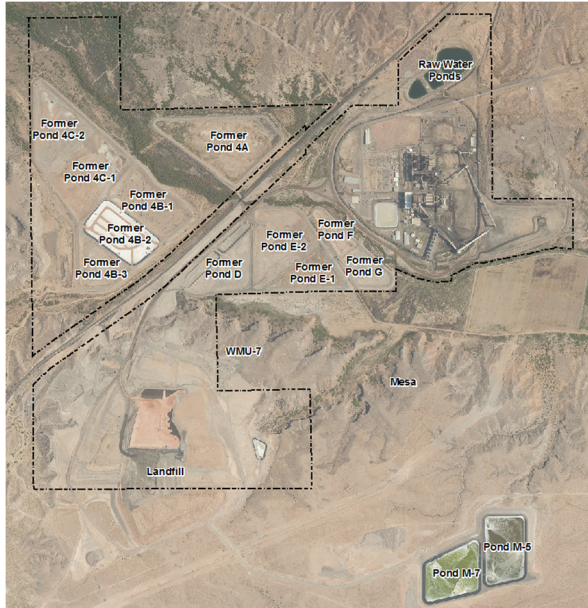

NV ENERGY REID GARDNER STATION ADMINISTRATIVE ORDER ON CONSENT FACT SHEET

May 2018

Location

NV Energy owns the now-closed Reid Gardner Generating Station (Station), which is located near Moapa, Nevada. The former electricity-producing facility is situated about 52 miles northeast of Las Vegas and became commercially operational in 1965.

The plant formerly operated four power-generating units. Units 1-3 were permanently shut down on December 31, 2014. Unit 4 was permanently shut down on March 11, 2017. Station decommissioning activities were completed in 2017. Demolition of the four power generating units will begin in 2018.



Background

The Station is located within the Moapa Valley, which is a relatively flat-bottomed desert valley that includes the Muddy River, a spring-fed perennial stream that runs through the Station

property. Prior to 1964, the area was native desert or irrigated pastureland. A ranch is operated on the land east of the Station along both sides of the Muddy River. The Station property also includes land on a mesa, to the south, that is elevated more than 100 feet above the rest of the Station. The Bureau of Land Management (BLM) owns most of the vacant surrounding land to the north and south of the Station, but there is a parcel of vacant private property just north of the Station. At its closest point, land owned by the Moapa Band of Paiutes is located approximately 500 feet to the west and northwest of the NV Energy property line and residences are located approximately one-quarter mile northwest.

Details of the remediation project including maps, reports, and associated documentation are available for public inspection at the Document Repository located at:
Moapa Town Library
1340 East Highway 168
Moapa, NV 89025
Phone: (702) 864-2438
or on the NDEP website at
<https://ndep.nv.gov/environmental-cleanup/site-cleanup-program/active-cleanup-sites/reid-gardner-power-station>

The Station receives its water supply from a combination of off-site groundwater wells and an off-site surface water withdrawal from the Muddy River. The water is combined and collected on-site in raw water storage ponds. Water supply will continue to be needed during the site closure process for dust control, earthwork, and site restoration.

Water was previously used on-site for process cooling, air emission reductions, and other uses. To reduce water usage, the Station recycled its water as much as possible. When the dissolved salts in

the recycled water became too high for additional reuse, the water was discharged to evaporation ponds. There are no surface water discharges of wastewater from the Station, as the plant is a Zero-Liquid Discharge facility.

The evaporation ponds were originally designed and constructed according to the best available engineering practices and regulations in effect at the time. Some early ponds, for example, used clay material in the liners and clay berms. Between 2001 and 2008, all of the evaporation ponds (except 4A, D, and G) were relined with two layers of high-density polyethylene (HDPE) that had an inner leak-detection layer. Ponds 4A, D, and G were taken out of service between 1999 and 2008. Prior to the use of HDPE lining technologies in ponds at the Station, some water containing elevated concentrations of dissolved salts migrated through the pond bottoms and into the area's shallow groundwater. This has necessitated remediation (clean-up) activities in cooperation with the State of Nevada.

Regulatory Oversight

The Nevada Division of Environmental Protection (NDEP), Bureau of Corrective Actions has primary authority and responsibility for regulatory oversight of groundwater and soil characterization and corrective action activities at the Station.

In May 1997, the NDEP issued an Administrative Order (Order) requiring NV Energy to submit a site-wide plan and schedule to eliminate the migration of contaminants into the groundwater. In compliance with the Order, NV Energy submitted a plan and a schedule committing to either line all evaporation ponds with double synthetic liner systems or remove the ponds from service. NV Energy completed compliance with all of the requirements of the 1997 Order by 2010. NV Energy also constructed and operated two new HDPE double-lined evaporation ponds on the mesa to receive plant wastewater.

NV Energy and the NDEP entered into the current Administrative Order on Consent (AOC) for the Station on February 22, 2008. The AOC calls for NV Energy to continue with environmental contaminant characterization activities and to identify corrective action measures, as necessary, for soil and groundwater at the Station.

Additionally, the AOC calls for the implementation and long-term operation and maintenance of NDEP-approved corrective actions for the Station.

In addition to the groundwater impacts associated with the former on-site ponds, various other isolated areas of soil and/or groundwater contamination have been identified at the Station. These areas will be addressed through implementation of the AOC by characterizing the impacts and then, as appropriate, through implementation of NDEP-approved corrective actions.

Characterization Activities

NV Energy has reviewed hundreds of historical documents and existing soil and groundwater data to identify potential sources of soil and groundwater contamination at the Station. The Preliminary Source Area Identification and Characterization Report, summarizing this research, was finalized in July 2013. This report identified 35 potential source areas that are being investigated to evaluate if corrective action is necessary.

Many site-related chemicals at the Station are naturally occurring in soil and groundwater. When soil and groundwater samples are collected at the Station, the constituents and concentrations must be evaluated to determine if they are naturally occurring or due to former Station activities. In order to complete these evaluations, naturally occurring background concentrations must be established for the Station. Soil and groundwater sampling, in accordance with the NDEP-approved Evaluation of Background Conditions Work Plan, was completed in 2012. This work included installation and sampling of monitoring wells for evaluating background concentrations in groundwater and collection of soil samples to evaluate background concentrations in soil. A report summarizing the data, including a statistical evaluation of background concentrations, was issued on November 7, 2014. This report was partially accepted by the NDEP, pending additional background characterization.

In 2009, NV Energy began investigating a source area referred to as Waste Management Unit 7 (WMU-7). This area is located on the mesa and

partially on land owned by the BLM. WMU-7 was previously used for disposal of solid waste from the Station. NV Energy is currently pursuing purchase of this land.

NV Energy began an investigation in August 2014 to further evaluate the extent of petroleum-impacted groundwater associated with former underground product piping. Approximately 200 Laser-induced fluorescence (LIF) borings and 40 soil borings have been advanced to identify petroleum residuals in soil that could impact groundwater. These investigations were completed in 2017. A Light Non-Aqueous Phase Liquid (LNAPL) Conceptual Site Model Report will be prepared in 2018.

Beginning in August 2014, investigations were conducted in and along the Muddy River to evaluate potential interaction between on-site groundwater and the river. River transects were surveyed at 11 locations along the Muddy River as well as downstream of the Station and a total of 21 shallow piezometers or monitoring wells were installed to measure groundwater levels and collect constituent concentration data adjacent to the river. Currently, as in the past, regular surface water monitoring events are being conducted using manual measurements.

Routine groundwater monitoring has been ongoing for over 20 years and will continue throughout the characterization and corrective action activities. Groundwater monitoring reports are issued annually.

Between 2015 and 2017, approximately 100 monitoring wells were installed in the areas of former Ponds. The monitoring wells were installed at key locations to evaluate groundwater quality and gain a better understanding of the impact of ongoing remediation efforts in the pond areas. Further evaluations of the former Pond area are ongoing.

Additional characterization activities conducted in 2016 and 2017 include investigations in the area of the Units 1,2,3 Cooling Tower Catch Basin, Units 1, 2, 3 Coal Pile, Unit 4 Coal Pile, Unit 4 Treated Water Pond, and Unit 4 Cooling Tower.

Characterization reports are planned for preparation in 2018 that will present the results of

the former Pond, Station, and Muddy River area investigations that took place in 2015 - 2017.

A Preliminary Geochemical Conceptual Site Model was completed for the Station in 2015 to evaluate the role that geochemical mechanisms play in contaminant transport at the site. After additional geochemical evaluations are completed in 2018, an updated Geochemical Conceptual Site Model will be prepared.

A three-dimensional computer model has been developed to visualize and evaluate the geologic and groundwater data. This model is being updated on an ongoing basis to better understand site conditions and the nature and extent of impacted groundwater, and to evaluate the need for corrective action.

Information collected from these investigations is being used to create a conceptual site model (CSM). Decisions regarding the need for additional corrective actions will be based on the CSM.

Remediation Activities

In 1986, diesel fuel was discovered during a subsurface investigation at the Station. The fuel release was from underground piping associated with the plant diesel fuel system. The underground piping attributed to the release was removed from service and a diesel-recovery system was installed. The diesel recovery system operated from 1986 to 2015 to pump out groundwater and diesel fuel floating on the groundwater in the area. The current LNAPL investigation will assist in determining if any additional remediation is needed.

In 2015 and early 2016, corrective actions were completed in four areas where petroleum was stored or handled during plant operation. Approximately 10,000 cubic yards of soil were removed from the areas of the Former Lube Oil Rack, Warehouse 1 and Former Gasoline Underground Storage Tank, Free Product Recovery System, and the Former Vehicle Maintenance Area. All excavated soil was disposed off-site at a facility licensed to receive petroleum-contaminated soil. Cleanup is complete and the NDEP has provided No Further Action determinations or Constituent-Based Closures for these four areas at the station.

Beginning in 2010, over 2,000,000 cubic yards of pond solids and underlying soils have been removed from former evaporation ponds. All excavated soil was disposed of in HDPE-lined cells at the existing Mesa Landfill in accordance with all permit requirements. Pond solids removal activities are summarized as follows:

- In 2010, approximately 400,000 cubic yards of pond solids and underlying soils were removed from former Ponds D and G.
- In 2012 and 2013, approximately 24,000 cubic yards of pond solids and underlying soils were removed from former Pond F.
- In 2014 and 2015, over 1,200,000 cubic yards of pond solids and underlying soils were removed from former Ponds 4A, 4C1, 4C2, and E2.
- In 2016 and 2017, over 400,000 cubic yards of pond solids and underlying soils were removed from former evaporation Ponds 4B1, 4B2, 4B3, and E1.

Additional corrective actions are expected to be implemented following completion of site characterization and in conjunction with scheduled plant demolition activities.

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