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Cold Layup Plan

SEGS VI-VII Kramer Junction

Boron, California

September 2018

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Acronyms and Abbreviations

AFC	Application for Certification
CEC	California Energy Commission
DCS	Distributed Control System
ESD	Emergency Shutdown
GSU	Generator Step-up Transformer
HP	High Pressure
HTF	Heat Transfer Fluid (Therminol VP-1)
kV	Kilovolt
LORS	Laws, Ordinances, Regulations, and Standards
LP	Low Pressure
MCC	Motor Control Center
NGB	Natural Gas-Fired Boiler
RH	Reheat
SGT	Steam Generator Train
SEGS	Solar Electric Generating System
ST	Steam Turbine
USEPA	United States Environmental Protection Agency
VI/VII	SEGS VI and VII Facilities

1. Introduction

The Solar Electric Generating Systems (SEGS) III-VII site at Kramer Junction is a 150 MW facility consisting of five 30 MW solar thermal units. Commercial operation began for the SEGS units in 1987. Each unit is owned by a partnership the Luz Solar Partners Ltd., III, IV, V, VI and VII (respectively) of which NextEra Energy Resources and Fortress are the majority owners.

The partnership is temporarily suspending operation of two of the units, SEGS VI and VII (VI/VII) in order to assess the future of the facility. Preserving operational status of a facility like VI/VII without generation is referred to as a "cold layup". The cold layup process includes the de-energization of certain control systems and the partial de-energization of others. This mitigates hazards and conditions that could lead to equipment starting and/or valves opening or closing unintentionally. Accordingly, VI/VII will have a specific Lockout Plan in place for applicable equipment. The site will take measures to protect worker and public health, safety and the environment during the period of cold layup. This Cold Layup Plan details the measures that the operator will take to place VI/VII in cold layup status. These measures and follow-up maintenance activities will be conducted in compliance with all applicable California Energy Commission (CEC) Conditions of Certification and all applicable laws, ordinances, regulations, and standards (LORS).

1.1. Solar Electric Generating System

The subject units are located on a site located in a sparsely populated area of the Western Mojave Desert near the boundary between San Bernardino and Kern Counties, just northwest of Kramer Junction (intersection of California Highways 58 and 395) and east of the community of Boron. The site is located at 41100 US Highway 395, Boron, California as shown in Figures 1-1 and 1-2.

The site has a fenced area of approximately 1,019 acres and consists of five 30 MW solar electric generating systems named SEGS III through SEGS VII as shown in Figure 1-3. For the purposes of regulatory permits and other legal matters, Luz Solar Partners Ltd. III, IV, V, VI and VII are the landowners and NextEra Energy Operating Services, LLC is the operator. Each SEGS unit consists of a solar field and a power block. Each of the five power blocks includes power generation equipment, a control room, a condenser and cooling tower for circulating process water, a process water system including a small wet chemistry laboratory for testing water quality, a circulating heat transfer fluid (HTF) system including expansion vessels and related piping, and electrical switching and distribution equipment plus an emergency back-up generator.

All SEGS units share three 10-acre Class II surface water impoundments (evaporation ponds), located on the east side of the property near US Highway 395 and other administrative and support facilities. Solar fields for each of the SEGS units are divided into four quadrants. The solar fields are constructed as line-focus parabolic trough collectors that focus sunlight onto vacuum-insulated steel pipes.

Electrical power generated by the SEGS is supplied to the grid through the Southern California Edison (SCE) owned switchyard equipment located onsite. Electrical equipment located within SCE-owned switchyards is not discussed in this plan.

Fire protection and emergency response is provided by local hydrants and water monitor cannons equipped with foaming agents, water deluge systems, and small handheld fire extinguishers.

1.2. California Energy Commission

The CEC granted a license to operate SEGS III-VII in 1988 in response to Application for Certification 97-AFC-02C and under the CEC's authority from the Warren Alquist State Energy Resources and Conservation Act (California Public Resources Code §25000 et seq.) to license electrical generation of more than 50 MW using a thermal process in California. Energy Commission Decision 97-AFC-02C includes Conditions of Certification regarding the ultimate decommissioning of SEGS. At this time, the partnership has not made a decision to permanently close SEGS VI or VII. However, the partnership has notified the CEC of its intention to suspend generation at the SEGS VI and VII facilities to evaluate the future of these facilities and is providing a copy of this Plan to the CEC Compliance Project Manager.

1.3. Mojave Desert Air Quality Management District

SEGS is subject to a Title V Federal Air Operating Permit (Title V Permit) issued and administered by MDAQMD. The Title V Permit requires compliance with applicable MDAQMD, California, and federal air quality rules and regulations and other permit-specific obligations.

SEGS VI and VII will remain in compliance with the Title V Permit while in cold layup status as may be required by MDAQMD and/or the USEPA. SEGS will ensure that the Title V Permit is current and that applicable monitoring, reporting, recordkeeping, and other obligations continue to be met, to the extent they continue to apply or are not otherwise waived during the pendency of the limited cold layup period, so that VI/VII can promptly recommence operations at a future date consistent with the ultimate decision regarding the future of the facility. Accordingly, a separate request for an exemption from annual boiler stack testing for VI/VII will be submitted to MDAQMD.

Figure 1-1

SEGS Site Location

Figure 1-2

SEGS Site Location

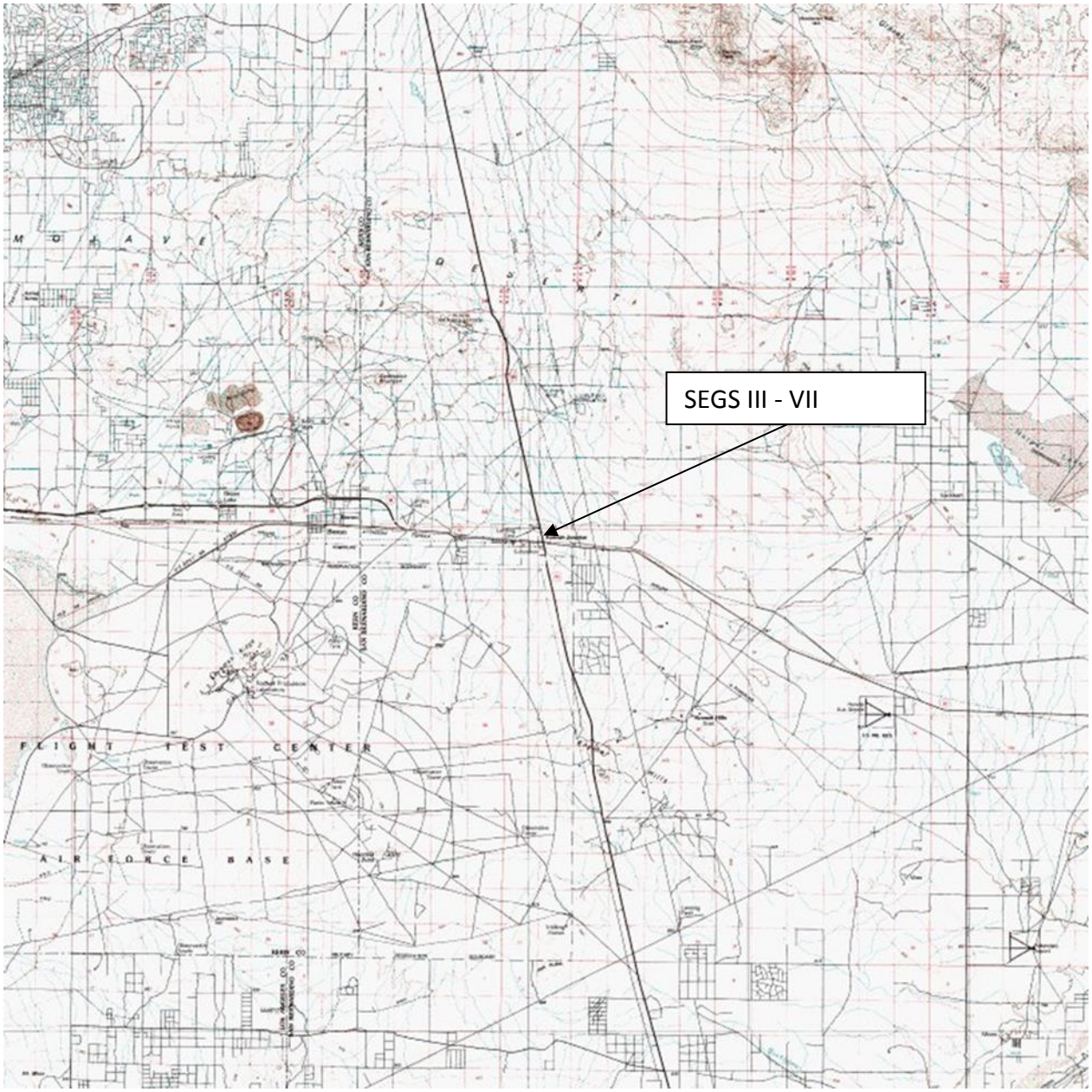
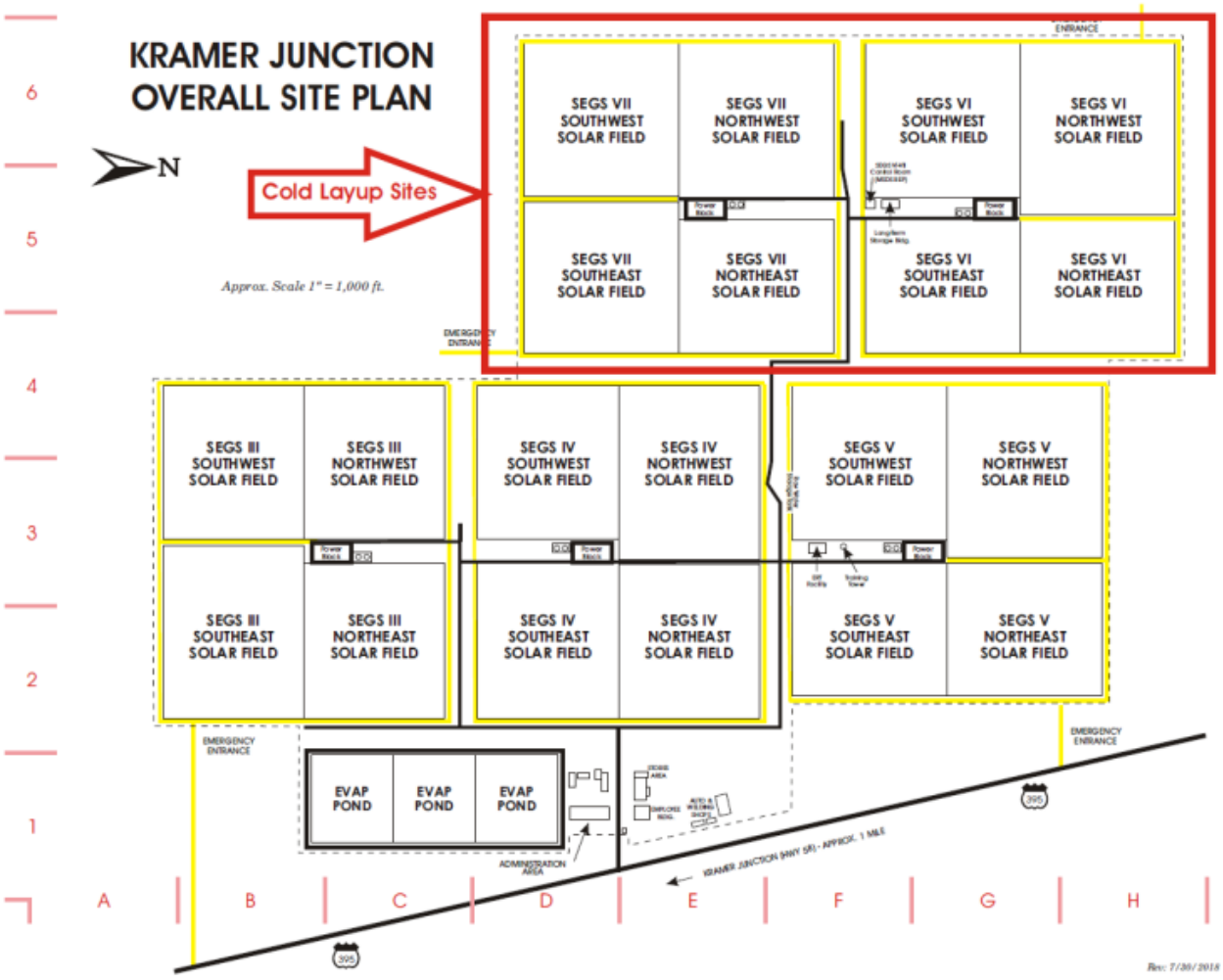


Figure 1-3

SEGS Site Layout



2. Equipment to Remain in Operation

The SEGS III-V units and all ancillary equipment will remain in service.

Additionally, the listed systems at SEGS VI-VII in Table 2-1 will remain in service.

Table 2-1. Systems that will remain in operation during Cold Layup

System Name:
Nitrogen Vessel
Ullage Vessel and System
Expansion vessel, small heat transfer fluid pump, HTF heater and associated piping
Panels 125v DC
Security System
Emergency Generator
Telephone and Communication System
Heat Tracing
480V Essential Services MCC
Switchgear to include GSU, 13.8KV to 4160 V and 4160 to 480 V transformers
120V AC Uninterruptible Power Supply
Distributed Control System
Instrument and Plant Air
Fire Protection
Potable Water
Buildings and Warehouse
Demineralized Water
Raw Water
Sanitary Waste
Waste Water
Switchyard Lighting

3. Site Security and Staffing

The site will still be operating and as such will be staffed 24 hours per day and 7 days per week during layup activities by site personnel. Gate access will continue to be controlled 24 hours per day, 7 days per week.

4. Lockout Plan

The cold layup process includes the de-energization of certain control systems and the partial de-energization of others. Accordingly, VI/VII will have a specific Lockout Plan in place for applicable equipment. Some of the major equipment to be included in this plan is listed below to illustrate the area of focus and intent of the Lockout Plan:

- Generators – removing links to iso-phase busses
- Natural gas supply to natural gas fired boiler – air-gapping supply into boiler
- Boiler feed water pump motors – disconnecting and grounding cabling to motors
- Condensate pump motors – disconnecting and grounding cabling to motors
- Cooling tower fan motors – disconnecting and grounding cabling to motors
- Large circulating water pumps – disconnect and grounding cabling to motors
- Variable drive heat transfer fluid pumps – disconnect and grounding cabling to motors
- Solar field – isolate and evacuate loops
- Steam trains – isolate and drain water side/steam side

A Cold Layup Lockout Plan will be developed to mitigate the hazards associated with inadvertent energization during the layup reconfiguration process, and to place certain equipment into a de-energized and inactive state during the period of the layup. All other maintenance work, during the layup activities as well as during the Cold Layup period, will be conducted in accordance with the operator's existing procedures, including SMS 226 In-Plant Clearance (LOTO).

5. System Specific Procedures

5.1. General Procedures

The operator utilizes Maximo® Asset Management software system to organize and schedule preventative maintenance and generation of work orders. It is a comprehensive system that schedules detailed tasks for preventative maintenance and asset management for each facility system, presents them in scheduled order, provides task completion checklists, records completion of the tasks, and documents maintenance and system condition.

For data collection the plant records operational data, status, and events in log books which are now kept electronically through log-keeping software and other systems. Further, the operator uses a software application called iTask which provides a paperless way to schedule and track routine equipment monitoring and data collection. Technicians use the handheld device during rounds to collect inspection point data needed to assess the current condition of equipment assets.

5.2. System-Specific Layup Procedures

The following layup procedures outline a step-by-step process for each applicable system. The operator has developed these plans based on prudent utility practices, industry best practices, original equipment manufacturer recommendations, laws, ordinances and regulations, and the operator's extensive, fleet-wide operational expertise.

Table 5-1 contains a list of the facility systems that will be subject to cold layup as well as the procedures that will be used for layup and ongoing maintenance during the layup period, including specifications for data collection rounds. The following sections contain descriptive information about each system and are indexed to layup and maintenance procedures. Appendix A contains a table of system status under cold layup.

Table 5-1. Systems Subject to Cold Layup

Steam Train (water side)
HTF
Steam Turbine
Condensate
Condenser
Feed Water
Cooling tower
Chemical Feed
Condenser Air Removal
Natural gas fired boiler
Blowdown
Bleach & acid
Fuel Gas
Chemical Injection Skid
Solar field
VFD Transformer

For each system, the sections below outline or reference procedures for layup, preventative maintenance and inspection. The layup procedures will be implemented in a formal Work Order, through the Maximo® system.

5.2.1. Steam Trains

The solar steam generation unit consists of two 50% heat exchanger trains (A and B) which generate 150,000 lbs./hr. each of 700°F/1450 psia superheated main steam, and 700°F/250 psia reheated steam. The steam is generated using heat gathered in the solar field by the HTF. When the plant is in solar mode, the solar steam system is the sole supplier of steam to the turbine. Feedwater flows to the two preheaters HX-06 A/B and then to the two solar steam generators HX-07 A/B. The level in the solar steam generators is maintained by LIC-6003 and LIC-6004. Check valves and motorized stop valves MOV-6005 and MOV-6006 are installed in the feed lines before the preheater inlets. Saturated steam generated in the solar steam generators is superheated in the solar superheaters HX-08 A/B. The two superheater outlets join and the steam is fed to the main steam header. The steam lines have check valve MOV-6027 and motorized valve MOV-6050 to isolate each one of the steam generator trains from the main steam header. Blowoff valve on the joint superheater steam outlet is used during solar field start-up. After expanding in the high pressure turbine the steam passes through the cold reheat line (MOV-6201 and MOV-6202) to the solar reheaters (HX-09 AA/AB and HX-09 BA/BB) and flows through the hot reheat line (MOV-6205) to the LP turbine.

The solar steam generator generates steam according to the heat energy transferred from the HTF. The HTF flow changes according to the solar insolation, but the HTF temperature at the solar steam generator inlet is controlled at a constant temperature.

When the plant is in hybrid mode, the solar main steam generators and the gas-fired boiler operate in parallel to provide steam to the turbine. The two main steam flows mix in the header to the high pressure turbine.

A dry layup method will be implemented during the layup period. The water side of the steam train will be isolated from the preheater inlet to the super heater outlet. All water will be drained and the heat exchangers will be placed into a dry layup.

Equipment	Procedure
Two Preheater	Isolated, drain water and lock out
Two Steam Generators	Isolated, drain water and lock out
Two Solar Super Heaters	Isolated, drain water and lock out
Two Solar Reheaters	Isolated, drain water and lock out

5.2.2. HTF

The HTF system is a closed loop system, consisting of approximately 110,000 gallons of Therminol VP-1. The system utilizes two large pumps, plus one installed spare to circulate the HTF through the solar field and back to the power block. The heat absorbed in the solar field is used at the power block in the solar superheaters, solar reheaters, steam generators, and preheaters to generate and superheat steam. The flow of HTF is controlled by the distributed control system.

The biggest part of the HTF system is the solar field, each loop in the solar field will be isolated and evacuated. The evacuated HTF will be placed into the HTF expansion vessels and associated piping.

Equipment	Procedure
Solar field loops	Isolate, drain and lock out
Loop isolation valves	Closed valves and lock out

5.2.3. Steam Turbine

The turbine is a Rankine cycle horizontal two-stage reheat condensing steam unit. It consists of high and low pressure turbines in separate casings coupled with a gearbox. The turbine receives inlet main steam to a single inlet in the high pressure casing at 1450 psia, 950°F from the gas-fired boiler, or at 1450 psia, 700°F from the solar heat exchangers. Inlet steam can be admitted from either of these sources independently. It can also be admitted from both in the "hybrid" mode of operation, in which case the two sources of main steam combine before the main steam stop valve. In the steam chest after the main steam stop valve, steam flow is directed through four main steam control valves and into a common nozzle block arrangement used to distribute steam equally in the high pressure turbine.

Steam exhausted from the high pressure turbine is reheated to 700°F in the ·solar reheaters and/or the boiler reheater. The reheat steam is used in the low pressure turbine. It passes through two reheat steam stop valves and into the steam chest, where it is directed through three reheat steam control valves and into a common nozzle block arrangement. Steam exhausted from the low pressure turbine passes to main condenser, which operates at 2.4 inches of mercury absolute pressure, and below 150°F. Six extraction chambers provide steam to five feedwater heaters and a deaerator. Extractions #5 and #6 off the high pressure turbine supply HP feedwater heaters. Extractions #1 through #4 off the low pressure turbine supply LP feedwater heaters and deaerator.

The steam turbine will be taken off gear and the lube oil will be secured. The vapor extractor auxiliary lube oil pump, DC oil pump and reservoir emersion heater will be removed from service. The lube oil reservoir will be drained; this will also include the control oil reservoir. The control oil pumps and emersion heater will be secured to ensure stop valves remain shut.

Equipment	Procedure
Auxiliary lube oil pump motor	Disable, pull fuses and lock out
Jacking oil pump motor	Disable, pull fuses and lock out
DC oil pump motor	Disable, pull fuses and lock out
Lube oil vapor extractor	Disable, pull fuses and lock out
Lube oil emersion heater	Disable, pull fuses and lock out
Control oil pump #1 motor	Disable, pull fuses and lock out
Control oil pump #2 motor	Disable, pull Fuses and lock out
Control oil emersion heater	Disable, pull fuses and lock out

Steam turbine lube oil	Isolate, drain and lock out
Steam turbine control oil	Isolate, drain and lock out
Steam turbine valves	Periodically inspect
Steam turbine generator	Desiccant, heaters, RH monitoring and lock out
Exciter	Disable/Secure and lock out
AVR cabinets	Disable/Secure and lock out
Generator protection panels	Disable/Secure and lock out

5.2.4. Condensate

The condensate system supplies boiler quality water to the feedwater system. It receives and condenses turbine exhaust steam from the shell side of the LP and HP feedwater heaters. It also provides transfer, storage, preheating and deaeration of the condensate. The feedwater system supplies deaerated, preheated feedwater to the steam generators in the low pressure steam (solar) system and to the gas fired boiler in the high pressure steam (boiler) system.

The cold lay-up process will include de-energizing all rotating equipment which will include three condensate pumps and the gland steam condenser. All three feed water heaters, gland steam condenser and both service air ejectors will be isolated and drained.

Equipment	Procedure
Condensate pump and motor	Disable, isolate, drain and lock out
Gland steam condenser	Isolate, drain (tube and shell) and lock out
Air ejector condenser	Isolate, drain (tube and shell) and lock out
Feed water heaters	Isolate, drain (tube and shell) and lock out

5.2.5. Condenser

The main condenser is a three (3) pass, divided, horizontal, surface type, shell and tube heat exchanger. Turbine exhaust steam and, when applicable, turbine bypass steam, is directed to the shell side of the condenser where it is cooled and condensed. Cooling is provided by water circulating through the tubes. The condenser is located at grade, underneath the turbine/generator.

For cold layup, this system will be isolated and drained on both the water box side and hot-well side.

Equipment	Procedure
Condenser water boxes	Isolate, drain and lock out
Hot-well	Isolate, drain and lock out

5.2.6. Feed Water

The feed water system begins with the de-aerated water storage tank V-517 which holds approximately ten (10) minutes of feed water at full load. The feed water pumps take direct suction from the de-aerated water storage tank and pump it to the gas fired boiler and solar steam

generators. Prior to its arrival, it passes through the HP feed water heaters H-518/519. At the exit of the second feed water heater H-519, two separate flow paths are provided to accommodate the gas fired boiler and/or the solar steam generators. The line to the gas fired boiler goes directly to the economizer HX-543 through FCV-6100. The line to the solar steam generators passes through the solar water preheaters HX-06-A/B and FCV-6001/2 on its way to the solar steam generators HX-07-A/B.

For cold layup, this system will be isolated and drained during the layup process to control corrosion. Motors will be rotated periodically.

Equipment	Procedure
Deaerator	Isolate, drain and lock out
Boiler feed water pumps	Disable, drain, uncouple and lock out
Boiler feed water pump motors	Disable, Maintain space heaters, and lock out
HP feed water heaters	Isolate and drain (shell and tube side) and lock out

5.2.7. Cooling Tower

The site utilizes an induced draft (crossflow) cooling tower. The towers are used to flow water through the main condenser. The steam that exits the LP turbine makes contact with the cool tubes in the main condenser and allows the water to be condensed into the hot-well. Each cooling tower has two fans that are capable in running in high or low speed depending load on the unit. The cooling towers also have four circulating water pumps that are started and stopped as needed to control temperature in the condenser.

The lay-up will involve isolating the cooling tower make up, securing all chemical injection and blowing down the basin. The fire system will remain in service during the layup period.

Equipment/Equipment Group	Procedure
Circulating water pumps (4)	Disable, Isolate, drain and lock out
Cooling tower fans (2)	Disable, Isolate, secure fan blades from rotating and lock out.
Cooling tower basin	Isolate, drain and lock out

5.2.8. Condenser Air Removal

Steam Jet Air Ejectors and Start-up Steam Jet Air Ejector. The evacuation of the turbine exhaust trunk and main condenser is accomplished by two 100% capacity steam jet air ejectors. The air and non-condensable gasses are suctioned off of the main condenser and exhausted to the atmosphere. Each air ejector is provided with an inter and after cooler which serve two purposes. To condense any steam that may have been suctioned to the ejector and to assist in heating the condensate as the main condensate passes through the air ejectors. During initial start-up of the plant, air evacuation is provided by a start-up ejector or hogging ejector. The hogging ejector has a silencer as the steam is discharged to atmosphere along with the air and non-condensable gasses. The condensate is not collected and returned as in the air ejectors, but flows to drain. The air ejectors are located between the condensate pumps and the LP feedwater heaters.

Each ejector will be isolated, which will include isolating the steam inlet isolation valve, air inlet and flow through each condenser.

Equipment	Procedure
Startup Steam air ejector ME-509	Isolate, drain and lock out
Steam air ejector ME-510	Isolate, drain and lock out
Steam air ejector ME-511	Isolate, drain and lock out

5.2.9. Natural gas fired boiler

The gas-fired boiler, rated at 30 net MWs, generates superheated main and reheat steam using natural gas as the fuel source. The full load operating heat rate is approximately 12.5 MMbtu/MW. The system delivers main steam to the inlet of the high pressure turbine. After leaving the high pressure turbine, the steam returns to the gas-fired reheater in the boiler and then flows to the low pressure turbine. The plant can operate in boiler mode using exclusively boiler steam; in hybrid mode using solar and boiler steam; and in solar mode using solar steam.

A dry layup method will be implemented during the layup period. The forced draft fan and recirculating fan motors will be de-energized. The main gas supply to the boiler will be isolated and blinded. The water will be isolated and drained. Desiccant will be installed to control corrosion.

Equipment	Procedure
Forced draft fan and motor	Disable, uncouple and lock out
Gas recirculating fan and motor	Disable, uncouple and lock out
Gas header	Isolate, depressurize, install blind and lock out
Economizer, Steam drum, mud drum and associated piping	Isolate, drain and lock out

5.2.10. Blowdown

The blowdown systems provide continuous removal of dissolved and suspended impurities from the solar and boiler steam generating components, and from the cooling water. The blowdown from the solar steam generators and boiler goes to the cooling tower, and the cooling tower blowdown flows to the neutralization tank.

All blowdown sources from the natural gas fired boiler, steam generator and cooling towers will be drained and isolated to the site evaporation ponds.

Equipment	Procedure
Blowdown tanks	Isolate, drain and lock out
Blowdown tank pump	Disable, isolate, drain and lock out

5.2.11. Bleach & Acid

Sulfuric acid (93%) is injected at an inline injection nozzle in the main cooling water basin to maintain cooling water pH between 6.8 and 7.2. The acid is provided from sulfuric acid tank T-710 by sulfuric acid pump P-730. Bleach is used for slime control. The corrosion inhibitor used is a combination of dispersant for scale control and phosphate for corrosion control. This mixture, called Gengard, is stored in an elevated tank that uses a small positive displacement pump.

All contents of the bleach and acid tanks will be evacuated and used at the operational SEGS units on site.

Equipment	Procedure
Acid tank	Isolate, drain and lock out
Bleach	Isolate, drain and lock out

5.2.12. Chemical Injection Skid

The site utilizes chemical injection skids to maintain water chemistry parameters in the natural gas fired boiler, solar steam generators, and condensate and feed water steams. The skids consist of a small day tanks and small positive displacement pumps, these pumps feed neutralizing amine to the condensate and Phosphates to the natural gas fired boiler and steam generators to help assist maintain the water chemistry parameters.

All contents of the chemical injection skid will be isolated and drained.

Equipment	Procedure
Phosphate injection skid to the natural gas fire boiler	Disable, isolate, drain and lock out
Phosphate injection skid to the solar steam generators	Disable, isolate, drain and lock out
Neutralizing Amine injection into the condensate system	Disable, isolate, drain and lock out

5.2.13. Solar Field

The function of the Solar Field is to collect heat from the sun, using Solar Collector Assemblies (SCAs) which use reflective panel to focus and concentrate the sun's heat energy on the Heat Collection Element (HCE). The HCE consist of 2” stainless steel tube surrounded by an evacuated glass annulus. The stainless steel tube contains a heat transfer fluid (HTF) called Therminol VP-1, which is circulated throughout the Solar Field collecting heat. The heat-laden HTF is then passed through the power block heat exchanger equipment where it gives up the heat to make steam and, in turn, generates electricity. Since the Solar Field and the HTF systems are interdependent upon each other.

All solar field collectors (SCAs) will be placed in a stow position to prevent movement. As indicated in the HTF section each solar field loop will be isolated and evacuated.

Equipment	Procedure
Solar loops	Isolate, drain and lock out
Solar field collector	Placed in stow position

5.2.14. Transformers

The site interconnects to Southern California Edison through an 115KV Substation. Each unit utilizes one 115KV to 13.8 KV GSU, one 13.8KV to 4160V, one 4160 to 1950V and one 4160KV to 480V transformer.

During the layup process all power sources will remain energized in order to provide 480V power for HTF recirculation pump and the natural gas fired oil heaters. The only transformer not required is the VFD (4160 to 1950V) transformer, which will be isolated and placed in a lock out tag out.

5.3. Preventative Maintenance

Once the facility and associated equipment have been reconfigured into the required cold layup state, ongoing preventive maintenance will be performed in order to maintain the long term health of the facility and equipment. Maximo® will be utilized to track and ensure all work is being completed on a timely basis. Preventative maintenance work orders will be generated and performed as required and documented within the Maximo® database. Each piece of equipment has an existing preventative maintenance schedule that will be modified to accommodate the cold layup status of the facility.

It is expected that preventative maintenance routines will be modified over time based on the effectiveness of the maintenance and with respect to the restart horizon for the facility.

5.4. Rounds

Rounds will be conducted on a daily basis to ensure that each system and the facility are maintained in a safe manner. The mobile device application, iTask, will be used to document the inspections conducted in the daily rounds in an electronic format. The mobile rounds application provides the capability to create work orders at the time of inspection during rounds by sending work order data directly to Maximo®, while the operators perform their rounds. The rounds capture real-time data providing a real-time snapshot of critical equipment readings which will be saved to the corporate database.

The iTask rounds will be created specifically to monitor the plant in cold layup status. This is a programming process that will be carried out jointly between the operator's corporate information technology group and plant personnel.

6. Hazardous Materials Management

The plant operator will coordinate removal from the facility of chemicals and hazardous wastes, except those that are required for the production of demineralized water and disposal of wastewater from the Power Block or routine maintenance activities. This will include the following items:

- Hazardous materials that are not used during the layup period will be removed from all satellite accumulation areas and moved to the SEGS 90-day accumulation area for disposal.

- Water treatment chemicals not needed to support the cold layup processes and stored in bulk totes and storage tanks will be isolated by closing the discharge valve on each vessel. These materials will be moved to the remaining operating units for use. This will include the following items:
  - Boiler Chemical Phosphate
  - Boiler Chemical Amine
  - Cooling Tower Acid
  - Cooling Tower Phosphate

The operator will recycle unused chemicals where feasible. Equipment containing chemicals on VI/VII will be drained and shut down to ensure public health and safety and to protect the environment. All of the materials are stored onsite that are listed as hazardous are used in the water treatment systems and various other site processes and will remain onsite to be used in supporting operation of the remaining operating units.

Ongoing hazardous waste generation during the cold layup period will be limited to routine maintenance wastes (e.g., oily rags and miscellaneous spent maintenance fluids/materials).

7. Site Safety and Fire Protection

The existing site safety procedures, programs and standards, as listed below, will remain in full effect.

7.1. Safety Management System

The safety management system (SMS) is a comprehensive management system designed to manage safety elements in the workplace. It includes policy, objectives, plans, procedures, organization, responsibilities and other safety measures. The SMS is used to manage significant safety risks in our facilities. The SMS includes the following elements:

a. SMS 201 Job Safety Analysis
b. SMS 202 Risk Assessment and Mitigation
c. SMS 203 Industrial Hygiene Program
d. SMS 204 Hazard Communication
e. SMS 205 Hearing Conservation
f. SMS 206 Respiratory Protection
g. SMS 209 Health and Safety Inspections
h. SMS 210 Hazard Reporting
i. SMS 211 Safety Bulletins
j. SMS 212 Injury and Illness Reporting
k. SMS 213 Behavior Based Safety Observations
l. SMS 214 Personal Protective Equipment
m. SMS 215 Fall Protection
n. SMS 216 Chemical Spill Response
o. SMS 217 Chemical Storage and Handling
p. SMS 218 Compressed Gas
q. SMS 219 Confined Space
r. SMS 220 Mobile Cranes
s. SMS 221 Electrical Safety
t. SMS 222 Fire Protection Plan
u. SMS 223 Ladders and Stairs
v. SMS 224 First Aid Services
w. SMS 225 Blood borne Pathogens
x. SMS 226 In-Plant Clearance
y. SMS 228 Machine Guarding
z. SMS 229 Powered Industrial Trucks
aa. SMS 231 Welding and Cutting
bb. SMS 232 Hot Work
cc. SMS 234 Asbestos Control
dd. SMS 235 Lead Control
ee. SMS 236 Hexavalent Chromium
ff. SMS 237 Emergency Action Plan

gg. SMS 239 Hand and Portable Power Tools
hh. SMS 240 Scaffolds
ii. SMS 241 Contractor Management
jj. SMS 242 Safety Meetings and Communications
kk. SMS 247 Severe Weather Guidelines
ll. SMS 248 Electrical Arc Flash Protection
mm. SMS 249 Electrical Ground Testing
nn. SMS 252 Excavation
oo. SMS 253 Electrical Switching
pp. SMS 254 Safety Mentorship Program
qq. SMS 255 Legionella
rr. SMS 257 Grounding Main Transformers and Generators
ss. SMS 258 Testing Main Power Generators
tt. SMS 259 Grounding Equipment Using a Ground and Test Device
uu. SMS 260 Grounding Equipment Without Using a Ground and Test Device
vv. SMS 261 Gas Purging
ww. SMS 262 Ergonomics
xx. SMS 264 Pest Control and Bite Prevention
yy. SMS 270 Use of Barrier Tape
zz. SMS 271 Care of Ice Machines and Portable Water Containers
aaa. SMS 272 Working at Heights
bbb. SMS 281 Safety Action Tracking
ccc. SMS 282 Office Safety
ddd. SMS 283 Utility Vehicles
eee. SMS 285 Fleet Work Vehicle Safety and Driving
fff. SMS 286 Aerial Lifts
ggg. SMS 287 Contractor Safety and Health Review

8. Environmental Considerations

SEGS will maintain the site's existing environmental plans and permits and will update plans as needed to address applicable changes resulting from the cold layup. Changes to the Hazardous Materials Business Plan (HMBP) and Spill Prevention Control and Countermeasures Plan, are anticipated to be made, as applicable, in consultation with the appropriate regulatory agencies as needed.

Appendix A

SEGS VI and VII System Status During Cold Layup

Table A-1 below lists the SEGS component systems, and an indicator as to whether the system is planned for continued use or cold layup.

Table A-1

System	SEGS Component System	Cold Layup or Continued Use
a. HTF System	HTF	Cold Layup
	Solar field loops	Cold Layup
	Ullage System	Continued Use
	Nitrogen vessel	Continued Use
	Expansion vessel, heat transfer pumps & HTF heater	Continued Use
b. Turbine	Steam turbine & Generator	Cold Layup
d. Cooling system	Cooling Tower	Cold Layup
	BS-Bleach & Acid	Cold Layup
e. Condensate and Feed Water System	Condensate	Cold Layup
	Condenser	Cold Layup
	Feed Water	Cold Layup
	Condenser Air Removal	Cold Layup
	Chemical injection	Cold Lay up
f. Steam Generation	Natural Gas Fired boiler	Cold Layup
	Steam Trains (water side)	Cold Layup
	Blowdown	Cold Layup
	Fuel Gas	Cold Layup
g. Electrical Equipment	125 V DC panel	Continued Use
	Emergency Generator	Continued Use
	120V UPS	Continued Use
	Switch yard lighting	Continued Use
	Distributed Control System	Continued Use
	Heat tracing	Continued Use
h. Transformers	GSU transformer (115KV to 13.8KV)	Continued Use
	13.8KV to 4160 V transformer	Continued Use
	4160 to 480V transformer	Continued Use
	VFD Transformer (4160 to 1950V)	Cold Layup
i. Service water supplies	Demineralized water	Continued Use
	Raw Water	Continued Use
	Waste water	Continued Use
j. Buildings and warehouse		Continued Use

K. Sanitary Waste		Continued Use
l. Security Steam		Continued Use
m. Telephone and Communication System		Continued Use
p. Fire Protection	JD – Fire Protection	Continued Use
q. Staffing	Cold Layup Plan Section 3.0	Continued Staffing