

New Mexico Environment Department
March 19, 2007

NASA WSTF RCRA Permit
Draft RCRA Permit No. NM8800019434

**ATTACHMENT 14
POST-CLOSURE PLAN**

(PERMIT APPLICATION SECTION 24)

24.0 § 270.28 – Post Closure Care Requirements

NASA's Hazardous Waste Operating Permit has historically addressed only hazardous waste treatment, storage and disposal at WSTF. With this submittal, NASA will now centralize all site permit compliance activities for which NMED Hazardous Waste Bureau has primacy. Elements contained within this section are intended to allow NASA to facilitate Post-Closure Care (PCC), Hazardous and Solid Waste Amendments (HSWA), and 3008(h) compliance through one permit. Per guidance received from NMED Hazardous Waste Bureau personnel, NASA will not include Plume-Front Stabilization Work Plan elements. Also, if additional corrective action work plans are developed, corrective action measures, and groundwater monitoring requirements will not be addressed by this Hazardous Waste Operating Permit.

NASA's approach will allow centralized, facility-wide documents to be used to address a broad spectrum of hazardous waste activities. Currently, NASA must maintain separate Quality Assurance Project, Sampling and Analysis, Contingency, and other Plans for each Permit and/or regulatory agreement. By consolidation to one Permit, both NMED and NASA will realize a stream-lined, straight-forward approach to managing permit driven activities.

This PCC section will address all sample collection activities currently managed by the PCC Permit and the HSWA Permit (including sampling and analysis activities mandated by the 3008(h) Administrative Order on Consent with EPA). Since the commingling of releases from primarily closed HWMUs has resulted in the contaminant plume addressed by the Administrative Order on Consent, addressing these releases in a holistic, risk-based system will provide an effective management tool to both NMED and NASA. Interim Measure Corrective Action Work Plans such as the previously approved Plume-Front Stabilization Work Plan will not be included as a part of this renewal package.

The NMED Hazardous Waste Bureau has indicated that the Bureau will perform the work necessary to incorporate the HSWA Permit as a section in the renewed permit. NASA has not included discussions/text for this action.

NASA has included a Schedule of Compliance in Section 25.0 to address data collection, evaluation, and corrective action activities that are scheduled to be performed at WSTF. NASA's risk-based corrective action program has focused on plume-front stabilization. Efforts scheduled for the near future include: Mid-Plume Constriction Area evaluations and probable corrective action; further investigations and corrective actions for the HWMUs; and detailed investigations of the site's solid waste management units (SWMUs). The Schedule of Compliance provides a NASA commitment to address releases from SWMUs in a timely and effective manner. Work scheduled in this section has been prioritized by risks to human health and the environment.

24.1 § 270.14(b)(1) - Facility General Description

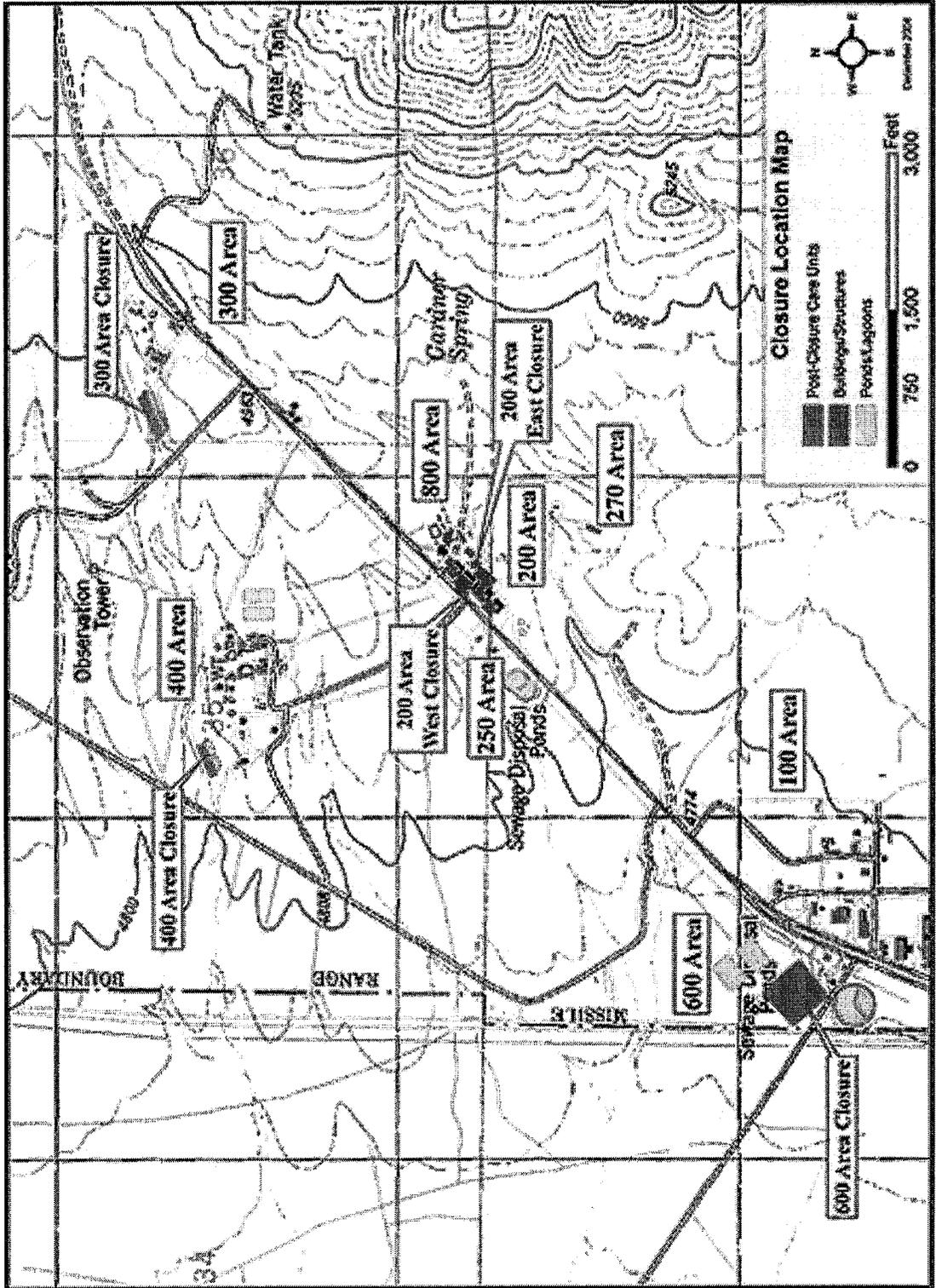
Section 4.0 provides a general description of WSTF to comply with the requirements of § 270.14(b)(1). Figure 24.1 provides the specific locations of the PCC units. Section 20.30, Section 20.31, Section 20.32, Section 20.33, and Section 20.34 provide a complete description of the 200, 300, 400, and 600 Area HWMUs/Closures.

24.2 §§ 270.14(b)(4) and 264.14 - Security Plan

The Security Plan (Section 7.0) addresses the requirements of § 270.14(b)(4) which complies with the requirements of § 264.14. § 264.14 requires facilities to prevent unknowing entry and minimize the possibility for the unauthorized entry of persons or livestock onto the active portion of the facility. The facility must have a 24-hour surveillance system which continuously monitors and controls entry, an artificial or natural barrier which completely surrounds the facility, a means to control entry at all times through gates or other entrances to the facility, and a sign posted at each entrance stating that only authorized personnel are allowed to enter and entry can be dangerous.

Figure 24.1

Closure Location Map



24.2.1 PCC Security

In addition to the measures described in the Section 7.0, there are area-specific factors which provide additional security for the closures. The following delineates these area-specific factors.

Both 200 Area Closures (the 200 Area East Closure and the 200 Area West Closure) are not accessible due to their construction design. Each closure is completed in the subsurface and sealed by protective covers (an asphalt parking area for the 200 Area East Closure and a concrete floor inside an operational building for the 200 Area West Closure).

Additional security measures for the 300 and 400 Area Closures are provided by area-specific access restrictions, access control, and surveillance. Personnel entering either the 300 or 400 Test Areas must be cleared for access by blockhouse monitors stationed in each test area. These individuals strictly monitor visitors and entry/exit times and continuous video monitoring of the test areas is performed during site operational hours.

Additional security measures for the 600 Area Closure include limited access to the Closure. The Closure is fenced and equipped with a locked gate to prevent unauthorized or accidental entry of personnel and/or livestock.

24.3 §§ 270.14(b)(5) and 264.15(b) - Inspection Schedule

The Inspection Plan (Section 8.0) addresses the requirements of §270.14(b)(5) and §264.15(b). §264.15 requires facilities to be inspected for malfunctions, deterioration, operator errors, and discharges. Inspections must be recorded and conducted often enough to identify problems in time to correct them before harm to human health or the environment occurs.

24.4 §§ 270.14(b)(7) and 264.30 through 264.37 - Preparedness/Prevention

24.4.1 § 270.14(b)(7) - Site Preparedness and Prevention

WSTF's EPP in accordance with § 270.14 (b)(7) complies with §§ 264.30 through 264.37 (Appendix 10-A). Part § 264 Subpart C (§§ 264.30 through 264.37) requires facilities to minimize fire, explosion, or release of hazardous wastes or constituents to air, soil, or water. To minimize hazards, facilities must be equipped with, test, and maintain internal communications, portable fire extinguishers, fire control equipment, spill control equipment, decontamination equipment, and adequate water. Whenever hazardous waste is handled, personnel must have immediate access to alarm or communication devices. Adequate space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area must be maintained. Arrangements or agreements must be made with police, fire departments, emergency response teams, and hospitals to familiarize the agencies with the layout of the facility, properties of hazardous waste handled, associated hazards, personnel locations, entrances to, roads inside, possible evacuation routes from the facility, and types of injuries or illnesses from exposure to hazards. Additionally, the following Sections provide supplemental information concerning these requirements.

24.4.2 § 264.32 - Required Equipment

All inhabited buildings at WSTF are equipped with telephone communication and fire alarm systems. In the case of an emergency, facility personnel will be notified through public address system announcements, emergency release sirens, and/or fire alarms.

24.4.2.1 Internal/External Communications and Alarm Equipment

Communication with the WSTF security, fire, and emergency response teams is available for immediate emergency assistance as necessary. Telephones are available and accessible in facility buildings located near the HWMUs. Telephones are also located at the 100 Area Container Storage Unit, the ETU, the FTU, in every occupied building, and in marked boxes along the

access road to WSTF from U.S Highway 70. The Emergency Center also maintains a radio system which is capable of summoning local assistance as needed.

In addition to telephones, emergency pull box alarms are also accessible in facility buildings near the HWMUs. When a pull box alarm is activated, an alarm signal is sent to the Emergency Center and the appropriate response activities are initiated.

Additional communications are provided by the use of hand-held and mobile two-way radios and pagers, a complete description of communications capabilities is provided in Appendix 10-A.

24.4.2.2 Fire Control Equipment and Spill Control Equipment

WSTF fire protection is provided by the use of fire hydrants, portable fire extinguishers, hose racks, and an on-site Fire Department. The Hazardous Materials (HAZMAT) Response Team provides spill control of hazardous substances or wastes. The EPP provides details regarding fire control, spill control, and a complete list of emergency response equipment (Attachment Q of Appendix 10-A).

24.4.2.3 Decontamination of Equipment

If a spill should occur, all contaminated equipment will be decontaminated as a follow-up part of the response process. WSTF is fully equipped with decontamination equipment. Decontamination will typically be accomplished with the use of biodegradable soap, hot water and steam. If appropriate, resulting wash waters will be contained and subsequently transported to the ETU.

24.4.2.4 Water Supply

WSTF water is provided by two drinking water wells. The water is pumped to fill a 1,000,000-gallon gravity storage tank by two electric motors (150 and 100 horsepower, one for each well). There are also two booster pumps (also 150 and 100 horsepower). The pumps lift the water 1,038 feet from the water table to the tank, a distance of over seven miles. The storage tank, located northeast of the main facility development, is monitored remotely by electronic gauges from the Emergency Center. Security personnel conduct physical inspections at the tank a minimum of six times a day. Adequate volume and pressure will be maintained to efficiently operate all water supplied firefighting equipment.

24.4.3 § 264.33 - Testing and Maintenance of Equipment

The EPP includes a summary of testing and maintenance equipment at WSTF (Attachment A for sirens/horns/telephones, Attachment B for two-way radios, Attachment Q for spill exercises of Appendix 10-A).

24.4.4 § 264.35 - Required Aisle Space

All emergency vehicles will have an unobstructed path to all hazardous waste management areas, and emergency procedures restrict access of these areas to only authorized vehicles and personnel.

24.4.5 § 264.37 - Arrangements with Local Authorities

WSTF has agreements with several local agencies for support in the event of an emergency. In all cases, the support activities will involve materials, personnel, and equipment which will be released to the WSTF Emergency Coordinator in the event of an emergency. These groups have been provided with site information which familiarizes them with the layout and possible hazards at WSTF. The EPP lists the agencies that have agreed to provide emergency support as needed (Appendix 10-A).

24.4.6 Preparedness and Prevention for PCC

In addition to the EPP, additional precautions are followed when inspecting or visiting a closure. Communications with the WSTF fire and emergency response teams and additional fire protection equipment is possible from the closures.

Additional direct and immediate communication with either the site contractor's Environmental Department or the WSTF Fire Department is available through portable two-way radios. Further assistance can be obtained by telephone from the contractor Environmental Department or direct assistance from the Fire Department. The radios are also capable of telephone communication with any on or off-site number for acquiring additional emergency assistance.

In addition to the WSTF fire protection detailed in the EPP, each contractor Environmental Department Government Services Administration vehicle is equipped with a portable fire extinguisher that is checked and maintained on a monthly basis.

24.5 §§ 270.14(b)(11), 264.18(a) and (b) - Facility Seismic and Floodplain Information

Parts §§ 270.14(b)(11) and 264.18 outline seismic and floodplain considerations for facilities and hazardous waste units. The seismic standards do not apply to WSTF. Appendix VI of Part 264 lists political jurisdictions where the seismic standard applies. The WSTF area is not included in Appendix VI. Part § 270.14(b)(11) regulations indicate that the relevant Federal Insurance Administration (FIA) flood map can provide information regarding the 100-year floodplain. The FIA flood map for New Mexico indicates that WSTF is not located within a 100-year floodplain. Figure 13.1 provides the FIA map.

The U.S. Army Corps of Engineers (USCOE) evaluated WSTF's drainage patterns and in July 1982 published a report titled "Special Flood Hazards Information, White Sands Test Facility, NASA". This report evaluates and identifies WSTF's primary flow paths and predicts the 100 and 500 year floodplains. Plate 1 provided in Appendix 13-A identifies primary surface water flow paths at WSTF. Plates 2,3,4,5, and 6 in Appendix 13-A illustrate USCOE's calculated 100 and 500 year floodplains for each of WSTF's industrial areas.

The USCOE used peak-flow records from 15 similar, small watersheds to determine peak flow at WSTF. These watersheds, which are located in the lower Rio Grande Valley and the Tularosa Basin, are representative of drainage conditions within WSTF. The 100 year discharge (Q100) values were increased by 20 percent to 30 percent to develop the Q100 estimates for the WSTF drainages. This adjustment accounts for area differences between the other watersheds and the WSTF watershed. WSTF's Q100 values were then extrapolated to determine the 500 year discharge (Q500) values. Table 13.1 summarizes the peak flow calculations for the 100 year and the 500 year floods for each primary flow path at WSTF.

The calculated flows from the USCOE report are conservative since the analysis assumes a "fixed-bed" channel, thereby ignoring erosion and scouring effects within the channel. The Q500 values are assumed to be high as detailed flood-wave routing calculations were not made.

Two diversion berms were constructed east of the 100 Area after the release of USCOE's report. The purpose of these berms is to divert run-off from flow paths 2 and 3 away from the 100 Area and into the larger flow path 4 to the north. Construction of these berms will alter the discharge values for paths 2, 3, and 4.

24.6 § 270.14(b)(13) - Copy of the Closure/Post-Closure Plans

§ 270.14(b)(13) requires that a copy of the closure plan and post-closure plan, where appropriate, be included in RCRA permit applications. For all five HWMUs, closure plans were approved by NMED and closure construction was initiated between October and November of 1988 and was completed between March and June of 1989, therefore closure plans have already been approved and enacted. Closure plans and approval letters are provided in Appendix 24-A. Additional Closure Plan documentation is provided on the Supplemental Data Disk CDs.

Per discussions with NMED during development of the Post-Closure Care Module, generation of a Post-Closure Care Plan was not necessary for the Post-Closure Care Module. The units are in post-closure care and the module itself serves as the post-closure care permit for the closed units. This requirement was deemed redundant and unnecessary by NMED.

24.7 §§ 270.14(b)(14) and 264.119 - File Documentation of Closed Units

§ 270.14(b)(14) requires that documentation be submitted to show that notices required under § 264.119 have been filed. § 264.119 requires a facility to submit a record of the type, location, and quantity of hazardous wastes disposed of within each HWMU to the local zoning authority. Also, a notation on the deed, or other instrument, must be recorded that states: the land has been used to manage hazardous wastes; the use of the land is restricted under Subpart G regulations; and the survey plat and a record of the type, location, and quantity of hazardous wastes disposed of within each cell or other hazardous waste disposal unit have been filed with the local zoning authority or other authority with jurisdiction over local land use and the NMED Secretary. A certification, signed by the owner or operator must be submitted that he has recorded the notation to the NMED Secretary.

WSTF is located on restricted-use land belonging to the DOD. The Inter-Service Agreement between WSTF and the DOD serves as the deed for use of the land. A statement that the land on which WSTF is located has been used to manage hazardous waste and that the use of the land is restricted is included in the Inter-Service Agreement between WSTF and the DOD. All required documentation has been filed with the local zoning authority for Dona Ana County and the Regional Administrator for the EPA. Appendix 24-B provides copies of the deed recordations submitted to Dona Ana County and the EPA Regional Administrator in 1993.

24.8 §§ 270.14(b)(16), 264.144 and 145 - Financial Assurance/Mechanisms

Based on § 264.140(c), WSTF is exempt from this requirement because it is a Federal facility.

24.9 §§ 270.14(b)(18), 264.149 and 150 - Proof of Coverage by a State Financial Mechanism

Based on § 264.140(c), WSTF is exempt from this requirement because it is a Federal facility.

24.10 § 270.14(b)(19) - Required Topographical Information

Section 16.0 provides a set of five topographical maps. Figure 16.2 and Figure 16.3 include the location of the 200, 300, 400 and 600 Area Closures, their point of compliance wells, plume delineations, and the location of all WSTF groundwater monitoring wells. Figure 16.6 provides hydrogeologic investigation information. These maps present the information required by §§ 270.14(b)(19)(i) through (xii), 270.14(c)(2), 270.14(c)(3), and 270.14(c)(4)(i).

24.11 § 270.14(c) - Additional Technical Requirements

24.11.1 § 270.14(c)(1) - Groundwater Monitoring Data

A database which summarizes all groundwater monitoring data obtained throughout collection activities at WSTF is provided as an additional file on the CD-ROM "Analytical Data". This file mirrors the database used by NASA to report historical groundwater data in the Monthly Status Reports submitted to NMED to comply with the reporting requirements of the PCC Permit currently in effect. This database allows the reviewer the ability to query historical data and sort data by the well, by date, by maximum contaminant concentrations observed, by contaminant, and can also be utilized to provide graphical presentations of groundwater data.

Data contained in this database includes interim status monitoring, PCC monitoring, RCRA Facility Investigation monitoring, and monitoring related to NASA's compliance with the 3008(h) Administrative Order on Consent with EPA Region 6 (later included as a part of NASA's HSWA Permit).

This database contains data reported through May 2002. NASA's most recent Monthly Status Report to NMED can be utilized if up to date data presentations are desired subsequent to submittal of this package.

24.11.2 § 270.14(c)(2) - Hydrogeologic Information

Identification of the uppermost aquifer with flow directions and rates is included on the topographic map sheet provided in Figure 16.6 (response to the requirements of § 270.14(b)(19)). Additionally, the Annual PCC Reports, which have been provided to NMED in April of each calendar year since WSTF has initiated PCC monitoring, provide comprehensive information concerning identification of hydrostratigraphic zones, groundwater flow rates and directions, and other factors controlling the flow of groundwater contaminants at WSTF. The 1995 PCC Report and supplemental report are provided in Appendix 24-C for site specific geologic information. For the most recent PCC data collections, the 2004 PCC Report is also included in Appendix 24-C. Identification of the uppermost aquifer, additional aquifers, and hydrostratigraphic units, is included in Section 4.0 of the 2004 PCC Report.

24.11.3 § 270.14(c)(3) - Identification of Points of Compliance and Waste Management Areas

Identification of the waste management areas, property boundaries, points of compliance, and relevant groundwater monitoring wells are provided in topographic maps provided in Section 16.0 (response to § 270.14(b)(19)). These requirements are also addressed Section 24.11.5.

24.11.4 § 270.14(c)(4) - Description of the Contaminant Plume

WSTF's contaminant plume has originated from primarily historical releases from the closed HWMUs. The commingling of these releases has resulted in a large contaminant plume that has been exhaustively described in NASA's Draft RCRA Facility Investigation Report (March 1996), the Plume-Front Stabilization Work Plan (January 1999), and the PCC Reports provided to NMED on an annual basis.

24.11.4.1 § 270.14(c)(4)(i) - Delineation of the Contaminant Plume on a Topographic Map

Identification of the extent of the groundwater plume is included on the topographic maps provided in Section 16.0 (response to § 270.14(b)(19)). Plume contaminant contour maps and cross sections have been provided in Appendix 24-D in order to depict the conceptualized plumes of WSTF's primary groundwater contaminants across the facility. Conceptualized plumes and cross sections have been generated using historical data collected from WSTF's comprehensive groundwater monitoring well system.

NASA White Sands Test Facility

24.11.4.2 § 270.14(c)(4)(ii) - Appendix IX Contaminant Concentrations

As required by 20.4.1.900 NMAC, incorporating 40 CFR 270.14(c)(4)(ii), this section provides the highest level of each hazardous constituent listed in Appendix IX of Part 264 that has been reliably and consistently detected throughout the WSTF contaminant plume. Table 24.1 provides a summary of reliable Appendix IX detections. Concentrations for all Appendix IX constituents observed during the history of groundwater monitoring at WSTF are also provided in the database discussed in Section 24.11.1.

Table 24.1 Appendix IX Detection Summary

CAS Number	Appendix IX Constituent	Highest Concentration	Location of Detection
100-41-4	Ethylbenzene	5.5 ug/L	PL-6-1485
100-42-5	Styrene	6.6 ug/L	WB-3-330
107-13-1	Acrylonitrile	55 ug/L	ST-5-1175
108-88-3	Toluene	80 ug/L	BLM-2-482
117-81-7	Bis(2-ethylhexyl) phthalate	86.1 ug/L	BLM-24-565
124-48-1	Dibromochloromethane	2.5 ug/L	300-E-183
127-18-4	Tetrachloroethene	89 ug/L	200-D-109
156-60-5	trans-1,2-Dichloroethene	3.5 ug/L	200-B-240
57-12-5	Total Cyanide	0.029 mg/L	NASA 10
62-75-9	N-Nitrosodimethylamine	76 ug/L	400-A-151
67-64-1	Acetone	15000 ug/L	400-C-143
67-66-3	Chloroform	3.7 ug/L	300-A-120
71-43-2	Benzene	5 ug/L	WB-1-330
71-55-6	1,1,1-Trichloroethane	16 ug/L	200-D-109
7439-92-1	Lead	0.11 mg/L	300-B-166
7439-97-6	Mercury	0.2 mg/L	200-D-109
7440-02-0	Nickel	0.272 mg/L	100-D-176
7440-22-4	Silver	0.023 ug/L	400-D-355
7440-31-5	Tin	15.2 mg/L	300-D-153
7440-36-0	Antimony	0.037 mg/L	200-H-225
7440-38-2	Arsenic	0.058 ug/L	200-G-495
7440-39-3	Barium	0.89 mg/L	ST-4-690
7440-41-7	Beryllium	0.0018 mg/L	200-H-225
7440-43-9	Cadmium	0.12 mg/L	200-B-240
7440-47-3	Chromium	5.64 mg/L	100-D-176
7440-48-4	Cobalt	0.0213 mg/L	100-D-176
7440-50-8	Copper	0.0566 mg/L	100-D-176

Table 24.1 Appendix IX Detection Summary

CAS Number	Appendix IX Constituent	Highest Concentration	Location of Detection
7440-62-2	Vanadium	0.0359 mg/L	100-D-176
7440-66-6	Zinc	0.69 mg/L	300-D-153
74-87-3	Chloromethane	9.2 ug/L	200-G-175
75-01-4	Vinyl chloride	5 ug/L	ST-5-815
75-09-2	Methylene chloride	85 ug/L	BLM-32-715
75-25-2	Bromoform	4.8 ug/L	300-E-183
75-27-4	Bromodichloromethane	1.2 ug/L	PL-6-1485
75-35-4	1,1-Dichloroethene	38 ug/L	300-A-170
75-69-4	Trichlorofluoromethane	6000 ug/L	300-A-170
75-71-8	Dichlorodifluoromethane	13 ug/L	400-C-118
7782-49-2	Selenium	0.082 mg/L	300-E-138
78-93-3	2-Butanone (MEK)	380 ug/L	200-D-109
79-01-6	Trichloroethene	2600 ug/L	200-D-109
Indicates that this is also a constituent in Appendix VIII of Part 261.			

24.11.5 §§ 270.14(c)(5) and 264.92 through 264.100 - Groundwater Monitoring Programs

Appendix 24-E provides the Detection, Compliance, and Corrective Action Monitoring Programs for PCC. These plans are supplemented by Plume-Front Stabilization Work Plan monitoring which will be performed independently from the PCC Monitoring Programs. A Quality Assurance Project Plan (QAPP) is provided in Appendix 24-F to provide guidelines for data evaluation and management and also to provide WSTF-specific sampling and analysis directives for PCC activities. The QAPP will be applicable to both PCC and Plume-Front Stabilization Work Plan sampling at groundwater monitoring wells. Treatment system sampling will be directed by the Plume-Front Stabilization Work Plan and by a project-specific QAPP.

Plume-front monitoring will be performed to monitor the effectiveness of the Plume-Front Stabilization remediation system which is being implemented as an interim measures presumptive remedy to stabilize contaminant movement at the plume front. In the near future, NASA anticipates initiating a similar presumptive remedy to address contaminants within the site's Mid-Plume Constriction Area. A Work Plan will be developed for this initiative and, if approved by NMED, groundwater monitoring for this Work Plan will also be performed independently from the PCC Monitoring Programs. The QAPP will also be direct groundwater monitoring well sampling activities in the Mid-Plume Constriction Area. Groundwater monitoring of the treatment system performance will be directed by the work plan and a project-specific QAPP.

24.11.5.1 § 270.14(c)(6) - Detection Monitoring Program

The Detection Monitoring Program mandated by §§ 270.14(c)(6) and 264.98 is not currently applicable to WSTF. Hazardous constituents have been observed downgradient of each of the closed HWMUs in point of compliance wells. However, NMED representatives have requested that NASA provide a Detection Monitoring Plan to allow initiation of this monitoring as a part

of the PCC if needed in the future. WSTF's Detection Monitoring Program is provided in Appendix 24-E and is supplemented by the QAPP.

The Detection Monitoring Program and the QAPP include sections which address constituents to be monitored for, a description of the proposed monitoring system, sampling and analytical procedures and statistical procedures that will be used to evaluate data.

24.11.5.2 § 270.14(c)(7) - Compliance Monitoring Program

The Compliance Monitoring Program mandated by §§ 270.14(c)(7) and 264.99 is currently not applicable to WSTF. Hazardous constituents have been observed above concentration limits in point of compliance wells located downgradient of each of the closed HWMUs. NASA has provided a Compliance Monitoring Plan in Appendix 24-E and is supplemented by the QAPP.

The Compliance Monitoring Program and the QAPP include descriptions of wastes previously handled at WSTF, a characterization of the contaminated groundwater, a list of hazardous constituents, concentration limits, detailed plans of groundwater collection system, a description of sampling and analytical methodologies, and statistical procedures which will be utilized to evaluate data.

If future corrective action activities result in contaminant concentrations falling below prescribed concentration limits, NASA will implement the Compliance Monitoring Program. Until that time, NASA will perform corrective action monitoring activities in accordance with the following section.

24.11.5.3 § 270.14(c)(8) - Corrective Action Monitoring Program

The Corrective Action Monitoring Program as mandated by §§ 270.14(c)(8) and 264.100 is provided in Appendix 24-E. Groundwater contaminant values have exceeded the concentration limits prescribed for compliance monitoring and upon issuance of this Permit, NASA will conduct groundwater monitoring activities in accordance with this Corrective Action Monitoring Program. Corrective action monitoring is not being currently performed because the existing PCC Permit does not contain guidance for Corrective Action Monitoring.

The Corrective Action Monitoring Program and the QAPP include a characterization of the contaminated groundwater, concentration limits for each observed hazardous constituent, and a sampling and analysis plan for the collection and management of groundwater monitoring data from the specified groundwater monitoring system. NASA's Plume-Front Stabilization Interim Measures Work Plan provides WSTF's initial action to take corrective action for the site's historical releases. The Plume-Front Stabilization Work Plan directs monitoring and data collection activities for the plume-front specific monitoring wells and for the treatment system. An additional project-specific QAPP is required for data evaluation and management practices at the plume-front treatment facility.

NASA discussed this requirement in a meeting in Santa Fe, New Mexico with both Glenn Von Gonten and Phillip Solano of the Hazardous Waste Bureau. They indicated that inclusion of a Schedule of Compliance within the Permit Renewal would serve to provide the State of New Mexico with NASA's commitment that required investigations and, if necessary, corrective actions would be performed by NASA in a reasonable timeframe. NMED indicated that they agreed with NASA's prioritization of performing plume-front stabilization activities followed by investigations, evaluations, and if deemed appropriate corrective actions for WSTF's solid waste management units (SWMUs).

The Schedule of Compliance (Section 25.0) includes a summary of evaluative/corrective action activities to be performed in the future. NASA has developed this Schedule of Compliance based on anticipated risks to human health and the environment.

The facility's upgradient well should be located in an area recharged by groundwater emanating from Bear Canyon Arroyo, located east-northeast of the 300 Area. Bear Canyon Arroyo serves as the catchment area for most of the groundwater that

ultimately flows beneath the site. The groundwater flow direction in the vicinity of well 300-D-153 is inferred to flow towards the west-southwest.

NASA proposes locating the upgradient well approximately 4,000 feet upgradient of the 300 Area and 1,500 feet upgradient of groundwater monitoring well 300-D-153. The approximate location of this well is provided by Figure 24.2. Several factors were considered relative to the location of this well, including access and topography. NASA proposes that the well be a single-screened, four-inch diameter, conventional PVC monitoring well screened below the water table. The depth and length of screen will be sufficient to accommodate any future continued declines in water elevations for this area.

The following provides a brief summary of field projects scheduled for the next year and the prioritization of the installation of the upgradient well:

- Drilling and installation of two wells northwest of the MPCA to characterize contaminant migration to the northwest of the MPCA - September 2003 to January 2004.
- Drilling, installation, and hydrofracturing of MPCA extraction wells MPE-9, MPE-10 and MPE-11 - February to July 2004
- Installation and sample of 600 Area soil borings (exact date dependent upon receipt of NMED approval) - April to June 2004
- Drilling and installation of the 600 Area upgradient and down-gradient wells (exact date dependent upon receipt of NMED approval) - May through July 2004.
- Drilling and installation of the facility upgradient well located upgradient of the 300 Area (exact date dependent upon receipt of NMED approval) - August 2004.

Upon receipt of NMED concurrence of this well, NASA will initiate federal procurement activities and schedule the installation within the site's funding/prioritization schedule.

24.12 § 270.14(d) - SWMUs

Section 20.0 provides detailed information regarding WSTF's SWMUs.

Figure 24.2

Approximate Location of Proposed Upgradient Well

**FIGURE 1
PROPOSED LOCATION FOR UPGRADIENT WELL**

