
Appendix J

Weed Management Plan Outline

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APPENDIX J

WEED MANAGEMENT PLAN OUTLINE

J.1 INTRODUCTION

J.1.1 Project Description

Those leading the Fallon FORGE program (the proponents) are proposing a subsurface geothermal field laboratory in Fallon, Nevada. They are Sandia National Laboratories (SNL), in conjunction with Ormat Technologies, the Navy Geothermal Program Office, the US Geological Survey (USGS), Lawrence Berkeley National Laboratory, the University of Nevada, Reno (UNR) and other partners.

The Fallon FORGE laboratory would study the application of geothermal well stimulation, also known as enhanced geothermal systems (EGS) technologies in a location where a commercially viable geothermal resource does not exist.

The proponents would drill up to 13 new geothermal wells. Up to three of these wells would be intended for stimulation and would act as production/injection wells. The remaining wells would be drilled for monitoring and testing of advanced drilling and diagnostic tools that are part of EGS technology. This would be done to facilitate research of EGS on the Fallon FORGE site.

The approximately 1,120-acre FORGE project area is in Churchill County, Nevada, approximately 7 miles southeast of the city of Fallon (portion of sections 19, 25, 26, 30, 31, and 36, Township 18 North, Range 30 East, Mount Diablo Baseline and Meridian). It is directly southeast of Naval Air Station (NAS) Fallon, a Navy owned and operated tactical air warfare training center.

J.1.2 Responsible Parties

[*Insert Responsible Party or Parties*] is responsible for implementing all aspects of this plan. Where needed, contractors will assist by providing the technical skills

and experience to successfully implement the activities described in this plan. Contractors may be responsible for the following activities:

- Completing weed monitoring surveys and collecting accurate and useful data;
- Recommending appropriate treatment methods for weed occurrences; and
- Implementing treatment and maintaining records of treatment methods, treatment area, and effectiveness.

J.1.3 Weed Management Plan Need

Noxious weed environmental protection measures and best management practices in the Salt Wells EIS (see Appendix E, page E-7; BLM 2011) call for development of a Weed Management Plan to identify and treat noxious weeds. Specifically, the following measures would be required:

1. Prior to preconstruction activities, project personnel would identify all noxious weeds present on the land to be included in the ROW grant and provide this information to the BLM. BLM would then determine any noxious weeds that require flagging for treatment. The proponent would treat the noxious weeds as identified under the Weed Management Plan component of the POD, as required by the BLM.
2. All gravel and/or fill material would be certified as weed-free.
3. All off-road equipment would be cleaned (power or high-pressure cleaning) of all mud, dirt, and plant parts prior to initially moving equipment onto public land. Equipment would be cleaned again prior to reentry if it leaves the project site.

J.1.4 Regulations Concerning Invasive Plant Species

The National Invasive Species Council (established under Executive Order 3112) provides guidance to the BLM relative to control and management of any alien species that which may cause economic or environmental harm or impact human health. Invasive species and weedy species are not synonymous with noxious species, which is a formal designation. Invasive species are not formally regulated by Nevada state statutes.

The State of Nevada regulates noxious weeds (Nevada Revised Statutes [NRS] 555.005–201) and maintains a list of noxious weeds divided into three categories, which indicate the treatment requirements as follows (NRS 555.130):

- Category A – These species are generally not found or have a limited distribution in the State of Nevada. These species are

actively excluded from the state and should be eradicated wherever found.

- Category B – These species are generally established in scattered populations in some counties of the State. These species are actively excluded where possible.
- Category C – These species are generally established and generally widespread in many counties of the State.

J.2 CURRENT SITE CONDITIONS

J.2.1 Project Area Overview

The project area is in the Lahontan Valley, Carson Desert, and northwestern portion of the Salt Wells Basin in west-central Nevada. The project area is approximately 7 miles southwest of Fallon, Nevada. This basin is in the western part of the Basin and Range Physiographic Province, which is characterized by north-south trending mountain ranges, separated by alluvium-filled, nearly flat to gently sloping valleys with internally drained, closed basins.

Southwest Regional Gap Analysis Project (SWReGAP) land cover types (USGS SWReGAP GIS 2004) present in the project area (in order of prevalence) are Inter-Mountain Basins Greasewood Flat, Agriculture, North American Arid West Emergent Marsh, Inter-Mountain Basins Mixed Salt Desert Scrub, Inter-Mountain Basins Playa, and Invasive Annual and Biennial Forbland (FORGE GIS 2017).

Noxious weeds and nonnative, invasive plant species in the project area are [Insert results of comprehensive weed inventory in the project area].

[Insert figure depicting baseline noxious weed locations]

In 2017, Reclamation excavated an emergency canal to help drain Carson Lake and alleviate flooding risk; there are 2 miles of the canal in the project area. Currently, side-cast soils from excavation provide ample substrate for noxious weeds and nonnative, invasive plants to colonize. During a site visit in fall 2017, numerous weedy plant species, including Russian thistle and salt-lover, were observed colonizing side-cast soils from excavation in the project area.

Previous biological surveys in portions of the project area and adjacent lands (see **Section 3.10**, Invasive, Nonnative, and Noxious Weeds of the FORGE EA) have documented numerous species of invasive, nonnative, and noxious weeds: Russian knapweed (*Acroptilon repens*), perennial pepperweed (*Lepidium latifolium*), tamarisk (*Tamarix* spp.), hoary cress (*Cardaria draba*), salt-lover (*Halogeton glomeratus*), and Russian olive (*Elaeagnus angustifolia*). These species are commonly found along roads and near other developed or disturbed areas.

J.3 PRE-CONSTRUCTION ACTIONS

J.3.1 Baseline Inventory

Prior to start of construction, a baseline survey will be completed to identify and map areas of noxious and invasive weeds. All locations will be marked with a global positioning system (GPS) and mapped. Accurate baseline mapping will allow treatment progress to be tracked.

Due to the prevalence of nonnative, invasive plant species in and around the project area, only noxious species will be flagged for subsequent treatment and monitoring.

J.3.2 Pre-Construction Treatment

All known noxious weeds within the project area will be treated and/or removed via mechanical or chemical means prior to construction. This will be done to reduce the spread of noxious weed seed or plant parts across the project area during construction. Plant material at treatment areas will be removed from the project area and disposed of in a landfill. Vehicles or equipment used to remove noxious weeds will be cleaned before proceeding with other work on the project area.

Pre-construction treatment would be carried out in accordance with the treatment plan, described in **Chapter 4** of this plan.

J.3.3 Best Management Practices

The goal of these measures will be to prevent the spread of noxious and invasive weeds across the project site and into adjacent habitat.

Weed-free Materials

Only certified weed-free materials will be used during site preparation and construction. This shall include, but not be limited to, certified weed-free aggregate and erosion control materials.

Weed-free Equipment

To minimize the transport of vehicle-borne seeds, roots, or other weed materials, all vehicles and equipment to be used off-road during any preparation, construction, or maintenance activities will be free of all mud, dirt, and plant parts prior to use on public land. To accomplish this, vehicles and equipment will be power- or high-pressure washed prior to entering the project site.

Vehicles and equipment would be cleaned again prior to reentry if it leaves the project site.

[Insert and describe other BMPs as necessary]

J.4 TREATMENT PLAN

This section describes the proposed treatment methods for identified noxious weed infestations in the project area. The treatment plan may undergo future modifications, if the results of annual noxious weeds monitoring indicate treatments are not effective at control.

The proponents would submit a pesticide use plan (PUP) to the BLM for review and approval prior to any herbicide use as described in the treatment plan, below.

Materials Safety Data Sheets (MSDS) for all herbicides proposed for use are provided at the end of this plan.

J.4.1 [Weed Species 1]

[Describe Treatment Plan for Weed Species 1, including proposed mechanical and/or chemical treatment methods. Include proposed treatment timing, location, methods, and any special considerations for treatment.]

J.4.2 [Weed Species 2]

[Describe Treatment Plan for Weed Species 2, including proposed mechanical and/or chemical treatment methods. Include proposed treatment timing, location, methods, and any special considerations for treatment.]

J.4.3 [Weed Species 3]

[Describe Treatment Plan for Weed Species 3, including proposed mechanical and/or chemical treatment methods. Include proposed treatment timing, location, methods, and any special considerations for treatment.]

[Add additional treatment plans for additional weed species, as necessary]

J.4.4 Chemical Treatment Best Management Practices

The following general practices are designed to reduce potential unintended impacts to the environment from herbicide application. Any additional requirements identified on the herbicide label will be strictly adhered to.

- Do not apply herbicides directly to water or saturated soils
- Whenever feasible, reduce vegetation biomass by mowing, cutting, or grubbing before applying herbicide to reduce the amount of herbicide needed
- In riparian habitats, or other wet areas, use only aquatically approved herbicides and apply them by direct injection into the plant or by spot application, targeting individual plants
- Ensure that herbicide, adjuvant, and dye containers are securely situated on the ground and will not tip and spill during filling
- Accurately measure amounts by using proper measuring devices

- Protect against spills and splashes by slowly mixing and filling all components over leak-proof tubs.
- Ensure that the tank lid is tightly secured and that the o-ring is in place and not broken or cracked; test the lid by vigorously shaking the full sprayer before donning a backpack sprayer
- Set spray nozzle to as coarse a spray or stream as is appropriate for the job, to reduce the chance of drift
- Do not apply herbicide immediately prior to forecasted rain
- Do not apply herbicide during windy conditions; when winds are light enough for spraying, spray between gusts, and work from downwind toward upwind
- Use the lowest effective application rates and concentrations that do not exceed the label requirements

J.5 MONITORING PLAN

J.5.1 Annual Monitoring

A survey of the project area will be conducted once per year during operations and will be timed to occur during September or October to identify any noxious and invasive weeds that have sprouted following summer rains. The fall survey period can also be used to examine the effectiveness of any treatment that was done earlier in the season. The exact timing of these surveys will be dependent on local weather conditions.

The surveyor will collect GPS data that identify the extent of the occurrence, give the name of the weed species, and collect representative photos. Field data will be collected on a data form to facilitate accurate and repeatable data collection for subsequent surveys.

[Describe additional annual monitoring details and requirements, as necessary, such as specific weed treatment areas to focus on]

J.5.2 Annual Reporting

All survey data will be summarized in a brief report for submittal to the BLM each year. The report will include coordinates and maps showing occurrence locations, and describe treatments carried out that year. The report will document the progress toward control of identified infestations. Any new infestations observed during annual monitoring will be described and treatment plans proposed.

[Describe additional annual reporting requirements, as necessary]

J.6 REFERENCES

BLM (US Department of the Interior, Bureau of Land Management). 2011. Final Environmental Impact Statement, Salt Wells Energy Projects. Carson City District. Stillwater Field Office. July 2011. Carson City, Nevada.

FORGE GIS 2017. Base and project data from the DOE FORGE program. Data received through various means.

SWReGAP GIS. 2004. Provisional Digital Land Cover Map for the Southwestern United States. Version 1.0. RS/GIS Laboratory, College of Natural Resources, Utah State University.

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Attachment I

Materials Safety Data Sheets

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