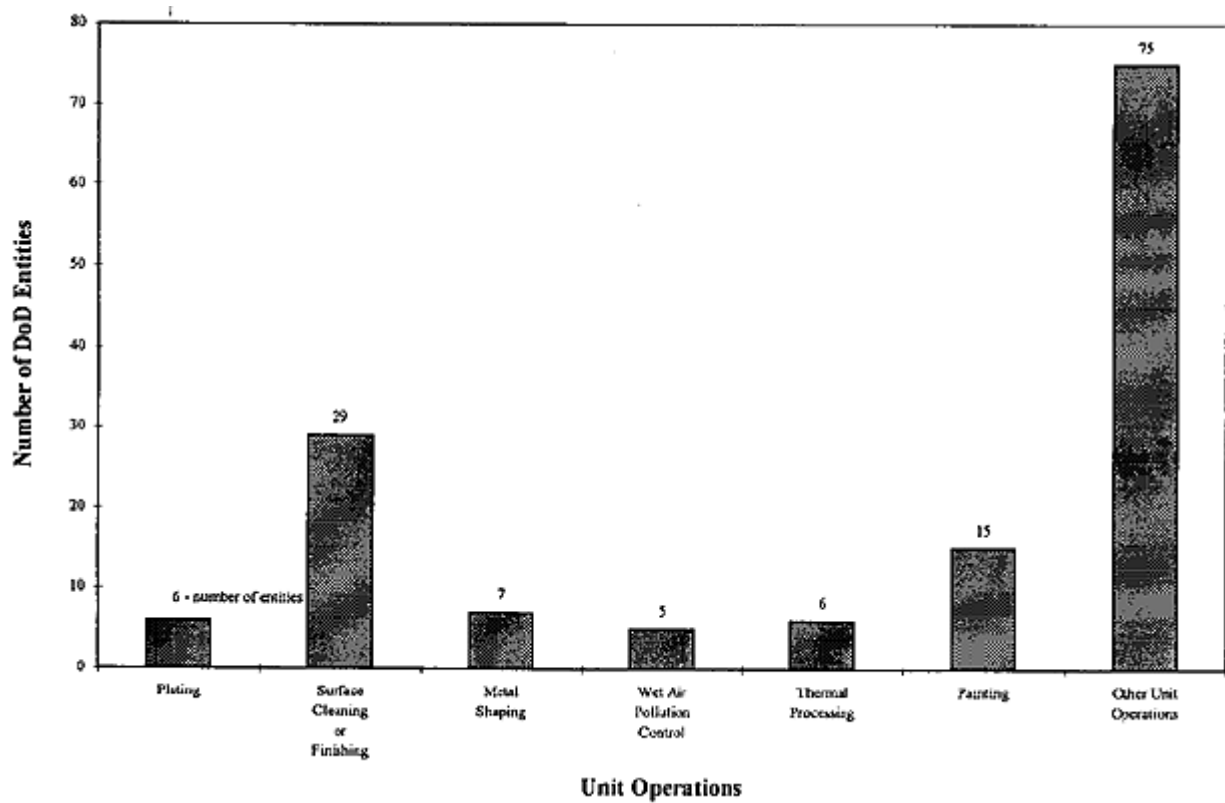
Based on a total of 87 entities

Enclosure (1)

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Attachment 7

**Number of Entities Performing MP&M Unit Operations**



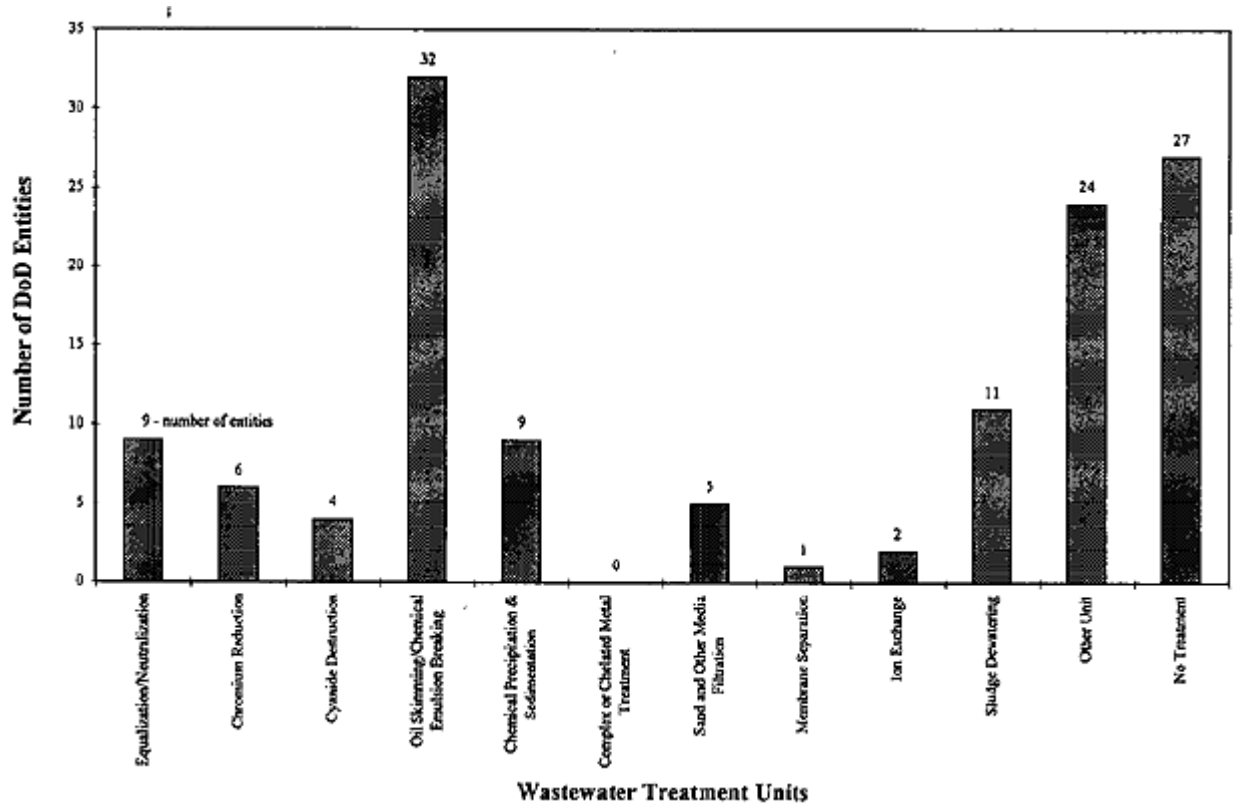
Based on a total of 87 entities

Enclosure (1)

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Attachment 8

**Number of DoD Entities With Wastewater Treatment Units**

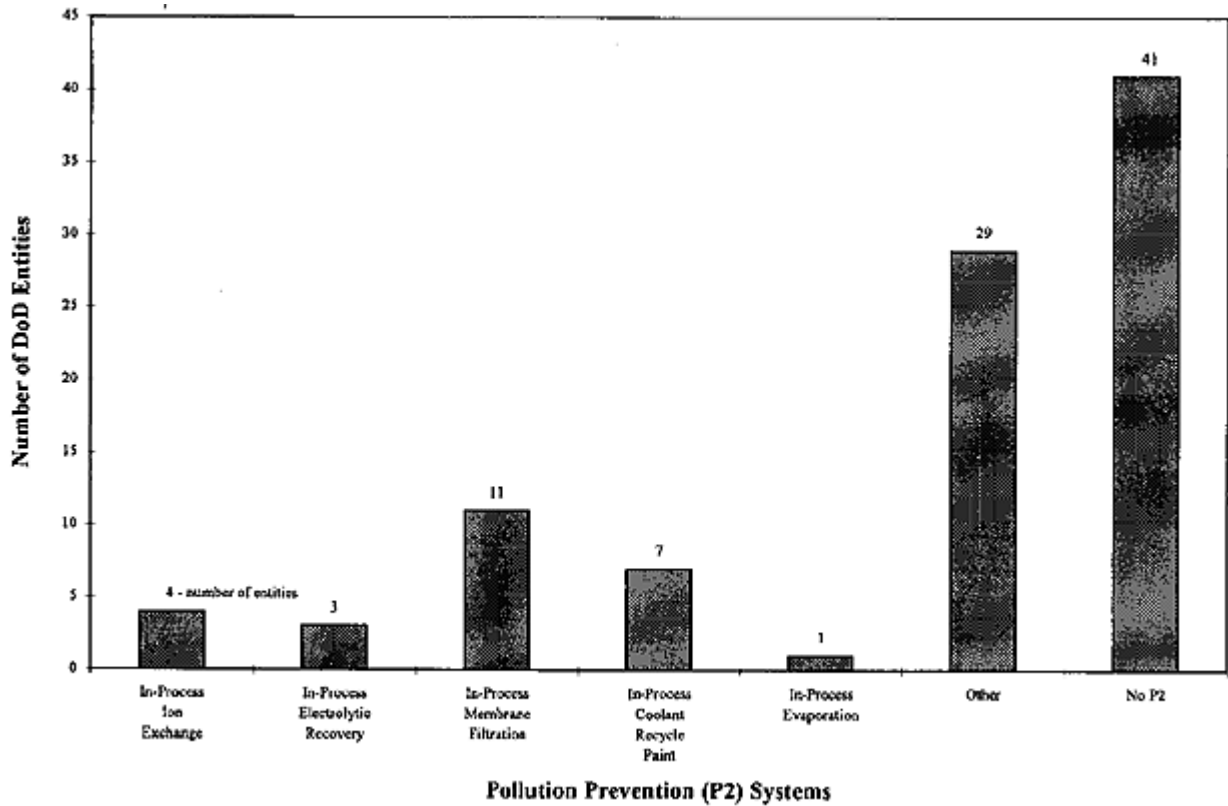


Based on a total of 87 entities

Enclosure (1)

Attachment 9

**Number of DoD Entities With Pollution Prevention Systems**



Based on a total of 87 entities

Enclosure (1)

## SUMMARY OF DATA COLLECTED BY DOD SERVICES FOR MPM INDUSTRY CATEGORY

Installations	Federal entities surveyed		Discharged	Unit	Pollution Prevention	Wastewater Treatment	MP&M WW Discharged
#		Sector	Destinations	Operations	Systems	Units	gal/yr
	<b>NAVY INSTALLATIONS</b>				<b>NAVY INSTALLATIONS</b>		
1	Mobile Driving and Salvage Unit One	Hardware	Dry operations	N/A	N/A	N/A	0
2	Commander U.S. Naval Forces, Marianas	Household Equipment	Contract Hauled	Surface Cleaning or Finishing	Other	None	0
				Other Unit Operations			
3	NAVPHIBASE Little Creek	Mobile Industrial Equipment	POTW	Surface Cleaning or Finishing	None	None	26,400
				Painting			
				Other Unit Operations			

4	NAS Oceana	Aircraft	POTW	Surface Cleaning or Finishing	None	None	160,000
				Other Unit Operations			
5	NMCRG Augusta, GA	Motor Vehicle	POTW, Surface Water	Surface Cleaning or Finishing	None	None	1,642
				Other Unit Operations			
6	NSGA Sugar Grove	Other Metal Products	Dry Operations	N/A	N/A	N/A	0
7	NNMC Bethesda	Instruments	POTW	Surface Cleaning or Finishing	In-Process Electrolytic Recovery	Equalization / Neutralization	33,710
				Other Unit Operations			
8	NAES Lakehurst	Stationary Industrial Equipment	Surface Water	Other Unit Operations	Other	Equalization / Neutralization	14,965,000
						Other Unit	
9	NAS Patuxent River	Aircraft	POTW	Surface Cleaning or Finishing	Other	Oil Skimming / Chemical Emulsion Breaking	10,400,450
				Thermal Processing			
10	NADEP North Island	Aircraft	IWTP / FOTW	Plating	In-Process Electrolytic Recovery	None	428,685
				Surface Cleaning or Finishing	In-Process Coolant Recycle & Paint Curtain Recycle		
				Metal Shaping	Other		
				Wet Air Pollution Control			
				Thermal Processing			
				Painting			
				Other Unit Operations			
11	NADEP Jacksonville	Aircraft	IWTP / FOTW	Plating	Other	Equalization / Neutralization	6,000
				Surface Cleaning or Finishing		Chromium Reduction	
				Metal Shaping		Cyanide Destruction	
				Thermal Processing		Oil Skimming / Chemical Emulsion Breaking	
				Painting		Chemical Precipitation & Sedimentation	
				Other Unit Operations		Sand and Other Media Filtration	
						Membrane Separation	
						Sludge Dewatering	
						Other Unit	
12	Naval Air Weapons Stations, China	Aircraft	Recycle / reuse on site	Other Unit Operations	Other	Other Unit	0

	Lake						
13	Naval Air Weapons Stations, Pt. Mugu	Aircraft	POTW	Surface Cleaning or Finishing	In-Process Electrolyte	Sludge Dewatering	1,314,695
				Wet Air Pollution Control	Other	Other Unit	
				Painting			
				Other Unit Operations			
14	Navy Inventory Control Point Mechanicsburg	Electronic Equipment	Contract Hauled	Surface Cleaning or Finishing	In-Process Coolant Recycle & Paint Curtain Recycle	Other Unit	0
				Metal Shaping			
				Thermal Processing			
				Painting			
				Other Unit Operations			
15	Pearl Harbor Naval Shipyard	Printed Circuit Boards	Dry Operations	N/A	N/A	N/A	0
16	Norfolk Navy Shipyard	Stationary Industrial Equipment	Contract Hauled	Other Unit Operations	None	None	596
17	Naval Surface Warfare Center Bethesda	Instruments	Dry Operations	N/A	N/A	N/A	0
18	Puget Sound Naval Shipyard	Railroad	Dry Operations	N/A	N/A	N/A	0
19	FCTC Dam Neck	Electronic Equipment	Dry Operations	N/A	N/A	N/A	0
20	Naval Research Lab	Electronic Equipment	Contract Hauled	Other Unit Operations	Other	None	0
21	Naval Station Pearl Harbor	Other Metal Products	Dry Operations	N/A	N/A	N/A	0
22	Pacific Missile Range Facility	Precious Metal and Jewelry	FOTW	Other Unit Operations	None	None	12
						<b>TOTAL</b>	<b>27,337,192</b>

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## SUMMARY OF DATA COLLECTED BY DOD SERVICES FOR MPM INDUSTRY CATEGORY

					Pollution	Wastewater	MP&M WW
Installations	Federal entities surveyed		Discharged	Unit	Prevention	Treatment	DISCHARGED
#		Sector	Destinations	Operations	Systems	Units	gal/yr
	<b>ARMY INSTALLATIONS</b>				<b>ARMY INSTALLATIONS</b>		

23	Fort Bragg	Indeterminable	IWTP/FOTW	Surface Cleaning or Finishing	None	Oil Skimming / Chemical Emulsion Breaking	17,867,800
				Other Unit Operations		Chemical Precipitation & Sedimentation	
						Sludge Dewatering	
						Other Unit	
24	U.S. Army Engineering Center & Fort Leonard Wood	Indeterminable	IWTP/FOTW	Surface Cleaning or Finishing	In-Process Coolant Recycle & Paint Curtain Recycle	Equalization / Neutralization	230,160
				Painting	In-Process Evaporation	Oil Skimming / Chemical Emulsion Breaking	
				Other Unit Operations		Sand and Other Media Filtration	
						Sludge Dewatering	
						Other Unit	
25	Rock Island Arsenal	Indeterminable	POTW	Plating	In-Process Coolant Recycle & Paint Curtain Recycle	Equalization / Neutralization	7,512,950
				Surface Cleaning or Finishing	Other	Chromium Reduction	
				Metal Shaping		Oil Skimming / Chemical Emulsion Breaking	
				Wet Air Pollution Control		Chemical Precipitation & Sedimentation	
				Painting		Sludge Dewatering	
				Other Unit Operations		Other Unit	
26	Anniston Army Depot	Indeterminable	IWTP/FOTW	Plating	None	Equalization / Neutralization	54,228,000
				Surface Cleaning or Finishing		Chromium Reduction	
				Wet Air Pollution Control		Cyanide Destruction	
				Painting		Oil Skimming / Chemical Emulsion Breaking	
				Other Unit Operations		Chemical Precipitation & Sedimentation	
						Sand and Other Media Filtration	
						Sludge Dewatering	

						<b>Total</b>	<b>79,838,910</b>
	<b>AIR FORCE INSTALLATIONS</b>				<b>AIR FORCE INSTALLATIONS</b>		
27	Travis Air Force Base	Indeterminable	POTW	Plating	None	None	7,785,000
				Surface Cleaning or Finishing			
				Painting			
				Other Unit Operations			
28	Hill Air Force Base	Indeterminable	POTW	Other Unit Operations	In-Process Ion Exchange	Equalization / Neutralization	95,000,000
					In-Process Coolant Recycle & Paint Curtain Recycle	Chromium Reduction	
					Other	Cyanide Destruction	
						Chemical Precipitation & Sedimentation	
						Sludge Dewatering	
						Other Unit	
29	Dover Air Force Base	Indeterminable	POTW	Surface Cleaning or Finishing	Other	Other Unit	78,000
				Metal Shaping			
				Thermal Processing			
				Painting			
				Other Unit Operations			
30	Cannon Air Force Base	Indeterminable	IWTP / FOTW	Surface Cleaning or Finishing	In-Process Ion Exchange	None	215,900
				Painting	In-Process Coolant Recycle & Paint Curtain Recycle		
				Other Unit Operations	Other		
31	Air Force Plant #4 Fort Worth	Indeterminable	IWTP / FOTW	Surface Cleaning or Finishing	In-Process Coolant Recycle & Paint Curtain Recycle	Chromium Reduction	61,418,900
				Painting	Other	Oil Skimming / Chemical Emulsion Breaking	
						Chemical Precipitation & Sedimentation	
						Ion Exchange	
						Sludge Dewatering	
						Other Unit	
32	Ellsworth Air Force Base	Indeterminable	IWTP / FOTW	Surface Cleaning or	Other	Oil Skimming / Chemical	4,719,740



				Finishing		Emulsion Breaking	
				Metal Shaping		Chemical Precipitation & Sedimentation	
				Other Unit Operations		Sludge Dewatering	
						<b>Total</b>	<b>169,217,540</b>
	<b>MARINE CORPS INSTALLATIONS</b>				<b>MARINE CORPS INSTALLATIONS</b>		
33	MCB Camp Lejeune						

## SUMMARY OF DATA COLLECTED BY DOD SERVICES FOR MPM INDUSTRY CATEGORY

Installations	Federal entities surveyed		Discharged	Unit	Pollution Prevention	Wastewater Treatment	MP&M WW DISCHARGED
#		Sector	Destinations	Operations	Systems	Units	gal/yr
	<i>Activities in Installation</i>						
	Dental Clinic	Other Metal Products	IWTP / FOTW	Other Unit Operations	In-Process Membrane Filtration	None	2,000
	Engineering Equipment Maintenance	Indeterminable	Contract Hauled	Other Unit Operations	None	None	145,000
	Dental Clinic	Other Metal Products	IWTP / FOTW	Other Unit Operations	In-Process Membrane Filtration	None	2,000
	Commercial Vehicle Maintenance	Indeterminable	IWTP / FOTW	N/A	Other	None	0
	Public Works Shop	Indeterminable	IWTP / FOTW	Painting	None	None	1,500
				Other Unit Operations			
	Fifth Baltalion Maintenance	Indeterminable	IWTP / FOTW	Other Unit Operations	Other	Oil Skimming / Chemical Emulsion Breaking	78,100
	Auto Vehicle Maintenance Shop	Indeterminable	IWTP / FOTW	Other Unit Operations	Other	Oil Skimming / Chemical Emulsion Breaking	1,885
	Steam Plant	Stationary Industrial Equipment	IWTP / FOTW	N/A	None	None	0

	Truck Company	Indeterminable	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	1,502,700
	Motor Trans	Indeterminable	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	34,600
	Motor Trans	Motor Vehicle	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	336,980
	Second Combat Eng. Bn.	Motor Vehicle	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	120,300
	Dental Clinic	Other Metal Products	IWTP / FOTW	Other Unit Operations	In-Process Membrane Filtration	None	500
	Maintenance	Indeterminable	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	40,000
	Base Satellite Maintenance	Indeterminable	Dry Operations	N/A	Other	None	0
	Fuel Farm	Indeterminable	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	2,400
	Non Destructive Insp	Aircraft	IWTP / FOTW	Other Unit Operations	In-Process Membrane Filtration	None	4,800
	Maintenance Hanger	Aircraft	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	1,500,000
	Equipment Shop	Aircraft	IWTP / FOTW	Other Unit Operations	None	None	260,000
	Steam Plant	Aircraft	IWTP / FOTW	Other Unit Operations	In-Process Membrane Filtration	None	9,000
	Equipment Maintenance	Aircraft	Dry Operations	N/A	None	None	0
	AC Direct Fuel Station	Indeterminable	IWTP / FOTW	Other Unit Operations	None	None	2,400
	Maintenance 01 & 02	Indeterminable	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	1,500,000
	MALS 26	Aircraft	Dry Operations	N/A	None	None	0
	Auto Vehicle Maintenance Shop	Indeterminable	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	1,458,000
	Heavy Equipment Maintenance	Indeterminable	IWTP / FOTW	Other Unit Operations	None	None	241,500
	Vehicle Maintenance	Indeterminable	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	1,502,700
	Vehicle Maintenance	Indeterminable	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	463,500
	Vehicle Maintenance	Indeterminable	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical	2,500

						Emulsion Breaking	
	Vehicle Maintenance	Indeterminable	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	9,000
	Com Air Systems	Indeterminable	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	918,000
	Equipment Maintenance and Repair	Indeterminable	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	1,500
	Public Works Shop	Indeterminable	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	31,800
	Vehicle Maintenance	Indeterminable	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	44,100
	Dental Clinic	Other Metal Products	IWTP / FOTW	Other Unit Operations	In-Process Membrane Filtration	None	2,000
	Minor Repairs	Mobile Industrial Equipment	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	1,500
	Dental Clinic	Other Metal Products	IWTP / FOTW	Other Unit Operations	In-Process Membrane Filtration	None	200
	Vehicle Maintenance	Indeterminable	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	24,000
	Vehicle Training Facility	Motor Vehicle	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	7,200
	Dental Clinic	Other Metal Products	IWTP / FOTW	Other Unit Operations	In-Process Membrane Filtration	None	200
	Amphibious Vehicle Shop	Ships and Boats	IWTP / FOTW	Other Unit Operations	None	Oil Skimming / Chemical Emulsion Breaking	3,067,500
34	Marine Corps Air Station, Yuma						
	<b>Activities In Installation</b>						
	CSSD-16	Indeterminable	POTW	Surface Cleaning or Finishing	None	Other Unit	68,640
				Other Unit Operations			
	NWSS-371	Indeterminable	POTW	Surface Cleaning or Finishing	In-Process Membrane Filtration	Other Unit	211,440
				Other Unit Operations	Other		
	MALS-13	Indeterminable	POTW	Surface Cleaning or Finishing	In-Process Exchange	Ion Exchange	162,550
				Other Unit Operations	In-Process Membrane	Other Unit	

					Filtration		
					Other		
	Station Motor Transport	Indeterminable	POTW	Surface Cleaning or Finishing	Other	Other Unit	117,360
				Other Unit Operations			
	MWR Auto Hobby Shop	Indeterminable	POTW	Surface Cleaning or Finishing	Other	Other Unit	73,085
				Other Unit Operations			

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## SUMMARY OF DATA COLLECTED BY DOD SERVICES FOR MPM INDUSTRY CATEGORY

Installations	Federal entities surveyed		Discharged	Unit	Pollution Prevention	Wastewater Treatment	MP&M WWW DISCHARGED
#		Sector	Destinations	Operations	Systems	Units	gal/yr
	Station IMA	Indeterminable	POTW	Surface Cleaning or Finishing	Other	Other Unit	48,720
				Other Unit Operations			
	VMA-211 / -214 / -311 / -513	Indeterminable	POTW	Surface Cleaning or Finishing	In-Process Membrane Filtration	Other Unit	30,960
				Other Unit Operations	Other		
	Jet Engine Test Cell	Aircraft	POTW	Other Unit Operations	None	Other Unit	16,800
	VMFT-401	Indeterminable	POTW	Other Unit Operations	None	Other Unit	2,250
	Cannon Complex	Indeterminable	POTW	Other Unit Operations	Other	Other Unit	2,160
	FMD	Indeterminable	POTW	Other Unit Operations	None	Other Unit	1,005
35	MCAS Cherry Point	Indeterminable	FOTW	Plating	Other	Equalization / Neutralization	56,979
				Surface Cleaning or Finishing		Chromium Reduction	
				Metal Shaping		Cyanide Reduction	
				Wet Air Pollution Control		Oil Skimming / Chemical Emulsion Breaking	

				Thermal Processing		Chemical Precipitation & Sedimentation	
				Painting		Sand and Other Media Filtration	
				Other Unit Operations		Other Unit	
36	Marine Corps Base, Quantico	Indeterminable	FOTW	Surface Cleaning or Finishing	Other	Equalization / Neutralization	1,023,300
			Surface Water	Other Unit Operations		Chemical Precipitation & Sedimentation	
			Contract Hauled			Sand and Other Media Filtration	
						Sludge Dewatering	
						Other Unit	
37	Marine Corps Base, Hawaii	Indeterminable	FOTW	Surface Cleaning or Finishing	Other	Sludge Dewatering	2,828,000
			Contract Hauled	Metal Shaping		Other Unit	
				Thermal Processing			
				Painting			
				Other Unit Operations			
						<b>Total</b>	<b>17,962,614</b>