



Obtaining and Maintaining Stormwater Compliance at a DOD Industrial Facility

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STORMWATER MANAGEMENT at NAVAIR LAKEHURST



NAVAL AIR ENGINEERING STATION LAKEHURST NJ



Facility
Mission:
Aircraft
Platform
Interface



Location



- 60 miles south of New York City and 50 miles west of Philadelphia
- Occupies more than 7,400 acres of New Jersey Pinelands





Illicit Discharge Survey



- Reviewed hundreds of drawings
- Visited majority of the 300+ buildings
- Almost one year to complete



Major Findings of Survey



- Numerous buildings had floor drains connected to storm system.
- Frequent instances of non-contact cooling water discharging to storm system.
- Many Central Steam Heating System condensate returns diverted to storm drains.



Eliminating Floor Drains



Public Works shops plugged over 300 floor drains that were confirmed as connected to the storm system





Non-Contact Cooling Water



Closed-Loop Fluid Coolers were provided for larger cooling needs





Non-Contact Cooling Water



Smaller fluid cooler discharges were connected to the station's sanitary system.





Steam Discharges

- Steam traps repaired.
- Condensate returns repaired to return water to the central heating plant



NAES CENTRAL HEATING PLANT



Survey Lessons Learned



- Achieving compliance within 18 months of issuance of initial permit would have been exceedingly difficult without advance survey
- Survey was critical for identifying issues of non-compliance.
- Problems identified in the survey might take significant effort or programming to correct.



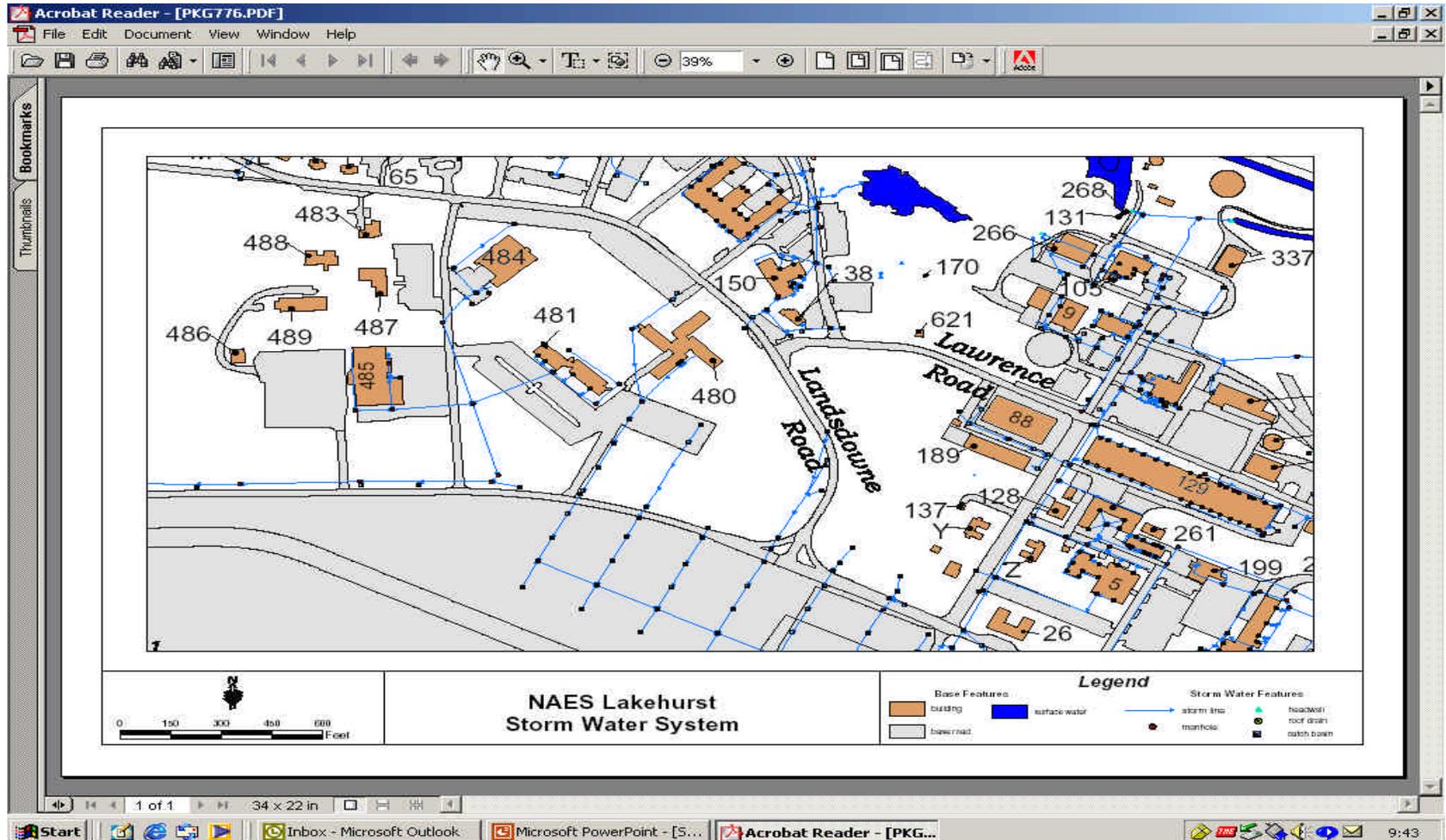
Storm Sewer System Mapping



- GIS used to develop the storm water system drawings.
- Base planning utilizes GIS to analyze impacts of all proposed projects, including potential adverse affects to stormwater.
- GIS drawings used to fulfill mapping requirement of Stormwater Pollution Prevention Plan.



Storm Sewer System Map





Industrial Stormwater Permit



- General Permit issued February 2001
- Advantages:
 - **No** numeric permit limitations
 - **No** sampling
 - **No** reporting
 - Chance of receiving a NOV is **greatly reduced**



General Permit Implementation



- **Follow-on facility survey revealed only remaining issue was improper storage of “Source Material”.**
- **Four major areas identified**
 - **Product Evaluation & Verification Dept**
 - **Prototyping & Manufacturing Dept**
 - **Defense Reutilization Marketing Office**
 - **Public Works Dept**



Source Material



- New Jersey defines “Source Material” as:
 - **Liquid** that can be transported by storm water
 - **Erodable material** that can be transported by storm water
 - **Easily soluble material** in storm water
 - **Degradable material** in storm water
 - Material that can **add odor or color** to storm water



First Step - Orientation



- Using the Station's ISO 14001 Environmental Management System, Key Employees were identified
- SOPs were developed with each department
- "Source Material" was clarified to create consistent understanding



NAES SOP for Stormwater- DRMO



NAWCADLKE Standard Operating Procedure Defense Reutilization and Marketing Office Lakehurst

Document No: DRMO-SOP-1	Revision: 0 Supersedes:	Prepared By: D. Blazak	Approved By: DRAFT dtd 26 Jan 01
File Name: DRMOSOP1	Effective Date: 26 January 2001	Number of pages: 3	

Title: **Stormwater Pollution Prevention at DRMO**

1.0 PURPOSE

To provide guidance to effectively prevent stormwater pollution within the DRMO controlled areas at NAES Lakehurst.

2.0 APPLICATION

This process applies to all DRMO operations, specifically including contractor actions, related to storm water pollution prevention.

3.0 REFERENCES

NAWCADLKE Stormwater Pollution Prevention Plan

4.0 PROCEDURE



Source Material Defined



- Containers such as drums and dumpsters containing industrial material unless the drums are clean and empty and the dumpsters are covered, watertight and leak-proof. Dumpsters that receive office or cafeteria waste are not source material as their contents are not industrial in nature.
- Vehicles, industrial machinery, equipment and parts where engines, grease, oil, coatings, anti-freeze and/or other fluids are exposed to storm water.



Non-Source Material



- Clean, solid durable products intended for outdoor use such as pre-cast concrete products, stone and gravel, clean wooden products and pallets and outdoor furniture are not source material provided the product is not degrading.
- Clean solid durable finished products such as structural steel beams are not source material provided the material is not degrading



Training



- Stormwater training was piggybacked on HAZCOM training to minimize training requirement for employees.
- Conducted annually and for all new employees
- Emphasis of training is proper storage of source material.



Second Step - Participation



- Used existing ISO 14001 EMS to team with other department/tenants on station.
- Enlisted each department's Environmental Manager to become member of Stormwater Pollution Prevention team.
- Process changes accomplished with participation of key players.



DRMO Process Changes



- No vehicles would be brought to Lakehurst yard for sale to the Public.
- Vehicles would be sold from the facility that turned them in-saving the government transportation charges.
- DRMO now tarps all “source material” in their yard.



DRMO – Before Process Changes



Pad attempting to contain spill from leaking vehicle floats in storm water





DRMO Process Changes



Vehicles no longer staged at DRMO Lakehurst





DRMO Process Changes



- Scrap operations would be modified at Lakehurst by:
 - Remove all existing scrap piles.
 - Only placing scrap in covered dumpsters.
 - Not accepting any greasy or oily scrap material.



DRMO Scrap Yard Before Process Changes





DRMO Scrap Yard - After





Test Department Process Changes



- Re-inventoried all material that was stored outside.
- Eliminated over 900,000 pounds of material that was no longer needed.
- Shrink-wrapped “must keep” items



Test Department Before Process Changes





Test Department After Process Changes





Test Department Before Process Changes





Test Department Cleanup underway





Test Department After Process Changes





Test Department Process Changes



Shrink wrap
equipment and
material that
could adversely
affect stormwater





Industrial Department Process Changes



- Re-inventoried all material that is stored outside.
- Eliminated approximately 170,000 pounds of material that was no longer needed.
- Covered all material that is stored outside to prevent storm contact.



Industrial Department Eliminated Outdoor Sandblasting





Industrial Department Before Process Changes





Industrial Department After Process Changes





Industrial Department Before Process Changes





Industrial Department After Process Changes





Industrial Department Before Process Changes





Industrial Department After Process Changes





Industrial Department Process Changes



- Re-organized their outside storage areas to simplify use to maintain compliance.
- Organizing material makes it easier to notice incidences of non-compliance.



Public Works Process Changes



Public Works
Department no longer
stores material outside
that could adversely
affect stormwater
quality



PW Electric Shop Storage Yard



Third Step - Ownership



- Environmental checklists created using ISO 14001 EMS.
- Checklist customized for each department's use.
- Copy of completed checklist is sent to Environmental Department weekly for record keeping.



Environmental Checklist

INSPECTION OF INDUSTRIAL DEPARTMENT OUTSIDE STORAGE AREAS - WEEK OF _____ PAGE 1

FENCED AREA WEST OF BUILDINGS 148 AND 149.

YARD IN COMPLIANCE-CHECK HERE X

TYPES OF PROBLEMS	REMARKS; PROBLEM IDENTIFIED; SPECIFY LOCATION	REPEAT (Y/ N)	DATE AND NATURE OF CORRECTIVE ACTION

The yards shall be inspected to ensure compliance with the following:

All material and equipment that can impact storm water quality (source material) will be stored in tightly sealed containers, wrapped in shrink-wrap plastic or effectively tarped when stored outside. The material will be placed on clean wood or steel pallets to prevent contact with storm run-off. Containers will not be deteriorated and will not leak. Only final products that cannot be mobilized by storm water may be stored outside uncovered. Source material is defined in the Industrial Department SOP. The outside storage facility will be inspected weekly for compliance and a report documenting compliance will be provided to NAES Environmental. The Industrial Department Environmental Manager, Mr. Pete Schoerner, will also receive a copy to initiate corrective action. Inspection of the storage areas should require approximately 2 hours. It should take approximately 1 hour to prepare the report.



Program Effectiveness



- Any problems noted during weekly inspections; corrected by involving Department Environmental Managers
- Environmental Department Stormwater Program Manager occasionally accompanies each Department's inspector to gauge effectiveness of program.



Overall Program Benefits



- Instances of non-compliance are minimal and easily remedied.
- Enhanced Environmental Awareness across departments
- Cost savings since no storm-water sampling is needed
- Overall operational improvements due to better house-keeping



For More Information



- Website

www.lakehurst.navy.mil/environment

- Points of Contact

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