

WATER POLLUTION CONTROL PERMIT

NEV 96021

In compliance with the provisions of the Federal Water Pollution Control Act, as amended, and the Nevada Revised Statutes, the

NEVADA FIELD OFFICE
National Nuclear Security Administration/Nevada Field Office
P. O. Box 98518
Las Vegas, Nevada
89193-8518
(702) 295-5844

is authorized to manage and to operate a system for treatment and disposal of waste water which discharges from the portal of

E TUNNEL in **AREA 12** of the **NEVADA NATIONAL SECURITY SITE**,
at Latitude 37N 11' 15.990" and Longitude 116E 11' 23.632"

in accordance with effluent limitations, monitoring requirements, other conditions, and schedules of compliance set forth in Part I, II and III hereof.

This permit becomes effective on **1 October 2013**.

This permit shall expire at midnight on **1 October 2018**.

Signed this 30th day of September, 2013.

T. H. Murphy, Chief
Bureau of Federal Facilities
Division of Environmental Protection
Department of Conservation and Natural Resources
State of Nevada

Part I

PART I.A. SYSTEM REQUIREMENTS

- I.A.1. From the effective date of this permit and lasting until the expiration date, the Administrator of the Nevada Division of Environmental Protection (herein referred to as the Division) authorizes the National Nuclear Security Administration/Nevada Field Office (NNSA/NFO, also referred to herein as the permittee) to indirectly discharge waste water from the portal of E Tunnel into the E Tunnel Waste Water Disposal System (ETDS) within the limitations set forth in Table 1- A and 1-B.
- I.A.2. The ETDS is that built facility which conveys effluent from the tunnel portal for disposal, including five, sequential, earthen dammed impoundments. These impoundments release the waste water into the alluvial soils beneath them.
- I.A.3. This permit requires NNSA/NFO to convey the E tunnel effluent without loss from the portal through the ETDS for disposal by means of evaporation and infiltration. If the ETDS successfully conveys the effluent without loss, then the Division deems the quality of the industrial waste water infiltrating from the three impoundments equivalent to the water quality at the ETDS discharge point.
- I.A.4. This permit authorizes NNSA/NFO to infiltrate fluids from one or more of the five impoundments into the unsaturated zone below them. It does not permit NNSA/NFO to discharge from any of the impoundments to the surrounding watershed.
- I.A.5. A discharge to the watershed from the E Tunnel Waste Water Pond System is a violation of the terms and conditions of this permit. The exception to the permit is that increment of storm water from a 24 hour, 25 year event or greater which is above the ETDS's operating capacity: It may be discharged to the watershed only after all reasonable and prudent efforts fail to contain the excess of the storm water. NNSA/NFO must report all such events to the Division before the end of the next business day after discovering said events, in accordance with Part I.E.1.
- I.A.6. This permit requires NNSA/NFO to maintain water well ER 12-1 to monitor groundwater near the ETDS in compliance with Table 1- B.
- I.A.7. The permittee shall report precipitation data obtained from a meteorological station maintained by National Oceanographic and Atmospheric Administration at the ETDS. The permittee shall report the total precipitation to the nearest 0.1 inch for each month of the calendar quarter in the QMR.

PART I.B. MONITORING REQUIREMENTS

General

- I.B.1. The permittee shall follow standard Quality Assurance and Quality Control (QA/QC) practices. Standard QA/QC practices are necessary to establish the integrity and reliability of all data used to demonstrate compliance with the terms and conditions of this permit. All work under contract for compliance with this permit shall meet or exceed the same standards.

ETDS Discharge and Groundwater Limitations and Monitoring Requirements

Table 1-A. NNSA/NFO Discharge Monitoring (monthly)

Parameter	Discharge Limitations	Sample Type
Discharge Flow	Monitor and report	Measurement
Specific Conductance	Less than or equal to 500 micro siemens/cm	Measurement
Hydrogen Ion Activity	Between 6.0 to 9.0 SU	Measurement

Table 1-B. Discrete Sampling for Groundwater Monitoring (every 24 months), Discharge Monitoring (every 12 months), and Causal Analysis (monthly, if non-compliant).

Parameter	National Drinking Water Standard	E Tunnel Every 12 months	ER 12-1 Every 24 months
	pCi/L	Permissible Limit pCi/L	Permissible Limit pCi/L
Adjusted Gross Alpha	15	35.1	15
Gross Beta	50	101	50
Tritium	20,000	1,000,000	20,000
	National Drinking Water Standard mg/L	Threshold mg/L	Threshold mg/L
Cadmium	0.005	0.045	0.005
Chromium	0.10	0.09	0.09
Chloride	250	360	250
Copper	1.3	1.2	1.2
Fluoride	4.0	3.6	3.6
Iron	0.3	5.0	5.0
Lead	0.015	0.014	0.014
Magnesium	[150]*	135	135
Manganese	0.05	0.25	0.25
Mercury	0.002	0.0018	0.0018
Nitrate nitrogen	10	9	9
Selenium	0.05	0.045	0.045
Sulfate	500	450	450
Zinc	5.0	4.5	4.5
Specific Conductance	micro siemens/cm (monitor only)	Less than or equal to 500 micro siemens/cm	Less than or equal to 1000 micro siemens/cm
Hydrogen Ion Activity	Between 6.5 to 8.5 SU	Between 6.0 to 9.0 SU	Between 6.0 to 9.0 SU

* As the National Drinking Water Standard has no value for magnesium, the Division uses the State secondary standard of 150 mg/L.

- I.B.2. Analytical laboratories providing service for measuring of the chemical, physical, or radiological parameters required by this permit must be State certified, and have a Quality Assurance Plan which is approved by either the US Environmental Protection Agency or the Division. NNSA/NFO must detail the QA/QC procedures for field monitoring, sampling, and analysis in the Operations and Maintenance (O&M) Plan (cf. Part I.D.2).
- I.B.3 The permittee is authorized to request changes to sampling parameters or to sampling frequencies in this permit at any time of the effective duration of the said permit when changes in conditions or operations warrant the request.
- I.B.4. NNSA/NFO shall maintain an O&M Plan which details the practices and procedures for obtaining a representative sample from the ETDS and Well ER 12-1. Should NNSA/NFO change these practices and procedures, they must submit a revised O&M Plan to the Division for review.

NNSA/NFO Responsibilities

- I.B.5. Once each month, NNSA/NFO shall measure the instantaneous flow rate at the ETDS discharge point. NNSA/NFO shall determine the total volume for each month from the monthly instantaneous rate, multiplied by the number of days in that month. NNSA/NFO shall report the instantaneous rate, the calculated rate, and the total volume for each month in the Quarterly Monitoring Report (QMR), as required by Part II.A.5.
- I.B.6 In each month of the calendar year NNSA/NFO shall analyze the effluent for the following indicator parameters:
 - a. pH, reliable to 0.1 Standard Units (SU), and
 - b. specific conductance, as micro Siemens per centimeter, reliable to 3 significant digits.
- I.B.7. On any sample collected in compliance with Part I.B.6 when the indicator parameters of specific conductance and hydrogen ion activity (pH) are outside their range listed in Table 1-A, NNSA/NFO shall collect a confirmatory sample before the end of the next business day, analyze for the two indicator parameters, review the results immediately, and implement I.B.8 if the results are outside their range.
- I.B.8. When the analytical data from the confirmatory sample varies outside the ranges given in Table 1- A, NNSA/NFO shall immediately collect a sample on the next business day, and notify the Division. NNSA/NFO shall overnight ship and have the sample analyzed for those constituents listed in Table 1- B. NNSA/NFO shall designate the sample a priority in order to obtain the results within 14 days. Immediately upon receipt of the laboratory data, NNSA/NFO must review and verify that the data meet the contractually required QA/QC parameters for analysis. If results exceed Table 1-B limits, then NNSA/NFO shall implement monthly sampling in the next month as stated in Part I.B.12, and notify the Division. NNSA/NFO shall submit the analytical results in accordance with Part II.A.5.

I.B.9. Once each calendar year NNSA/NFO shall collect a sample of the effluent at the ETDS discharge point and shall have an approved laboratory analyze the sample for the parameters listed in Table 1-B. If results exceed Table 1-B limits, then NNSA/NFO shall implement monthly sampling as stated in Part I.B.12 and notify the Division. If elevated parameters cause NNSA/NFO to implement the sampling program required by Part I.B.12, they may substitute these analyses to fulfill the requirement in this section. The laboratory shall analyze tritium, as picocuries per liter, reliable to 2 significant digits.

The analytical results shall be reported in the next QMR, unless already reported.

I.B.10. NNSA/NFO shall inspect the ETDS once each month with respect to:

- a. ponding;
- b. deep rooting botanicals in the earthen embankments;
- c. mammal, insect, or reptile tunneling or burrowing into the earthen embankments;
- d. the physical condition of any perimeter fencing; and
- e. the structural integrity of the ETDS.

NNSA/NFO shall record in writing any observations field crews make during each inspection. NNSA/NFO shall include a summary of these findings with each QMR.

I.B.11. NNSA/NFO shall take a representative sample of groundwater every twenty-four months from Well ER 12-1. If results exceed Table 1-B limits, then NNSA/NFO shall implement monthly sampling as stated in Part I.B.12 and notify the Division.

- a. NNSA/NFO shall provide the Division with a sampling schedule based on the previous sampling event for this well, and every twenty-four months thereafter until the expiration of this permit.
- b. Should an identifiable increasing trend in the ETDS sampling results develop, the Division may require a revised sampling schedule for Well ER 12-1.
- c. NNSA/NFO shall have an approved laboratory analyze the sample for the Table 1-B parameters.
- d. NNSA/NFO shall report the analytical results in the next Summary Report as required in Part II.A.5.

Response to Elevated Results

I.B.12. Pursuant to Part I.B.8, Part I.B.9 and Part I.B.11, if any Table 1-B parameter exceeds its threshold or permissible limit, the permittee shall implement monthly sampling in the next month and analyses of the effluent or well sample for the parameters of concern. They shall continue until they determine the cause or causes of the variance. The monthly sampling program shall not be less than four consecutive months following receipt of the initial sample analyses for Table 1-B parameters. When the average parametric concentration(s) for three consecutive months are less than the threshold and the permissible limit(s), monitoring shall return to the routine conditions in Part I.B.6, Part I.B.9 and Part I.B.11. The permittee shall submit the analytical results in accordance with Part II.A.5.

I.B.13. Should one or more of the average parametric concentration(s), obtained in accordance with Part I.B.12, equal or exceed its threshold or permissible limit, the permittee shall evaluate the analytical data and other relevant information associated with requirements of Part I.B.6, Part I.B.9 and Part I.B.11. The permittee shall report the findings of the evaluation to the Las Vegas office of the Division not later than 145 calendar days following the initial sampling for Table 1-B parameters. The report may include a request for immediate return to Part I.B.6, Part I.B.9 and Part I.B.11 monitoring conditions. The Division shall have 30 business days to review the report and to deny the request; the request is approved by default unless a written denial is conveyed. Any other action arising from a potential violation shall not be so time limited. Averaged parametric concentration(s) exceeding a threshold for three consecutive months is cause to revise the terms or conditions of this permit or to take other action to protect the public health and the resources of the state.

PART I.C. SOLID WASTE

I.C.1. Prior to the removal and disposal of any sludge or residue from any impoundment, NNSA/NFO shall collect a representative sample from the sludge or residue and test it for its Toxicity Characteristic (40CFR261.24), using the Toxicity Characteristic Leach Procedure (see 40CFR261, Appendix II) for the constituents listed in 40CFR261.24, Table 1.

PART I.D. OPERATIONS REQUIREMENTS

I.D.1 The permittee shall maintain the E tunnel facilities in good working order at all times. E tunnel facilities include all collection, treatment, monitoring, and disposal facilities or devices necessary to achieve compliance with the terms and conditions of this permit.

I.D.2 NNSA/NFO has been and will continue to be responsible for keeping their Operations and Maintenance (O&M) Plan for the ER12-1 well and the ETDS. NNSA/NFO shall review their current O&M Plan and will submit a letter to the Division within 180 days of the effective date of this permit stating it is current or submit a revised O&M Plan. NNSA/NFO shall operate the facilities in accordance with the approved O&M Plan.

PART I.E. RELEASES

I.E.1. Upon discovery, the permittee shall immediately report each upset, bypass, spill, overflow, or release of treated or untreated waste water to the Division of Environmental Protection in Las Vegas by telephone (702-486-2850) before the end of the next business day.

I.E.2. The permittee shall submit a written report for each separate event orally reported in compliance with I.E.1 to the Las Vegas Office of the Division not later than ten (10) working days after the telephoned report. The written report shall present the details of the entire event, including but not limited to:

- a. time, date, and location of the event;
- b. the estimated or actual quantity released;
- c. map or diagram of the flow path, depicting affected channels, tributaries, or other bodies of water of the state;
- d. the specific cause or causes of the event;

- e. the actions taken to protect the public health or to mitigate damage to the resources of the impacted area; and
- f. the action or changes necessary to prevent recurrence of the event.

end of Part I

PART II

PART II.A. RECORDING AND REPORTING

- II.A.1. For each measurement, observation, or sample taken pursuant to the conditions of this permit, the permittee shall record and retain the following information:
- the exact place, date, and time each sample was taken or measurement or observation made;
 - the person(s) who collected the sample, did the field measurement, or made the field observation;
 - the date(s) on which each sample was analyzed;
 - the analytical techniques or methods used;
 - the results of all required sample analyses, measurements, and observations; and
 - the name, address and phone number of the laboratory contracted to conduct the analyses;
 - a summary evaluation of the data relative to the purpose of collecting the data. This includes whether or not the results met the Data Quality Objectives established prior to analysis in the approved O & M plan.
- II.A.2. If the permittee monitors any chemical, physical, biological, or radiological parameter (except those radio nuclide concentrations subject to non-disclosure) at E tunnel or ER 12-1 more frequently than required by this permit, they shall report the results of such monitoring to the Division.
- II.A.3 The permittee shall retain all records and information resulting from the monitoring activities required by this permit, for a minimum of three (3) years or longer, if required by the Administrator. This includes all records of analyses, calibration, maintenance of instrumentation, and recordings from continuous monitoring instrumentation.
- II.A.4. Except for data determined to be confidential under NRS 445.311, the Division shall make all records and information submitted in accordance with the terms of this permit available for public inspection at the Las Vegas Office of the Division of Environmental Protection. Discharge data is not considered confidential.
- II.A.5. The permittee shall summarize their monitoring data, measurements, sample analyses, and observations obtained during the calendar year in either a Quarterly Monitoring Report (QMR) Form for quarterly data, or in a Summary Report for 12 and 24 month data. The permittee shall develop trend analyses charted in a Summary Report submitted to the Division for review. NNSA/NFO will transmit the QMRs for receipt no later than the 28th day of the month following the completed calendar quarter, and NNSA/NFO will transmit the Summary Report no later than the 28th day of the month following the completed calendar year, to:

**Bureau Chief
Bureau of Federal Facilities
Division of Environmental Protection
2030 East Flamingo, Suite 230
Las Vegas, Nevada 89119**

II.A.6. Signatory Requirements

- a. All reports required by this permit and all responses to relevant requests from the Administrator of the Nevada Division of Environmental Protection shall be signed by the Assistant Director for the Environmental Management, National Nuclear Security Administration/Nevada Field Office:
 - i. for those reports or requests related to the maintenance and monitoring of Well ER 12-1; and,
 - ii for those reports or requests related to maintenance and monitoring of the ETDS.
- b. A person is a delegated signator only after the delegation is made in writing and the delegation specifies the individual by function and by name and a copy of the written and the current delegation is on file in the Las Vegas Office of the Division of Environmental Protection.
- c. The signatories of record shall make the following 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 gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system and 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".

PART II.B. MANAGEMENT REQUIREMENTS

- II.B.1. The permittee must notify the permit issuing authority in advance of any anticipated facility expansions or modifications which are not expressed in a Schedule of Compliance and which will result in any changes in the discharges.
- II.B.2. Pursuant to NAC 445.174, the Division may modify the permit to specify and limit any pollutants not previously controlled.
- II.B.3. Upon request by the permittee and after public notice, the Division can revise or modify the terms and conditions of this permit or any unexpired schedule of compliance, if a good and valid cause (strike, flood, materials shortage or other event over which the permittee have little or no control or which is reasonably unexpected) exists for such action.
- II.B.4. The permittee shall configure and maintain the collection, treatment, and disposal facilities in conformance with good engineering judgement and sound engineering principles.
- II.B.5. In the event of any change in control of or responsibility for the facilities authorized by this permit, the permittee shall notify the succeeding person of the existence of this permit, by letter, a copy of which shall be forwarded to the Chief of the Bureau of Federal Facilities. The Administrator will not transfer this permit to a new person or new operator of the facilities herein authorized, until the Administrator is satisfied that the new person, controller, or operator

will and can comply with the terms and conditions of this permit and its enabling statutes and regulations.

- II.B.6. If the permittee desires to continue to operate these water pollution control facilities, pursuant to NAC 445A.241, the permittee shall apply, using the current application form located on the Division's website, not later than 180 days before this permit expires.
- II.B.7. The permittee shall allow the Administrator or his authorized agent(s):
- a. to enter upon the permittee's premises where a source is located or in which any records are required to be kept under the terms and conditions of this permit;
 - b. at reasonable times, to have access to and copy any records required to be kept under the terms and conditions of this permit;
 - c. to inspect any monitoring equipment or monitoring method required in this permit;
 - d. to perform any monitoring to determine compliance with this permit; or
 - e. to sample any source within the watershed where the ETDS is located.
- II.B.8. After notice and opportunity for a hearing, the Division may modify, suspend or revoke this permit, in whole or in part, during its term for cause(s), including but not limited to the following:
- a. violation of any term or condition of this permit;
 - b. obtaining this permit by misrepresentation or failure to fully disclose all relevant facts; or
 - c. any changes in the use of the facilities.
- II.B.9. The State Environmental Commission commonly establishes a toxic effluent standard or prohibition for a toxic substance which is present in the discharge. In certain cases such a standard or prohibition may be more stringent than any limitation for such substance in this permit or any unexpired schedule of compliance. In such cases, the Division shall revise or modify this permit or affected schedule in accordance with the toxic effluent standard or prohibition and notify the permittee.
- II.B.10 Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable federal, state, or local laws, statutes, regulations, or ordinances.
- II.B.11. The issuance of this permit does not convey any property rights, in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws, statutes, regulations, or ordinances.
- II.B.12. The provisions of this permit are several. If any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

end of Part II

PART III

PART III.A. SCHEDULE OF COMPLIANCE

III.A.1 If NNSA/NFO selects an alternative technology for disposal of the waste water from E Tunnel, to replace the system upon which the terms and conditions of this permit are based, the permittee must draft a Schedule of Compliance and submit it to the Division. The Division shall present for public participation and comment any alterations or amendment of the permit necessary to accommodate the said schedule. After the end of the public participation period, the Division shall incorporate the schedule into the permit.

PART III. B. DEFINITIONS AND DENOTATIONS RELEVANT TO THIS PERMIT

- III. B.1. A "grab" sample means any discrete, single or individual sample collected in less than 15 minutes.
- III. B.2. "adverse impact" means intensive or chronic harm to the public health and welfare or to the natural resources of the state.
- III.B.3. an "upset" is an unplanned, unexpected, or unintentional divergence from compliance with the terms and conditions for a brief period, due to circumstances which the permittee could not expect and could not prevent. It does not include non-compliance which results from: inadequate preventive maintenance; inattentive management; inadequate or defective design; operator error; neglect; careless or improper operation; or other preventable causes of non-compliance.
- III. B.4. a "pond" is a body of water within an impoundment.
- III. B.5. "ponding" means the persistence of a pond which is open to view or which is available as a source of water for mammalian, avian, or piscine wildlife.
- III. B.6 "watershed" is the topography on which rainfall or snowmelt flows by gravity to coalesce into a single channel.
- III.B.7. "permissible limit" is a value which is in excess of a standard and which operates only within the context of the specific permit for which it was developed. Standards and regulatory limits are enforceable within and without a permit; a permissible limit is enforceable only within the context of the permit. The primary function of a permit is to authorize the release of constituents at concentrations greater than the natural burden in the receiving water .
- III. B.8. "threshold" is a limit (action level) which, when exceeded, warns that a permissible limit or a compliance limit or a water quality standard is at risk of violation. A threshold is not an enforceable limit or standard, except as expressed in the text of the permit, i.e., for failure to take a prescribed, timely action.

end of Part III