

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

FACT SHEET (pursuant to NAC 445A.236)

Permittee Name: NV Energy (formerly Nevada Power Company)
6226 W. Sahara Ave.
Las Vegas, Nevada 89146

Permit Number: NEV91022

Location: The Reid Gardner Station is located in the Moapa Valley at I-15 North, Exit 88 (Wally Kay Road), 60 miles northeast of Las Vegas, in Clark County, Nevada. US Highway I-15 is about 2 miles east of the plant site, and State Route 168 is about 2 miles northeast of the facility. The site is accessed from I-15 by a light duty asphalt road that serves a nearby industrial facility.

Facility Location: Latitude: 36° 39' 30"N; Longitude: 114° 38' 20"W

Discharge Locations: Existing ponds: F, B-1, B-2, B-3, C-1, C-2, E-1 & E-2
and future ponds: M-1 through M-9
Sections 5, 6 & 8, T 15S, R 66E MDB&M

General: Reid Gardner Station is a 4 unit, nominal 550 net MW coal fired power plant on 480 acres in Moapa Valley. The Muddy River crosses the site, as does Union Pacific Railroad's Las Vegas - Salt Lake City line. The plant is surrounded by BLM land to the north and south, Paiute agricultural land and residences on the west, and an inactive dairy farm on the east. The first unit was placed in service in 1965 and the fourth unit came online in 1983. Coal is brought in by rail. The water supply is taken from the Muddy River, and from a well field near its' headwaters, with 8300 acre-foot per year (AFY) used for steam generation, cooling, emission control scrubbers, bottom ash transport, and dust control.

Electric power is generated by burning coal to boil water and using the steam to power turbines. After that the steam is condensed, passed through a cooling tower, and run back through the boilers.

As coal is burned, flue gas, fly ash and bottom ash exit the boiler. Bottom ash is too heavy to be carried by the flue gas and exits the boiler via a bottom hopper for hydraulic transport to dewatering bins. Cooling tower blow down water supplies the wet scrubbers and bottom ash hydraulic transport system. Due to the recent installation of baghouses on Units 1-3, 99% of the fly ash is removed, reducing the ash carryover in the wet scrubber effluent delivered to the ponds. The scrubbers and boiler bleed off discharge to settling Pond F, with overflow directed to the current evaporation ponds; when the new ponds are constructed and in use, the discharge will be collected by the Effluent Forwarding Pump System (EFPS) and the EFPS will direct the discharge to the Mesa Ponds. Up to 88,000 gallons per day (gpd) of ash water from the bottom ash system is utilized for dust control on facility haul roads, and at the nearby landfill. An additional 15,000 gpd from the diesel

plume recovery system oil-water separator can be used for dust control on the coal piles. Monthly sampling and quarterly reporting of water quality results of water used for dust control applications is required.

Beginning in 1997 the Division has required the originally unlined or clay lined ponds to be dried, cleaned and either reconstructed with double liners and leak detection and collection systems, or removed from service. Since then, all ponds have either had double HDPE liners with leak detection and collection systems installed, or have been removed from service. No unlined ponds used for storage and evaporation under previous permits are permitted for discharge under this permit. Ponds solids removal and remediation of the formerly used unlined ponds, including the most recently closed ponds, D & G, are being addressed by the Division's Bureau of Corrective Actions (BCA). As current ponds are removed from active service the closure requirements and oversight will pass to the BCA, and become part of the BCA 2008 Administrative Order on Consent. All past and existing groundwater and/or soil contamination issues are being addressed by the BCA, with approval, oversight and inspection being conducted by the BCA. Ponds D and G, and all other previously used unlined ponds are considered closed by the Bureau of Water Pollution Control. The eight current active evaporation ponds (Ponds F, B-1, B-2, B-3, C-1, C-2, E-1 and E-2) were cleaned and double-lined; during this permit lifetime a potential of 9 additional evaporation ponds (M-1 through M-9) will be constructed in stages, or are planned for construction in the upland Mesa area, on a 555-acre grant of BLM-leased land.

The Mesa area has much greater depths to groundwater (approximately 150 ft) than the current and former evaporation and settling ponds located in the floodplain. The active discharge ponds collectively have approximately 95 acres of surface area; the Mesa ponds collectively have a surface area of approximately 120 acres. All of the currently active ponds are individually lined with two geomembrane liners, a 60-mil HDPE primary liner and 40-mil HDPE secondary liner with an interstitial leak detection and collection system. All of the proposed Mesa ponds will be individually lined with two geomembrane liners, an 80-mil HDPE primary liner and a 60-mil HDPE secondary liner with an interstitial leak detection and collection system. Leakage rates greater than 500 gpd/acre will be reported to the Division within 24 hours. Leakage from the primary liner will not result in a discharge to the environment; this leakage is intercepted by pumps in the interstitial space between the primary and secondary linings, and is collected and pumped back to the evaporation ponds.

The Permittee has applied for renewal of the permit to discharge the facility wastewater streams to the evaporation ponds, and for dust control use on haul roads and coal piles.

Receiving Water Characteristics: Groundwater below the plant and nearby upland evaporation pond area ranges from less than 5 feet below ground surface to 150 feet below ground surface. There are no public supply wells within 6000 feet of the facility. All off site wells are located more

than one mile downstream from the plant, with the closest domestic wells over two miles away. Water quality standards for the reach through the power plant property are given at Nevada Administrative Code (NAC) 445A.210, Muddy River at Glendale Bridge. In addition, the state wide standards for toxic materials, NAC445A.144, are applicable.

Description of Discharge: Wastewater is generated primarily from the wet scrubbers, cooling tower blowdown and bottom ash hydraulic transport system. Discharge is to one or more double-lined (60-mil and 40-mil or 80-mil and 60-mil HDPE) evaporation ponds. Incident stormwater and runoff from the facility is also drained to the evaporation ponds. The evaporation ponds meet the Nevada standards of performance for zero-discharge facilities.

Discharge Water Characteristics:

Flow: Monitor and Report. A flow of 0.576 MGD (400 gpm) is the maximum daily flow for disposal to the ponds; the 30-day average flow is 0.490 MGD (340 gpm).

Leakage Rates: A maximum of 500 gpd/acre is allowed; leakage rates greater than 500 gpd/acre will be reported to the Division within 24 hours of discovery.

Parameters: Monitored and Reported Quarterly: Profile I parameters (total metals) and TPH for dust control (1 mg/L limit for haul roads and 10 mg/L limit for coal piles).

Schedule of Compliance: An updated Operations and Maintenance Manual (O&M) will be submitted to the Division for review and approval within 90 days of permit issuance. An updated Sampling and Analysis Plan (SAP) for the permitted active ponds will also be submitted to the Division for review and approval within 90 days of permit issuance. Included in the annual report, due January 28th each year, is a status update on the ponds under BCA oversight as part of BCA site closure requirements.

Rationale for Permit Requirements: Monitoring is required to characterize the water quality contained in the evaporation ponds and the quantity disposed into the ponds. With all ponds, current and proposed, using double liners with leak detection and collection systems, the requirement for groundwater monitoring is not necessary, but the Division is continuing to require groundwater monitoring for the current permit timeframe to provide further assurance that the newly lined and newly constructed ponds are not contributing to groundwater contamination. The monitoring requirements, discharge limitations, and a summary of monitoring conducted under the previous permit are presented in the two tables below and form the basis for the discussion that follows. Flow is to be reported for tracking purposes. Analytical data is required for dust abatement on un-lined areas. Leachate analyses characterize the potential threat to underlying aquifers.

TABLE 2. MUDDY RIVER AND PLANT SITE SPRING WATER QUALITY DATA
 Nominal Averages from quarterly samples collected 2006 through 2008

Parameter	Units	Muddy River up	Plant site spring	Muddy River down
Al	mg/L	0.76	1.58	0.91
As	mg/L	0.020	0.22	0.034
Ba	mg/L	0.051	0.029	0.047
B	mg/L	0.48	3.7	0.52
Ca	mg/L	79	212	70
Cl	mg/L	67	406	77
Cr	mg/L	0.0037	0.0116	0.0037
Fe	mg/L	0.57	1.21	0.58
Pb	mg/L			0.0063
Mg	mg/L	31	163	31
Mn	mg/L		0.12	
Hg	mg/L	0.00089		
Mo	mg/L	0.0085	0.069	0.0095
K	mg/L	13	49	13
Se	mg/L	0.0014	0.0163	0.0099
Na	mg/L	113	973	120
Ti	mg/L	0.042	0.058	0.023
V	mg/L	0.0038	0.031	0.0039
NH ₃ -N	mg/L	0.22	0.242	0.212
NO ₂ -N	mg/L	0.28		0.11
NO ₃ -N	mg/L	0.35	1.03	0.41
TKN	mg/L		0.691	0.212
TN	mg/L	0.54	1.542	0.638
TP	mg/L	0.104	0.098	0.047
SO ₄	mg/L	202	2092	235
TDS	mg/L	634	4058	712
Hardness	mg/L as CaCO ₃	283	1173	299
pH	Standard units	8.1	7.7	8.2

The data shows most spring constituent concentrations exceed those of the river, usually by a fairly large amount, and downstream concentrations exceed upstream for about half of the parameters.

TABLE 1. MONITORING REQUIREMENTS AND DISCHARGE LIMITATIONS

Parameter	Discharge Limitation	Monitoring Requirements		
		Sample Location	Frequency	Sample Type
Flow Rate ¹	M&R, gpd	iv, v, vi, vii	Continuous	Flow meters or calculations
Flow Rate ^{2,3}	88,000 gpd ² , 15,000 gpd ³	i, ii, iii	Continuous	Flow meter
TPH ^{4,5}	1.0 mg/L ⁴ , 10.0 mg/L ⁵	i, ii, iii	Monthly	Discrete
Leakage Rates	500 gpd/acre	vii	Monthly	Flow meters on Leak collection pumps
Profile I ⁶	M&R	All (i through vii)	Quarterly	Discrete

M&R: Monitor & Report

gpd: gallons per day

i = Bottom ash hydraulic transport system surge tank discharge used for dust control,

ii = Cooling Tower blowdown discharge used for dust control (prior to discharge),

iii = On-site groundwater diesel plume treatment system discharge used for dust control on coal piles,

iv = Muddy River above and below plant site per sampling plan, v = Plant site spring per sampling plan,

vi = Total discharge to ponds, as measured by flowmeters at Pond F or Effluent Forwarding Pumping System

vii = Pond leachate collection systems.

1. Evaporation Pond Flow rate shall be reported as average gpd per month.

2. Dust control application to haul roads: flow rate shall be reported as average gpd per month.

3. Dust control application to coal piles: flow rate shall be reported as average gpd per month

4. TPH limit for haul road dust control.

5. TPH limit for coal pile dust control.

6. Profile I = Total P, TKN, NO₂ + NO₃ as N, Total N, Sulfate, TDS, pH, Hardness, An, As, Ba, Be, B, Cd, Ca, Cr, Cu, Fl, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Th, and Zn. All metals analyses shall be Total Recoverable.

Procedures for Public Comment: The notice of the Division's intent to issue a permit authorizing the facility to discharge to the evaporation pond cells subject to the conditions contained within the permit, is being sent to the **Las Vegas Review-Journal** and the **Moapa Valley Progress** for publication. The notice was mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing or by phone/FAX for a period of 30 days following the date of the public notice, by **11/30/2009**. The comment period can be extended at the discretion of the Administrator.

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected interstate agency, or any interested agency, person or group of persons. The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted. All public hearings must be conducted in accordance with NAC 445A.238. The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Due to a significant degree of interest in this proposed project, the Division scheduled a Public Hearing to gather additional public input regarding the draft permit conditions. The Public Hearing was held at 1:00 P.M. on Thursday, **June 3, 2010**, at the Marley P. Robinson Justice Court and Community Center, 1340 E. State Highway 168, Moapa, Nevada.

Members of the public wishing to comment upon the proposed permit and/or to recommend terms and conditions for consideration of incorporation in the permit were invited to attend the hearing meeting and provide comments and information that are pertinent to the discharge permit. Comments not related to water quality issues were not considered during the Public Hearing.

All comments or objections received within the thirty (30) day public notice period or submitted at the Public Hearing or by the close of business the day of the Hearing, were considered in the formulation of final determinations regarding the application. If the determinations of the Administrator are substantially changed from the tentative determinations, the Administrator will give public notice of the revised determinations. Additional comments and objections will be considered at that time.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Proposed Determination: The Division has made the determination to issue the proposed water pollution control discharge permit to NV Energy for the Reid Gardner Station for a period of five (5) years. The permit will be effective **June 25, 2010**.

Prepared by: Jeryl R. Gardner, P.E.
Bureau of Water Pollution Control

Date: October 20, 2009 (for the Public Notice)

Revised Date: April 28, 2010 (for the Public Hearing)

Revised Date: June 24, 2010 (for the Notice of Decision)