Storm Water Pollution Prevention Plan

Virginia Pollutant Discharge Elimination System
Permit No. VA0024457

National Aeronautics and Space Administration
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, Virginia

January 2008

STORM WATER POLLUTION PREVENTION PLAN

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For additional information contact: Joshua A. Bundick
NASA Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, Virginia 23337
(757) 824-2319
Email: Joshua.A.Bundick@nasa.gov

Prepared by

Building F-160
Wallops Island, Virginia 23337

THIS REVISION SUPERSEDES ALL PREVIOUS EDITIONS OF THE WALLOPS FLIGHT FACILITY STORM WATER POLLUTION PREVENTION PLAN

January 2008

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List of Acronyms

AAOC	Administrative Agreement on Consent
ADAS	Advanced Data Acquisition Support
AFTF	Aviation Fuel Tank Farm
AOC	Area of Concern
AST	Aboveground Storage Tank
BMP	Best Management Practice
BOD	Biological Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
CAP	Corrective Action Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSCE	Comprehensive Site Compliance Evaluation
DCR	(Virginia) Department of Conservation and Recreation
DEQ	(Virginia) Department of Environmental Quality
DMR	Discharge Monitoring Report
DoT	Department of Transportation
DoD	Department of Defense
DRO	Diesel Range Organics
EPA	(United States) Environmental Protection Agency
FFTA	Former Fire Training Area
FMB	Facilities Management Branch
FOTW	Federally Owned Treatment Works
FS	Feasibility Study
FUDS	Formerly Utilized Defense Site
GRO	Gasoline Range Organics
GSFC	Goddard Space Flight Center
HAZWOPER	Hazardous Waste Operations and Emergency Response
ICP	Integrated Contingency Plan
JP	Jet Propulsion Fuel
JPTS	Jet Propulsion Fuel, Thermally Stable
MDL	Method Detection Limit
MGD	Million Gallons per Day
MSDS	Material Safety Data Sheet
NASA	National Aeronautics and Space Administration
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated biphenyl
PID	Photoionization Detector
ppm	Parts per Million
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
SIC	Standardized Industrial Classification

List of Acronyms

SPCC	Spill Prevention, Control, and Countermeasures
SVOC	Semi-volatile Organic Compounds
SWCB	(Virginia) State Water Control Board
SWP3	Storm Water Pollution Prevention Plan
SWPPT	Storm Water Pollution Prevention Team
TPH	Total Petroleum Hydrocarbon
TSS	Total Suspended Solids
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
UST	Underground Storage Tank
VAC	Virginia Administrative Code
VOC	Volatile Organic Compounds
VPDES	Virginia Pollutant Discharge Elimination System
VSMP	Virginia Storm Water Management Program
WFF	Wallops Flight Facility
WOD	Waste Oil Dump
WWTP	(Old) Waste Water Treatment Plant

1.0 PURPOSE

The purpose of this Storm Water Pollution Prevention Plan (SWP3) is to meet the requirements of the National Aeronautics and Space Administration (NASA) Goddard Space Flight Center's Wallops Flight Facility's (WFF's) current Virginia Pollutant Discharge Elimination System (VPDES) permit, No. VA0024457, dated August 18, 2004. This document is intended to describe current storm water management and to reflect revisions to storm water management systems and the associated outfalls from the previous edition of the WFF SWP3, dated March 2005. Through the use of best management practices, regular inspections, and personnel training, WFF remains proactive in storm water pollution prevention.

This SWP3 is a dynamic document that is revised as appropriate to reflect changes in WFF operations. More specifically, this SWP3 is updated whenever there is a change in design, construction, operation, or maintenance that presents the potential for discharge of pollutants to waters of the Commonwealth of Virginia. This SWP3 is also amended if it proves to be ineffective in eliminating or minimizing pollutants.

This SWP3 not only stands alone but is also a part of WFF's Integrated Contingency Plan (ICP). The ICP is an EPA mandated document, which details a facility's preparedness and responses to emergencies particularly to hazardous waste and fuel oil spills. The ICP was prepared for WFF in order to combine Spill Prevention, Control, and Countermeasures (SPCC) and Hazardous Waste Contingency plans and is in compliance with the *9 VAC 25-91-10* Aboveground Storage Tank (AST) Pollution Prevention regulations and the February 2007 requirements for SPCC Plans promulgated under *40 CFR 112*.

1.1 Introduction

Wallops Flight Facility is located in Accomack County, Virginia within the area known as the Delmarva Peninsula. The facility consists of three separate landmasses in close proximity to each other: The Main Base, the Mainland, and Wallops Island, which total approximately 6,530 acres (2,643 hectares). Figure 1 depicts the location of the WFF and delineates the areas of the three landmasses with their associated land uses.

The Main Base is composed of approximately 2,230 acres (902.5 hectares). It is bordered on the east by extensive marshland, swales, and tidal creeks, which lead into Chincoteague Bay and Chincoteague Inlet. The Main Base is bordered on the north and west by an estuarine area known as Little Mosquito Creek. State Routes 175 and 798 border the remainder of the Main Base to the south and southeast, respectively.

Wallops Island is approximately 7 miles (11.3 kilometers) long, 0.5 mile (0.8 kilometers) wide, and is surrounded by water. It is comprised of approximately 4,200 acres (1,700 hectares), including the marsh area. Chincoteague Inlet borders Wallops Island on the north and the Atlantic Ocean forms the eastern border. Assawoman Island borders to the south and marshland covers the entire western approach to Wallops

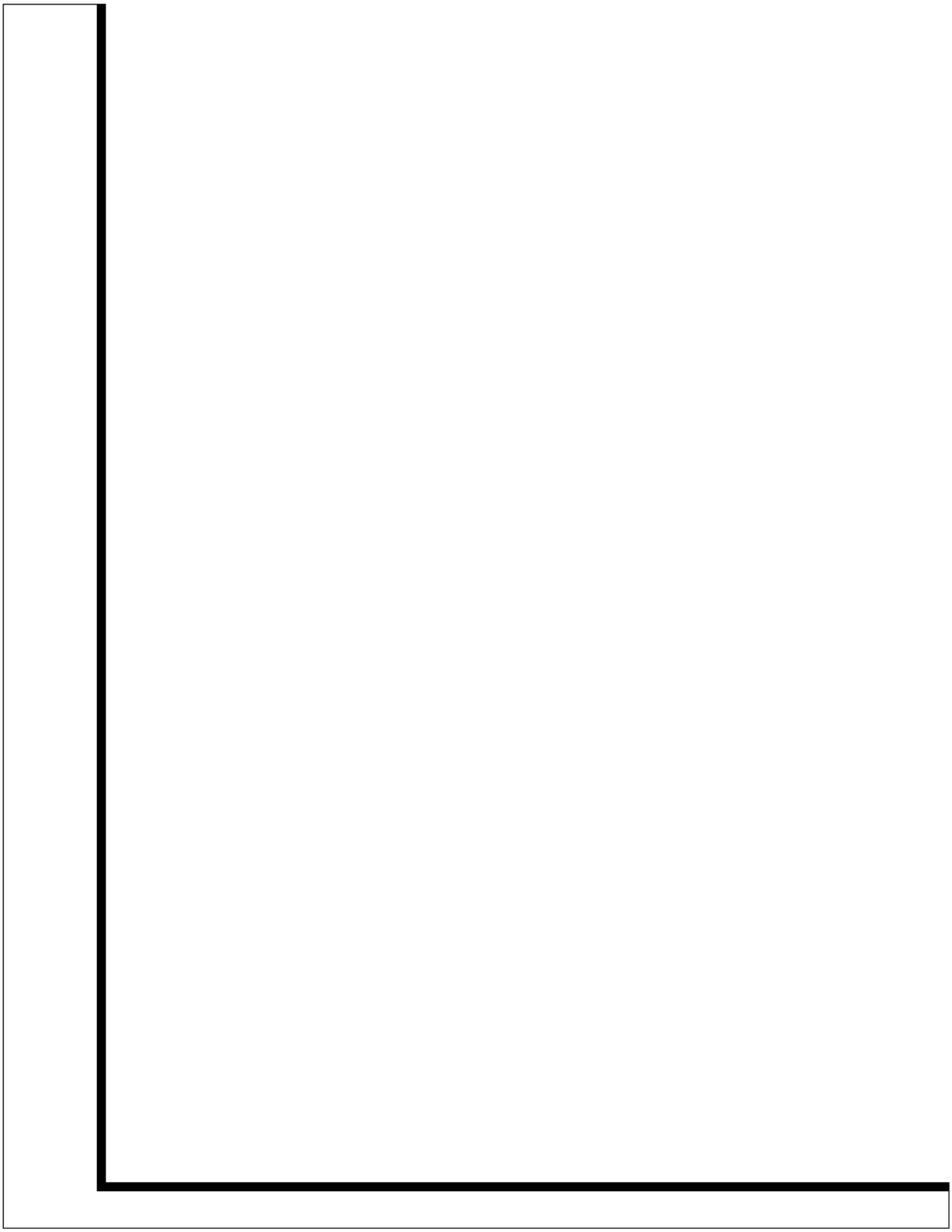

Figure 1

Island. The marsh area is interlaced with small tidal creeks and is bisected by the Virginia Inside Passage. The following Figure 1 details the facility vicinity. The Mainland area is bordered by extensive marshland and swales to the east and by private lands, currently used for agricultural and livestock (poultry house) operations, to the south, west, and north. The Mainland covers approximately 100 acres (40.5 hectares).

2.0 STORM WATER POLLUTION PREVENTION TEAM

The WFF has established a Storm Water Pollution Prevention Team (SWPPT) comprised of individuals from various NASA and partner organizations. The Team is responsible for the following:

- Implementing all VPDES and SWP3 requirements;
- Defining and agreeing upon an appropriate set of goals for the facility's storm water management program;
- Being aware of any changes in WFF or partner operations in order to determine changes (if needed) in the SWP3;
- Reviewing the Comprehensive Site Compliance Evaluation (detailed in Section 5.0 of this Plan) and the Fire Department's Incident Reports; and
- Identifying pollutant sources and risks, making decisions on appropriate best management practices (BMPs), and directing the actual implementation of the BMPs and regular evaluations to measure the effectiveness of the Plan.

The SWPPT meets at least annually to discuss the goals of the SWP3, review BMP progress, address comments and suggestions received from others, and determine if changes are necessary. Members of the Team revise the SWP3, including the BMP implementation schedule, as necessary.

An Environmental Protection Specialist from the Wallops Environmental Office is the SWPPT coordinator. This coordinator is also the backup facilitator for the timely cleanup of spills at the WFF. The Environmental Office also maintains the SWP3, provides facility-wide annual training in the use of the SWP3, and conducts permit-required inspections. The WFF Chemistry Laboratory performs permit-required chemical analyses on storm water discharges. The Facilities Management Branch maintains and inspects fuel storage tanks, the storm water system, and wastewater treatment plant. An on-site Fire Department is available for primary response during spill incidents. Partner organizations supply facility specific storm water related information. Listed in Table 1 are the members of the SWPPT with organization and responsibilities identified:

TABLE 1
STORM WATER POLLUTION PREVENTION TEAM

Team Member	Code	Phone	Responsibility
Environmental Protection Specialist	250.W	757-824 – 2319	WFF SWPPT Coordinator and Clean Water Act Compliance
Environmental Office Contractor Support	250.W	757-824 – 1987	Environmental Contractor Clean Water Act Compliance
WFF Chemistry Laboratory	250.W	757-824 – 1941	VPDES Permit Compliance and Analytical Support
Facilities Management Specialist	228	757-824 – 1539	Storm Water System Manager
Fire Department Captain on Duty	803	757-824 – 1300	HAZMAT/Spill Primary Responder
U. S. Navy Surface Combat Systems Center Environmental Coordinator	NA	757-824 – 2082	Point of Contact to WFF for Environmental Compliance
NOAA Systems Support Branch Chief	NA	757-824 – 7311	Point of Contact to WFF for Environmental Compliance
U. S. Coast Guard Engineering	NA	757-336 – 2861	Point of Contact to WFF for Environmental Compliance
Marine Science Consortium Facilities Manager	NA	757-824 – 5636	Point of Contact to WFF for Environmental Compliance
Mid-Atlantic Regional Spaceport Manager	NA	757-824 – 2335	Point of Contact to WFF for Environmental Compliance

3.0 DESCRIPTION OF POLLUTANT SOURCES

3.1 Site Drainage

VPDES regulations require permits for storm water discharges associated with industrial activities. The WFF currently holds VPDES permit VA0024457 for 12 industrial storm water outfalls on the Main Base, labeled 003-010, 012-014, and 302. Four non-industrial storm water outfalls are located on the Wallops Main Base, labeled NOAA1-NOAA4. The Federally Owned Treatment Works (FOTW) process outfall, labeled 001, is also located on the Main Base; eight non-industrial storm water outfalls are located on Wallops Island ,

labeled WI01-08(see Figures 2 and 3). Descriptions of the outfalls are provided in Table 2. On the northern portion of the Main Base, both naturally flowing storm water and the extensive storm network drain to Little Mosquito Creek, which drains to Cockle Creek and eventually flows to the Atlantic Ocean. On the eastern and southeastern portions of the Main Base, the natural drainage pattern flows to Jenneys Gut and Simoneaston Bay, then into Cockle Creek, Shelly Bay, and Chincoteague Bay before draining to the Atlantic Ocean. On the western and southwestern portions of the Main Base, the natural drainage pattern is toward Wattsville Branch, then to Little Mosquito Creek, Cockle Creek, and on to the Atlantic Ocean.

The National Oceanic and Atmospheric Administration (NOAA), one of WFF's partners, operates a satellite tracking station (correlating with Standardized Industrial Classification (SIC) code 4899, Communications Services) on the northeast corner of the Main Base. Four outfalls channel storm water from the NOAA facility. The outfalls are labeled on Figure 2 as NOAA 1-NOAA 4. However, based NOAA's SIC code; the facility does not produce discharges associated with industrial activity.

With the exception of several cross-culverts, storm drainage at Wallops Mainland is primarily toward Bogues Bay, Hog Creek, and Cat Creek, all which separate Wallops Mainland from Wallops Island. The Mainland portion of the facility, consisting primarily of radar tracking facilities, does not generate storm water discharge associated with industrial activity as specified within regulatory classifications. However, this portion of the facility includes operations that could impact storm water quality and therefore is addressed in this Plan.

The northern portion of Wallops Island drains by overland flow to Bogues Bay and Chincoteague Inlet via Sloop Gut and Ballast Narrows. The central portion of the island drains primarily to the west toward Bogues Bay and the southern end drains primarily by sheet flow to Hog Creek and the Atlantic Ocean. Wallops Island has eight storm water outfalls, labeled WI-1 – WI-8. However, Wallops Island does not generate storm water discharge associated with industrial activity as specified within regulatory classifications. This portion of the facility does include operations that could impact storm water quality and therefore is included in this Plan.

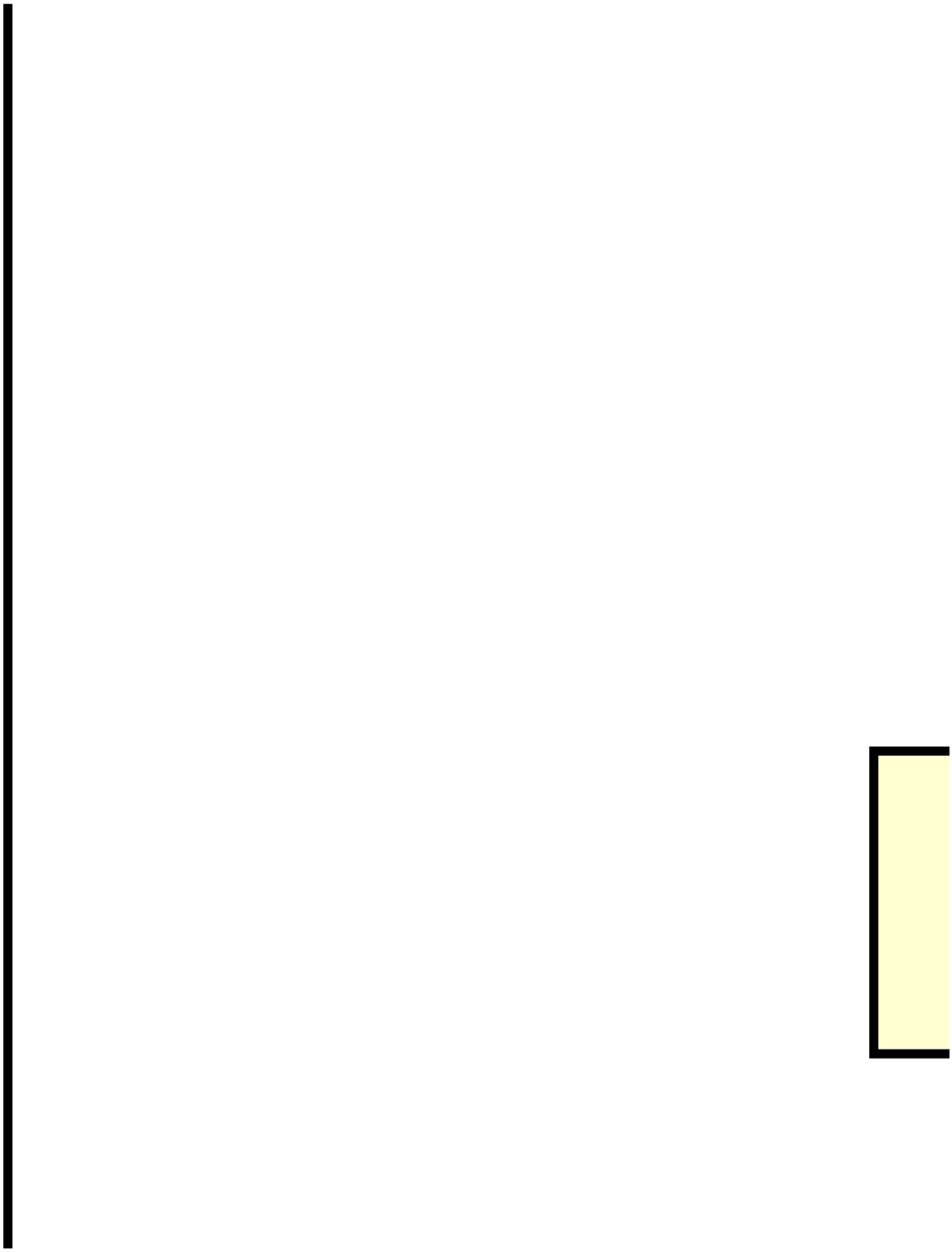

Figure 2

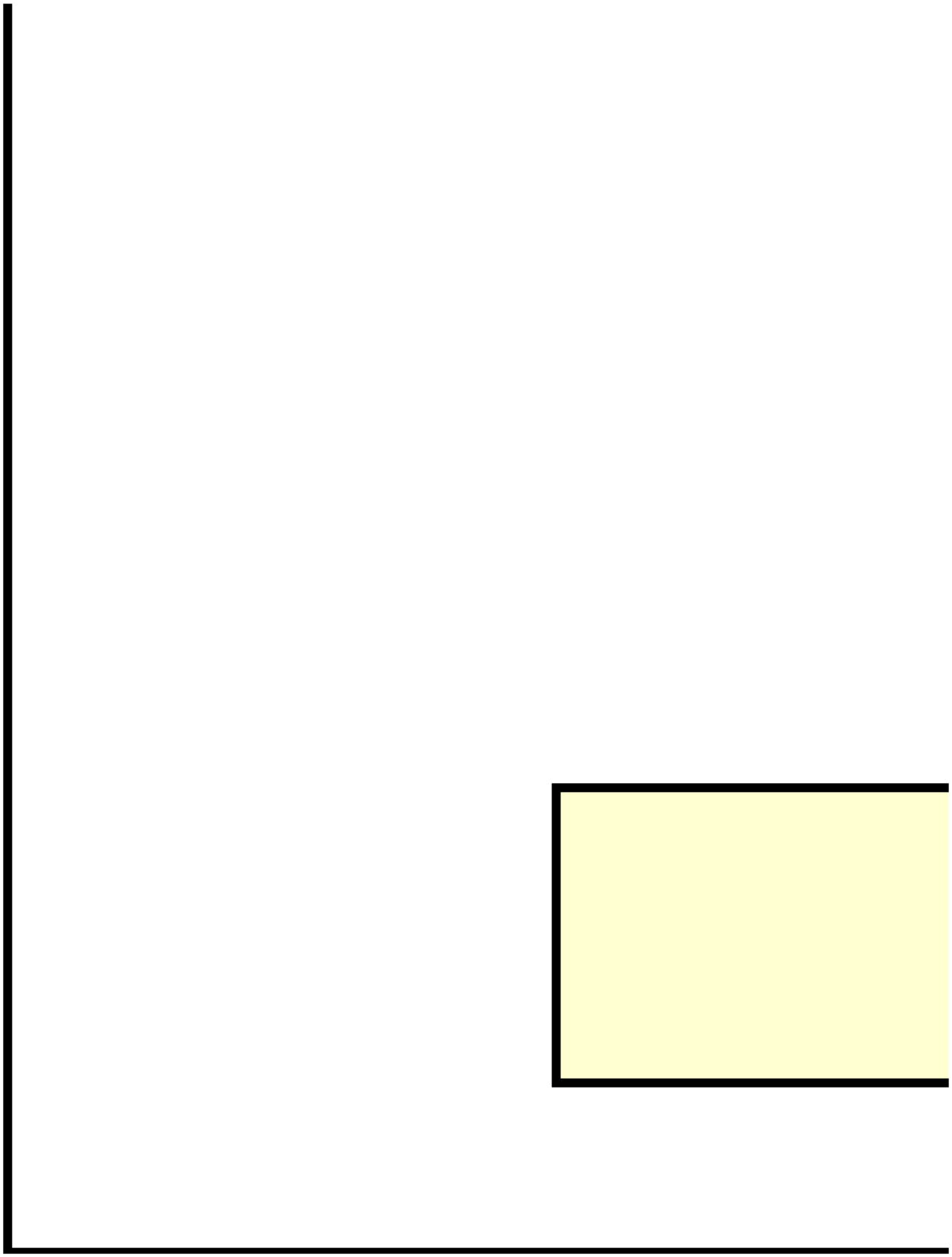

Figure 3

Table 2. WFF Storm Water Outfalls	
Outfall Number	**Description**
003	Drains airfield runways, taxiways, aprons, and a hangar; satellite accumulation areas; aboveground fuel storage tanks; office buildings; roadways, parking areas, and grassy areas. This outfall discharges to Little Mosquito Creek. Potential sources of pollution include possible fuel spills from airfield activities or releases from fuel delivery vehicles or possible hazardous waste spills from either a satellite accumulation area. A slight chance of storm water contamination from hazardous wastes exists; however, all satellite accumulation areas are required to have secondary containment and are located inside covered structures. This outfall drains approximately 204.6 acres (82.8 hectares (ha)) and its weighted runoff coefficient is low at 0.39. During a 24-hour, 2-year storm event, approximately 8.03 million gallons per day (MGD) would discharge from this outfall.
004	Drains airfield runways and taxiways, satellite accumulation areas, an enclosed salt storage facility, an automobile fueling facility and a maintenance garage, aboveground fuel storage tanks, roadways, parking areas, office and storage buildings, and grassy areas. This outfall discharges to Little Mosquito Creek. Potential sources of pollution include possible fuel spills from automobile fueling and maintenance, releases from fuel delivery vehicles, or airfield activities. The slight possibility of hazardous waste spills from satellite accumulation areas also exists; however, all satellite accumulation areas are required to have secondary containment and are located inside covered structures. This outfall drains approximately 54.1 acres (21.9 ha) and its weighted runoff coefficient is low at 0.31. During a 24-hour, 2-year storm event, approximately 1.72 MGD would discharge from this outfall.
005, 006, 007, 008	Drain airfield runways, taxiways, and grassy areas. These outfalls discharge to Little Mosquito Creek. Potential sources of pollution include possible fuel spills from airfield activities. These outfalls drain approximately 18.9 acres (7.6 ha), 2.3 acres (0.93 ha), 12.4 acres (5.0 ha) and 29.0 acres (11.7 ha), respectively. Weighted runoff coefficients range from medium to high and are 0.52, 0.67, 0.40, and 0.46, respectively. During a 24-hour, 2-year storm event, discharges would be approximately 1.00 MGD from outfall 005, 0.16 MGD from outfall 006, 0.51 MGD from outfall 007, and 1.36 MGD from outfall 008.
009	Drains airfield runways, taxiways, and grassy areas. This outfall discharges to Jenneys Gut. Potential sources of pollution include possible fuel spills from airfield activities. This outfall drains approximately 18.2 acres (7.4 ha) and its weighted runoff coefficient is medium at 0.46. During a 24-hour, 2-year storm event, approximately 0.85 MGD would discharge from this outfall.

Table 2. WFF Storm Water Outfalls	
Outfall Number	**Description**
010	Drains airfield runways, taxiways, and aprons, satellite accumulation areas, a less-than-90-day accumulation area (Building B-29),one restoration sites with petroleum related groundwater impacts), and aboveground fuel storage tanks; office buildings, roadways, parking areas, and grassy areas. This outfall discharges to Jenneys Gut. Potential sources of pollution include possible fuel spills from airfield activities or releases from fuel delivery vehicles or possible hazardous waste spills from either a satellite accumulation area or the less-than-90-day accumulation area. The slight possibility of storm water contamination from hazardous wastes exists; however, all satellite accumulation areas are required to have secondary containment and are located inside covered structures. In addition, the less-than-90-day accumulation area is located in a concrete building that is protected by drains and troughs that would contain a spill within the area. The potential for contaminated runoff from the restoration sites exist, but due to site topographies, is highly unlikely. This outfall drains approximately 127.7 acres (51.7 ha) and its weighted runoff coefficient is low at 0.34. During a 24-hour, 2-year storm event, approximately 4.43 MGD would discharge from this outfall.
012, 013	Drain airfield runways and taxiways and grassy areas. These outfalls discharge to Little Mosquito Creek. Potential sources of pollution include possible fuel spills from airfield activities. These outfalls drain approximately 3.2 acres (1.3 ha) and 2.6 acres (1.1 ha), respectively. Their weighted runoff coefficients are medium at 0.54 and 0.52, respectively. During a 24-hour, 2-year storm event, approximately 0.17 MGD would discharge from outfall 012 and 0.14 MGD from outfall 013.
014	Drains airfield runways, taxiways, and a hangar; satellite accumulation areas and an aboveground fuel storage tank; roadways and parking areas; office and storage buildings; and grassy areas. This outfall discharges to Simoneaston Bay. Potential sources of pollution include possible fuel spills from runway activities or releases from fuel delivery vehicles or possible hazardous waste spills from satellite accumulation areas. However, all satellite accumulation areas are required to have secondary containment and are located inside covered structures This outfall drains approximately 113.1 acres (45.8 ha) with a low weighted runoff coefficient of 0.28. During a 24-hour, 2-year storm event, approximately 3.32 MGD would discharge from this outfall.
302 (mid outfall)	Intermediate Outfall 302 is an oil/water separator located at the aviation fuel tank farm. Water exiting outfall 302 travels a short distance through a ditch, enters the storm water system, and discharges through outfall 003 to Little Mosquito Creek. Potential pollution sources include fuel spills or leaks from the aviation fuel tank farm. However, the oil/water separator will capture any petroleum products released. This outfall drains approximately 0.1 acres (0.04 ha) with a high weighted runoff coefficient of 0.90. During a 24-hour, 2-year storm event, approximately 0.01 MGD would discharge from this outfall.
NOAA-1, NOAA-2	Drain spacecraft tracking facilities and grassy areas. These outfalls discharge to Little Mosquito Creek. Potential pollution sources include oils and lubricants; however the equipment is regularly inspected and maintained by trained NOAA personnel. These outfalls drain approximately 6.6 acres (2.7 hectares) and 16.2 acres (6.6 hectares), respectively. Weighted runoff coefficients are low at 0.22 and 0.25. During a 24-hour, 2-year storm event, approximately 0.15 MGD would

Table 2. WFF Storm Water Outfalls	
Outfall Number	**Description**
	discharge from NOAA-1 and 0.41 MGD would discharge from NOAA-2.
NOAA 3, NOAA-4	Drain spacecraft tracking facilities, aboveground fuel storage tanks, office buildings, parking areas, and grassy areas. NOAA-4 also drains an airfield runway and taxiway. These outfalls discharge to Little Mosquito Creek. Potential sources of pollution include possible fuel spills from airfield activities or releases from fuel delivery vehicles and radar oils and lubricants. To minimize storm water risk, tanks are surrounded by secondary containment and spill kits are readily available; Radar equipment is regularly inspected and maintained by trained NOAA personnel. These outfalls drain approximately 28.3 acres (11.5 hectares) and 51.0 acres (20.6 hectares), respectively. Weighted runoff coefficients are low to moderate at 0.29 and 0.42. During a 24-hour, 2-year storm event, approximately 0.82 MGD would discharge from NOAA-3 and 2.15 MGD would discharge from NOAA-4.
WI-1, WI-2	Drain small launch facilities, office buildings, fuel storage tanks, roadways, parking areas, and grassy areas. WI-2 also drains a payload assembly building (W-065) that contains a satellite accumulation area near a large door and a building (W-116) with drums that lack secondary containment. Drainage involves retention basins with sluice gates and tidal flaps leading first to tidal marshland and then to Cat Creek. Potential sources of pollution include fuel spills during deliveries or releases from the payload assembly building or drum storage area. To minimize the risk of storm water pollution, all fueling and payload assembly operations are performed by trained personnel. Additionally, spill kits are readily available. These outfalls drain approximately 36.9 acres (14.9 hectares) and 74.3 acres (30.1 ha), respectively. Weighted runoff coefficients are low at 0.22 and 0.20. During a 24-hour, 2-year storm event, approximately 0.93 MGD would discharge from WI-1 and 1.49 MGD would discharge from WI-2. Payload Fueling (Wallops Island) • V-55 – No new discharge to surface or ground water • Potential new facility-storm water, but no new discharge to surface or ground water. New Spacecraft Integration Facility (HIF) (South end of island) – storm water, but no new discharge to surface or ground water.
WI-3, WI-4	Drain office buildings, fuel storage tanks, roadways, and parking areas. Drainage involves retention basins with sluice gates and tidal flaps leading first to tidal marshland and then to Cat Creek. Potential sources of pollution include fuel spills from delivery vehicles. To minimize the risk of storm water pollution, all fueling operations are performed by trained personnel. Additionally, spill kits are readily available. These outfalls drain approximately 45.0 acres (18.2 hectares). Their weighted runoff coefficient is low at 0.19. During a 24-hour, 2-year storm event, approximately 0.86 MGD would discharge from these outfalls.

Table 2. WFF Storm Water Outfalls	
Outfall Number	**Description**
WI-5	Drains radar and tracking facilities, aboveground fuel storage tanks, office buildings, parking areas, and grassy areas. Drainage involves a culvert with tidal flaps leading first to tidal marshland and then to Cat Creek. Potential sources of pollution include fuel spills from delivery vehicles and radar oils and lubricants. To minimize storm water risks, tanks are surrounded by secondary containment and spill kits are readily available; radar equipment is regularly inspected and maintained by trained personnel. This outfall drains approximately 7.7 acres (3.1 ha). The weighted runoff coefficient is low at 0.19. During a 24-hour, 2-year storm event, approximately 0.15 MGD would discharge from this outfall.
WI-6	Drains small launch facilities, office buildings, fuel storage tanks, roadways, parking areas, and grassy areas. Drainage involves retention basins with sluice gates and tidal flaps that drain to Hog Creek. Potential sources of pollution include fuel spills from delivery vehicles. To minimize the risk of storm water pollution, all fueling operations are performed by trained personnel. Additionally, spill kits are readily available. This outfall drains approximately 47.8 acres (19.3 hectares).The weighted runoff coefficients is low at 0.23. During a 24-hour, 2-year storm event, approximately 1.1 MGD would discharge from this outfall.
WI-7, WI-8	Drain orbital launch facilities, small launch facilities, office buildings, fuel storage tanks, roadways, parking areas, and grassy areas. Drainage involves retention basins with sluice gates and tidal flaps that drain to Hog Creek. Potential sources of pollution include orbital launch operations and fuel spills from delivery vehicles. To minimize the risk of storm water pollution, all orbital launch vehicle fueling is performed by highly trained personnel during closely controlled conditions. Also, all launch pad wash waters are tested prior to discharge. All tank fueling operations are performed by trained personnel. Additionally, spill kits are readily available. These outfalls drain approximately 27.9 acres (11.3 hectares) and 22.5 acres (9.1 ha), respectively. Weighted runoff coefficients are low at 0.23 and 0.17. During a 24-hour, 2-year storm event, approximately 0.64 MGD would discharge from WI-7 and 0.38 MGD would discharge from WI-8. Proposed Liquid Fueling Facility – storm water (110% containment for hydrocarbon fuels) Proposed Deluge System – Discharge to containment basin, test for release to surface water structures. Release to surface water structures is anticipated based on similar operations at other NASA launch sites. If necessary water will be tested and treated (pH adjustment) before release, or collected and removed for disposal as necessary. The volume of water required for deluge is still being evaluated. The quantities may be significant requiring release over a period of days.
Northern Wallops Island	Proposed Liquid Fueling Facility with a Deluge System – Storm water impacts are unknown at this time. Further research will be conducted and results submitted to VDEQ.

3.2 Inventory of Exposed Materials

An inventory of exposed materials was developed from data collected through field surveys, inspections, and personnel interviews. Table 3 summarizes materials exposed to precipitation by location. Buildings D-1 and N-159 house chemicals in rooms with floor drains that are connected to the storm water management system. NASA's website, MSDS Pro© (http://msds.gsfc.nasa.gov:8080/1/locset1), contains detailed chemical inventories, along with links to the corresponding MSDSs, for each building at the facility.

TABLE 3
INVENTORY OF MATERIALS EXPOSED TO PRECIPITATION

Location	Materials
D-37 Aviation Fuel Farm	Used JP-8
D-1 Hangar (floor drains)	Alodine, used oil, Jet A
N-159 Hangar (floor drains)	JP-8, hydraulic oils, diesel fuel
Apron equipment storage area (<50 gallons)	JP-8, diesel fuel
B-30/B-31 - Outdoor equipment storage area	Oils, lubricants
M-1 – Receiving, outdoor equipment and mobile generator storage	Mineral oil (electrical transformers)
F-26 - Fuel station	Gasoline, diesel fuel, & absorbent
F-33 - Salt/sand storage and mixing	Salt & sediment
F-7 – Outdoor material storage	Metal scrap, dust
Area west of **F-10 to F-20** (garage, rigging, vehicle, mobile generators)	Diesel fuel, hydraulic oil
Mobile tracking storage area, east of **E-Area**	Diesel fuel, hydraulic oil
Launch **Pad 0-B** (Island)	Acidic pad & gantry wash water
Building **W-65**	Drummed JP-8 w/ no secondary containment

3.3 Spills and Leaks

The WFF Environmental Office maintains records of spills, leaks, and releases of hazardous or toxic pollutants. Spills in reportable quantities are reported to the appropriate agencies. Spills and leaks are remediated as effectively and expeditiously as possible in accordance with applicable regulations and the WFF ICP. Listed in Table 4 are spills and leaks of reportable quantity for the last 3 years:

TABLE 4
3-YEAR SPILL AND LEAK HISTORY

Incident Date		Location	Substance	Quantity
#1	01/27/2005	West of Building D-1	JP-5	~51 gallons
#2	12/26/2005	Building W-65	WD-40®	~315 gallons
#3	11/14/2007	Tank D-102	#6 Fuel Oil	~300 gallons

Incident # 1 - At 10:50 a.m. on January 27, 2005, the WFF Fire Department received notice and responded to a spill from a 195 gallon (738 liter) mobile power generator in use west of the D-1 hangar (see Figures 4 and 5). The auxiliary tank of the generator holds 100 gallons and the main tank holds 95 gallon of JP-5. Prior to the incident, the generator had been used for 1 hour, consuming approximately 22 gallons of fuel (based upon a later test burn). Following the incident, 120 gallons of fuel were drained from the combined tanks. Therefore, approximately 53 gallons of JP-5 were released. Approximately 1-2 gallons of JP-5 fuel were contained by absorbent vermiculite. The spill was traced to the nearest storm water drop inlet. Upon notification of the spill, the

NASA WFF 51 Gallon JP-5 Spill
January 27, 2005

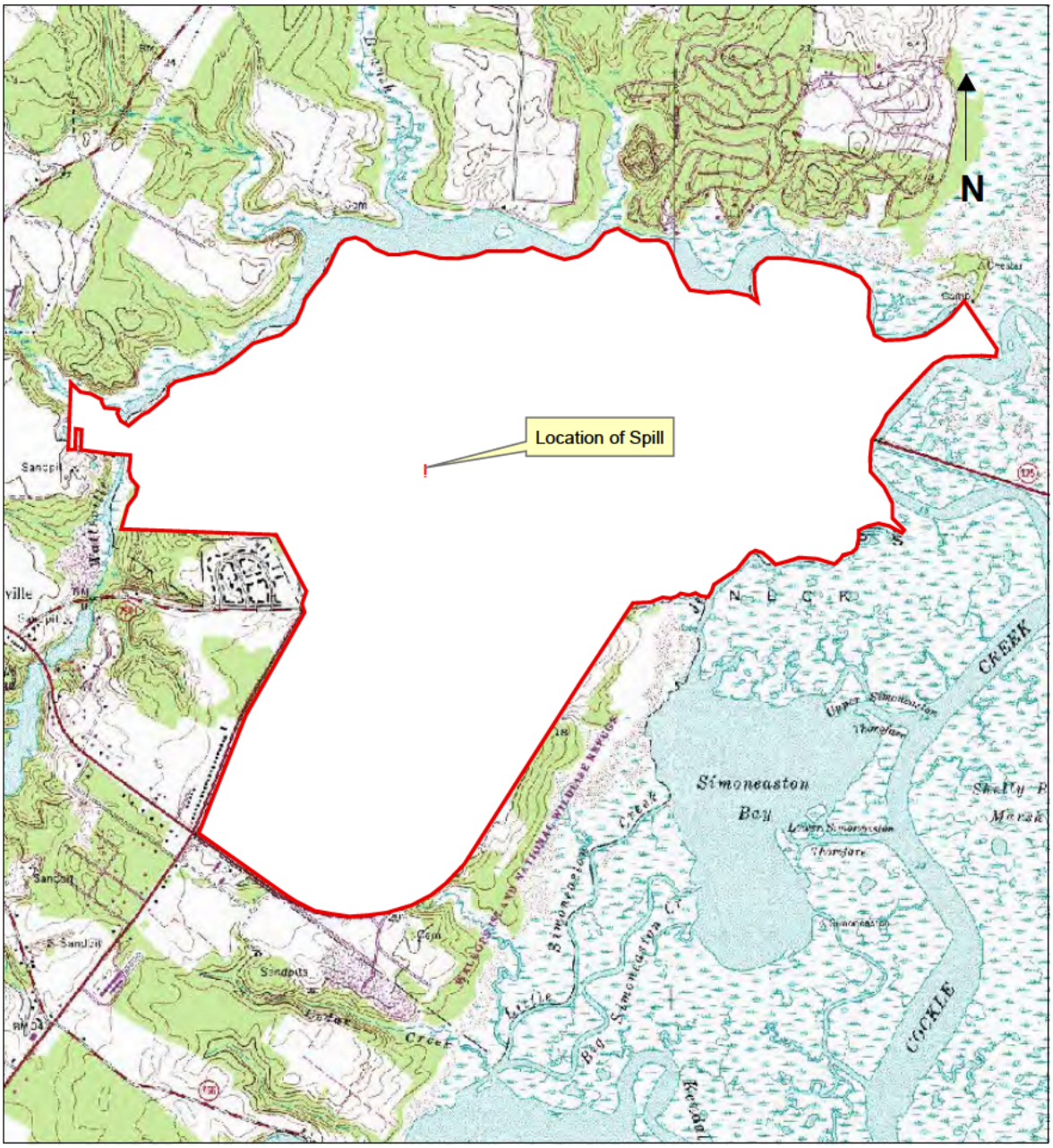

Figure 4

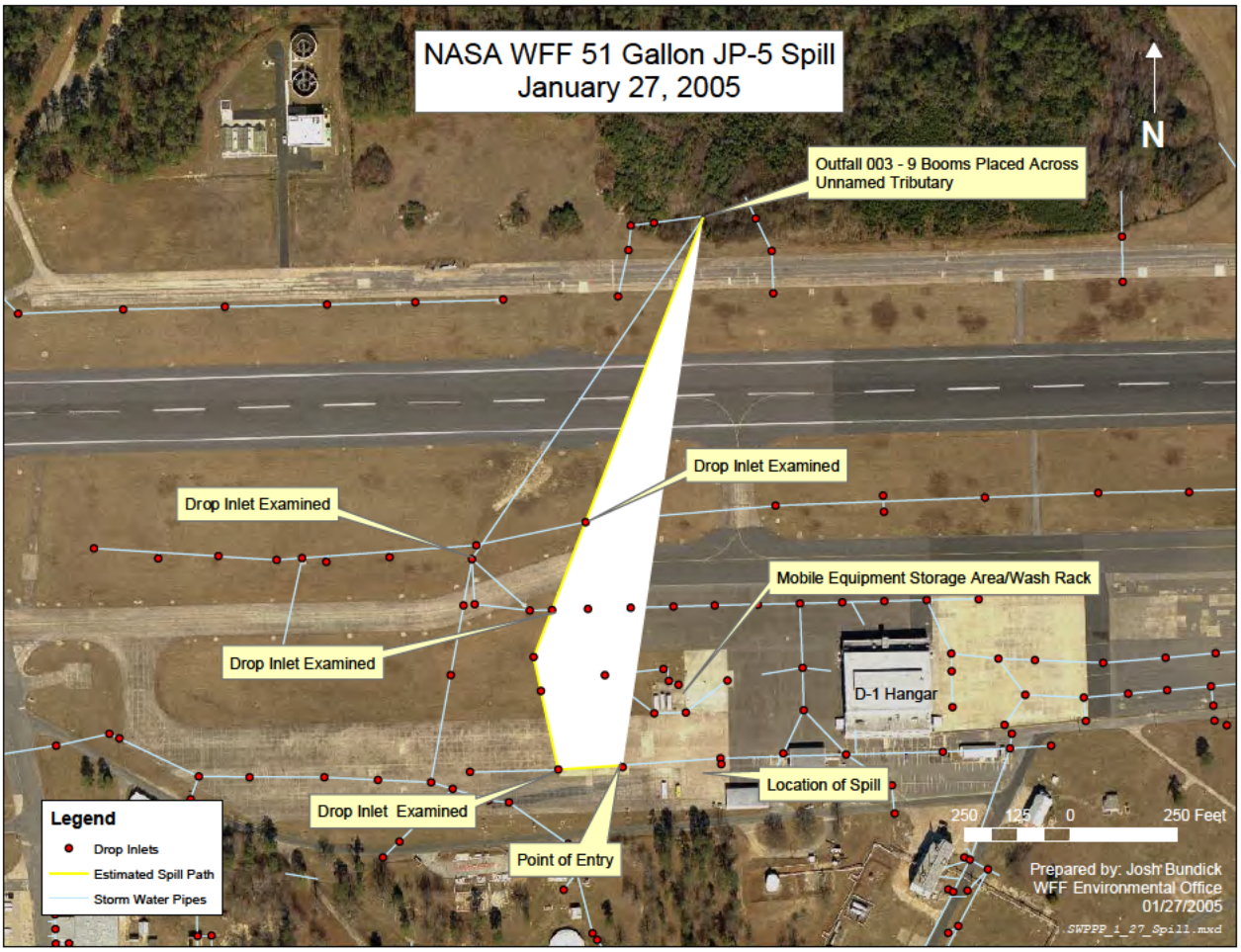

Figure 5

Wallops Environmental Office sent a team to outfall 003 to determine if a sheen was visible. At approximately 12 noon, 1 large and 8 small absorbent booms were placed across the unnamed tributary to which outfall 003 discharges.

At approximately 12:15 p.m. a slight odor was detected and was followed by an oily sheen which was absorbed by the booms placed across the tributary. A team walked the tributary to determine if a visible sheen or a petroleum-like odor was evident downstream. The team sampled the tributary between the outfall and the booms with a photoionization detector (PID). PID readings indicated approximately 3 parts per million (ppm) of petroleum approximately 20 feet from the outfall, within the booms. Further reconnaissance of the tributary to Little Mosquito Creek revealed no product present. The following morning, a water sample was collected at outfall 003 and sent to Gascoyne Laboratories for analysis of Total Petroleum Hydrocarbons (TPH) for both the gasoline range organics (GRO) and diesel range organics (DRO). Approximately 1,200 gallons of potable water were flushed down the drop inlet. After the slug of water passed through the outfall, samples were again collected for both TPH GRO and DRO analysis.

Table 5 illustrates that analytical results of water samples collected at outfall 003 prior to and after flushing the storm water system are consistent with recent background samples.

TABLE 5
BACKGROUND AND SAMPLING ANALYSIS FROM 1/27/2005 SPILL

Sample	TPH-GRO (ppm)	MDL*	TPH-DRO (ppm)	MDL*
Background (7/29/2004)	<0.5	0.5	<0.5	0.5
Background (10/27 & 10/28/2004)	<0.5	0.5	<0.5	0.5
Prior to flushing	0.226	0.013	Broken upon receipt	
After flushing	0.232	0.013	<0.5	0.5

As a result of this incident, WFF management has stipulated that all mobile equipment that holds greater than 50 gallons (190 liters) of oil will be stored on the Mobile Tanker Storage Area. This area drains through an oil/water separator prior to treatment at the Federally Owned Treatment works. Because equipment storing less than 50 gallons (190 liters) of fuel will still be stored on the airfield apron, the area adjacent to the Mobile Tanker Storage Area was added to the Storm Water Pollution Prevention Plan's High Risk Area list and is inspected on a quarterly basis. Sorbent socks and pillows are placed around any suspect or leaking equipment.

Incident # 2 - On Tuesday, December 26, 2005, at 8:13 pm, a Wallops Security Patrol Guard discovered a liquid product on the floor of Bay 6 in Building W-65 (see Figures 6 and 7). The guard immediately notified the Wallops Fire Department. When the Wallops Fire Department arrived on scene at 8:38 pm, they observed that the spill was mostly contained within the center of the building because of its slightly concave tile floor. The Wallops Fire Department immediately placed absorbent booms around the spill area. Using wet/dry vacuum and absorbent booms, the responders recovered approximately 315 gallons of liquid WD-40® (aliphatic petroleum distillate) that had discharged from a dipping tank located inside the building.

Figure 6 - Building W-65 WD-40 Spill

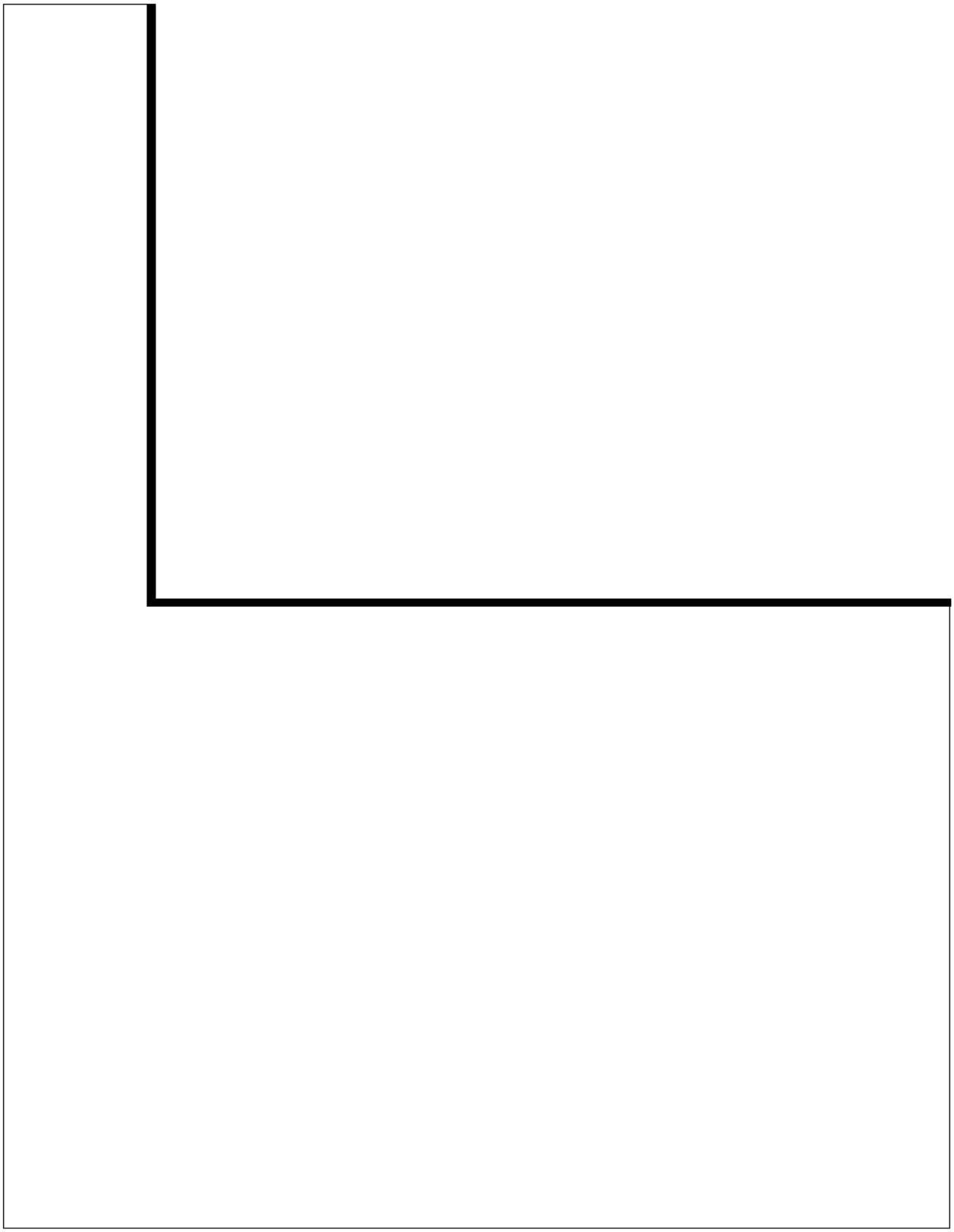

Figure 7

Absorbent material was then used to recover the residual product and it was placed into polyethylene bags. The release was caused by a hole located near the bottom of the dipping tank which allowed the liquid contents to drain from the tank. The WFF Environmental Office contacted the Virginia Department of Environmental Quality (DEQ), the Virginia Emergency Operations Center, and the National Response Center to report the release although it was determined that the spill inside the building was fully contained and no oil was released to state waters, drains, storm water, or surrounding environment.

As a result of the incident, WFF personnel inspected the dip tank and the project team removed the old tank from service and replaced it with a tank constructed of heavy gauge steel in Spring 2006. Weekly inspections of the process container are now conducted to reduce the potential of a similar occurrence in the future.

Incident #3 - On Wednesday, November 14, 2007, during a scheduled morning inspection, boiler plant employees discovered # 6 Fuel Oil in the earthen berm of the D-102 Aboveground Storage Tank. The boiler plant employees immediately closed the open oil line drain valve and notified the Wallops Fire Department. When the Wallops Fire Department arrived on scene, they observed that the spill was contained and no oil had been released to state waters. Examination of fuel records indicated that approximately 300 gallons of oil had been released from the tank. The WFF EO contacted the Virginia Department of Environmental Quality, the Virginia Emergency Operations Center, and the National Response Center to report the release.

Marcor Remediation, Incorporated arrived on scene at 3:00 p.m. to begin the cleanup. Approximately 34 cubic yards of soil mixed with # 6 Fuel Oil was removed from the earthen berm. Although the fuel oil did not penetrate the clay liner, the berm and liner were breached during cleanup efforts. A temporary berm was constructed at the conclusion of the removal activity. Cleanup efforts were completed at 11:00 p.m. on November 14, 2007. The product and contaminated soil were disposed of as at a licensed treatment facility. To prevent further releases, a lock was placed on the oil line drain valve. A task is currently underway to repair and recertify the clay liner and berm.

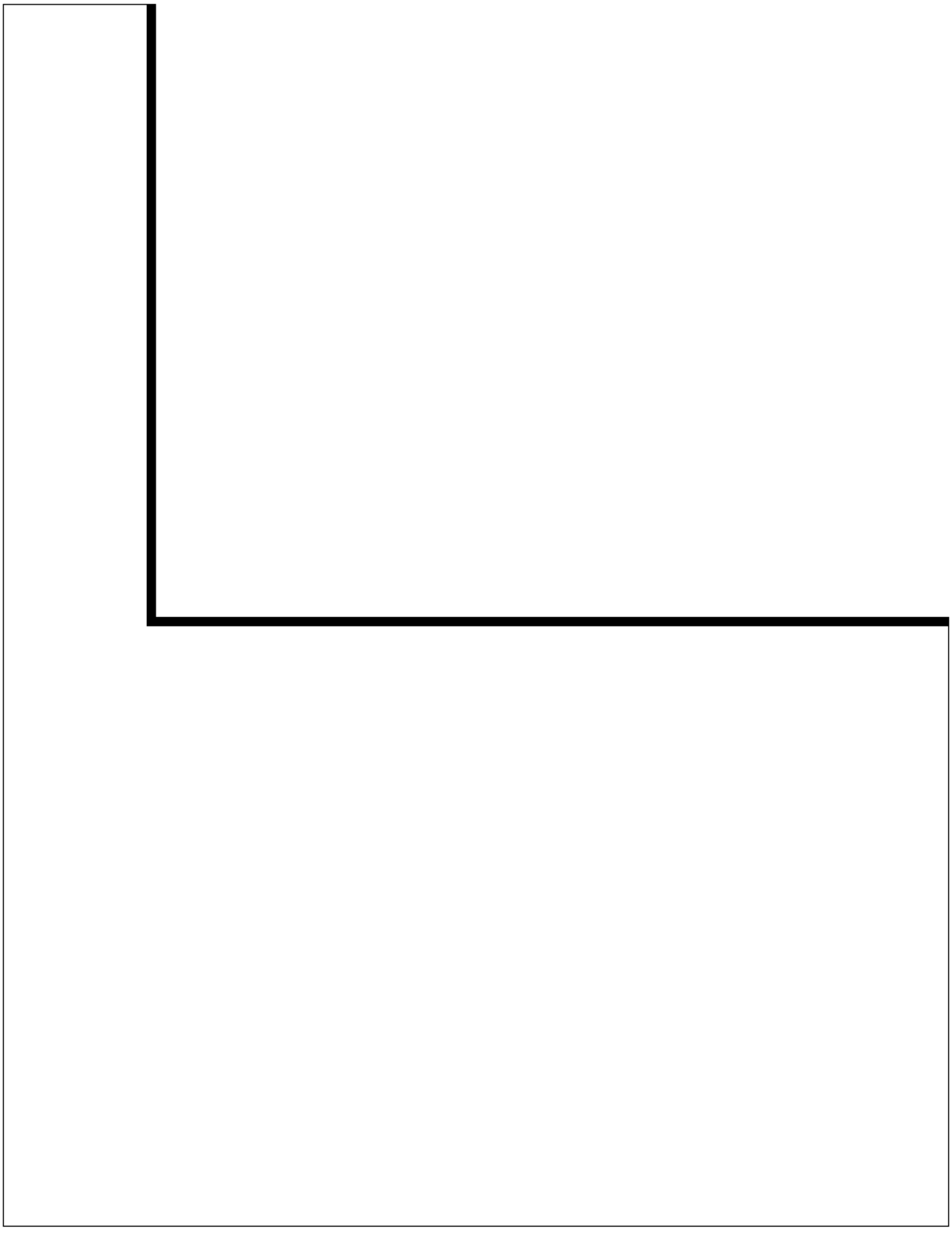

Figure 8

3.4 Sampling Data

Scheduled samplings of storm water discharges are performed to meet VPDES monitoring requirements. The WFF's current VPDES permit, dated August 18, 2004, specifies the constituents to sample and sampling frequency for both process outfall 001 and storm water outfall 003. Analysis is conducted in accordance with EPA analytical laboratory test methods. Sampling and analysis undergo quality control and quality assurance (QA/QC) review to ensure validity of analytical results. Sample results are reported in the monthly Discharge Monitoring Report (DMR) at the frequency specified by the VPDES permit. A description of each discharge and the receiving stream is presented above in Table 2. The DEQ DMRs are presented in Appendix A.

3.4.1 Record of Sampling History

Initial storm water sampling was performed to meet the requirements for the original Application for Permit to Discharge Storm Water Associated with Industrial Activity and submitted to the Virginia Department of Environmental Quality State Water Control Board (SWCB) on October 1, 1992. Outfalls 004, 005, 007, 010, and 011 were selected for sampling based on representation of associated industrial activity. Outfalls 006, 008, 009, 012, 013, and 014 were considered "substantially identical" to outfall 005 by definition. This definition was accepted and approved by the SWCB.

The initial storm water sampling event was held on December 10, 1992. The duration of the event was 48.8 hours with a total recorded precipitation of 1.48 inches (3.76 centimeters). The storm water samples were collected during the first 3 hours of the event. They were analyzed for the following constituents:

- Chemical Oxygen Demand/Total Kjeldahl Nitrogen;
- Biological Oxygen Demand (BOD);
- Total Suspended Solids (TSS);
- Fecal Coliform;
- Benzene, Toluene, Ethylbenzene, Xylene (BTEX);
- Oil and Grease;
- PCB/Pesticides;
- Total Phenols;
- Cyanide; and
- Metals (aluminum, barium, cadmium, chromium, copper, iron, lead, magnesium, zinc).

Sampling results indicated no significant discharge of pollutants. An elevated fecal coliform count was detected at outfall 004. Field sampling staff determined that this finding was attributed to the presence of indigenous mammals, since tracks and animal wastes were noted throughout the area during outfall surveillance.

In 1995, a scheduled storm water sampling event resulted in a detection report to the DEQ SWCB of 1,1,1-trichloro-2,2-bis(p-chlorophenyl)ethane (DDT); 1,1-dichloro-2,2-bis

(p-chlorophenyl)ethane (DDD); and 1,1-dichloro-2,2-bis(p-chlorophenyl)ethane (DDE) for outfall 003. The simultaneous appearance of DDT, DDD, and DDE suggested that the principal chemical that may have been used at the facility up to the time of its ban in 1972 had broken down over time into its decomposition derivatives of technical DDT. The 1998 composite sampling was executed as a "once-per-permit-term" sampling event as specified by VPDES permit requirements. The 1998 analyses results indicated that the chemicals were not present in detection levels that exceeded regulatory limits. Facility interviews and investigations performed in 1998 by the Environmental Office indicated that DDT had not been stored or used at the facility since its ban in 1972. No further investigation was required as an outcome of this finding.

Outfall 003 is currently WFF's only storm water outfall requiring sampling and chemical analysis for VPDES permit #VA0024457. Other permitted outfalls are visually inspected on a quarterly basis. Outfall 003 receives storm water discharges from the D-37 aviation fuel farm oil/water separator (outfall 302) and airport runways. Table 6 represents the summary of the 2004 to 2007 VPDES permit sampling from the storm water outfall 003:

TABLE 6
HISTORIC VPDES STORM WATER COMPLIANCE SAMPLING SUMMARY,
September 2004- August 2007

Parameter	Outfall 003	
	Annual Average	Highest Value
pH	6.7	7.5
TSS, (mg/L)	9.4	18.9
TPH, (Mg/L)	<1.0	<1.0
mg/L – milligrams per liter		

During WFF's current VPDES permit application, it was determined that the diversion valve at the equipment wash rack (previously labeled outfall 301) would be locked in the "open" position and a mechanical plug would be placed in the connector piping that drains to the storm water system. These measures ensure that all waters (both wash and storm) drain to the FOTW. Also, five years of permit-required sampling data from intermediate outfall 302 resulted in no significant contamination. As a result, DEQ removed outfall 301 from the current permit and no longer requires sampling of intermediate outfall 302.

3.5 Potential Pollutant Sources Associated with Industrial Activity

Potential pollutants entering the storm water conveyance system are associated with airfield operations and space vehicle parts manufacturing. These operations are permanent functions at the facility. Currently, the WFF airfield supports approximately 9000 flights annually. No aircraft de-icing is conducted at the facility.

3.5.1 Petroleum Storage and Airfield Operations

Petroleum storage tanks at the facility contain fuels associated primarily with facility heating and airfield activities. All ASTs are registered with the DEQ per *9 VAC 25-91*

Facility and AST Registration regulations. Figures 8 and 9 illustrate the locations of storage tanks at WFF. A list of storage tanks indicating tank contents, volume, location, and spill risk analysis with flow direction is included in WFF's current ICP.

The WFF topography is generally flat with very porous soils, and therefore, most major spills are likely to flow equidistantly around the source. To reduce the potential of fuel release into storm water conveyances, secondary containment structures designed to hold greater than 110 percent of the tank's maximum capacity have been installed around the majority of ASTs. An improvement process for inspections, modifications, tank and secondary containment evaluation, and assessments by independent UST/AST management consultants is on-going. In accordance with WFF's ICP, tanks and secondary containment structures are inspected on a daily, weekly, monthly, and annual schedule based on tank volume and the regulations that apply. Secondary containment structures are emptied of debris or precipitation as needed. Inventory control is practiced per *9 VAC 25-91*.

Trained personnel monitor fueling to ensure that no releases occur. In addition, all personnel involved in fueling operations (both onsite and contract fuel deliverers) attend annual training on fueling procedures and pollution prevention practices. All delivery tankers are required by contract to carry spill containment kits.

In addition to the oil storage systems maintained at the facility, outside construction contractors occasionally bring portable aboveground storage tanks of varying capacities onto the facility for the duration of their contract. Prior to commencing work, these contractors are required to submit a Health and Safety Plan for approval by the WFF Safety Office. Contractors are typically encouraged to limit the use of contractor owned mobile ASTs on the facility. Contractors are required to notify WFF of ASTs brought to the facility with a capacity greater than 55 gallons (208 liters) WFF, and tanks of 1,000 gallons (3,785 liters) or greater must have FMB approval and include a storm water pollution prevention plan or other approved spill response plan. If the tank will be in use on WFF for more than 120 days, the contractor must provide proof that the tank is registered with the DEQ. Possible releases from these tanks must be addressed in the contractor's Hazardous Materials Spill Plan or contractor's other approved spill response plan. WFF requires that contractors provide 110 percent capacity with impermeable secondary containment for all ASTs brought onto the facility by the contractor.

Figure 9

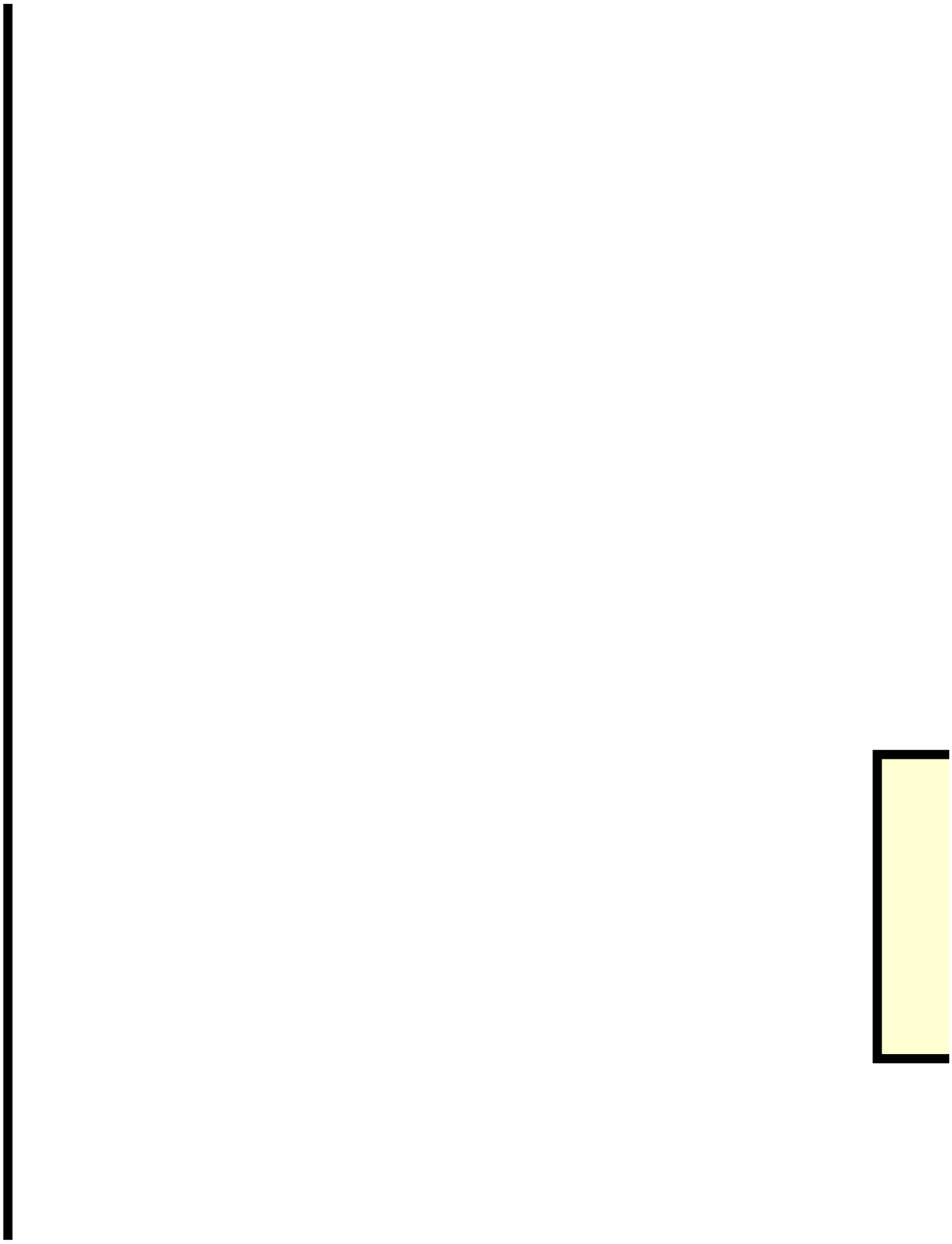

Figure 10

Airfield structures at WFF include fueling stations, wash rack facilities, taxiways, aprons, runways, and storage/maintenance hangars. The aviation fueling station consists of five 20,000 gallon (75,708 liter) underground storage tanks (USTs) containing Jet Propulsion Fuel-8 (JP-8), two 10,000 gallon (38,754 liter) USTs containing Jet-A fuel, one 10,000 gallon (38,754 liter) UST containing fuel that does not meet specifications (Off-Spec), and one empty 12,000 gallon (45,425 liter) UST (connected down-line from the oil/water separator for spill containment). Off-Spec fuel is used alternately to JP-8 when the fuel meets specifications as JP-8. The USTs for aviation fuel are contained in one secured tank farm area and are equipped with comprehensive leak detection, spill overfill and corrosion protection, interstitial monitoring, and a series of groundwater monitoring wells. Fuel is transferred to aircraft via fuel tank trucks owned and operated by WFF. Trained personnel monitor fuel transfers. Storm water catch basins at the fuel tank farm are equipped with an oil/water separator (outfall 302) that drains to VPDES permitted outfall 003. Currently, a project is underway to replace five 20,000 gallon aviation fuel farm USTs with one 30,000 gallon AST. This tank will be located on the North side of the alpha Taxiway and will drain to the D-1 oil/water separator

The facility maintains a fueling station for government owned passenger and service vehicles. The fueling station consists of one 10,000-gallon (38,754 liter) Underground Storage Tank (UST) containing gasoline and one 10,000-gallon (38,754 liter) UST containing diesel fuel. These USTs are equipped with appropriate leak detection, spill overfills, and corrosion protection, interstitial monitoring, and a series of soil vapor monitoring wells. Storm water from this area drains westerly, overland, to a local drainage ditch and eventually to outfall 004. Currently, a project is underway to replace the two 10,000 gallon vehicle fuel USTs with two 10,000 gallon ASTs. These tanks will be located on the west side of the motor vehicle garage.

A single bay car wash is attached to the fueling station. Wash water is passed through a sand filter in a closed loop system and is reused for the next wash cycle. No discharges result from the car wash. Wash rack facilities at WFF are used for the cleaning of large equipment, fire trucks, and NASA aircraft. The catch basin for the wash rack is equipped with an oil/water separator. At all times, a diversion valve located at the wash rack conveyance is locked in the “open” position to divert both wash waters and storm water to the FOTW. Mobile aircraft fueling vehicles are regularly parked within an area adjacent to the wash rack. This area also drains to the oil/water separator and the mobile equipment is inspected regularly by the Logistics Management Division for containment integrity and proper mechanical function. Both the wash rack/mobile equipment storage area and the fuel tank farm oil/water separators are inspected monthly and emptied as necessary by the Facilities Management Branch.

At times when emergency response vehicles must be washed (and do not pose the potential for oil, grease, or other contamination), but traveling to the wash rack would limit response capabilities, such vehicles are washed with biodegradable soaps in well-vegetated areas adjacent to the fire station. Personnel are advised to avoid washing near storm drainage system inlets or similar drainage features.

3.5.2 Hazardous Waste Storage

WFF currently maintains 68 satellite and 3 less-than-90-day hazardous waste accumulation areas, most of which are covered and within secondary containment (see Figures 11, 12, and Table 7). One accumulation area, located at the D-37 aviation fuel farm, is exposed directly to storm water. However, to minimize risk, all materials are stored in a sealed drum within an area that drains through the outfall 302 oil/water separator. Several other accumulation areas present a storm water risk based upon their location within buildings. The accumulation areas at Buildings D-50 and B-31 on the Main Base and W-65 on the Island are located near large doors and are not protected with secondary containment. The accumulation area at building F-27 is under a roof, but does not have secondary containment. Furthermore, the accumulation areas in D-1 and N-159 hangars are located in areas of the buildings in which floor drains are connected to the storm sewer. Although these areas are not exposed to storm water, the occurrence of a spill in conjunction with a storm event presents a risk. To ensure the integrity of all accumulation areas and to minimize storm water risk, they are inspected at least annually by the WFF Environmental Office. Less than one 55-gallon (208.175 liter) drum of any hazardous waste or 1 quart (0.95 liters) of an acutely hazardous waste, P-listed (*40 CFR 261.33*), may be stored at any of the above mentioned satellite accumulation areas.

TABLE 7
HAZARDOUS WASTE ACCUMULATION AREAS WITH STORM WATER RISK
WFF MAIN BASE EPA ID No. VA8800010763
WFF MAINLAND/ISLAND EPA ID No. VA7800020888

Bldg.	Waste Codes	Waste Description
B-31	Non	Used Oil
D-1 Hangar	D001, Non, D007, D002	Alodine, Oil, Jet A
D-37	D001	JP8 fuel changes
D-50	Non	Used oil
F-26	D018,D001	Gasoline and absorbent
N-159	Non, D001	Used Oil, JP-8
W-65	Non, D001	Used Oil, JP-8

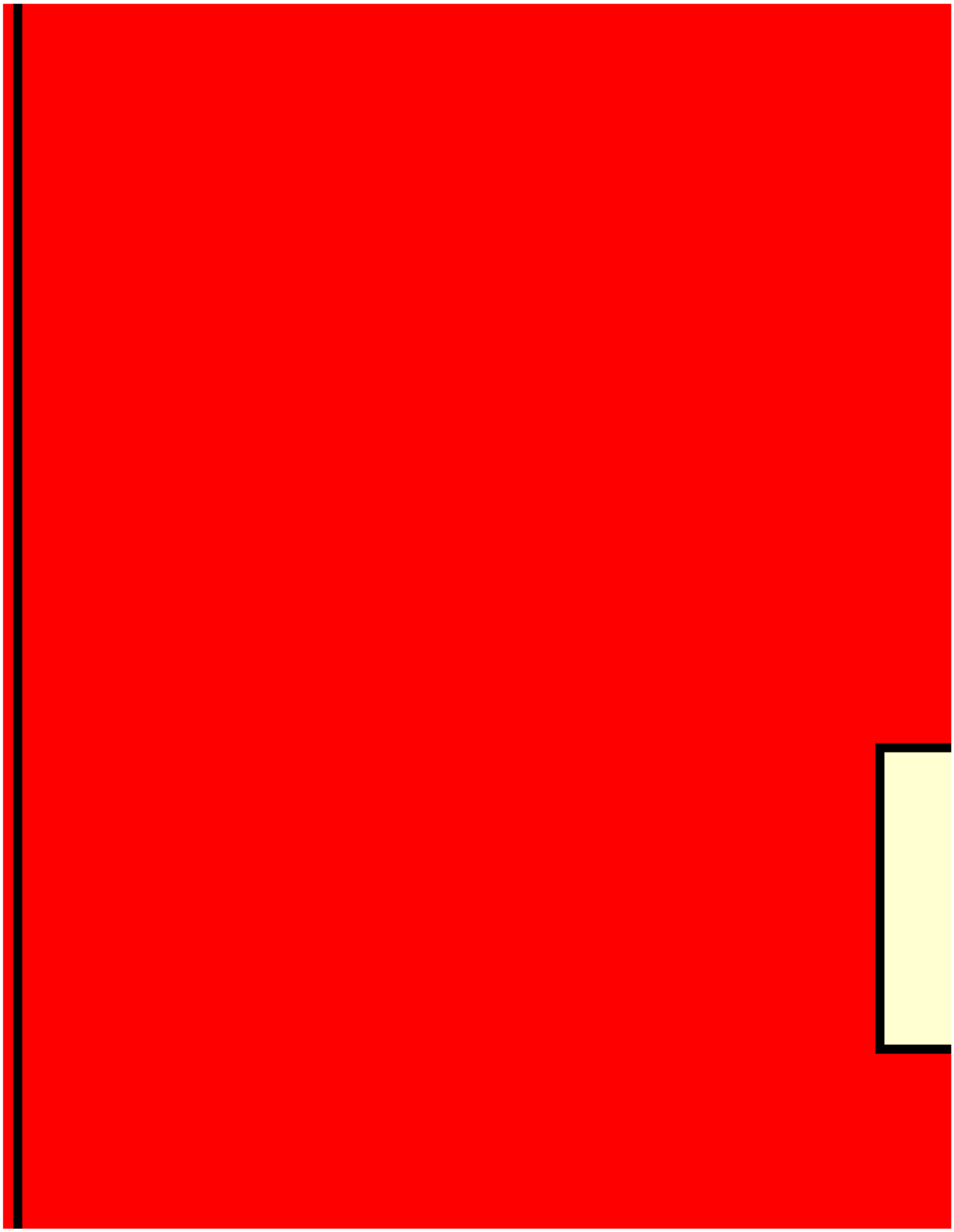

Figure 11

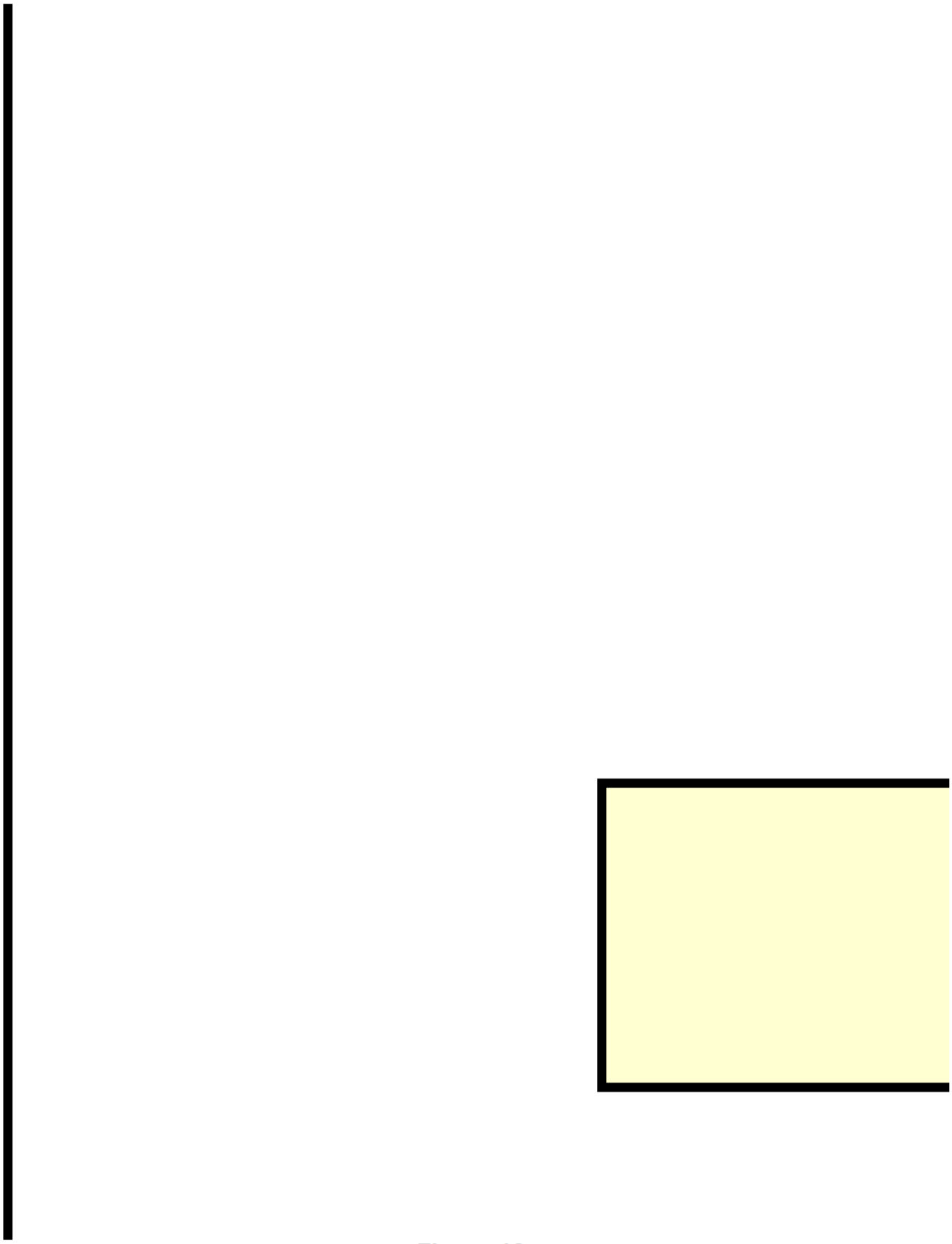

Figure 12

3.5.3 Environmental Restoration Program

Formal environmental investigations on a facility-wide basis began in 1988 and continue today as an active program with EPA and DEQ providing oversight. A series of facility-wide surveys, assessments, and inspections were performed by NASA between 1988 and 1996. The purpose of these investigations was to assess the site conditions and identify Areas of Concern (AOCs) that may pose a potential threat to human health or the environment through a release of hazardous materials or substances (see Figures 10 and 11). Actions conducted at the AOCs include supplemental investigations, sampling programs, removals, product recovery, remedial investigations (RIs), feasibility studies (FSs), remediation, and closeout.

Effective December 8, 2004, NASA and the EPA entered into an Administrative Agreement on Consent (AAOC) [U.S. EPA Docket Number: RCRA-03-2004-0201TH]. The AAOC was issued under the authority of the Resource Conservation and Recovery Act (RCRA) as amended by the Hazardous and Solid Waste Amendments, and by agreement integrates the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act, into meeting the obligations of the AAOC. As the model for the environmental restoration program, the AAOC applies to past releases of hazardous substances, waste and/or constituents at WFF and identifies CERCLA response requirements, policies, and guidance as the primary process for planning for and performing the work necessary to complete remedial and corrective actions appropriate to those releases.

In addition to NASA environmental programs at WFF, the U.S. Army Corps of Engineers (USACE) has an active environmental program at WFF. NASA acquired the property from the Navy in 1959. Prior to NASA operations, the Navy operated an aviation training facility at the Main Base for approximately 17 years. Some of the AOCs identified in the initial surveys were identified as being associated with activities that solely took place prior to NASA presence. Because of this finding, the USACE, in consultation with NASA and EPA, conducted a series of assessments and investigations to determine responsibility and eligibility for these AOCs under the Formerly Utilized Defense Sites (FUDS) program. This program authorizes the USACE as the lead DOD agency for the environmental restoration of properties that were formerly under DOD control. Table 8 summarizes the status of the AOCs:

TABLE 8
WFF AREAS OF CONCERN

Site	Contaminant	Status
Former Fire Training Area	GW: VOC, SVOC, Arsenic, Manganese	Draft ROD has been submitted to EPA and VDEQ
Site 16 Waste Oil Dump	GW: VOC, SVOC	Draft ROD has been submitted to EPA and VDEQ
Scrapyard (N-222)	Soil/Sediment: PCB GW: No data available	Draft ROD has been submitted to EPA and VDEQ
Main Base Firing Range	Unknown at this time	Site Investigation – October 2007
Old Aviation Fuel Tank Far	Soil/Sediment: TPH, VOC	Corrective Action Plan Implementation

TABLE 8 WFF AREAS OF CONCERN		
Site	**Contaminant**	**Status**
	GW: TPH, BTEX	
Site 1 - Old Wastewater Treatment Plant	Soil/Sediment: No data	Investigation Phase – Deferred to FUDS Program - USACE has completed SI
Site 13 - Boat Basin Area	Soil/Sediment: Potential Munitions Debris	Investigation Phase – Deferred to FUDS Program, Pending Funding
Site 14 - Debris Pile	Soil/Sediment: Metals, VOC, SVOC, PCB, pesticides GW: PAH, metals	Investigation Phase – Deferred to FUDS Program – Draft RI/FS submitted March 2007
Site 15 - Debris Pile	Soil/Sediment: Diesel fuel, asbestos pesticides, styrene GW: PAH, metals	Investigation Phase – Deferred to FUDS Program – Draft RI/FS submitted March 2007
Site 9 - Abandoned Drum Field Runway 17-35	Soil/Sediment: Metals, PAH, PCB, pesticides GW: Metals, PAH, PCB, pesticides	Investigation Phase – Deferred to FUDS Program – USACE Is planning a Site Investigation to Start in 2008
Construction Debris Landfil	Soil/Sediment: Metals, VOC, SVOC GW: Metals, VOC, SVOC	Investigation Phase –USACE has Completed the RI/FS field work in May 2007
Site 4 – Island Debris Pile	Soil/Sediment: TPH, VOC, PCB GW: Unknown	Investigation Phase – NASA completed a Best Management Plan (BMP) clearing of the debris pile in 2007. A Site Investigation Work Plan was submitted to agencies in June 2007. Field activities to determine the presence of hazardous substances and to collect information to evaluate the potential human health and ecological risks will initiate in 2008.
Sites 5 and 12 – Former Paint Stain and Wind Tunn Sites	Soil/Sediment: Metals, PAH, PCBs, pesticides, arsenic	Remedial Investigation Phase – Finalization of RI scheduled for 2007. TSCA removal of former transformer pad, surrounding soils, and sump Contents within Building X-115 to be completed in2007. Feasibility Study scheduled for 2008.
Site 6 – Former Island Fueling Station	Soil/Sediment: TPH GW: VOCs	Monitoring Phase NASA installed bioventing system in 2006 to oxygenate soil above the groundwater to promote in situ biodegradation. The system, which is monitored quarterly, is yielding a positive effect on petroleum hydrocarbon remediation.

3.5.3.1 Current Status of Active AOCs

Old Wastewater Treatment Plant (WWTP)
The WWTP was constructed by the Navy in the early 1940s. The plant is located to the northwest of the intersection of Runway 17-35 and the taxiway that parallels Runway 10-28. NASA did not use the facility for any purpose. NASA, EPA, DEQ, and the USACE have reviewed records for the site and have concluded that the WWTP should be addressed through the FUDS program. This decision was documented in a Consensus Document signed by EPA, DEQ, and NASA in September 2004. The USACE completed a Site Investigation at the WWTP in 2007.

Abandoned Drum Field (Site 9)
Site 9 was discovered during a NASA walk-through survey of facility storm water discharges and was designated as an AOC. The site consists of abandoned drums located within the tree line along Runway 17-35. The abandoned drum field is approximately 600 feet long and ranges from 20 to 200 feet in width. A review of historical photographs revealed that the drum field was present prior to NASA's acquisition of the property in 1959. Since the property transfer, NASA has not utilized the area for any purpose. NASA, EPA, DEQ, and the USACE have reviewed available records and have concluded that Site 9 should be addressed through the FUDS program. This decision was documented in a Consensus Document signed by EPA, DEQ, and NASA in September 2004. The USACE is planning to start a site investigation at Site 9 in 2008.

Munitions Debris Area (Boat Basin)
The munitions area consists of the boat basin and surrounding land features that were used by the Navy as a transfer and reportedly disposal location for munitions debis. The boat basin was constructed and used by the Navy prior to the 1959 property transfer to NASA. Since acquiring the facility, NASA has not used the boat basin for any ordnance disposal activity, has never used the type of ordnance identified at the site, and has only used the area for docking purposes. NASA, EPA, DEQ, and the USACE have reviewed available records and have concluded that the Boat Basin should be addressed through the FUDS program. This decision was documented in a Consensus Document signed by EPA, DEQ, and NASA in September 2004. The USACE has proposed the Boat Basin as a new site under the FUDS program and is awaiting funding.

Debris Pile (Site 14)
Site 14 consists of debris piles located along the taxiway north of Runway 10-28. Historical photographs dating prior to NASA's acquisition of the facility in 1959 indicate the presence of the debris piles. Since the property transfer, NASA has not used the area for any purpose. NASA, EPA, DEQ, and the USACE have reviewed available records and have concluded that Site 14 should be addressed through the FUDS program. This decision was documented in a Consensus Document signed by EPA, DEQ, and NASA in September 2004. The USACE has submitted a draft Remedial Investigation / Feasibility Study in March 2007 for NASA, VDEQ and EPA review.

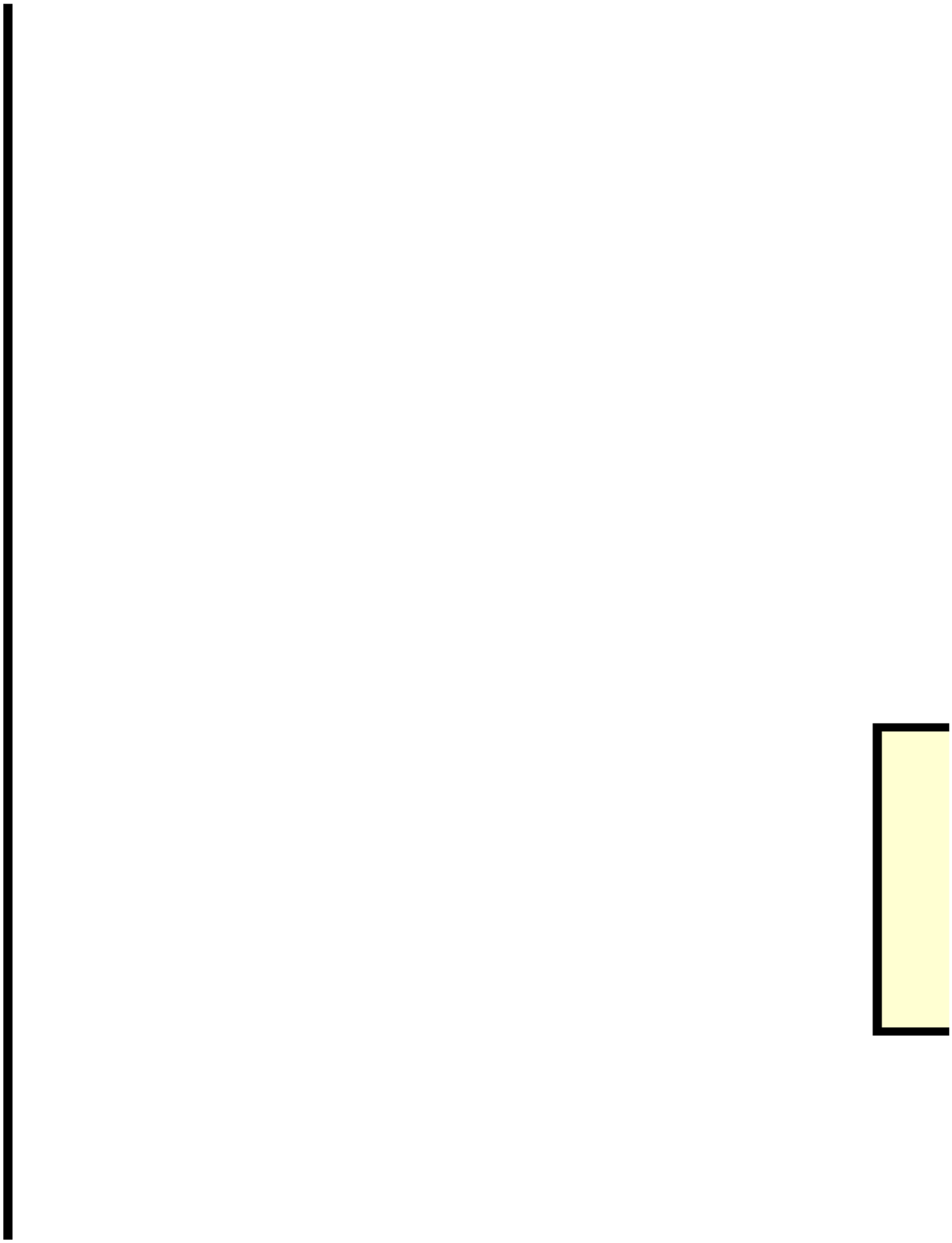

Figure 13

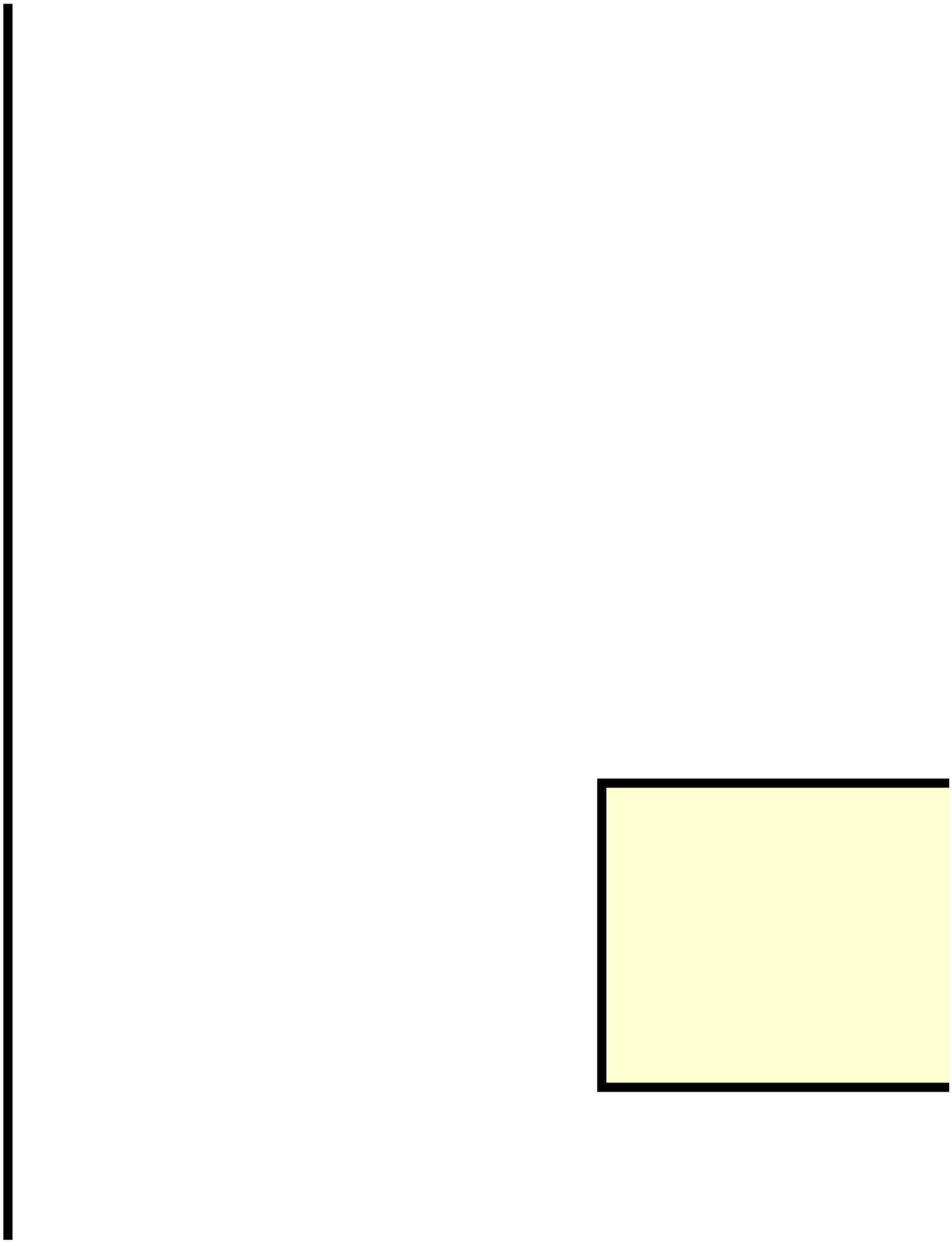

Figure 14

Debris Pile (Site 15)
Site 15 consists of debris piles located near the north end of Runway 17-35. Historical photographs, dating prior to NASA's acquisition of the facility in 1959, indicate the presence of the debris piles. Since the property transfer, NASA has not used the area for any purpose. NASA, EPA, DEQ, and the USACE have reviewed available records and have concluded that Site 15 should be addressed through the FUDS program. This decision was documented in a Consensus Document signed by EPA, DEQ, and NASA in September 2004. The USACE has submitted a draft Remedial Investigation / Feasibility Study in March 2007 for NASA, VDEQ an EPA review.

Waste Oil Dump (WOD)
The WOD is located beyond the end of Runway 17-35. The AOC was reportedly used by the Navy and NASA for the disposal of waste oils and other flammable liquids (possibly solvents). Petroleum contaminated soils were excavated and removed from the site by NASA in 1986. A records review and sampling conducted identified the area as an AOC due to the presence of contamination in soils and groundwater. An RI conducted at the WOD in 2001 confirmed the presence of contamination at the site. NASA conducted a Supplemental RI at the site in 2003 and issued a final RI Report in 2004. NASA is preparing a Record of Decision for EPA and VDEQ recommending enhanced bio-remediation as the preferred alternative to remediate the site. The ROD is anticipated to be final by early 2008.

Old Aviation Fuel Tank Farm (AFTF)
The AFTF, located near the center of the Main Base and adjacent to the active runway, consisted of a fuel tank farm for the storage and distribution of fuels for airplanes and vehicles. The facility was constructed and operated by the Navy and later used by NASA until 1982 when a new aviation fuel tank farm was constructed. Releases from the site were identified in 1988. Further sampling and analysis conducted at the site identified petroleum-related contamination present in soils and groundwater. In 1991, all of the tanks, pumps, buildings, and 4,700 tons (4,264 tonnes) of petroleum-contaminated soil were removed from the AFTF site. NASA reported the findings. Actions under federal and state petroleum and UST programs were initiated. These actions have included the completion of site characterization studies and the design and implementation of Corrective Action Plans (CAPs). NASA is currently operating remediation systems and performing routine monitoring and reporting at the AFTF under the DEQ Storage Tank program. NASA, EPA, and DEQ have reviewed records for the site and have concluded that the site is exempt from CERCLA and have deferred all actions to the UST program. This decision was documented in a Consensus Document signed by EPA, DEQ, and NASA in September 2004.

Scrapyard (N-222)
The Scrapyard is located near the main gate. Sampling conducted at the Scrapyard in 1990 identified PCB and mercury contamination in soils. Additional investigations at the Scrapyard have included a Limited RI, radiological surveys, further site characterization, and removal actions. Additional investigations and/or actions are scheduled for the Scrapyard. NASA has submitted a draft Record of Decision for EPA

and VDEQ review in August 2007 and a final ROD is anticipated by December 2007.

Photographic Tank (M-15)

The Photographic Tank is located behind Building M-15 on the north side of the Main Base. The Photographic Tank is a wastewater processing tank that received wash and rinse waters associated with a photographic developing laboratory. The AOC was initially sampled in 1990; the analytical results indicated a possible release due to overflows that occurred from the tank. Subsequent sampling and investigations characterized the nature of the contamination at M-15 and concluded that surface soils associated with the site contained metals contamination that may present a risk to the environment. NASA completed additional investigation and studies at M-15 from 2003 through 2005 and signed a No Further Action Decision Document with EPA and VDEQ in February 2007.

Former Fire Training Area (FFTA)

The FFTA is located along Runway 10-28 in the northern portion of the Main Base. The site was used by the Navy and NASA for fire fighter training exercises. It is reported that flammable liquids were dispersed onto the ground, into a pit, onto an abandoned plane fuselage, and/or into a tank and ignited for these exercises. Petroleum contaminated soils were excavated and removed from the site by NASA in 1986. A series of site inspections were conducted at the site and the data indicated a release had occurred at the FFTA. An RI conducted at the FFTA in 1996 confirmed the presence of contamination at the site. NASA conducted additional sampling and analysis at the FFTA in 2000 and 2003 and a Supplemental RI Report was issued in 2004. NASA has submitted a draft Record of Decision for EPA and VDEQ review in August 2007 and a final ROD is anticipated by December 2007.

Construction Debris Landfill

The Construction Debris Landfill is located in the northeast corner of the Main Base. Historical aerial photography indicates that the area was used as a disposal site prior to NASA property acquisition in 1959. NASA has not used the area for any purpose since property transfer. NASA, EPA, DEQ, and the USACE have reviewed available records and have concluded that the Construction Debris Landfill should be addressed through the FUDS program. This decision was documented in a Consensus Document signed by EPA, DEQ, and NASA in September 2004. The USACE completed the remedial investigation field work in May 2007 and the draft RI/FS report is anticipated to be submitted in early 2008.

Main Base Firing Range

A review of historical aerial photographs and records conducted by USACE, and a review of current facility practices identified the Main Base Firing Range as a potential AOC. The range was first noted as being present at WFF in 1949. The range is located in the northeast corner of the Main Base and was in use through 1999. The range is currently inactive. NASA has prepared a Site Investigation Work Plan and will complete all field work by November 2007.

Island Debris Pile
Site 4, Island Debris Pile is located in a remote area of Wallops Island and previously consisted of a large debris pile/open dump containing debris, rubble, and general refuse. Preliminary investigations conducted in 1996 determined the presence of contamination. In 2007, NASA conducted a BMP which included the removal of surface debris at the site. A Site Investigation is scheduled to begin in 2008, which will characterize the site and evaluate potential risks to human health and the environment.

Former Paint Stain and Wind Tunnel Sites
Sites 5 and 12, which are collocated on Wallops Island immediately adjacent to wetlands, consist of contamination associated with former painting operations and wind tunnel activities. A series of assessments identified soil contamination in excess of human health screening concentrations. In 2003, NASA conducted a removal action and further investigations of water, sediment, and ecological matrices. NASA is currently finalizing a Remedial Investigation to define the nature and extent of contamination at the sites. NASA is conducted a TSCA removal of a PCB impacted transformer pad and surrounding soils to address a potential source for site PCB contamination. A Feasibility Study is planned for 2008 to determine the need and/or type of remedial response actions for the sites.

FUDS
Areas of Concern identified as US Army Corps of Engineers responsibility under the Formerly Used Defense Site Program include the following:

- Target Center – Potential Munitions and Explosives of Concern (MEC)
- Strafing Target – Potential MEC
- Gunboat Point Bombing Area – Potential MEC
- Theodolite Towers – Potential MEC and Potential Hazardous Wastes
- Cantonment Area – Potential Hazardous Wastes
- Explosive Ammunition Test Center – Potential MEC
- Machine Gun and Rocket Firing Area – Potential MEC

Except for and the Old AFTF, all of the AOCs described above drain storm water runoff by overland sheet flow. Storm water from the Old AFTF discharges through outfall 010. Based upon the topography of and the fact that groundwater, not soils, is impacted at the Old AFTF, risks to surface waters are not anticipated.

3.5.4 Other Potential Pollutant Sources

Other potential pollutant sources at the WFF consist of the aircraft runways; rocket motor storage areas; paint spray, sandblasting grit, and drum storage locations; previous sites of contamination; wastewater treatment facilities, and orbital launch facilities. Figures 10 and 11 depict these potential storm water risks.

The Main Base contains three runways for aircraft flights (totaling less than 10,000 per year) and Wallops Island contains an Uninhabited Aerial Vehicle (UAV) runway. The

majority of the flights are for aeronautical or airborne earth science research. Runways are designated by number (10-28, 17-35, 4-22, and UAV). Storm water conveyances are located around the runways on the Main Base and the Island UAV runway drains by sheet flow. Potential pollutants resulting from aircraft operations include benzene, toluene, ethylbenzene, xylene, and surfactants. Grass buffer strips are maintained between the runway surface and storm water inlets and surface waters. Additionally, runways are inspected daily for dirt and other particulate matter and vacuumed when needed. By utilizing this combination of practices, WFF reduces sediment and pollutant loading into nearby surface waters.

Space vehicle parts manufacturing is conducted for rocket launch activities at the WFF and other off-site locations. Manufacturing facilities include Buildings F-10 and F-7 on the Main Base. Activities related to these buildings that are subject to storm water runoff include temporary outside storage of rocket components, and outdoor spray painting of manufactured rocket components. Buildings F-10 and F-7 contain machine shops, electronics assembly shops, and related facilities. Prior to machining, raw materials for metalworking are routinely stored outside Building F-10. Potential pollutant sources resulting from this storage include aluminum, iron, and magnesium. Permanent storage of finished components is under covered structures.

Most plant operation and maintenance activities, such as vehicle maintenance, electrical services, heating and cooling services, painting, and wood working, are housed in Building F-16. Operations are conducted inside, but heavy equipment is parked outside near the vehicle maintenance garage. Potential pollutants from parked equipment include gasoline, diesel, hydraulic and lubricating fluids, coolants, and various heavy metals. The garage stocks clay, vermiculite, and spill response kits for containing small leaks and spills.

Under WFF's current VPDES permit, its FOTW is permitted to treat domestic waste and to dry sludge on both covered and uncovered drying beds. Although the FOTW's treatment basins are exposed to storm water, their design capacity (0.3 MGD average daily flow or 0.6 MGD maximum daily flow) is far greater than current daily flows (0.06 MGD) and therefore no overflow has ever occurred or is expected. Furthermore, WFF's uncovered D-98 sludge drying beds have permeable bottoms that permit rapid drainage to the sewage collection system (comminutor basin) without overflowing. After drying and testing, all sludge is disposed of as solid waste in the Accomack County North Landfill.

High risk areas on the Mainland or Island that are not hazardous waste accumulation areas include Building V-80, which stores Chinook heaters that contain fuel. These are located near large roll-up doors without secondary containment. At the south end of Wallops Island, Launch Pad 0-B is considered a high risk area due to wash down activities that must be implemented following a launch event.

4.0 MEASURES AND CONTROLS

This SWP3 emphasizes pollutant source control as opposed to “end of pipe” control measures and devices. To reduce the potential for pollutant release at the facility, annual classroom and on-the-job training addresses materials management and emergency procedures. The potential for releases is reduced through source control measures such as sediment and erosion control, prudent housekeeping measures, periodic training, inspections, maintenance, and preventive measures.

The WFF Environmental Office monitors active and planned facility projects, environmental restoration programs, and mission projects for potential impacts to the environment. Potential impact to the storm water network is included in this monitoring process. Plans for construction and renovation as well as new operations are reviewed in the early planning stages to verify that appropriate storm water management procedures are planned and implemented. Should a proposed project impact the storm water network, the WFF will take all necessary measures to ensure that it meets applicable storm water requirements and regulations.

4.1 Summary of Potential Pollutant Sources and Control Measures

The WFF has implemented the following control measures, listed in Table 9, to reduce the pollutant release risks associated with its industrial activities.

The WFF source control pollution prevention practices appear successful, since recent storm water sampling results (summarized in Table 6) indicate no significant pollutants are reaching surface waters.

TABLE 9
CURRENT CONTROL MEASURES FOR POTENTIAL POLLUTANT SOURCES

SIC Code	Industrial Activity	Control Measures
4581	Transportation	Warehouse loading/unloading is under roof
		Fuel loading/unloading conducted by trained personnel
		Fuel oil ASTs are diked
		Discontinued use of toxic materials/ practices on runway during training exercises
		Monitor storm water discharge under VPDES permit
		Lining of storm drain piping with polymer coating
		Leak detection systems at fuel farm and gas station
		Fuel storage and incidents covered by ICP
		Oil/water separator at storm drain serving fuel farm
		On-site emergency response HazMat Teams
		Oil/water separator at equipment wash rack
		Sorbent boom located downstream from outfall 003

TABLE 9 CURRENT CONTROL MEASURES FOR POTENTIAL POLLUTANT SOURCES		
SIC Code	**Industrial Activity**	**Control Measures**
3460	Space Vehicles	Under roof (Payload Processing Facility)
	Parts Manufacturing	Reduced toxicity of materials (solvents F-7, F-10)
		Good housekeeping practices
	Scrapyard at N-222	No conveyance
		Restricted materials storage
		Good housekeeping practices
	Construction/ Demolition/ Restoration	Best Management Practices
		Soil Erosion and Sediment Control
9661	Space Technology/ Research	Laminar flow
		No conveyances

4.2 Good Housekeeping and Preventive Measures

Source control measures have been implemented for the industrial activities subject to storm water.

4.2.1 Airfield Fueling Operations

Source controls for these operations include:

1. Daily fuel truck inspections to check tanker integrity and mechanical functions;
2. Monthly inspection/maintenance of oil/water separators at fuel farm and wash rack;
3. Fueling and wash rack areas maintained in a clean, orderly manner; and
4. Monitoring of fueling operations by trained personnel.

4.2.2 Airfield Runways

Runways are a secondary source of pollutants and are maintained to reduce runoff potential. Maintenance activities include:

1. Daily inspections by the Fire Department;
2. Sweeping and vacuuming surfaces as needed;
3. Maintenance of grass buffer zones between runways and storm water catch basins to intercept any loose debris and sediment not removed by airport maintenance; and
4. Periodic cleaning of storm water inlets.

4.2.3 Waste Collection

Major solid waste streams on WFF include domestic refuse, hazardous wastes, used oil, and recyclables. To ensure proper handling, the Environmental Office performs Annual RCRA Generator training for Satellite Accumulation Area points of contact. To encourage proper disposal, the Environmental Office provides collection, transportation, and storage of used or discarded hazardous wastes prior to final disposal through a permitted treatment, storage, and disposal facility. Training, coupled with this service, helps reduce the potential for releases from these waste streams. The WFF routinely provides hazardous wastes management and disposal services for the WFF partners and tenants at the Main Base and Wallops Island.

4.2.4 Fueling Operations

Trained personnel monitor fueling operations for facility heating and emergency generator equipment. Plant operations or logistics personnel monitor on-site fuel loading to ensure that proper procedures are followed. Spill kits are required on all delivery trucks. Aboveground storage tanks are surrounded by secondary containment and inspected periodically for precipitation accumulation or product release. If uncontrolled spills or leaks of hazardous substances occur, the Wallops Fire Department is notified immediately. The WFF Environmental Office notifies DEQ within 2 hours if greater than 25 gallons (94.6 liters) of fuel spills onto the ground or has the potential to reach surface waters. After the incident investigation has been completed, but within five days, the Environmental Office submits an incident report to DEQ.

4.2.5 Drum Storage

The WFF Environmental Office actively works to reduce the pollution potential from outdoor drum storage and loading activities by moving the majority of these activities under shelter. An inventory of exposed materials is presented above in Section 3.2. Drums of used jet fuel, JP-8, are stored outdoors at the Aviation Fuel Tank Farm. All storm drainage at this location passes through the oil/water separator identified as intermediate outfall 302.

4.2.6 Personal Vehicle Washing

Both the Navy and the Coast Guard maintain housing facilities for personnel stationed at Wallops Island and Chincoteague, respectively. Personnel living at these facilities are authorized to wash personal vehicles at their residences. Currently, no designated wash areas have been established. Therefore, WFF encourages its partners to instruct their personnel to not wash vehicles near storm drains but rather on vegetated areas using biodegradable detergents.

4.3 Preventive Maintenance

The Logistics Branch performs biannual preventive maintenance on all government owned vehicles and equipment. Logs are retained by the Branch. All contractor-owned vehicles and equipment are required to have periodic preventive maintenance in order to be used on the facility. Records are maintained by the contractor. The Ground Networks Office performs and tracks daily, weekly, monthly, quarterly, and annual preventive maintenance on all radar and antenna systems on the facility. Following the WFF ICP Work Instructions, the Facilities Management Branch periodically drains the secondary containment areas for the ASTs. The FMB also performs biannual preventive maintenance on all government owned large machinery (e.g., cranes, front end loaders, earth movers).

4.4 Orbital Launch Support

During nominal rocket launches from Pad 0-B, the combustion of solid rocket fuel (ammonium perchlorate) produces hydrogen chloride (HCl), a gas which forms hydrochloric acid upon contact with water. To avoid the discharge of potentially acidic wash water, the drainage trench surrounding three sides of the pad is diked prior to washing and wash water is tested prior to discharge. An alkaline solution (e.g., sodium bicarbonate) is added as needed to raise pH to ensure that the discharge meets Virginia water quality standards.

4.5 Spill Prevention and Response Procedures

The current ICP delineates the spill prevention, response, and cleanup procedures. These procedures are utilized in the event of a spill. Contractor personnel provide on-site fire, emergency, and hazardous material (HazMat) response services to the WFF. Spill response kits are located in major industrial areas such as satellite accumulation areas, 90-day hazardous waste storage buildings, vehicle maintenance garages, and airport hangars.

The ICP must identify and address the response to a realistic Worst Case Scenario (as defined by *9 VAC 25-91-170.11*). It was theorized that the worst case might involve the rupture of either the fuel hose or tank of an aircraft fueling tanker while it is on the apron of the tarmac. The largest tanker has a capacity of 6,000 gallons (20,760 liters) and a fueling rate of 100 gallons per minute (gpm) or 346 liters per minute (lpm). At regular grid intervals, storm water inlets are located on the apron of the runway. The inlets are interconnected by the storm water piping and drain to outfalls around the runway. Many of these outfalls lead to bodies of surface water. Therefore, if a tanker were to rupture on the apron, a potential release of 6,000 gallons (20,760 liters) of fuel oil could enter the surface waters of the Commonwealth (see Figure 3). Aircraft fueling operations occur at two locations on the facility: the east ramp of Hangar D-1 and the east ramp of Hangar N-159, with 75 percent of the fueling occurring at Hangar D-1 and 25 percent occurring at Hangar N-159. To support this theory, the Environmental Office conducted a simulated spill exercise on the runway apron east of Hangar D-1. After 41 minutes, the

released liquid had reached surface waters through outfall 003. Further results and details of the simulated spill exercise are included in the ICP.

4.6 Inspections

The current VPDES permit requires WFF to perform quarterly visual inspections of its 12 permitted storm water outfalls. A condition of this SWP3 is for WFF to perform quarterly inspections of high risk areas (as listed above in Table 3, Inventory of Materials Exposed to Precipitation) and to prepare an annual Comprehensive Site Compliance Evaluation (CSCE) report to determine if activities at or near storm water discharge points have the potential of polluting or negatively impacting waters of the Commonwealth. As a part of the CSCE, the Wallops Environmental Team also inspects all storm water drop inlets annually. All findings and recommendations are reported immediately to the appropriate department for corrective action (e.g., Facilities Management Branch, Logistics). Under conditions of the ICP, the Environmental Office also performs annual inspections on all AST systems and any other vessel that could contain 55 gallons or more of any animal, vegetable, mineral, or petroleum based oil. All findings and recommendations are reported immediately to the appropriate department for corrective action. Appendix B contains sample inspection forms.

The Logistics Office performs the following: daily inspections of the Mobile Tanker Storage Area and of the mobile tankers, daily meter readings reconciled against biweekly stick-tests of the gasoline and diesel USTs at the F-26 gas station, and daily readings of the computer monitoring system at the D-37 aircraft fuel farm reconciled against monthly delivery receipts. The FMB performs visual inspections on the two 125,000 gallon Number 6 fuel oil ASTs and the two 20,000 gallon Number 2 fuel oil ASTs during every shift change (i.e., twice daily) as well as periodic visual inspections and draining of the secondary containment for all ASTs on the facility. Both the wash rack and the fuel tank farm oil/water separators are inspected monthly and emptied when necessary. The Facilities Management Branch maintains inspection records for these separators.

Sediment and erosion control structures and construction site storm water measures are inspected by FMB as detailed below. All inspection logs are retained by FMB and the WFF Environmental Office.

Spill response equipment is inspected for contents, condition, and availability. This equipment is maintained in the Fire Department Building B-129 and the Hazardous Waste Storage Building B-29. These areas and inspected and maintained by the WFF Fire Department and the Environmental Office personnel, respectively.

4.7 Employee Training

The WFF maintains a staff trained in the implementation/use of the ICP, spill response, materials management practices, and Hazardous Waste Operations and Emergency Response procedures. The WFF Fire Department maintains first level responder proficiency in all areas. Table 10 lists the training events and the frequency of event:

TABLE 10 TRAINING EVENTS AND FREQUENCY OF ATTENDANCE	
Training Program	**Frequency**
HAZMAT I	Every 5 years
HAZMAT II	Every 5 years
HAZMAT III	Every 5 years
EPA Spill Response & Boom Recovery	1 time
OSHA HAZWOPER Refresher	Annual
RCRA Update	Annual
RCRA Loading Dock Training	Ongoing (at least annual)
ICP/SWP3 Training	Annual
Hazardous Materials Awareness	1 time
Construction Site Storm Water Management	Annual
Hazardous Materials Operation	Every 5 years
Fire Department Continuing Education	Monthly
DOT HM-126-F HAZMAT Awareness	Every 3 years

The training program for ath ICP incorporates storm water manasgement and pollution Prevention. Training is conductd annually for current employees, and at the time of hire for new employees. The WFF's VPDES permit requires employee storm water training. To meet this requirement, the training program for the ICP includes storm water management, pollution prevention, spill response, good housekeeping measures, and materials management modules. Facilities maintenance, environmental, logistics, aircraft operations, fire department, radar maintenance, and personnel involved in the maintenance and use of the storage tanks attend this annual training.

4.8 Recordkeeping and Internal Reporting Procedures

The ICP specifies internal and external incident reporting requirements. All incidents must be reported to the WFF Fire Department. The WFF Fire Department logs all incidents reports and sends a copy to the Environmental Office. All reportable quantity spill response and remediation files are maintained by the Environmental Office.

The Environmental Office conducts quarterly visual inspections of the 12 permitted storm water outfalls, quarterly inspections of high risk areas (areas exposed to precipitation as identified above in Table 2) and an annual visual inspection of all storm water drop inlets. The results of these inspections are compiled into the annual CSCE report and filed with this Plan. Copies of the monthly discharge monitoring reports are also filed with this Plan; original reports submitted electronically to DEQ by the WFF Chemistry Laboratory. The Logistics Branch, Facilities Management Branch, and Ground Networks Office maintain records and logs within their areas of responsibility as described above.

4.9 Sediment and Erosion Control

The WFF is located on the Atlantic Coastal Plain of Virginia and occupies an area with elevations ranging from sea level to approximately 40 feet (12.2 meters) above sea level. Buildings are located on flat or gently sloping grades (0-2 percent). The WFF perimeters have occasional incised streambeds or embankments on the tidal fringe. Most of the site is not highly erodible, however its proximity to wetlands and its elaborate storm drainage system (a direct conduit to surface waters) elevate the risk of storm water pollution from land disturbing activities.

NASA has a formal process in place to ensure that new construction and demolition at WFF have a minimal impact on surface water resources and that all applicable permits and regulatory controls are in place. This process is depicted in the flow chart below. If a land disturbing activity disturbs at least 10,000 square feet (930 square meters) or presents an elevated risk of storm water pollution, an Erosion and Sediment Control Plan is prepared and submitted to the WFF Environmental Office for approval. Current BMPs employed for storm water management and erosion and sediment control include installing silt fences, utilizing stone construction vehicle entrances, maintaining vegetative buffer strips, and quickly reseeding bare soils. All Plans and applicable BMPs are consistent with the Virginia Erosion and Sediment Control Program, which is administered by the Virginia Department of Conservation and Recreation (DCR). Furthermore, any of these activities that impact at least 1 acre (0.40 hectare) acquire coverage under a *Virginia Storm Water Management Program (VSMP)* permit.

NASA typically holds several *VSMP General Permits* for various land disturbing activities at WFF. The SWP3s are prepared for these permits and are updated as needed to reflect current conditions at active construction, demolition, or land clearing sites. The SWP3s are available for inspection at each active land disturbing activity operating under the permit. The VSMP Permit mandates that qualified construction inspectors evaluate sediment and erosion control practices and controls every 14 calendar days or within 48 hours of a runoff producing storm event; FMB inspectors perform this function. Any deficiencies or discrepancies are repaired within 7 calendar days. All inspection logs are maintained by FMB and the Environmental Office.

4.10 Management of Runoff

Storm water inlets on the Main Base intercept runoff and divert the flow to numerous discharge locations (see Figure 2). Wallops Main Base storm water is discharged through outfalls numbered 003 – 014 (see Figure 3) and outfalls WI-1 – WI-8 discharge Wallops Island storm water. Main Base outfalls are protected with rip-rap to reduce flow velocity and to minimize damage to the receiving waterways. Wallops Island outfalls are controlled by sluice gates that can be adjusted based upon flow conditions. In addition to the storm water management system, sediment and erosion control measures are implemented to control runoff from construction, demolition, restoration, and site maintenance projects. Airfield safety requirements require that no settling ponds are employed at the facility due to the possibility of attracting waterfowl.

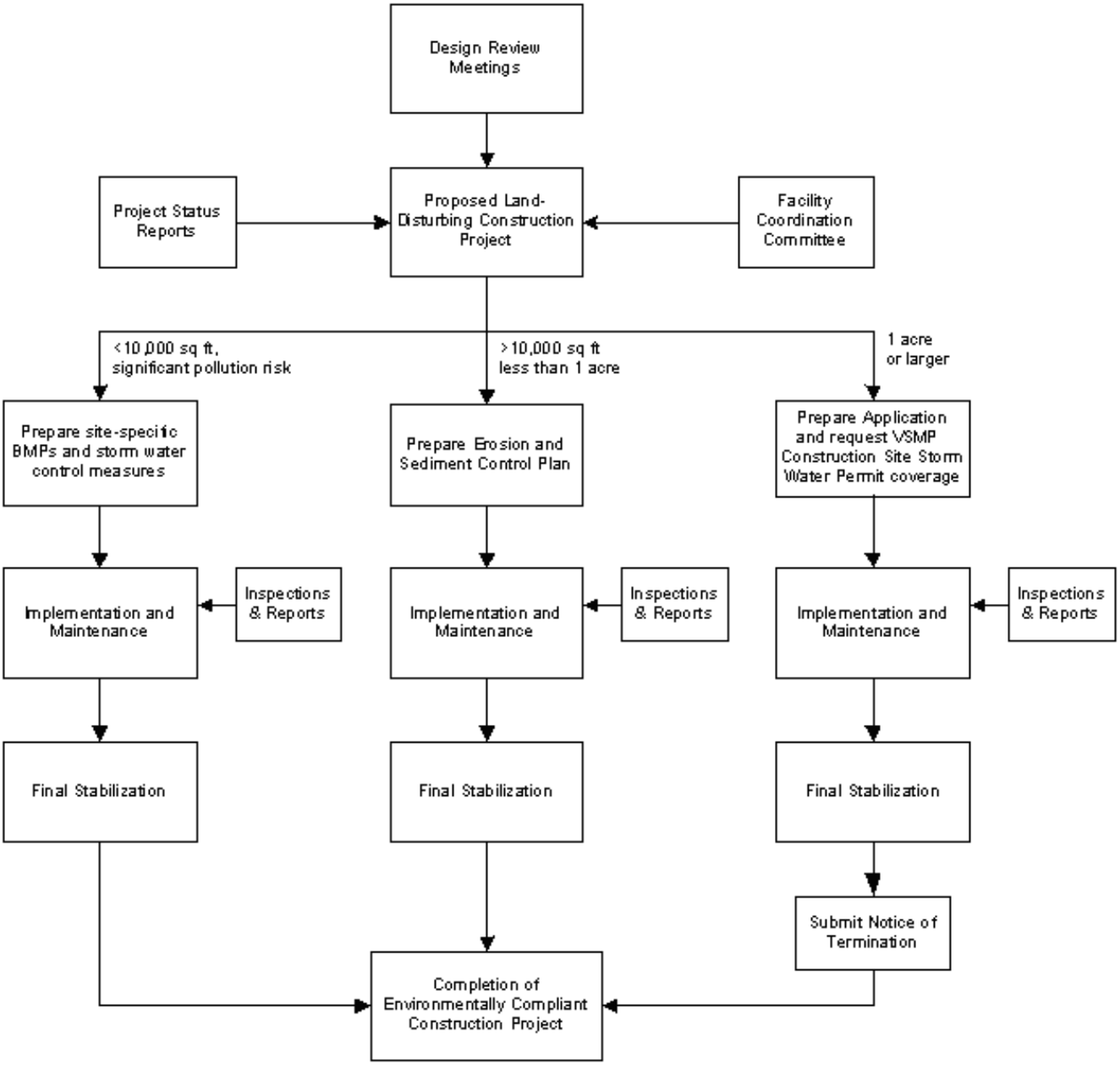

CHART 1

Process for Minimizing Environmental Impacts from Proposed Land-Disturbing Construction Projects

5.0 COMPREHENSIVE SITE COMPLIANCE EVALUATION

As described in Section 4.6 of this Plan, the WFF Environmental Office performs regular inspections of the facility and prepares a Comprehensive Site Compliance Evaluation report annually. Corrections are implemented no later than 90 days following an inspection. The SWPPT members review the CSCE Report and recommend and implement any necessary corrective actions. Any necessary revisions to this SWP3 are made within 14 days of the compliance report and implementation of such changes occurs no later than 90 days following the completion of the report.

6.0 CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____ _____
(Signature) (Date)

_Glenn D. Lilly, Head, Facilities Management Branch___
(Printed Name and Title)

_NASA Wallops Flight Facility

_Building N-161, Code 228__

Wallops Island, VA 23337

_(757)-824-1299_____
(Office Name, Address, and Telephone Number)

APPENDIX A

SAMPLE DISCHARGE MONITORING REPORT (DMR)
VPDES PERMIT No. VA0024457, OUTFALL 003

APPENDIX B

SAMPLE INSPECTION FORMS