

# **GROUND WATER DISCHARGE PERMIT RENEWAL AND MODIFICATION NASA-WHITE SANDS TEST FACILITY, DP-1255**

## **I. INTRODUCTION**

The New Mexico Environment Department (NMED) issues this Discharge Permit Renewal and Modification (Discharge Permit), DP-1255, to NASA-White Sands Test Facility (permittee) pursuant to the New Mexico Water Quality Act (WQA), NMSA 1978 §§74-6-1 through 74-6-17, and the New Mexico Water Quality Control Commission (WQCC) Regulations, 20.6.2 NMAC.

NMED's purpose in issuing this Discharge Permit, and in imposing the requirements and conditions specified herein, is to control the discharge of water contaminants from the NASA-White Sands Test Facility (facility) into ground and surface water, so as to protect ground and surface water for present and potential future use as domestic and agricultural water supply and other uses and to protect public health. In issuing this Discharge Permit, NMED has determined that the requirements of Subsection C of 20.6.2.3109 NMAC have been met.

The activities which produce the discharge, the location of the discharge, and the quantity, quality and flow characteristics of the discharge are briefly described as follows:

Up to 1,872,000 gallons per day (gpd) of contaminated ground water that has been remediated and back-flush water is discharged from a ground water remediation system. Contaminated ground water is pumped from extraction wells, treated by a remediation system and discharged primarily into four injection wells. Up to 180,000 gpd of remediated ground water from the total permitted volume may be discharged to an infiltration basin. Also, up to 10,000,000 gallons per quarter of the permitted total discharge volume generated from back-flushing the injection wells and pipeline air purge operations may be discharged to the infiltration basin or onto the ground for surface disposal. Back-flush water consists of treated and native ground water. The remediation system flow may be injected with sodium polyphosphate (Aqua Mag® C-10, or equal) and/or hydrogen peroxide, hydroxyacetic acid, sodium hypochlorite, liquid and gaseous carbon dioxide for bio-fouling control. The modifications consist of adding an infiltration basin and surface disposal as approved discharge methods and the addition of approved chemicals for bio-fouling control. The discharge contains water contaminants or toxic pollutants which may be elevated above the standards of Section 20.6.2.3103 NMAC. The facility is located approximately 6.5 miles north and 3 miles west of Organ, in Section 5, T21S, R3E, and Section 33, T20S, R3E, Dona Ana County. Ground water beneath the site is at a depth of approximately 439 - 442 feet and has a total dissolved solids concentration of approximately 820 milligrams per liter.

The original Discharge Permit was issued on March 10, 2000. The permittee's application consists of the materials submitted by NASA Johnson Space Center White Sands Test Facility dated November 8, 2006 with supplemental material received on March 31, 2009, and on June 23 and 24, 2010. The discharge shall be managed in accordance with all conditions and requirements of this Discharge Permit.

Pursuant to Section 20.6.2.3109 NMAC, NMED reserves the right to require a Discharge Permit Modification in the event NMED determines that the requirements of 20.6.2 NMAC are being or

may be violated or the standards of Section 20.6.2.3103 NMAC are being or may be violated. This may include a determination that structural controls and/or management practices approved under this Discharge Permit are not protective of ground water quality, and that more stringent requirements to protect and/or remediate ground water quality may be required by NMED. These requirements may include: changing waste management practices; expanding monitoring requirements; installing an advanced treatment system; and/or implementing abatement of water pollution.

Issuance of this Discharge Permit does not relieve NASA White Sands Test Facility of the responsibility to comply with the WQA, WQCC Regulations, and any other applicable federal, state and/or local laws and regulations, such as zoning requirements and nuisance ordinances.

The following abbreviations may be used in this Discharge Permit:

Abbreviation	Explanation	Abbreviation	Explanation
BOD <sub>5</sub>	biochemical oxygen demand (5-day)	NMSA	New Mexico Statutes Annotated
CFR	Code of Federal Regulations	NO <sub>3</sub> -N	nitrate-nitrogen
CFU	colony forming units	NTU	nephelometric turbidity units
Cl	chloride	TDS	total dissolved solids
LADS	land application data sheet(s)	TKN	total Kjeldahl nitrogen
mg/L	milligrams per liter	TSS	total suspended solids
mL	milliliters	total nitrogen	TKN+NO <sub>3</sub> -N
NMAC	New Mexico Administrative Code	WQCC	Water Quality Control Commission
NMED	New Mexico Environment Department		

**II. FINDINGS**

In issuing this Discharge Permit, NMED finds:

1. The permittee is discharging effluent or leachate from the facility so that such effluent or leachate may move directly or indirectly into ground water within the meaning of Section 20.6.2.3104 NMAC.
2. The permittee is discharging effluent or leachate from the facility so that such effluent or leachate may move into ground water of the State of New Mexico which has an existing concentration of 10,000 milligrams per liter or less of total dissolved solids within the meaning of Subsection A of 20.6.2.3101 NMAC.
3. The discharge from the facility is not subject to any of the exemptions of Section 20.6.2.3105 NMAC.

**III. CONDITIONS**

The following conditions shall be complied with by the permittee and are enforceable by NMED. The permittee is authorized to discharge water contaminants subject to the following conditions:

**OPERATIONAL PLAN**

#	Terms and Conditions
1.	The permittee shall implement the following operational plan to ensure compliance with Title 20, Chapter 6, Parts 1 and 2 NMAC. [20.6.2.3106.C NMAC, 20.6.2.3107 NMAC]
2.	The permittee shall operate in a manner such that standards and requirements of Sections 20.6.2.3101 and 20.6.2.3103 NMAC are not violated. [20.6.2.3101 NMAC, 20.6.2.3103 NMAC]
3.	The permittee is authorized to discharge up to 1,872,000 gpd of contaminated ground water that has been remediated and back-flush water is discharged from a ground water remediation system. Contaminated ground water is pumped from extraction wells, treated by a remediation system and discharged primarily into four injection wells. Up to 180,000 gpd of remediated ground water from the total permitted volume may be discharged to an infiltration basin. Also, up to 10,000,000 gallons per quarter of the permitted total discharge volume generated from back-flushing the injection wells and pipeline air purge operations may be discharged to the infiltration basin or onto the ground for surface disposal. Back-flush water consists of treated and native ground water. The treatment system may be injected with sodium polyphosphate (Aqua Mag® C-10, or equal) and/or hydrogen peroxide, hydroxyacetic acid, sodium hypochlorite, liquid and gaseous carbon dioxide for bio-fouling control. [20.6.2.1203 NMAC]
4.	<p>Treated ground water discharged from the remediation system shall not exceed the following limitations:</p> <p>Concentrations of the following contaminants shall not create a combined total lifetime risk of more than one cancer per 100,000 exposed persons:</p> <ul style="list-style-type: none"> <li>▪ N-Nitrosodimethylamine (NDMA)</li> <li>▪ N-Nitrodimethylamine (DMN)</li> <li>▪ Tetrachloroethylene (or perchloroethylene, PCE)</li> <li>▪ Trichloroethylene (TCE)</li> <li>▪ Chloroform</li> </ul> <p>[20.6.2.3109 NMAC]</p>

**MONITORING, REPORTING, AND OTHER REQUIREMENTS**

#	Terms and Conditions
5.	The permittee shall conduct the following monitoring, reporting, and other requirements listed below. [20.6.2.3107 NMAC]

6.	<p>METHODOLOGY - Unless otherwise approved in writing by NMED, the permittee shall conduct sampling and analysis in accordance with the most recent edition of the following documents:</p> <ul style="list-style-type: none"> <li>a) American Public Health Association, Standard Methods for the Examination of Water and Wastewater (18th, 19th or current);</li> <li>b) U.S. Environmental Protection Agency, Methods for Chemical Analysis of Water and Waste;</li> <li>c) U.S. Geological Survey, Techniques for Water Resources Investigations of the U.S. Geological Survey;</li> <li>d) American Society for Testing and Materials, Annual Book of ASTM Standards, Part 31. Water;</li> <li>e) U.S. Geological Survey, et al., National Handbook of Recommended Methods for Water Data Acquisition; or</li> <li>f) Methods of Soil Analysis: Part I Physical and Mineralogical Methods; Part 2. Microbiological and Biochemical Properties; and Part 3. Chemical Methods, American Society of Agronomy. [20.6.2.3107.B NMAC]</li> </ul>
7.	<p>The permittee shall submit semi-annual monitoring reports to NMED by the 1<sup>st</sup> of February and August each year.</p> <p>Semi-annual monitoring shall be performed during the following periods:</p> <ul style="list-style-type: none"> <li>• January 1<sup>st</sup> through June 30<sup>th</sup> (first half) – <b>report due by August 1<sup>st</sup></b>; and</li> <li>• July 1<sup>st</sup> through December 31<sup>st</sup> (second half) – <b>report due by February 1<sup>st</sup></b>.</li> </ul> <p>Monitoring requirements detailed in this Discharge Permit are summarized on the sheet titled <i>Summary of Required Actions, Monitoring and Reporting</i>. [20.6.2.3107 NMAC]</p>
8.	<p>The permittee shall measure the total weekly volume of treated ground water discharged to the four injection wells, the infiltration basin, and ground surface (from backflushing injection wells and air purging operations) using totalizing flow meters. The weekly meter readings and discharge volumes shall be submitted to NMED in the semi-annual monitoring reports. The flow meters shall be kept operational at all times. [20.6.2.3107 NMAC]</p>
9.	<p>The permittee shall collect samples from the influent and effluent of the remediation system on a monthly basis. Samples shall be analyzed for the following contaminants:</p> <ul style="list-style-type: none"> <li>▪ N-Nitrosodimethylamine (NDMA)</li> <li>▪ N-Nitrodimethylamine (DMN)</li> <li>▪ Tetrachloroethylene (or perchloroethylene, PCE)</li> <li>▪ Trichloroethylene (TCE)</li> <li>▪ Chloroform</li> </ul> <p>Analytical results for the previous six months shall be submitted to NMED in the semi-annual monitoring reports. [20.6.2.3107 NMAC]</p>
10.	<p>The permittee shall determine the lifetime cancer risk posed by concentrations of NDMA, DMN, PCE, TCE, and chloroform in the effluent samples collected monthly from the remediation system. Methodologies, exposure parameter values, and toxicity values prescribed in or referenced by “Regional Screening Levels for Chemical Contaminants at</p>

	Superfund Sites”, U.S. Environmental Protection Agency, shall be used for these calculations. In the event toxicity values for DMN are not available, lifetime cancer risk calculations for DMN shall use toxicity values for NDMA presented in “Regional Screening Levels for Chemical Contaminants at Superfund Sites. The lifetime cancer risks associated with NDMA, DMN, PCE, TCE and chloroform and the corresponding calculations shall be submitted to NMED-GWQB in the semi-annual monitoring reports. [20.6.2.3107 NMAC]
11.	Copies of ground water monitoring reports generated in conjunction with Permit No. NM8800019434 issued to NASA for the White Sands Treatment Facility by NMED’s Hazardous Waste Bureau (HWB) shall also be submitted to NMED’s Ground Water Quality Bureau simultaneously with the submission to the HWB. [20.6.2.3107 NMAC]

### CONTINGENCY PLAN

#	Terms and Conditions
12.	<p>In the event that analytical results of a monthly effluent sample collected from the remediation system exceed any of the limitations set by this Discharge Permit, the permittee shall enact the following contingency plan:</p> <ul style="list-style-type: none"> <li>a) Notify NMED within 24 hours of the failure of the remediation system to treat ground water to below the limitation(s) in Condition 4.</li> <li>b) Shut down the extraction well pumps until the remediation system is repaired. If necessary, the permittee shall install an alternate or additional remediation system or system component(s).</li> <li>c) Cease discharge to the injection wells until necessary repairs are made.</li> <li>d) Upon repair of the remediation system, re-test effluent.</li> <li>e) Increase the effluent monitoring frequency to weekly.</li> </ul> <p>When analytical results from effluent sampling do not exceed the limitation in Condition 4 for four consecutive weeks, the permittee may return to monthly monitoring. [20.6.2.3107.A(10) NMAC, 20.6.2.3109 NMAC]</p>
13.	<p>In the event that the discharge authorized by this Discharge Permit causes ground water standards to be violated or causes the presence of toxic pollutants in the ground water during the term of this Discharge Permit, upon closure of the facility or during the implementation of post-closure requirements, the permittee shall submit a plan to abate water pollution to NMED within 30 days of confirmation of contamination. The plan shall include a site investigation to define the source, nature and extent of contamination; a proposed abatement option; and a schedule for its implementation. The site investigation and abatement option shall be consistent with the requirements and provisions of Sections 20.6.2.4101, 4103, 4106, 4107, and 4112 NMAC. The abatement plan shall be implemented within 30 days of NMED approval. [20.6.2.3107.A(10) NMAC]</p>
14.	<p>In the event of a spill or release that is not authorized under this Discharge Permit, the permittee shall initiate the notifications and corrective actions as required in Section 20.6.2.1203 NMAC. The permittee shall take immediate corrective action to contain and remove or mitigate the damage caused by the discharge. Within 24 hours after discovery of the discharge, the permittee shall verbally notify NMED and provide the information required by Paragraph (1) of Subsection A of 20.6.2.1203 NMAC. Within seven days of</p>

	discovering the discharge, the permittee shall submit a written report to NMED verifying the oral notification and providing any additional information or changes. The permittee shall submit a corrective action report within 15 days after discovery of the discharge. [20.6.2.1203 NMAC]
15.	In the event NMED or the permittee identifies any other failures of the discharge plan or system not specifically noted herein, NMED may require the permittee to develop for NMED approval contingency plans and schedules to cope with the failures. [20.6.2.3107.A(10) NMAC]

### CLOSURE PLAN

#	Terms and Conditions
16.	<p>Upon closure of the remediation facility, the permittee shall perform the following closure measures:</p> <ul style="list-style-type: none"> <li>a) Remove or plug all lines leading to and from the extraction wells, the remediation system, and the injection wells so that a discharge can no longer occur.</li> <li>b) Remove remediation system components from the site.</li> <li>c) Following notification from NMED that post-closure monitoring is not required or may cease, plug and abandon the ground water monitoring wells, injection wells, and extraction wells in accordance with the attachment titled <i>Ground Water Discharge Permit Monitoring Well Construction and Abandonment Conditions</i>, Revision 1.0, July, 2008.</li> <li>d) When all post-closure requirements have been met, the permittee may request to terminate the Discharge Permit.</li> </ul> <p>[20.6.2.3107.A(11) NMAC]</p>

### GENERAL TERMS AND CONDITIONS

#	Terms and Conditions
17.	<p><b>RECORD KEEPING</b> - The permittee shall maintain at its facility a written record of all data and information related to field measurements, sampling, and analysis conducted pursuant to this Discharge Permit. The following information shall be recorded and shall be made available to NMED upon request:</p> <ul style="list-style-type: none"> <li>a) The dates, exact place and times of sampling or field measurements;</li> <li>b) The name and job title of the individuals who performed each sample collection or field measurement;</li> <li>c) The date of the analysis of each sample;</li> <li>d) The name and address of the laboratory and the name and job title of the person that performed the analysis of each sample;</li> <li>e) The analytical technique or method used to analyze each sample or take each field measurement;</li> <li>f) The results of each analysis or field measurement, including raw data;</li> <li>g) The results of any split sampling, spikes or repeat sampling; and</li> </ul>

	h) A description of the quality assurance and quality control procedures used. [20.6.2.3107.A NMAC]
18.	RECORD KEEPING - The permittee shall maintain a written record of any spills, seeps, and/or leaks of effluent, and of leachate and/or process fluids not authorized by this Discharge Permit. [20.6.2.3107.A NMAC]
19.	RECORD KEEPING - The permittee shall maintain a written record of the operation, maintenance, and repair of all facilities/equipment used to treat, store or dispose of wastewater; to measure flow rates, to monitor water quality, or to collect other data required by this Discharge Permit. This record shall include repair, replacement or calibration of any monitoring equipment and repair or replacement of any equipment used in the permittee's waste or wastewater treatment and disposal system. [20.6.2.3107.A NMAC]
20.	RECORD KEEPING - The permittee shall maintain a written record of the amount of wastewater, effluent, leachate or other wastes discharged pursuant to this Discharge Permit. [20.6.2.3107.A NMAC]
21.	RECORD KEEPING - The permittee shall retain records of all monitoring information, including all calibration and maintenance records, copies of all reports required by this Discharge Permit, and records of all data used to complete the application for this Discharge Permit for a period of at least five years from the date of the sample collection, measurement, report or application. This period may be extended by request of the Secretary at any time. [20.6.2.3107.A NMAC]
22.	INSPECTION and ENTRY - The permittee shall allow the Secretary or an authorized representative, upon the presentation of credentials, to: <ul style="list-style-type: none"> <li>a) Enter at regular business hours or at other reasonable times upon the permittee's premises or other location where records must be kept under the conditions of this Discharge Permit, or under any federal or WQCC regulation.</li> <li>b) Inspect and copy, during regular business hours or at other reasonable times, any records required to be kept under the conditions of this Discharge Permit, or under any federal or WQCC regulation.</li> <li>c) Inspect, at regular business hours or at other reasonable times, any facility, equipment (including monitoring and control equipment or treatment works), practices or operations regulated or required under this Discharge Permit, or under any federal or WQCC regulation.</li> <li>d) Sample or monitor, at reasonable times for the purpose of assuring compliance with this Discharge Permit or as otherwise authorized by the New Mexico Water Quality Act, any effluent, water contaminant, or receiving water at any location before or after discharge.</li> </ul> [20.6.2.3107.D NMAC, 74-6-9(B) & (E) WQA]
23.	INSPECTION and ENTRY - Nothing in this Discharge Permit shall be construed as limiting in any way the inspection and entry authority of NMED under the WQA, the WQCC Regulations, or any other applicable law or regulation. [20.6.2.3107 NMAC, 74-6-9(B) & (E) WQA]
24.	DUTY to PROVIDE INFORMATION - The permittee shall furnish to NMED, within a reasonable time, any documents or other information which it may request to determine whether cause exists for modifying, terminating and/or renewing this Discharge Permit or to determine compliance with this Discharge Permit. The permittee shall also furnish to NMED, upon request, copies of documents required to be kept by this Discharge Permit.

	[20.6.2.3107.D NMAC, 74-6-9(B) & (E) WQA]
25.	SPILLS, LEAKS, and OTHER UNAUTHORIZED DISCHARGES - This Discharge Permit authorizes only those discharges specified herein. Any unauthorized discharges violate Section 20.6.2.3104 NMAC and must be reported to NMED and remediated as required by Section 20.6.2.1203 NMAC. [20.6.2.1203 NMAC]
26.	MODIFICATIONS and/or AMENDMENTS - The permittee shall notify NMED of any changes to the permittee's wastewater treatment and disposal system, including any changes in the wastewater flow rate or the volume of wastewater storage, or of any other changes to operations or processes that would result in any significant change in the discharge of water contaminants. The permittee shall obtain NMED's approval, as a modification to this Discharge Permit pursuant to Subsections E, F, or G of 20.6.2.3109 NMAC, prior to any increase in the quantity discharged, or any increase in the concentration of water contaminants discharged, above those levels approved in this Discharge Permit. [20.6.2.3107.C NMAC]
27.	CIVIL PENALTIES - Any violation of the requirements and conditions of this Discharge Permit, including any failure to allow NMED staff to enter and inspect records or facilities, or any refusal or failure to provide NMED with records or information, may subject the permittee to a civil enforcement action. Pursuant to WQA 74-6-10(A) and (B), such action may include a compliance order requiring compliance immediately or in a specified time, assessing a civil penalty, modifying or terminating the Discharge Permit, or any combination of the foregoing; or an action in district court seeking injunctive relief, civil penalties, or both. Pursuant to WQA 74-6-10(C) and 74-6-10.1, civil penalties of up to \$15,000 per day of noncompliance may be assessed for each violation of the WQA 74-6-5, the WQCC Regulations, or this Discharge Permit, and civil penalties of up to \$10,000 per day of noncompliance may be assessed for each violation of any other provision of the WQA, or any regulation, standard, or order adopted pursuant to such other provision. In any action to enforce this Discharge Permit, the permittee waives any objection to the admissibility as evidence of any data generated pursuant to this Discharge Permit. [74-6-10 WQA, 74-6-10.1 WQA]
28.	CRIMINAL PENALTIES – Any person who knowingly violates or knowingly causes or allows another person to: <ol style="list-style-type: none"> <li>1) make any false material statement, representation, certification or omission of material fact in an application, record, report, plan or other document filed, submitted or required to be maintained under the WQA;</li> <li>2) falsify, tamper with or render inaccurate any monitoring device, method or record required to be maintained under the WQA; or</li> <li>3) fail to monitor, sample or report as required by a permit issued pursuant to a state or federal law or regulation, is subject to felony charges and shall be sentenced in accordance with the provisions of Section 31-18-15 NMSA 1978.</li> </ol> [74-6-10.2(A-F) WQA]
29.	COMPLIANCE WITH OTHER LAWS - Nothing in this Discharge Permit shall be construed in any way as relieving the permittee of the obligation to comply with all applicable federal, state, and local laws, regulations, permits or orders. [20.6.2 NMAC]
30.	RIGHT to APPEAL - The permittee may file a petition for review before the WQCC on this Discharge Permit. Such petition shall be in writing to the WQCC within thirty (30) days of

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	the receipt of this Discharge Permit. Unless a timely petition for review is made, the decision of NMED shall be final and not subject to judicial review. [74-6-5(O) WQA]
31.	TRANSFER of DISCHARGE PERMIT - Prior to the transfer of any ownership, control, or possession of this permitted facility or any portion thereof, the permittee shall notify the proposed transferee in writing of the existence of this Discharge Permit and include a copy of this Discharge Permit with the notice. The permittee shall deliver or send by certified mail to NMED a copy of the notification and proof that such notification has been received by the proposed transferee. [20.6.2.3111 NMAC]
32.	TERM - Pursuant to the WQA 74-6-5(I) and Subsection H of 20.6.2.3109 NMAC, the term of this Discharge Permit is five years from its effective date. To renew this Discharge Permit, the permittee must submit an application for renewal at least 180 days before the termination date. [20.6.2.3109.H NMAC, 74-6-5(I) WQA]
33.	Payment of permit fees is due at the time of Discharge Permit approval. Permit fees shall be paid in a single payment or shall be paid in equal installments on a yearly basis over the term of the Discharge Permit. Single payments shall be remitted to NMED no later than 30 days after the Discharge Permit effective date. Initial installment payments shall be remitted to NMED no later than 30 days after the Discharge Permit effective date; subsequent installment payments shall be remitted to NMED no later than the anniversary of the Discharge Permit effective date. An approved Discharge Permit shall be suspended or terminated if the facility fails to remit an installment payment by its due date. [20.6.2.3114.F NMAC, 74-6-5(K) WQA]

EFFECTIVE DATE: effective date  
EXPIRATION DATE: expiration date

WILLIAM C. OLSON  
Chief, Ground Water Quality Bureau  
New Mexico Environment Department