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Attachment 2: Winter Readiness Consumables and Supplies

Evaluator:_____ **Date:** _____

Sheet No. 1 of ____		Date:_____		
Performed by:	_____		Department	Operations

Minimum Quantity	Item Description	Quantity on Hand	Order Required	Location
12	Weedburners			Connex
15	Diesel Heaters			Connex
12	Strikers			Connex
15	Flints			Connex
Tarps				
3	16 x 20			Connex
6	10 x 12			Connex
Lights				
25	Bulbs and Fixtures			Connex
10	Light Fixtures (No Bulbs)			Connex
40	Bulbs			Connex
Propane				
10	Small new bottles/Small Partial Bottles			Connex
10	Large new bottles/Large Partial bottles			Connex

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30	Extension Cords			Connex
12	3-way Extension Plugs			Connex
4	Rolls of Plastic			Connex
4	Electric Heaters			Connex
10	Insulation			Connex
12	Filters for truck tanks			Connex

Minimum Quantity	Item Description	Quantity on Hand	Order Required	Location
1	Strikers			U1 HRSG (top)
1	Rope (min 25 feet)			U1 HRSG (top)
4	Duct Tape			U1 HRSG (top)
2	9 x 12 tarps			U1 HRSG (top)
2	6 x 9 tarps			U1 HRSG (top)
2	Heat Lamps and Fixtures			U1 HRSG (top)
2	Extension Cords			U1 HRSG (top)
4	Bungee Cords			U1 HRSG (top)
1	Red Danger Tape			U1 HRSG (top)
1	Yellow Caution Tape			U1 HRSG (top)

Minimum Quantity	Item Description	Quantity on Hand	Order Required	Location
1	Strikers			U2 HRSG (top)
1	Rope (min. 25 feet)			U2 HRSG (top)
4	Duct Tape			U2 HRSG (top)
2	9 x 12 tarps			U2 HRSG (top)
2	6 x 9 tarps			U2 HRSG (top)

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2	Heat Lamps and Fixtures			U2 HRSG (top)
2	Extension Cords			U2 HRSG (top)
2	Bungee Cords			U2 HRSG (top)
1	Red Danger Tape			U2 HRSG (top)
1	Yellow Caution Tape			U2 HRSG (top)

Minimum Quantity	Item Description	Quantity on Hand	Order Required	Location
1	Strikers			U4 HRSG (top)
1	Rope (min 25 feet)			U4 HRSG (top)
4	Duct Tape			U4 HRSG (top)
2	9 x 12 tarps			U4 HRSG (top)
2	6 x 9 tarps			U4 HRSG (top)
2	Heat Lamps and Fixtures			U4 HRSG (top)
2	Extension Cords			U4 HRSG (top)
4	Bungee Cords			U4 HRSG (top)
1	Red Danger Tape			U4 HRSG (top)
1	Yellow Caution Tape			U4 HRSG (top)

Minimum Quantity	Item Description	Quantity on Hand	Order Required	Location
1	Strikers			U5 HRSG (top)
1	Rope (min. 25 feet)			U5 HRSG (top)
4	Duct Tape			U5 HRSG (top)
2	9 x 12 tarps			U5 HRSG (top)
2	6 x 9 tarps			U5 HRSG (top)

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2	Heat Lamps and Fixtures			U5 HRSG (top)
2	Extension Cords			U5 HRSG (top)
2	Bungee Cords			U5 HRSG (top)
1	Red Danger Tape			U5 HRSG (top)
1	Yellow Caution Tape			U5 HRSG (top)

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Attachment 3: Permanent Building Space Heaters

Building	**Heater Location**	**Comments**
CEMS Building	U1 Deluge Room	
	U2 Deluge Room	
	U4 Deluge Room	
	U5 Deluge Room	
Fire Pump Building	SW Corner	
Mono Media Building	NW Corner	
	NE Corner	
	SW Corner	
	NE Corner	
Water Treatment Bldg.	#1 West Wall	
	#2 SW Wall	
	#3 SE Wall	
	#4 SE Wall	
	#5NE Wall	
	#6NW Wall	
	#7 Caustic Skid	
Lake Pump Bldg.	Pump Room	
	Pump Room	
	Pump Room	
Portable Water Bldg.	NW Corner	
River Sump Bldg.	NW Corner	
Raw Water Meter Bldg.	SW Corner	
Deluge Buildings	Unit 1(2)	

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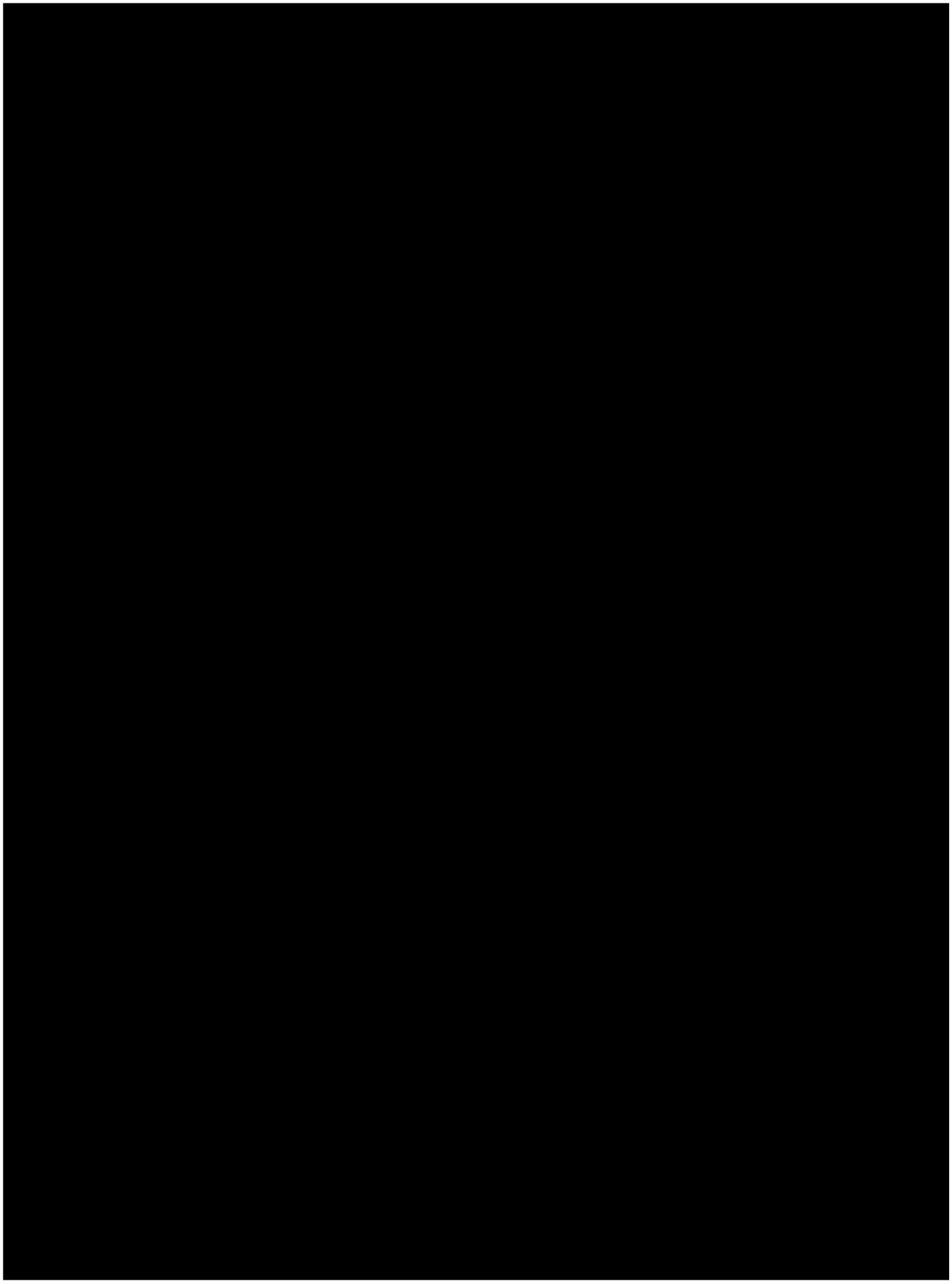

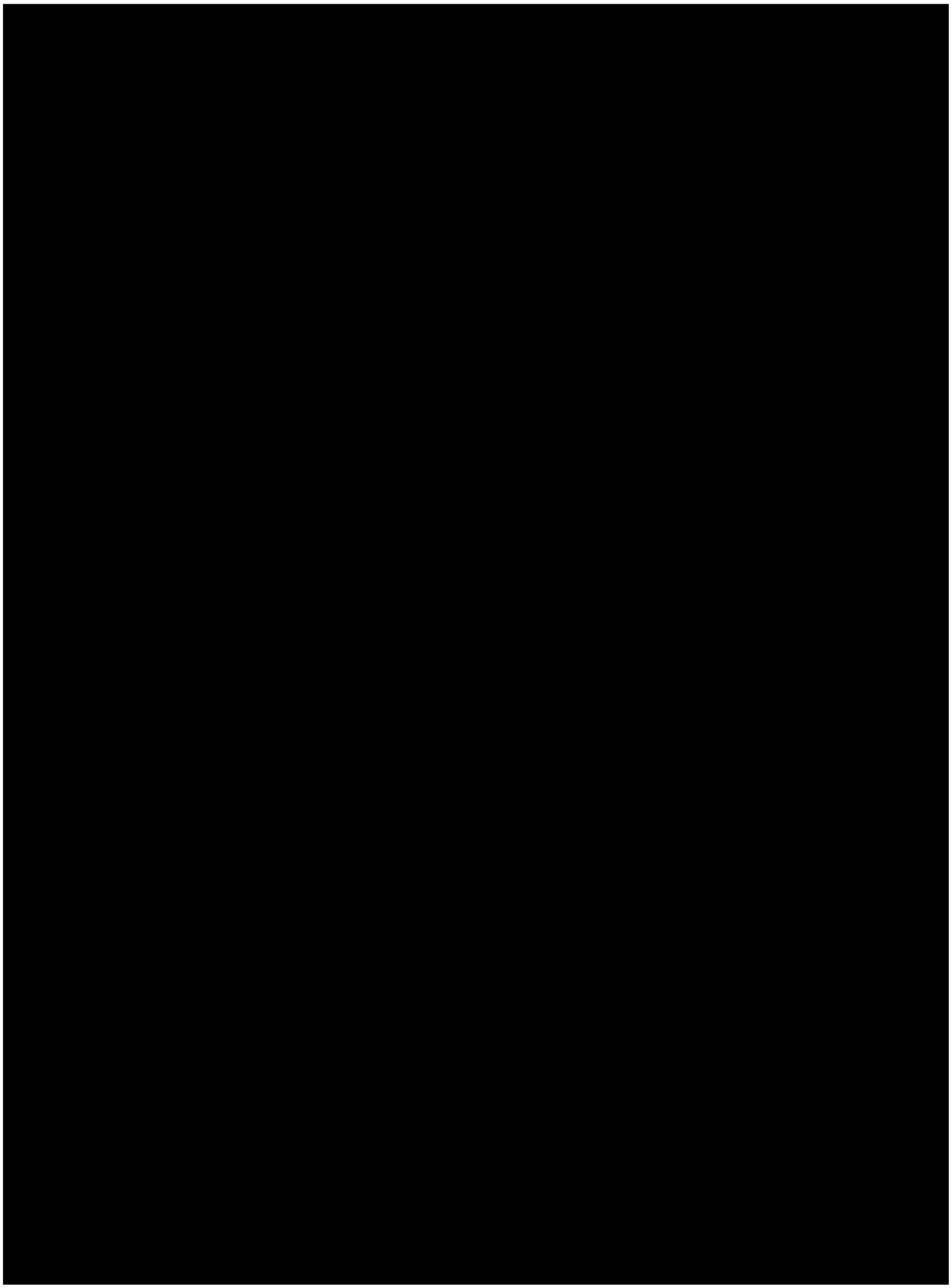

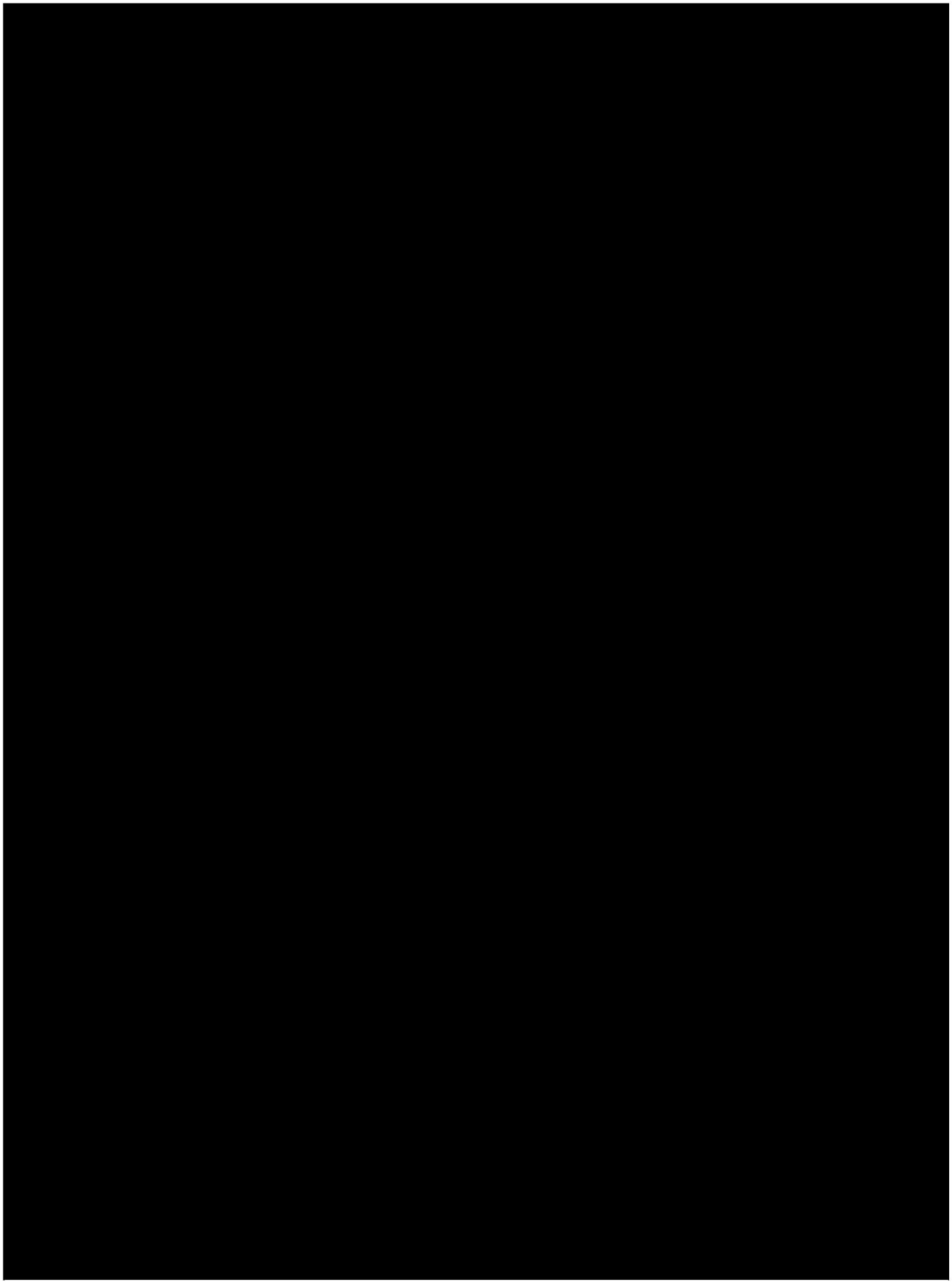

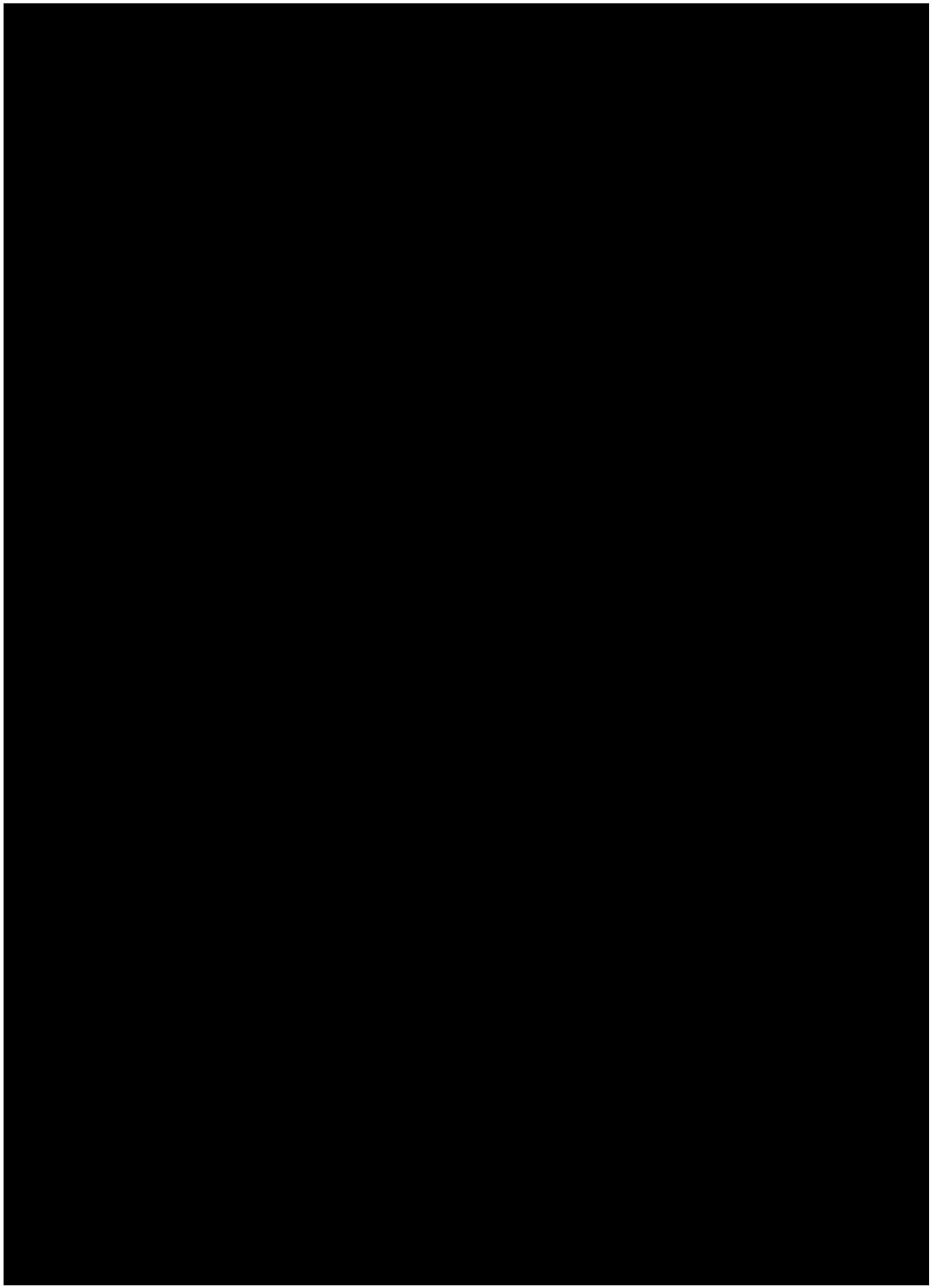

Attachment 5: Draining Equipment

Equipment	Date Drained	PM#	Comments
CT Inlet Fogging System		106374 thru 106377	
Low Point Drains		112286	Dead legs in instrument air lines can accumulate water and potentially burst during freezing weather. Low point drains shall be identified and blown down to prevent

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			accumulation. This can apply to instrument lines known to accumulate water as well (e.g. Seal Oil Regulator.

Attachment 6: Additional Winter Readiness Considerations

When conditions exist that may lead to heavy rains, increased river, lake or water way levels appropriate measures shall be taken to ensure asset protection and minimal risk to the plant. These shall include but are not limited to the following

- Increase operator attention for areas that are subject to water intrusion as a result of high water levels.
- Ensuring floating debris does not enter plant systems.
- Oil separators and other retention ponds do not contaminate surrounding areas.
- Provisions are made to dam or elevate equipment or components that are staged in areas that are susceptible to flooding (e.g., availability of sand bags, portable pumps, and sump pumps, etc.).
- Appropriate actions are taken to prohibit walking or vehicle traffic in areas that

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have flooded and could place employees in harm's way.

- Plant facility backlogs shall be reviewed for deficiencies that could introduce water into the facility, such as roof leaks, poor sealing windows or doors, electrical or mechanical penetrations that are known to provide a pathway for water intrusion.

- Water that does enter the Plant is to be evaluated for increased risk to personal safety, production, and environmental. impact.

When conditions exist that may lead to high winds or other extreme storm related conditions the following actions shall be initiated.

- The Plant personnel shall walk down the property to identify materials or debris that could become airborne during high wind conditions. Action shall be taken to secure or remove the hazards to ensure that equipment or personnel are not injured during the condition.

- Increase operator attention during the high wind or storm conditions to identify new hazards. Operators shall not put their own safety at risk.

- Plant facility backlogs shall be reviewed for deficiencies that could become airborne during high wind conditions such as building siding, roofing material, or protective covering

Attachment 7: Personnel Training

Training Rosters and Training Materials should be retained by Plant for 5 years.

Employee Name	Date Training Complete	Employee Signature	Comments

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Attachment 8: Winter Readiness Actions Timeline

Key Milestone	Recommended Completion	Comments
Initial Annual Pre-Winter Readiness Meeting	May–July	Meeting to review: Plant Winter Readiness Plan, Open Corrective "Winter" Work Orders and PMs
Final Workscope and Actions Required	August–September	Finalized workscope approved by Plant Manager to implement prior to winter
Operations Procedures Reviewed and Updated as Required	October	Site specific Winter Operations Procedures reviewed and updated based on lessons learned and new equipment added
Winter Readiness Training	November	Complete training for plant personnel involved with Winter Preparedness and Winter Operations
Winter Readiness Certification by the Plant Manager	November	Provided to RVP. Reference Attachment 9
Winter Readiness Activities Completed	December 1	This date may vary for specific plants based on location
Post – Winter Meeting	March–April	Review specific plant lessons learned from the past winter.

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Attachment 9: Freestone Winter Readiness Certification

To: (Regional VP, Operations Name)

From: (Plant/General Manager Name)

Subject: Winter Readiness Certification

(Plant Name) has reviewed the requirements of the Plant Specific Plans and Procedures related to Winter Readiness preparation and Winter Operation, and by copy of this letter is ready to certify (Plant Name) winter readiness. [Plant] has completed review of plant winter readiness and implemented preventive and corrective actions required to provide reasonable assurance of operation during foreseeable winter conditions at the site. In-progress items relating to winter operation are summarized below.

A. The basis for our certification is as follows:

1. Significant outcomes of system reviews
2. Status of preventive maintenance affecting Winter Readiness
3. Status of corrective maintenance affecting Winter Readiness
6. Status of modifications/projects affecting Winter Readiness
7. Status of Operations Winter Readiness Procedures/Checklists
8. Status of Winter Readiness supplies
9. Winter readiness items not completed

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CALPINE®
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Freestone Energy Procedure Manual

PROCEDURE: EXTREME COLD WEATHER GUIDELINES

NUMBER: FREC-ZA-0002 REVISION: 4 Jy Pate PLANT MANAGER 13-Nov-2015 DATE

Table of Contents

Confidential – Information Protected Pursuant to 16 TAC § 22.71(d); 16 TAC § 25.362; ERCOT Protocol 1.3; Tex. Gov. Code § 552.101 (under Texas Homeland Security Act) and § 552.110

1.0 Purpose and Scope

1.1 Provide instructions for protecting equipment during extreme cold weather when outside air temperature is predicted to decrease or decreases to LESS THAN or EQUAL to [redacted]

1.2 Provide instructions for Restoration from Freezing Weather

2.0 Definitions

2.1 DCS: digital control system

2.2 EHS: Environmental Health and Safety

2.3 ERCOT ISO: Electrical Reliability Council of Texas Independent System Operator

2.4 LCI: load commutating inductor

2.5 PEECC: process electrical and electronic control compartment.

2.6 TCEQ: Texas Commission of Environment Quality

3.0 General Information

3.1 The Plant Manager SHALL implement this procedure prior to or upon a prediction or actual indication of falling temperature as described in Section 1.0.

3.2 Temperature indication for determining the outside air temperature to decide when to enter this procedure SHALL be used in following order:

3.2.1 DCS air temperature.

3.2.2 Nearest National Weather Service weather observation location (typically the nearest airport).

3.3 Failure to maintain the Battery Room temperature [redacted] MAY result in degrading the discharge capability of the battery should a loss of offsite power occur.

3.4 Failure to maintain either PEECC room temperature [redacted] MAY result in degrading the discharge capability of the PEECC battery should a loss of offsite power occur.

3.5 Failure to maintain the LCI Compartment room temperature [redacted] MAY result in damage to the LCI cooling water system.

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3.6 IF an instrument is suspected of freezing, THEN the instrument indication SHALL be monitored to verify reliability.

3.6.1 IF an instrument indication is unreliable, THEN an alternate method of monitoring the affected process variable SHOULD be established.

3.6.2 IF an instrument freezes, THEN actions SHALL be taken to return the instrument to service.

3.7 Equipment/systems outside the confines of heated buildings SHALL be inspected annually per Form 1 (Freezing Weather Walkdown Guidelines) for deficiencies that could promote freezing.

3.8 Work Orders SHALL be implemented as soon as practical to repair any equipment/system deficiency that could promote freezing.

3.9 Out-of-Service equipment SHALL be evaluated for cold weather preparation (e.g., isolation/draining of tanks, isolation/draining non-essential equipment, installing temporary shelters, installing temporary heaters, and installing temporary insulation).

3.10 IF outside temperature is [redacted] **or LESS**, THEN all Freeze Protection Panels SHALL be monitored for operability at least every four hours.

3.11 Follow Electrical Safety Precautions of EHS-17 (Electrical Safety) when accessing Heater Controls. Open, energized circuits exist inside the heater control enclosures.

3.12 Some Freeze Protection Circuits have Remote High Temperature Switches to prevent **local boiling in small dead legs of piping** (e.g. outside eyewash stations) or for when during normal operations the piping is full of hot water\steam but may be subject to freezing when shutdown. (i.e., HP, IP, and LP Drum instrument lines). In these cases, the heat trace is NOT ENERGIZED if the piping/tubing is "Hot" when the freeze protection panels are placed in "Hand/On" unless the piping/tubing system is below the applicable temperature switch setpoint.

4.0 References

4.1 Commitments:

4.1.1 ERCOT ISO Winter Weather Readiness for Texas Generators Whitepaper; May 3, 2011

4.1.2 Texas Public Utility Commission Emergency Operations Plan Filing of Calpine Corporation; April 30, 2008.

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5.0 Responsibilities

5.1 The Plant Manager is responsible for ensuring overall implementation of this procedure.

5.1.1 Deciding that emergency actions are necessary to prevent equipment damage OR lost power production during any declared severe weather condition (cold).

5.1.2 Maintaining Checklist 1 (Cold Weather Checklist – Freezing Weather Conditions)

5.2 The Operations Manager is responsible for:

5.2.1 Ensuring operator actions are implemented in a timely manner to support implementation of this procedure.

5.2.2 Ensuring equipment deficiencies are properly prioritized to support continued plant operations.

5.3 The Maintenance Manager is responsible for:

5.3.1 Ensuring maintenance activities are performed in a timely manner to support implementation of this procedure.

5.3.2 Ensuring equipment deficiencies that could impact continued plant operations are addressed according to priority of importance.

5.4 Operators are responsible for:

5.4.1 Implementing the procedure as directed in a timely manner.

5.4.2 Reporting equipment deficiencies which could impact cold weather operations as soon as possible.

5.5 Maintenance Technicians are responsible for:

5.5.1 Implementing work activities as directed by the Maintenance Manager in support of this procedure.

5.5.2 Reporting equipment deficiencies which could impact cold weather operations as soon as possible.

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6.0 General Freeze Protection Actions

6.1 WHEN outside air temperature decreases to OR is predicted to decrease to **LESS THAN or EQUAL to** [redacted] THEN the Operations Manager or designee SHALL IMPLEMENT the following actions:

6.1.1 PERFORM Addendum 1 (Pre-Season Cold Weather Readiness Actions),
Prior to Outside air Temperature reaching [redacted]

6.1.2 REVIEW the Checklist 1 (Cold Weather Checklist – Freezing Weather Conditions) for additional actions that MAY be necessary to perform.

6.1.3 IF any additional actions are necessary to perform, THEN RECORD the additional actions taken in the Control Room Logbook.

6.1.4 ENSURE equipment/systems that are not enclosed by or inside protective permanent plant buildings SHALL be inspected per Form 1 (Cold Weather Readiness Actions) for deficiencies that could promote freezing.

6.1.5 ENSURE all Freeze Protection Systems are in operation and operable or in repair.

6.1.6 ENSURE all instrument enclosure space heaters are in operation and operable or in repair.

6.1.7 ENSURE any existing temporary instrument or temporary equipment is properly protected to ensure adequate compensatory actions are implemented to prevent freezing.

6.1.8 IMPLEMENT Fire Pump Room Extreme Cold Weather Guidelines per Section 7.0.

6.1.9 IMPLEMENT Deluge Valve House Extreme Cold Weather Guidelines per Section 8.0.

6.1.10 IMPLEMENT Water Treatment Plant Extreme Cold Weather Guidelines per Section 9.0

6.1.11 IF the Main Cooling Tower Blowdown piping is **NOT** in service, THEN DRAIN the blowdown line to prevent freezing.

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6.1.12 MONITOR the Plant Battery Room temperature.

6.1.12.1 IF the Plant Battery Room temperature is approaching [redacted] THEN PLACE one electric heater in the Plant Battery Room.

- ENSURE Heater maximum 1500 watt capacity
- ENSURE Heater is set on the floor of the Plant Battery Room below the battery bank.
- [redacted]

6.1.13 MONITOR the PEECC room temperature.

6.1.13.1 IF a PEECC room temperature is approaching [redacted] THEN PLACE one electric heater in the affected PEECC.

- ENSURE Heater maximum 1500 watt capacity
- ENSURE Heater is set on the floor near the PEECC Battery Charger.
- [redacted]

CAUTION

If the Combustion Turbine (CT) Inlet Air Fogging Coils are not properly drained and dried using plant air the coils could freeze and rupture the cooling coils rendering the CT Inlet Air Fogging System inoperable.

6.1.14 ENSURE the CT Inlet Cooling Coils are drained and blown dry with air.

a. CT-1 Cooling Coils

b. CT-2 Cooling Coils

c. CT-3 Cooling Coils

d. CT-4 Cooling Coils

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6.1.15 ENSURE each Inlet Fogging Skid isolated and drained.

6.1.16 ENSURE ALL Water Treatment Building HVAC Supply Fans are in OFF.

6.1.17 ENSURE ALL Water Treatment Building Doors are kept CLOSED.

6.2 WHEN outside air temperature is GREATER THAN [redacted] THEN GO TO Section 10.0 Restoration from Freezing Weather.

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7.0 Fire Pump Room Extreme Cold Weather Guidelines

NOTE

Placing the Fire Pump Room HVAC Supply Fans in the OFF position will **NOT** render the affected pumps inoperable. However, pump room temperatures **SHALL NOT** exceed [redacted] for GREATER THAN 4 hours in order to protect the starting capacity of the fire pump diesel batteries and protect the controller electronics.

Room Temperature logs MAY be taken every 6 hours until room air temperatures drop **below** [redacted] then room temperature logs SHOULD be taken every 4 hours. Plant Manager MAY request room temperature logs be taken at shorter intervals of time as the weather dictates.

7.1 IF outside air temperature is **LESS THAN or EQUAL to** [redacted] THEN PLACE ALL the Fire Pump Room HVAC Supply Fans in the OFF.

7.2 MONITOR Fire Pump Room temperatures AND RECORD the readings on Logsheet 1 (Room Temperature Logsheet) at the following intervals:

7.2.1 IF Fire Pump Room HVAC Supply Fans were placed in OFF per Step 7.1, THEN RECORD room temperatures approximately every 4 hours after the Fire Pump Room HVAC Supply Fans are placed in OFF.

7.2.2 RECORD room temperatures approximately every 4 hours until outside air temperature is **GREATER THAN** [redacted]

7.2.3 IF any Fire Pump Room Temperature is below [redacted] THEN ENSURE the appropriate Room Heaters have energized.

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NOTE

IF any Fire Pump Room temperature is approaching the limit of [redacted] THEN Operations MAY be proactive and enter Step 7.2.4 before reaching the high temperature limit.

7.2.4 IF any Fire Pump Room temperature is greater than [redacted] while the Fire Pump Room HVAC Supply Fans are in the OFF position, THEN PERFORM the following:

7.2.4.1 START the Fire Pump Room HVAC Supply Fan(s) on the affected Fire Pump Room(s).

7.2.4.2 MONITOR the affected Fire Pump Room(s) temperature(s) every 30 minutes until room temperatures have stabilized or until room temperatures are **LESS THAN or EQUAL to** [redacted]

a. IF Fire Pump Room temperature stabilizes at **GREATER THAN** [redacted] THEN RECORD the room temperature every approximately every 4 hours until outside air temperature is **GREATER THAN** [redacted]

b. IF Fire Pump Room temperatures are **LESS THAN or EQUAL to** [redacted] THEN PERFORM the following:

1. PLACE the Fire Pump Room HVAC Supply Fan on the affected pump room in the OFF.

2. PERFORM Step 7.2.

7.3 WHEN outside air temperature is **GREATER THAN** [redacted] THEN GO TO Section 10.0, Restoration from Freezing Weather.

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8.0 Deluge Valve House Extreme Cold Weather Guidelines

NOTE

Room Temperature logs MAY be taken every 6 hours until room air temperatures drop **below** [redacted], then room temperature logs SHOULD be taken every 4 hours. Plant Manager MAY request room temperature logs be taken at shorter intervals of time as the weather dictates

8.1 IF outside air temperature is **LESS THAN or EQUAL to** [redacted] THEN ENSURE ALL Deluge Valve House doors properly CLOSED.

8.2 IF the temperatures in the individual Deluge Valve House Rooms are decreasing to [redacted] (Severe Weather Condition 1), THEN PLACE a portable electric heater (maximum 1500 watt capacity each) in the each of the affected rooms.

8.3 MONITOR Deluge Valve House room temperatures AND RECORD the values on Logsheet 2 (Room Temperature Logsheet) at the following intervals:

8.3.1 RECORD Temperatures every 4 hours until outside air temperature is **GREATER THAN** [redacted]

8.3.2 IF ANY Deluge Valve House room temperature is **below** [redacted] THEN ENSURE the appropriate Room Heaters have

8.4 WHEN outside air temperature is **GREATER THAN** [redacted] THEN GO TO Section 10.0, Restoration from Freezing Weather.

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9.0 Water Treatment Plant Extreme Cold Weather Guidelines

9.1 ENSURE the water treatment building and mono-media building doors are closed and vent fans are shut off to maintain building temperatures above freezing.

9.2 Ensure mono-media sump pumps are running or cycled on a frequent basis to avoid freezing of the exposed piping. An enclosure may be built around these pumps with a portable heater if necessary to avoid freeze damage.

9.3 ENSURE a wind break is built to protect the Neutralization Tank Pump Skid Area from the cold weather. The neutralization pumps should be operated on recirculation to avoid freeze damage to pumps and piping.

9.4 Isolate and drain the hydrochloric acid vent scrubber to prevent freeze damage OR maintain water flow to avoid freezing.

9.5 ENSURE caustic tank heater is operational and maintaining tank temperature.

9.6 IF the Water Treatment Building room temperature is **below** [redacted] THEN ENSURE the appropriate Room Heaters have energized.

9.7 WHEN outside air temperature is **GREATER THAN** [redacted] THEN GO TO Section 10.0 Restoration from Freezing Weather.

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10.0 Restoration from Freezing Weather

NOTE

If the forecast temperature is expected to go **below** [redacted] within the next 24 hours, THEN desired portions of this Section MAY be delayed as directed by the Plant Manager.

Temporary heaters left in place SHALL BE properly secured until needed again.

10.1 IMPLEMENT the following actions at **EQUAL TO or GREATER THAN** [redacted]

10.1.1 PLACE ALL Fire Pump Room HVAC Supply Fans in AUTO.

10.1.2 PLACE ALL Water Treatment Building HVAC Supply Fans in AUTO.

10.1.3 SECURE ANY temporary heaters that were installed.

10.1.4 STOP ANY special temperature monitoring or logging initiated.

10.1.5 IF any "Additional necessary actions taken" were recorded in the Control Room Logbook per Checklist 1, THEN ENSURE actions are restored as necessary. ____

10.1.6 RECORD the date and time for canceling the Freezing Weather Conditions in the Control Room Logbook. ____

11.0 Support Documents

11.1 Addendum 1 (Pre-Season Cold Weather Readiness Actions)

11.2 Checklist 1 (Cold Weather Checklist – Freezing Weather Conditions)

11.3 Form 1 (Freezing Weather Walkdown Criteria)

11.4 Logsheet 1 (Instrument Enclosure Inspection Logsheet)

11.5 Logsheet 2 (Room Temperature Inspection Logsheet)

11.6 Logsheet 3 (Freeze Protection Panel Inspection Logsheet)

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Pre-Season Cold Weather Readiness Actions

NOTE

Addendum 1 (Pre-Season Cold Weather Readiness) MAY be performed in sections or in its entirety at the discretion of the Plant Manager.

1.0 ENSURE temporary wind breaks or enclosures are built to protect sensitive instrumentation as necessary

1.1 HP Drum level and pressure transmitters

1.2 IP Drum level and pressure transmitters

1.3 LP Drum level pressure transmitters

1.4 HRSG Feedwater Pump suction and discharge pressure transmitters

1.5 HRSG Feedwater Pump flow transmitters

1.6 Condensate Pump flow transmitters

1.7 Condensate Pump suction and discharge pressure transmitters

1.8 Condenser level transmitters

1.9 Condenser vacuum pressure transmitters

1.10 Gland Steam pressure transmitters

1.11 Instrument Air Compressor discharge piping

1.12 Instrument Air Dyer Skid

1.13 Steam Turbine pressure transmitters

1.14 Condenser Vacuum Pump Skid

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1.15 Non-enclosed Safety Showers and Eyewash Stations

2.0 The Operations Manager SHALL review the LOTO database for ALL equipment tagged out that MAY need to be drained or restored to service to prevent freezing.

NOTE

The intent of Steps 3.0 and 4.0 is to determine how long the plant can operate with present inventories and fuel supplies and what is the impact if these commodities run out. This information SHALL be provided to the Operations Manager to ensure the inventory issues is addressed.

3.0 VERIFY chemical inventories are sufficient to support plant operations and identify any critical shipments expected during the cold weather forecasted period. Critical deliveries SHALL include margin (time and volume) of existing inventory.

4.0 VERIFY fuel supplies (e.g., diesel fuel, gasoline, kerosene, propane, etc.) are sufficient to support plant operations and identify any critical shipments expected during the cold weather forecasted period. Critical deliveries SHALL include margin (time and volume) of existing inventory.

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FREEZING WEATHER CONDITIONS:

Outside air temperature: **LESS THAN or EQUAL to** [redacted]

NOTE

FREEZING WEATHER CONDITIONS MAY be declared earlier at Plant Manager discretion.

1.0 Freeze Protection Panels in operation. ____

2.0 Susceptible Out-Of-Service equipment drained OR protected. ____

3.0 Susceptible In-Service equipment is protected. ____

4.0 Non-Essential HVAC is secured. ____

5.0 CT Inlet Fogging Coils drained and dried. ____

6.0 Temporary Shelters are inspected. ____

7.0 Temporary Heat Tracing in place, tagged & operating. ____

8.0 Increase walkdown frequency of high freeze potential areas. See Form 1 (Freezing Weather Walkdown Criteria) for guidance. ____

NOTE

Room Temperature logs MAY be taken every 6 hours until room air temperatures drop **below 35°F**, then room temperature logs SHOULD be taken every 4 hours. The Plant Manager MAY request room temperature logs be taken at shorter intervals of time as the weather dictates.

9.0 ENSURE the following logs have been initiated to monitor the room temperatures every 4 hours:

a. Logsheet 1 (Instrument Enclosure Inspection Logsheet) ____

b. Logsheet 2 (Room Temperature Logsheet) ____

c. Logsheet 3 (Freeze Protection Panel Logsheet) ____

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10.0 ENSURE all temporary heat lamps and heaters are in service AND monitor fuel levels. ____

11.0 Outside air temperature continuously displayed in Control Room. ____

12.0 Monitor EDNA freeze protection trends and TXP Critical Instruments screen for issues.

NOTE

CTW Fan 'A' SHOULD be maintained in service due to overspray in the area.

13.0 Monitor Cooling Tower for ice build-up and cycle fans as necessary. ____

14.0 Cycle all LP, HP, RH bypass FBVs and TCVs as necessary to prevent valve freezing. ____

15.0 START Neutralization Pumps and place in Mix Extend to maintain circulation. ____

16.0 Crack OPEN Standby Boiler Feed Pump casing drains. ____

17.0 ENSURE both Vacuum Pumps are in service for each Steam Turbine. ____

18.0 OPEN Recirculation Valve on Settling Pond Pump and THROTTLE Discharge Valve to River to ensure continuous flow. ____

19.0 Rotate Settling Pond Pumps hourly. ____

20.0 ENSURE Vacuum Breakers and Atmospheric Relief Valves seal water has adequate flow. (NOT overflowing drain cups) ____

21.0 ENSURE HCL Acid Scrubber water supply line drained. ____

22.0 ENSURE all GSU transformers, Unit 3 and Unit 6 Fire System dry piping free of water. ____

23.0 Additional necessary actions taken are recorded in the Control Room Logbook. ____

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Checklist 1 Cold Weather Checklist – Freezing Weather Conditions

NOTE

Contractor personnel MAY be used to supplement staffing levels to meet the around the clock staffing requirements.

24.0 ENSURE Operations and Maintenance staffing levels are increased to provide around the clock coverage as necessary. ____

25.0 ENSURE the Operations or Maintenance Manager is assigned to provide backshift managerial coverage during winter weather event as necessary. ____

26.0 ENSURE sufficient food, blankets, cots, drinking water, etc... is available at the plant should roads become impassable due to inclement weather. ____

27.0 ENSURE sufficient bulk chemicals are available. ____

28.0 ENSURE sufficient fuel for portable heaters is available. ____

29.0 SUSPEND all discretionary maintenance that could affect plant availability. ____

30.0 ENUSRE door are closed on any buildings that could be affected by freezing weather. ____

31.0 ENSURE the manlift has been moved into the Water Treatment Building. ____

32.0 WHEN outside air temperature is GREATER THAN [redacted] THEN GO TO Section 10.0 Restoration from Freezing Weather. ____

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NOTE

The following conditions are identified as potential problems when exposed to freezing weather. This should not be construed as an all-inclusive list.

1.0 Valve bonnets which are **NOT** insulated in a piping system which is insulated.

2.0 Freeze Protection leaves a gap where the pipe either goes underground or enters a building.

3.0 Freeze Protection ends before the Tee or Reducer at a pipe size transition, leaving a portion of the smaller pipe unprotected.

4.0 Freeze Protection ends at an equipment or system interface, leaving interface flanges or skid-mounted piping and instrumentation unprotected.

5.0 Local Instrumentation (gauge glasses, PIs, sensing lines, etc) is **NOT** freeze protected and space heaters are **NOT** provided in instrument cabinets.

6.0 Freeze Protection is **NOT** continuous at pipe supports.

- 6.1 Demineralized Water
- 6.2 Fire Protection (wet pipe sections)
- 6.3 Service Water
- 6.4 Ammonia Supply

7.0 Insulation or heat tracing has **NOT** been restored after Maintenance.

8.0 6" and smaller piping and pumps which contain water and are **NOT** insulated SHALL be evaluated for off-normal operation.

9.0 6" and smaller valves in a larger line which are **NOT** heat-traced.

10.0 Freeze Protection is **NOT** provided at tank vacuum breakers, level gauges, instrumentation, etc.

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11.0 Freeze Protection is **NOT** provided for extended vents and drains (evaluation SHALL be performed on a case-by-case basis to determine if susceptibility/fin-affected cooling is present).

12.0 ENSURE fan cooler condensation is **NOT** leaking onto other cold components and freezing.

13.0 ENSURE condensation in Instrument Air-line drains located in cold weather areas is drained.

14.0 Any water-filled piping, pump, heat exchanger, or other components that are **NOT** insulated and are **NOT** in service, SHALL be evaluated for possible draining. (Tanks are the exception.)

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Logsheet 1 Instrument Enclosure Inspection Logsheet

Date:_____

Enclosure Number	Enclosure Location	0700-1900	1900-0700

Notes

1. Record SAT/UNSAT to denote operability of Instrument Enclosure Space Heaters.
2. WOs SHALL be written for failed space heaters.
3. Notify CRO of any inoperable Freeze Protection Circuits and implement compensatory freeze protection measures as determined necessary.

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Logsheet 2

Room Temperature Logsheet

Date: _____ _____

Note: Please initial in boxes for respective items that are inspected in given interval.

Bldg/Room	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
U4 CEMS																								
U5 CEMS																								
U6 Elec Build																								
ST6 Seal Oil Reg Encl																								
PB2 Deluge																								
U5 PEECC																								
U5 LO Skid																								
U5 Exciter																								
PB2 Water Wash Skid																								
U4 PEECC																								
U4 LO Skid																								
U4 Deluge House																								
U4 LCI/Exc																								
Diesel Gen Enclosure																								
Main Elect Building																								
Demin Bldg																								

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Logsheet 2 Room Temperature Logsheet

Bldg/Room	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
U1 LO Skid																								
U1 PEECC																								
PB1 Water Wash Skid																								
Switch Yard Bldg																								
U1 Deluge																								
U1 LCI/Exc																								
U2 PEECC																								
U2 LO Skid																								
CEMS 1																								
CEMS 2																								
Mono-media Bldg																								
Fire Pump Bldg																								
U2 Exciter																								

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Logsheet 2

Room Temperature Logsheet

Bldg/Room	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
ST3 Seal Oil Reg Encl																								
U3 Deluge																								
U3 Elec Bldg																								
Raw Water Meter Bldg																								
Air Comp Shed (Maint Shop																								
Well House (potable water)																								
River Pump Bldg																								
Lake Pump Bldg																								

Notes:

1. Start/maintain walkdown during ambient temperatures less than or equal to 35 deg F.
2. Ambient temperature referenced to plant ambient temperature transmitter.
3. Walkdown frequency is every 4 hours.
4. Notify CRO of extreme building/room temperatures that are not correctable. Implement compensatory measures as necessary.

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Logsheet 3 Freeze Protection Panel Logsheet

Date: _____ **Note: Please initial in boxes for respective items that are inspected in given interval.**

Panel	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
U3 Heat Trace Panel																								
U2 Heat Trace Panel																								
U1 Heat Trace Panel																								
U4 Heat Trace Panel																								
U5 Heat Trace Panel																								
U6 Heat Trace Panel																								

Notes:

1. Start/maintain walkdown during ambient temperatures less than or equal to [redacted]
2. Ambient temperature referenced to plant ambient temperature transmitter.
3. Walkdown frequency is every 4 hours.
4. Notify CRO of inoperable circuits on heat trace panel following initial troubleshooting. Identify affected system(s) on inoperable circuit(s). Implement compensatory measures as necessary.

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Guadalupe Energy Center Procedure Manual

PROCEDURE: SEASONAL READINESS PREPARATION

NUMBER: GU-ZA-0001 REVISION: 7

DocuSigned by: Andy McDonald 0BCF7A58CF4A4D5... DS MA

GENERAL PLANT MANAGER

11-24-2021

DATE

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1.0 PURPOSE

The purpose of this procedure is to describe the process to be used when preparing the Calpine Fleet for reliable operation during the summer, winter, and seasonal periods.

This procedure is to support the safe and reliable plant operation through normal and extreme temperatures, weather patterns, and grid operating conditions that are specific to each season.

This procedure is to be used in conjunction with plant specific seasonal readiness checklists.

2.0 SCOPE

This Seasonal Readiness Preparation Procedure refers to the management of the scope of work activities to be completed to support either the summer or the winter readiness. For the purposes of summer readiness, the summer period is the period from June 1 through September 15. For purposes of winter readiness, the winter period is the period from November 1 through April 1.

Preparation for seasonal readiness declaration shall be managed through the adherence of an established set of milestones. Each milestone has an owner and a defined set of deliverables and completion date. The milestones are as follows:

1. Post season critique.
2. Engineering reviews and scope recommendation.
3. Scope approval by Plant Manager.
4. Verification of all work scheduled.
5. Certification of seasonal readiness work complete.

The dates and owners and a description of each milestone is included in Attachment 4 (Seasonal Readiness Milestones).

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3.0 DEFINITIONS

Seasonal – Geographical areas in the Calpine Fleet may be susceptible to localized flooding, heavy rains, high winds, hurricanes, blizzards, and other storm related conditions. For those areas additional preparations beyond those defined in the summer and winter periods may be required.

Efforts are to focus on completing preparatory activities two (2) weeks prior to the start of the period.

Summer – for the purposes of summer readiness is the period from May 15 through September 15.

Winter – for the purposes of winter readiness is the period from December 1 through March 15.

4.0 RESPONSIBILITIES

Plant Manager

The Plant Manager is responsible for providing a delegate to be the Seasonal Readiness Coordinator.

The Plant Manager is responsible to provide updates as required to the Regional Vice President, Operations.

The Plant Manager is responsible for overall plant preparations and for certifying to the respective Regional Vice President, Operations that the plant is ready for summer and winter operation.

The Plant Manager is responsible for the readiness effort of the plant by participating in conference calls/meetings as needed with the Regional Vice President, Operations to ensure necessary actions are completed in a timely manner during severe weather events.

Operations Manager

The Operations Manager is responsible to screen emergent work for seasonal readiness applicability.

Seasonal Readiness Coordinator

The Seasonal Readiness Coordinator is appointed by the Plant Manager, and is responsible for assuring completion of actions needed to achieve sustained reliability and availability by readying the plant for possible extreme cold, heat and other seasonal

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related conditions, and for notifying plant management for action when required readiness actions are not being completed as scheduled.

The Seasonal Readiness Coordinator is responsible to provide oversight of the plants progress toward seasonal readiness.

The Seasonal Readiness Coordinator is responsible for chairing the plants seasonal readiness meetings.

The Seasonal Readiness Coordinator is responsible for developing and monitoring action plans.

The Seasonal Readiness Coordinator is responsible to monitoring scheduled maintenance for completion and follows up on seasonal readiness issues.

The Seasonal Readiness Coordinator is responsible to provide updates as required to the Plant Manager.

5.0 PROCESS

A Seasonal Readiness Coordinator shall be appointed by the Plant Manager. The Seasonal Readiness Coordinator shall direct and coordinate the efforts of contributing departments. The Seasonal Readiness Coordinator shall monitor work preparation and completion and report progress on a regular basis to the Plant Manager.

Seasonal readiness is accomplished through the identification of required work which includes post season critique, engineering reviews and scope recommendation; scope approval; incorporating seasonal work into schedule, completion of work activities that are on schedule and on a seasonal readiness checklists and acquiring appropriate seasonal readiness certification.

Specific guidance for each season is contained in the following appendices:

- Winter - Attachment 5
- Summer - Attachment 6

5.1 Post Season Critique

A post season critique is conducted at or near the end of each season by the Plant Manager. The lessons learned from the past season are incorporated into best practices for improvement in future seasonal readiness.

5.2 Engineering Reviews and Scope Recommendation

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Each Plant's Engineer shall perform a review/walkdown of systems to confirm requirements for seasonal readiness for each system per Attachment 2 (System Engineering Readiness Review). The lessons learned from the past are incorporated into future seasons. Cross functional meetings should be held to obtain input from Operations, Maintenance and other stakeholders. Work activities that have to be completed each year to support seasonal readiness shall be set up as preventive maintenance repetitive tasks in Maximo.

5.3 Scope Approval

The Plant Manager is the approval authority for seasonal readiness program scope. The initial scope of work as well as proposed changes to scope shall be approved by the Plant Manager.

5.4 Scheduling Seasonal Work into Work Week Management Schedule

Seasonal readiness work orders shall be integrated within the plant's work week schedule. Scheduled completion dates should allow for all work to be completed on or before June 1 for summer readiness items and November 1 for Winter Readiness Items.

5.5 Executing Seasonal Readiness Work Orders

Work identified and scheduled as seasonal readiness shall be executed in a timely manner.

5.6 Completion of Seasonal Readiness Department Checklist

The Seasonal Readiness Coordinator shall prepare an action item matrix that details the actions required to prepare for winter or summer operation, the owner of each action, and due date for each action. The lists of actions for winter are in Attachment 5 (Winter Readiness Precautions and Action Timeline). The lists of actions for summer are in Attachment 6 (Summer Readiness Precautions and Action Timeline).

5.7 Seasonal Readiness Certification

The Plant Manager shall review the scope of work completed and work not completed to justify that the plant is prepared for seasonal operation. Guidelines for the letter are included in Attachment 3 (Typical Guadalupe Seasonal Readiness Certification Letter).

5.8 Prerequisites

Lessons Learned from previous seasons shall be incorporated into the plant-

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specific procedures or are being tracked to prevent reoccurrence.

5.9 Instructions

NOTE: In the event local authorities restrict access to the Guadalupe Energy Center, present driver license and Calpine Id badge to the official and explain you are an essential employee the facility and need to report to work.

5.9.1 Winter Readiness

Use Attachment 1 (Seasonal Readiness Action Timeline) as a guide for the typical timeline for winter readiness actions. This time line may be modified or supplemented as required based on specific needs.

Initiate winter readiness actions starting September 1, by initiating selected system reviews as determined by plant management and by reviewing open deficiencies that must be resolved prior to November 1.

A. Use Attachment 2 (System Readiness Review Checklist) to document the reviews of systems selected.

Begin final readiness actions in the fall as soon as normal daily high temperatures fall below 60 degrees Fahrenheit, or as soon as directed by plant management based on the needs of the plant.

Use plant specific checklists and/or procedures that describe the detail actions needed to prepare the plant for winter operation.

B. Plant-specific documents used for winter readiness should specify all actions needed to ensure plant buildings are properly heated and that equipment is protected from freezing conditions. When possible, use plant work management systems to create recurring tasks that are required every year.

a. The Seasonal Readiness Coordinator should track completion of winter required activities on a regular basis and report issues to the plant management team for resolution.

The Plant Manager shall provide winter readiness weekly updates as specified during the weekly plant manager conference call on or before October 1 and ending when all necessary actions have been completed.

Complete all actions required to ready the plant for the winter season on or

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before November 15. Depending on plant needs, additional preventive and contingent actions should be developed for extreme cold temperature conditions as well.

The Plant Manager is to certify the plant's winter readiness via letter on or before November 20. Refer to the requirements of the certification in the typical letter on Attachment 3 (Typical Guadalupe Seasonal Readiness Certification Letter) of this procedure.

Screen new equipment deficiencies for potential winter readiness impact and prioritize their resolution as required to ensure reliable winter operation. Work that is identified as a winter readiness related item shall be noted as such in Maximo.

Monitor plant operations during the winter period to identify weaknesses in the winter readiness plan. Track lessons learned for incorporation into plant or corporate documents. Ensure action tracking is used to implement the changes prior to the next winter season.

When seasonal conditions warrant, secure the plant from the winter operational line-ups and configuration using plant-specific procedures and/or checklists.

Conduct a post season plant critique meeting following the Winter Readiness period but before May 1. Identify and budget items needed for next year's seasonal readiness in the plant budget.

5.9.2 Summer Readiness

Use Attachment 1 (Seasonal Readiness Action Timeline) as a guide for the typical timeline for summer readiness actions. This time line may be modified or supplemented as required based on specific needs.

Initiate summer readiness actions starting March 1 by initiating selected system reviews as determined by plant management and by reviewing open deficiencies that must be resolved prior to June 1.

Use the lessons learned from the previous summer's critique meeting.

Prepare an action item matrix that details the actions required to prepare for summer operation, include the actions, due dates, and owners of the tasks.

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Attachment 1 provides the basic timeline for summer readiness actions needed and should be included in the action item matrix.

The Seasonal Readiness Coordinator shall maintain a plant-specific action item list or similar tracking mechanism that lists the specific actions to be completed by the Plant, with Plant owners, actions and due dates. All actions should be completed by May 15.

Use Attachment 2 (System Readiness Review Checklist) to document completion of the detailed system material condition review as specified in the summer readiness timeline.

These system condition reviews should identify all actions needed to ensure systems shall function properly and reliably through the summer and challenges to reliable unit operation are minimized.

The Seasonal Readiness Coordinator shall ensure that the system reviews have been completed and that deficiencies have been included into the work management system and that the Plant Manager has accepted risks to reliability.

In addition to system reviews, use plant specific checklists and/or procedures that describe the detail actions needed to prepare the plant for summer operation.

Plant-specific documents used for summer readiness should specify all actions needed to ensure that equipment is readied for high heat conditions. The following are suggestions and should be used as a tool for the plant to ensure complete readiness;

Ensure cooling systems are properly maintained and functioning properly.

Ensure PMs are performed on critical components prior to summer

Provide summer readiness weekly updates as specified on the weekly plant managers' conference beginning on March 15 and ending when all necessary actions have been completed.

The Plant Manager is to certify their Plants Summer readiness via a letter on or before May 20. Refer Attachment 3 (Typical Seasonal Readiness Certification Letter) for the requirements of the certification.

Screen new equipment deficiencies for potential Summer Readiness impact and prioritize their resolution as required to ensure reliable summer operation. Work that is identified as Summer Readiness shall be coded in

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Maximo.

Monitor plant operations during the summer period to identify weaknesses in the Summer Readiness plan. Track lessons learned for incorporation into Plant or corporate documents. Assure action tracking is used to implement the changes prior to the next summer's season.

When seasonal conditions warrant, and then secure the Plant from the summer operational line-ups and configuration using Plant-specific procedures and/or checklists.

Conduct a Plant Summer Readiness critique meeting following the Summer Readiness period but before October 15. Identify and budget items needed for next year's seasonal readiness in the Plant budget.

5.9.3 Seasonal Readiness

For those areas that may be susceptible to predictable localized flooding, heavy rains, high winds and other extreme storm related conditions were additional preparations beyond those defined in the Summer and Winter periods may be required the following actions shall be completed to mitigate the consequences of an event.

A. When conditions exist that may lead to increased river, lake, water way levels appropriate measures shall be taken to ensure asset protection and minimal risk to the plant. These shall include but are not limited to the following:

- Increase operator attention for areas that are subject to water intrusion as a result of high water levels.
- Ensuring floating debris does not enter plant systems.
- Oil separators and other retention ponds do not contaminate surrounding areas.
- Provisions are made to dam or elevate equipment or components that are staged in areas that are susceptible to flooding (e.g., availability of sand bags, portable pumps, and sump pumps, etc...).
- Appropriate actions are taken to prohibit walking or vehicle traffic in areas that have flooded and could place employees in harm's way.

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B. When conditions exist that may lead to heavy rains the following actions shall be taken as a minimum.

- Increase operator attention for areas that are subject to water intrusion as a result of heavy rain falls.
- Plant facility backlogs shall be reviewed for deficiencies that could introduce water into the facility, such as roof leaks, poor sealing windows or doors, Electrical or mechanical penetrations that are known to provide a pathway for water intrusion. Known floor drains that, if not cleared, could cause hazards due to water backing up, are to be cleared prior to the expected seasonal condition. Availability of tarps or protective covers should be evaluated.
- Water that does enter the plant is to be evaluated by the Operations Manager or designee for increased risk to personal safety, production, and environmental impact.

C. When conditions exist that may lead to high winds or other extreme storm related conditions the following actions shall be initiated.

- The Operations Manager or designee shall walk down the property to identify materials or debris that could become airborne during high wind conditions. Action shall be taken to secure or remove the hazards to ensure that equipment or personnel are not injured during the condition.
- Increase operator attention during the high wind or storm conditions to identify new hazards. Operators shall not put their own safety at risk.
- Plant facility backlogs shall be reviewed for deficiencies that could become airborne during high wind conditions such as building siding, roofing material, or protective coverings.

D. Plants that are frequently challenged by these conditions are to develop plant-specific procedures as required, to ensure these hazards controlled and mitigated.

E. Other procedures that should be reviewed under these conditions include plant abnormal operations procedures.

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6.0 REFERENCES

CPN-714 (Records Management)

CSN-101 (Work Management Program)

Management of Design Change

7.0 RECORDS

Any records generated as a result of this process shall be filed and retained in accordance with CPN-714 (Records Management). Processes and procedures referenced in this document shall prescribe any specific records requirements within those documents.

8.0 SUPPORT DOCUMENTS

Attachment 1 (Seasonal Readiness Action Timeline)

Attachment 2 (System Readiness Review)

Attachment 3 (Typical Letter of Seasonal Readiness Certification)

Attachment 4 (Seasonal Readiness Milestone)

Attachment 5 (Winter Readiness Precautions and Action Timeline)

Attachment 6 (Summer Readiness Precautions and Action Timeline)

Attachment 7 (Seasonal Readiness Actions Learned)

Attachment 8 (Seasonal Lessons Learned)

Attachment 9 (Additional Activities)

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1.0 OCTOBER

1.1 Winter Readiness

After October 1 begin regular Winter Readiness updates on the morning conference call or on a separate conference call.

2.0 NOVEMBER

2.1 Summer Readiness

- Plant Manager to identify the individual assigned to be the Summer Readiness Coordinator November 1.
- November 1 - selected Summer Readiness System Reviews to begin using attachment 2 for guidance.

2.2 Winter Readiness

Certify Winter Readiness by November 20.

3.0 DECEMBER

3.1 Summer Readiness

December 1 - Summer Readiness Scope approval by Plant Manager.

4.0 JANUARY

4.1 Summer Readiness

- Complete the system reviews before the end of the month. Include identified deficiencies into work management process to assure completion prior to Summer Operation.
- All work is scheduled to be complete prior to May 1.
- Contact LCRA to identify known switchyard deficiencies. Evaluate the proposed maintenance plan assure impact is minimized. Scope includes the following:
  - breakers
  - batteries
  - relay house ventilation
  - insulator integrity
  - CT's
  - PT's.
- Ensure risks associated with incomplete work is understood and managed.

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- Maintenance schedules for protective relays should be evaluated to ensure calibrations due before September 1 are performed prior to the Summer Readiness period defined in Section 3.1.

5.0 FEBRUARY

5.1 Summer Readiness

- Evaluate site preventive maintenance tasks and any scheduled special tests. Move any risks to reliability out of the summer operational period.
- Review Original Equipment Manufacturers (OEMs) TILs TBs bulletins to provide any input on components that could be impacted by higher temperatures
- February 15 all summer readiness work is to be scheduled.

5.2 Winter Readiness

-

6.0 MARCH

6.1 Summer Readiness

- Monthly summer readiness conference calls begin.
- Contact GBRA and verify raw water supply adequacy.
- Contact DCP and Energy Transfer to confirm no pending or scheduled activities that could impact generation during the summer run.
- Review and verify the environmental strategies and any expectations for operation of the units within environmental limits during summer.
- Verify all work identified as summer readiness has been properly coded and incorporated into the site work schedule for completion in time for Summer Operation.

6.2 Winter Readiness

Before March 15 conduct a Winter Readiness Critique Meeting to review the previous winter performance. Identify lessons learned to incorporate into the seasonal readiness plan.

7.0 APRIL

7.1 Summer Readiness

A. Operations has reviewed the forced outage list and has incorporated any lessons learned into shutdown/start-up procedures. Training is completed if required.

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B. Complete review of any contingency work packages ensuring packages are complete and parts are available.

C. After April 15, begin summer readiness updates on the weekly plant managers' conference call.

D. When seasonal conditions warrant, secure the site from winter operational Line-ups and configuration using site-specific procedures and/or checklists.

7.2 Winter Readiness

April 1 initiate selected system reviews as determined by station management and by reviewing open deficiencies that must be resolved prior to winter. Use Attachment 2 (System Readiness Review) for guidance.

8.0 MAY

8.1 Summer Readiness

- Certify summer readiness by May 15
- Complete any VAR testing of the unit required by ERCOT or TRE.
- Schedule periodic exercising of critical control systems and equipment to improve reliability through the summer period.
- Begin periodic visual inspection of switchyard for vegetation growth.

8.2 Winter Readiness

May 15 winter readiness scope approved by the Plant Manager.

9.0 JUNE

10.0 JULY

10.1 Winter Readiness

Initiate selected system reviews as determined by plant management and by reviewing open deficiencies that must be resolved prior to winter. Use Attachment 2 (System Readiness Review) for guidance.

11.0 AUGUST

12.0 SEPTEMBER

12.1 Summer Readiness

A. When seasonal conditions warrant, and then secure the site from the summer operational line-ups and configuration using site-specific procedures and/or checklists.

B. Before Sept 15 conduct a Summer Readiness Critique Meeting to review the previous summer readiness performance. Identify lessons learned to

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incorporate into Guadalupe Energy's Seasonal Readiness Plans.

12.2 Winter Readiness

September 1 - All winter readiness work is scheduled.

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Unit: _____

Evaluator:_____ **System:** _____ **Date:** _____

For each unit system, utilizing any available system Health Reports, complete the following checklist for Potential items that may affect unit operation during the upcoming season. Negative effects on the unit Operation to be assessed are:

- Could procedure an unplanned shutdown (loss of generation) during operation (Example: Generation Sensitive testing during the summer months, freezing risk in Winter, etc.)
- Could procedure an unplanned de-rate (loss of generation) during operation (Example: same as above.)
- Could cause a situation when the risk of a unit shutdown or derate is increased. (Example: Planned maintenance of a condensate pump during July increase the risk of a shutdown/de-rate should another Condensate Pump fail.)

If any items are listed in the affirmative, as potential for negatively impacting operation, not reference to the appropriate document, and initiate to resolve the item prior to Winter or Summer as appropriate.

Attached is a list of the items in each category pertaining to the system.

Category	List Attached	Could Cause Shutdown	Could Cause De-Rate	Could increase risk of trip or de-rate	Would prevent prompt return to Power	If yes, description attached
Open Modifications	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No
Work Order/Request	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No
Engineering Request	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No
Temporary Modifications	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No
Operator Work Around	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No
LOTOs	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No
Routine Test Results	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No
Special Tests	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No
Oil/Vibrations/Thermography	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No
Procedure Changes	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No
Any component approaching temperature limits	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No	Yes / No
Rodent Infestation	Yes / No					

System walk-down for potential shutdown or de-rate causes completed. Date: _____

_____ No potential shutdown or de-rate causes noted during walk-down

_____ Possible shutdown or de-rate cause identified and action initiated to resolve issues (attach copy).

_____ Date: _____
Evaluator

_____ Date: _____
Site Readiness Coordinator

_____ Date: _____
Plant Manager

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No.	System or Equipment	Could Cause Shutdown	Could Cause Derate	Could Increase Risk of Trip or Derate	Would Prevent Prompt Return to Power	Action Owner	Maximo	Mitigation Action	Due Date

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To: (Regional VP, Operations Name)

From: (Plant Manager Name)

Subject: Winter (Summer) Certifications

Guadalupe Energy has reviewed the requirements of GU-ZA-0001 (Seasonal Readiness Preparation) and by copy of this letter is ready to certify Guadalupe Energy's seasonal readiness.

A. The basis for our certification is as follows:

(Plants should provide a Summary of actions completed with focus on)

1. Significant outcomes of system reviews
2. Switchyard condition
3. Cooling Tower fowling analysis (summer only)
4. Heat removal equipment readiness (summer only)
5. Heat trace/steam trace equipment readiness (winter only)
6. Contingency plans and packages
7. Forced outage readiness
8. Any plant specific issues/resolutions or status

B. Winter (or summer) readiness items not completed

1. Reason
2. Open Actions Items
3. Owner & Due Date
4. Impact

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To: ERCOT Regional Vice President

From: Guadalupe Energy Center Plant Manager

Subject: Certification

Guadalupe Energy has reviewed the requirements of GU-ZA-0001 (Seasonal Readiness Preparation) and by copy of this letter is ready to certify Guadalupe Energy's seasonal readiness.

The basis for our certification is as follows:

- A review of critical systems for summer was completed and documented in GU-ZA-0001 Attachment 1.
- The switchyard was inspected and breaker adjustments were made in May 2014.
- The cooling tower is undergoing fire water system improvements, fan blade replacements, and drift eliminator replacements; however these will not limit summer output.
- Air conditions have been checked and we have a current contract with an HVAC vendor. Heat exchanger reviews are showing normal performance.
- Guadalupe's Emergency Operating Plan was reviewed and updated with ERCOT as required.
- Spare parts were reviewed as outlined in GU-ZA-0001

Certification Signature:_____ **Date:**_____

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Milestone	Milestone	Responsible	Summer	Winter
1	Post Season Critique	Seasonal Readiness Coordinator	Sep 15	Mar 15
2	Engineering Reviews and Scope Recommendation	Plant Engineer	Nov 1	Apr 1
3	Scope Approval by Plant Management	Plant Manager	Dec 1	May 15
4	All Work Scheduled	Maintenance Manager	Feb 15	Sep 1
5	Certification Letter – Seasonal Readiness Activities Complete	Plant Manager	May 15	Nov 20

1.0 MILESTONES # 1: POST SEASON CRITIQUE

1.1 Milestone Owner

Seasonal Readiness Coordinator

1.2 Supporting Members

- Plant Manager
- Maintenance Manager
- Operations Manager
- Plant Engineer
- Others as needed

1.3 Definition

The Post Season Critique is a cross functional meeting to gather lessons learned from the past season and incorporates them into best practices for improvement in future seasonal readiness.

1.4 Requirements to satisfy the milestone

Prepare a report recommending changes for future improvement.

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1.5 Target Work Start Date:

N/A

1.6 Milestone Predecessor

N/A

1.7 Milestone Successor:

Milestone # 2 Engineering Reviews and Scope Recommendation.

2.0 MILESTONE # 2:

Engineering Reviews and Scope Recommendation

2.1 Milestone Owner

Plant Engineer

2.2 Supporting Members

Seasonal Readiness Coordinator

Maintenance Manager

Operations Manager

Plant Manager

2.3 Definition

Review the walkdown of plant systems to confirm requirements for seasonal readiness for each system. Incorporate lessons learned from past season. Hold cross functional meetings to obtain input from Operations, Maintenance and other stakeholders.

2.4 Requirements to satisfy the milestone

The scope of work for seasonal readiness is based on what is required to operate the plant safely and reliably for the duration of the seasons. The scope of work does not include all work orders required to improve system health.

Complete Attachment 2 (System Readiness Review) for each system. Provide submission of recommended scope package to plant management.

2.5 Target Work Start Date:

N/A

2.6 Milestone Predecessor

Milestone # 1: Post Season Readiness Critique.

2.7 Milestone Successor:

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Milestone # 3: Scope Approval by plant management.

3.0 MILESTONE # 3: SCOPE APPROVAL BY THE PLANT MANAGEMENT.

3.1 Milestone Owner

Chair – Plant Manager

3.2 Supporting Managers

Operations Manager

Maintenance Manager

3.3 Definition

To review and challenge the seasonal readiness scope that has been recommended by the Plant Engineer.

3.4 Requirements to satisfy the milestone

The approval of the recommended Scope Package.

3.5 Target Work Start Date:

N/A

3.6 Milestone Predecessor

Milestone # 2: Engineering Reviews and Scope Recommendation.

3.7 Milestone Successor:

Milestone # 4: All Work Scheduled.

4.0 MILESTONE # 4: ALL WORK SCHEDULED

4.1 Milestone Owner

Maintenance Manager

4.2 Supporting Members

Seasonal Readiness Coordinator

Operations Manager

Plant Manager

Scheduler/Planner

4.3 Definition

Scope, plan, and schedule the scope of work per CSN-101 (Work Management Program).

4.4 Requirements to satisfy the milestone

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All scope of work shall be assigned to work weeks and scheduled. Seasonal readiness activity execution must consider the impact of operating unit outages.

4.5 Target Work Start Date:

Publish target work start dates and actual performance.

4.6 Milestone Predecessor

Milestone # 3: Scope Approval by plant management.

4.7 Milestone Successor:

Milestone # 5: Certification Letter - Seasonal Readiness Activities Complete.

5.0 MILESTONE # 5: CERTIFICATION LETTER - SEASONAL READINESS ACTIVITIES COMPLETE

5.1 Milestone Owner

Plant Manager

5.2 Supporting Members

Seasonal Readiness Coordinator

Maintenance Manager

Operations Manager

Plant Engineer

5.3 Definition

The Plant Manager shall review the scope of work completed, work not completed to justify that the Plant is prepared for seasonal operation. Guidelines per Attachment 3 (Typical Guadalupe Seasonal Readiness Certification Letter).

5.4 Requirements to satisfy the milestone

Letter to the Regional VP, Operations certifying Guadalupe Energy is prepared for the upcoming season.

5.5 Target Work Start Date:

N/A

5.6 Milestone Predecessor

Milestone # 4: All work scheduled

5.7 Milestone Successor:

N/A

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Summer Readiness

Year _____

PURPOSE

This procedure provides instructions for preparing the plant for normal summer conditions. Completion of this procedure does not represent any guarantee of availability or reliability of the units.

SPECIAL INSTRUCTIONS/PRECAUTIONS

This procedure is only a guideline and GPP operations and maintenance should utilize judgment and experience when hot weather conditions are immanent.

COMPLETION DATE

Completed by April 15 with exceptions noted and expected completion dates filled in.

PROCEDURE

Gas Turbine

DESCRIPTION OF TASK	DATE COMPLETED	INSPECTOR SIGNATURE
Perform vibration analysis on system pumps/motors	Date:	nitial:
Evap coolers, fill and test	Date:	nitial:
Pump/motor equipment rotation	Date:	nitial:
Block 1 full load test	Date:	nitial:
Block 2 full load test	Date:	nitial:
Verify adequate oil inventories on site	Date:	nitial:
Verify common spare pumps on site	Date:	nitial:
Verify common spare motors on site	Date:	nitial:

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Steam Turbine

Perform vibration analysis on system pumps/motors	Date:	Initial:
Verify adequate oil inventories on site	Date:	Initial:
Pump/motor equipment rotation	Date:	Initial:
Verify common spare pumps on site	Date:	Initial:
Verify common spare motors on site	Date:	Initial:

Balance of Plant

Duct burner function tests all units	Date:	Initial:
HVAC maintenance	Date:	Initial:
Cooling tower pump/motor equipment rotation	Date:	Initial:
Verify common spare pumps on site	Date:	Initial:
Verify common spare motors on site	Date:	Initial:
Perform vibration analysis on cooling tower pumps/motors	Date:	Initial:
Diesel Generator tests successful	Date:	Initial:
Verify CEMS spares in stock	Date:	Initial:
Proper airflow for Instrument air compressors	Date:	Initial:
Test run all transformer fans in hand	Date:	Initial:

Water Plant

Clarifier maintenance	Date:	Initial:
ZLDF maintenance	Date:	Initial:
Verify common spare pumps and motors on site	Date:	Initial:
Verify adequate oil inventories on site	Date:	Initial:

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Air Conditioners

Verify redundant air conditioners are operating properly monthly.

Procedure

- At each location verify one air conditioner is set at 76 degrees and the other at 72 degrees
- Verify only one air conditioner is running
- Allow the unit to run at least 20 seconds before taking the temperature
- With a thermometer or temperature gun take the running unit temperature in the center of the exhaust louvers and record the temperature.
- Reverse the air conditioners by moving the unit at 78 degrees to 72 degrees and raising the unit at 72 degrees to 78 degrees.
- Continue on the route to check all lead units and then return to record the lag unit back at the beginning of the route

Date: _____ Time:_____ Inspector: _____

Unit	Setpoint/ExhaustVent Temp
PEECC 1 AC 1100A	
PEECC 1 AC 1100B	
PEECC 2 AC 1200A	
PEECC 2 AC 1200B	
PEECC 3 AC 2100A	
PEECC 3 AC 2100B	
PEECC 4 AC 2200A	
PEECC 4 AC 2200B	
GEECC 1 1100A	
GEECC 1 1100B	
GEECC 2 1200A	
GEECC 2 1200B	
GEECC 3 2100A	
GEECC 3 2100B	
GEECC 4 2200A	
GEECC 4 2200B	
CEMS 1 1-CEMS-HVAC-1100	
CEMS 2 1-CEMS-HVAC-1200	

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CEMS 3 2-CEMS-HVAC-2100	
CEMS 4 2-CEMS-HVAC-2200	
Switchyard PDC North	
Switchyard HVAC-0100	
ZLDF PDC	
ZLDF Control Room	
ZLDF Lab	
Block 1 PDC A 1100A	
Block 1 PDC A 1100B	
Block 1 PDC B 1100A	
Block 1 PDC B 1100B	
Block 1 PDC C 1100A	
Block 1 PDC C 1100B	
Block 2 PDC A 2100A	
Block 2 PDC A 2100B	
Block 2 PDC B 2100A	
Block 2 PDC B 2100B	
Block 2 PDC C 2100A	
Block 2 PDC C 2100B	
Control Room Battery Room	
Control Room DCS Room	
Control Room Horseshoe	
Block 1 Sample Room	
Block 2 Sample Room	
STG 1 GEECC AC 0100A	
STG 1 GEECC AC 0100B	
STG 2 GEECC AC 0200A	
STG 2 GEECC AC 0200B	

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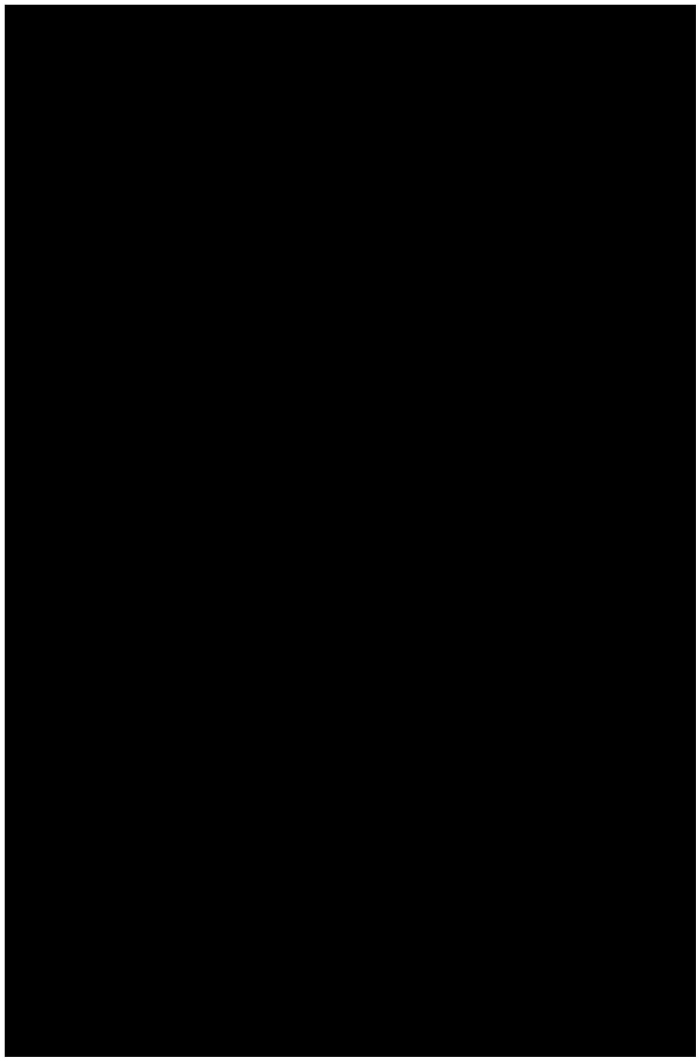
Critical Spares



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Winter Readiness

Year _____

PURPOSE

This procedure provides instructions for preparing the plant for below freezing conditions. Completion of this procedure does not represent any guarantee of availability or reliability of the units.

SPECIAL INSTRUCTIONS/PRECAUTIONS

This procedure is only a guideline and GPP operations and maintenance should utilize judgment and experience when cold weather conditions are immanent.

COMPLETION DATE

Completed by December 1 with exceptions noted and expected completion dates filled in.

PROCEDURE

Post Summer, Pre freezing Procedure

Operations

DESCRIPTION OF TASK	DATE COMPLETED	INSPECTOR SIGNATURE
Perform winter weather review with operators including taking frozen transmitters out of service (complete sign off sheet)	Date:	Initial:

Service Water

Isolate and drain all service water drops throughout the plant.	Date:	Initial:
Isolate and drain all service water drops throughout the ZLDF.	Date:	Initial:

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Disconnect both couplings on service water bladder and open drain on service water header	Date:	Initial:
Close service water isolation valve at inlet to power block	Date:	Initial:
Open service water header drain on inlet of regulator, pump to sump across Broadway	Date:	Initial:

Evaporative Cooler

Isolate evaporative coolers with the isolation valve located at the gas turbine accessory compartment (finger rack next to CCW return)	Date:	Initial:
Open evaporative drain valve located under the hinged grating at the evaporative compartment entrance (inlet filter house level)	Date:	Initial:
Open continuous blowdown flow meter loop seal drain	Date:	Initial:
Open the low point drain in the evaporative makeup line located under the evaporative cooler (ground level north side by WW sump, drain into WW sump)	Date:	Initial:
Bump the evaporative cooler motor manually to purge the pump casing of any trapped water.-Force sump level L86AC on Mark V	Date:	Initial:
Turn off the evaporative coolers on the HMI, the motor breakers should be left on to energize the motor heaters	Date:	Initial:
Open drain valve evap cooler low point (NE side of accessory comp.)	Date:	Initial:
Open the instrument air supply valve on north side of GT and pressurize the service water supply header and purge the evap cooler water line. (close supply isolation and drains on accessory comp. side)	Date:	Initial:
Open evap cooler supply isolation vlv (east side of accessory comp)	Date:	Initial:
Open drain adjacent to evap cooler supply isolation valve (east side)	Date:	Initial:
Disconnect GT4 relief valve at ground level (by ww sump) and dump remaining water from pipe	Date:	Initial:

Water Wash

Open the water wash header drains and the 3 way valve on each unit	Date:	Initial:
Verify heater in water wash skid is working, and door closes	Date:	Initial:

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Heaters

Verify the location and operable functionality of the torpedo or salamander kerosene heaters, 4 salamanders for use and 1 spare (Weather Readiness conex)	Date:	Initial:
Verify HRSG 1 Panel HTFP-1 is in service and no breakers tripped and take amp readings	Date:	Initial:
Verify HRSG 2 Panel HTFP-2 is in service and no breakers tripped and take amp readings	Date:	Initial:
Verify HRSG 3 Panel HTFP-3 is in service and no breakers tripped and take amp readings	Date:	Initial:
Verify HRSG 4 Panel HTFP-4 is in service and no breakers tripped and take amp readings	Date:	Initial:
Verify ST 1 and 2 Panel HTFP-5 is in service and no breakers tripped and take amp readings	Date:	Initial:
Verify Cooling Tower Panel HTFP-6 is in service and no breakers tripped and take amp readings	Date:	Initial:
Verify ZLDF Panel XDC is in service and no breakers tripped and take amp readings	Date:	Initial:
Check heaters in boiler chemistry sheds. Chemical pump house role up doors will close	Date:	Initial:
Check lime silo heater for operation	Date:	Initial:
Verify fire water building heater is operational and doors closed	Date:	Initial:
Verify all required insulation is in place (after outages)	Date:	Initial:

Gas System

Drain water from low point at the Wizard gas regulator-remove cap and open drain on west side of panel, close drain and reinstall plug	Date:	Initial:

Steam Turbine

Drain water from impulse line of dead leg going to seal oil regulators. (in shed under STG generator, crack fitting on bottom of regulator until all water is removed)	Date:	Initial:

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Instrument Air

Adjust role up door on the air compressors to hold building temperature above [redacted]	Date:	Initial:
Check instrument air dew point is below –40 deg f.	Date:	Initial:
Blowdown air receivers and air low points	Date:	Initial:
Blowdown low point utility airs drops	Date:	Initial:

Instrumentation

Verify thermometers are installed on all insulated transmitter boxes	Date:	Initial:

Supplies

Verify cold weather supplies are in stock in Weather Readiness conex: Radiant heaters, heat trace, blankets, tarps, extension cords, safety wire for blankets, pipe insulation (duct tape)	Date:	Initial:
Verify kerosene is available in drums at oil storage building	Date:	Initial:
Verify EDG fuel gauges are ¾+ full (450KW and 2MW)	Date:	Initial:
Verify diesel fire pump fuel tank is ¾+ full	Date:	Initial:
Verify 4 bags of salt in Weather Readiness conex	Date:	Initial:
Verify diesel fuel tank is ¾+ full	Date:	Initial:
Verify properly colored/marked diesel cans are available in Ops shed	Date:	Initial:
Verify kerosene cans are available in Ops shed flammable locker and properly marked	Date:	Initial:
Verify kerosene hand pump is labeled for kerosene use only and placed in ops shed.	Date:	Initial:

Cooling Tower

Drain in ground valve pit on NE corner of Block 2 tower-open both valves and pump to tower with submersible unless Z will be down.	Date:	Initial:

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Below [redacted] Operation:

Operations / Maintenance

Monitor transmitter box thermometer [redacted] to ensure that the local heaters are maintaining proper temperature. If temp [redacted] open box and feel heat trace with hand. MXM deficiencies	Date:	Initial:
Callout / Schedule (if time permits) an additional plant operator.	Date:	Initial:
Verify that the circuit breakers for all heat trace circuits are closed every two hours. (Maintain system status on the plant status board). Check current on days.	Date:	Initial:
Recommend to Energy Management running both blocks overnight. Run one on one configuration if necessary to keep steam turbine on line	Date:	Initial:
Start units early to allow for problems	Date:	Initial:
Hold inventories of Lime, Hydrogen above normal during periods of prolonged poor weather	Date:	Initial:
Demineralized and condensate water tank should maintain level 80% to 100%	Date:	Initial:
I&E available overnight	Date:	Initial:
Insulators available overnight	Date:	Initial:
Verify heaters are on in the emergency generators (450KW – space heater, 2000KW – block heater)	Date:	Initial:
Verify blackout procedures are updated and a hard copy is printed out	Date:	Initial:
In the event of freezing transmitters, place tarp over transmitter box with flood light aimed towards lines-supplies in weather connex-MM, OM, Planner have keys	Date:	Initial:
Lower HRSG drum levels to -4"	Date:	Initial:

Cooling Water (during cold weather)

Start cooling tower fan rotation, every 3 to 5 hours. (success has been achieved by rotating blocks of fans)	Date:	Initial:
Switch between lead and lag pumps every 24 hours for the following 4 pumps	Date:	Initial:
Closed Cooling Water pump	Date:	Initial:
1. Auxiliary Cooling Water pump	Date:	Initial:
2. Main Circulating Water pump	Date:	Initial:

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3. Condensate pump	Date:	Initial:
4. Establish a **minimum** CT blow down of 150 gpm	Date:	Initial:
Check basin levels visually on a 4-hour minimum	Date:	Initial:
Check fill for icing, if unit is offline use cold weather bypass to minimize impact and consider cycling aux circ pump on/off	Date:	Initial:
Line up clearwell recirculation to service water pump suction	Date:	Initial:
Consider forcing one cooling tower level transmitter to prevent circ pump trip on false indication-may need to operate makeup valve in hand requiring visual observation.- Fill in LLLB if beyond 1-shift	Date:	Initial:
Ensure air compressor (walk-in door) / both boiler chemical shack doors / lime silo doors are closed	Date:	Initial:

Water Plant

DESCRIPTION OF TASK	DATE COMPLETED	INSPECTOR SIGNATURE
If ZLDF trips off line do the following	Date:	Initial:
1. Drain demin headers / distillate shotgun and blowdown water lines to prevent freezing 2. Open suction drains on filtrate / crystallizer feedpump	Date:	Initial:
3. Alternate service water pumps	Date:	Initial:
4. Start and run spare demineralized/condensate water pump at 2-hour minimum	Date:	Initial:
Verify caustic line and caustic skid heaters are operational (Panel XDA Circuit 34)-2 thermometers on north side	Date:	Initial:
Have a plan to drain the ZLDF if it trips and will freeze.	Date:	Initial:
Order a demineralizer truck for standby	Date:	Initial:
Leave safety showers trickle flowing, demineralizer lines (keep making water and minimal flow through drain on NE corner of Oberlin to plant sump through hose), service water lines (trickle flow from hose to trough), crack potable water to plant sump (trickle flow through hose)	Date:	Initial:
Verify caustic skid roll up door is closed and temp [redacted]	Date:	Initial:
Verify calcium silicate seed supply for evaporator	Date:	Initial:

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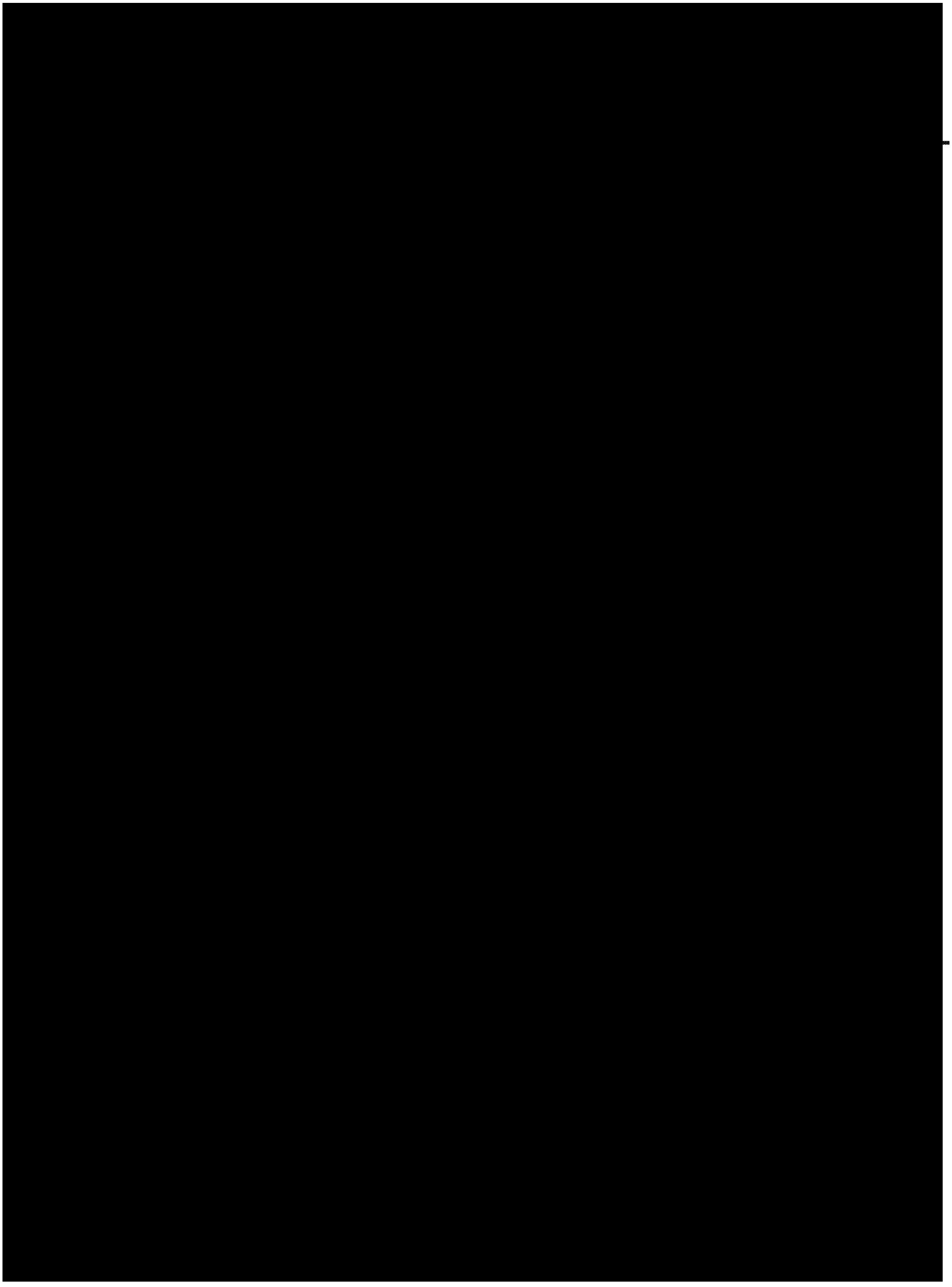

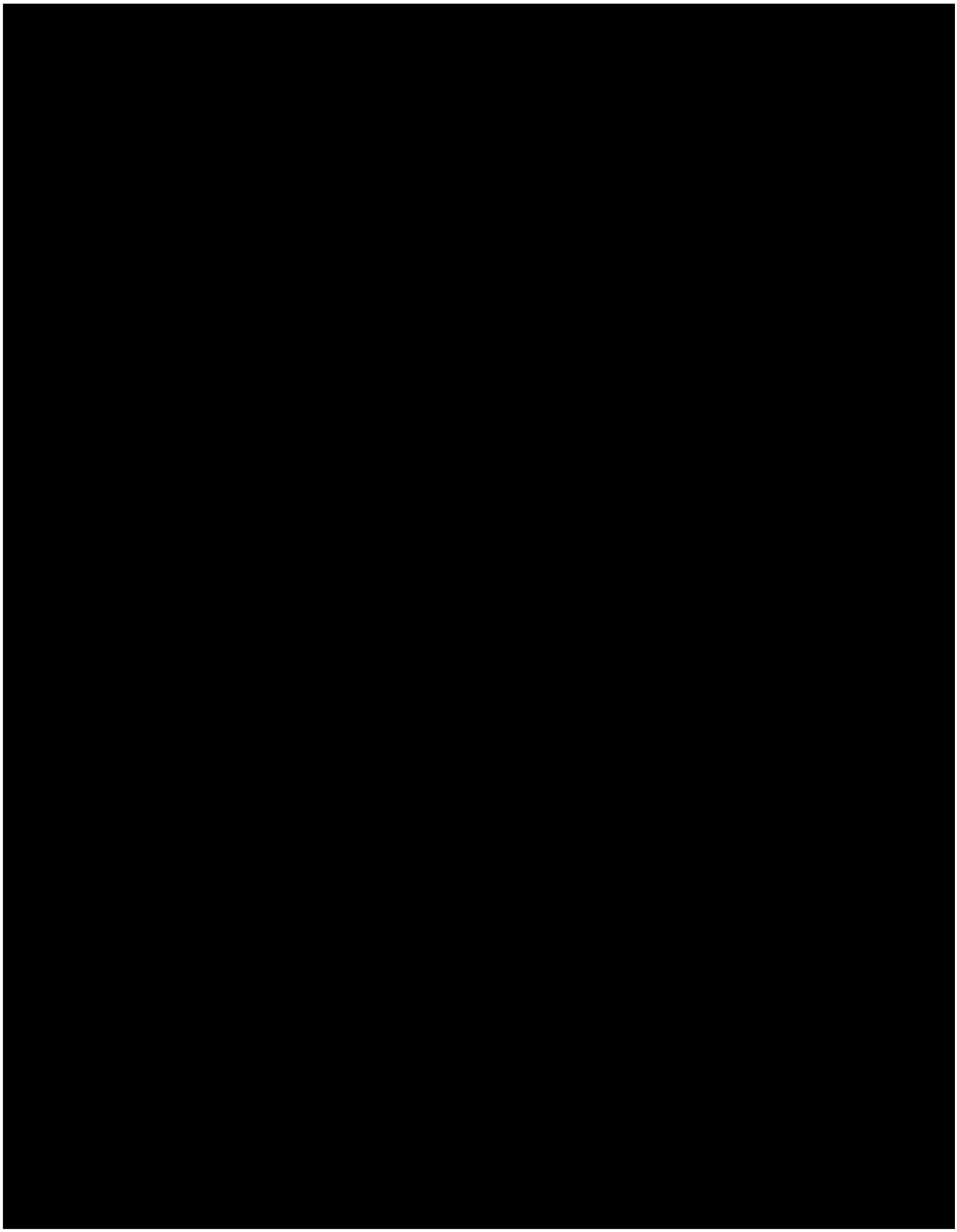

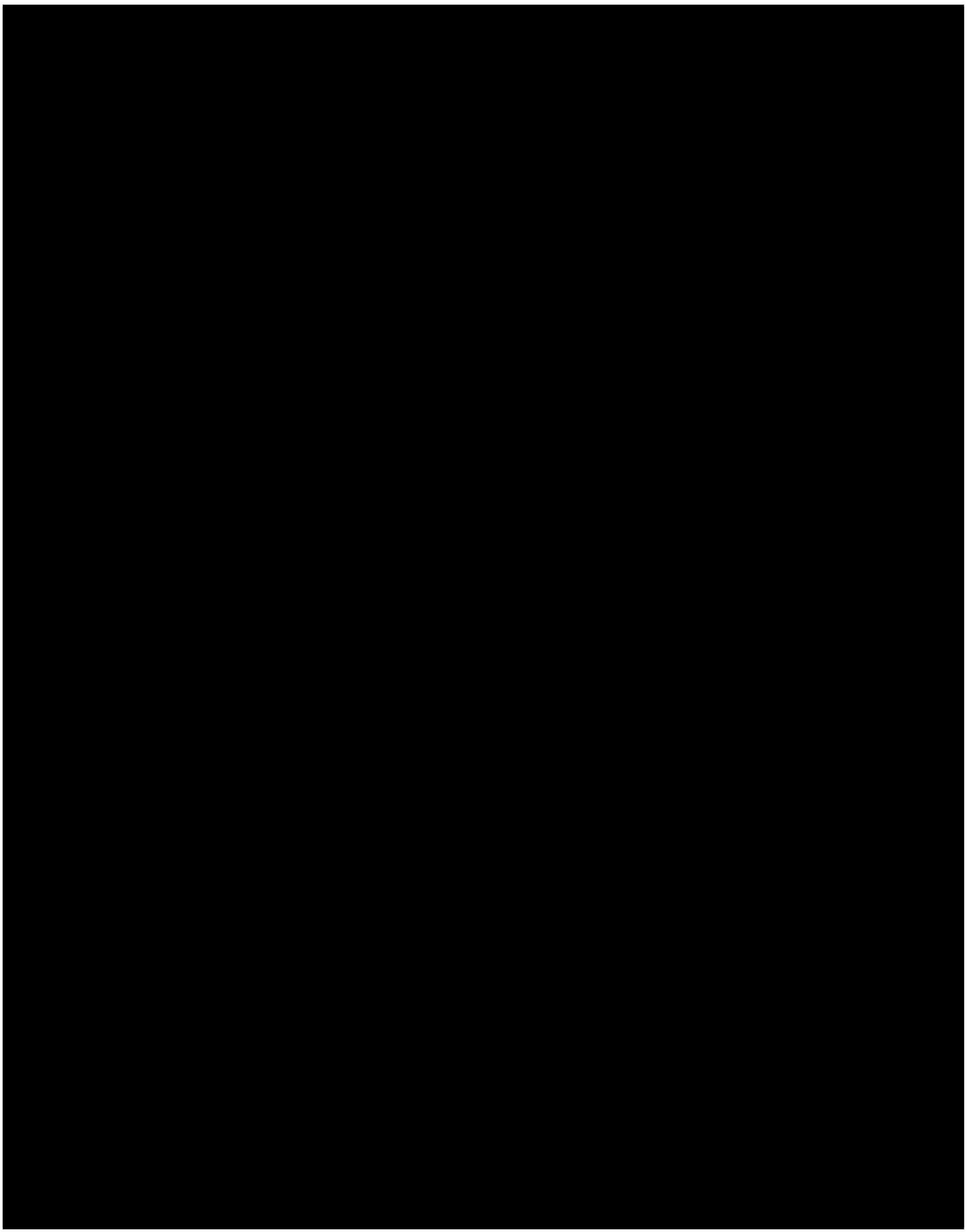

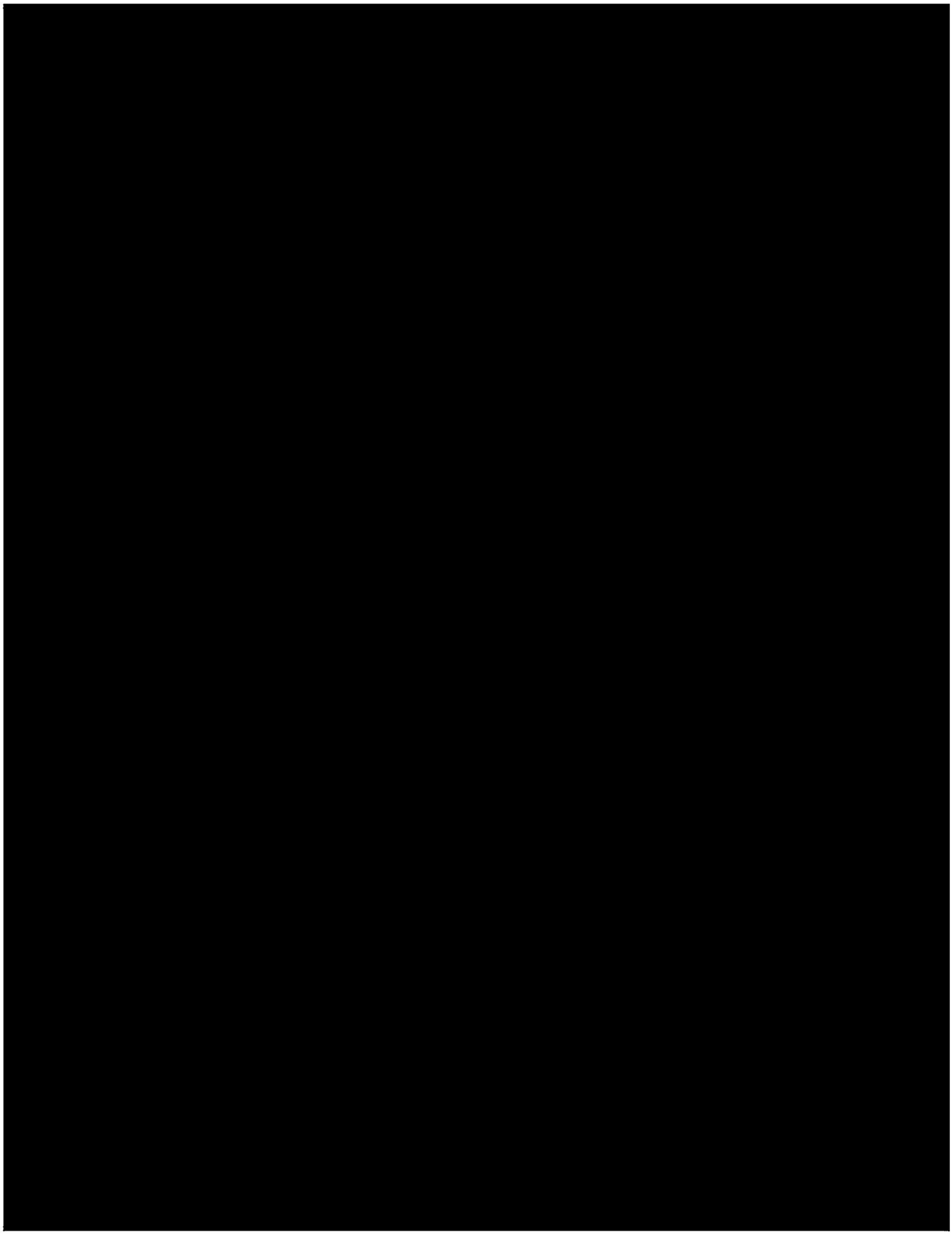

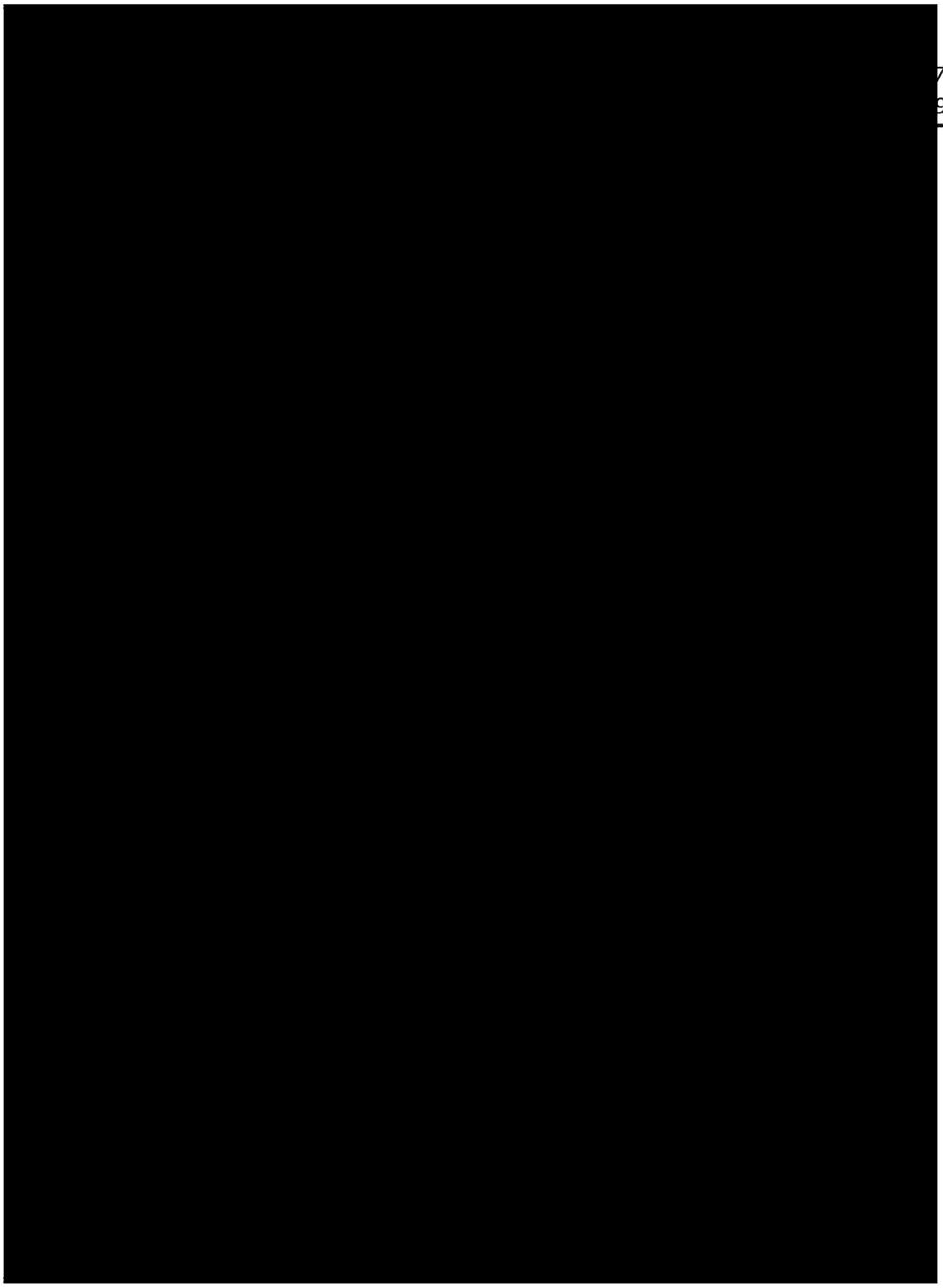

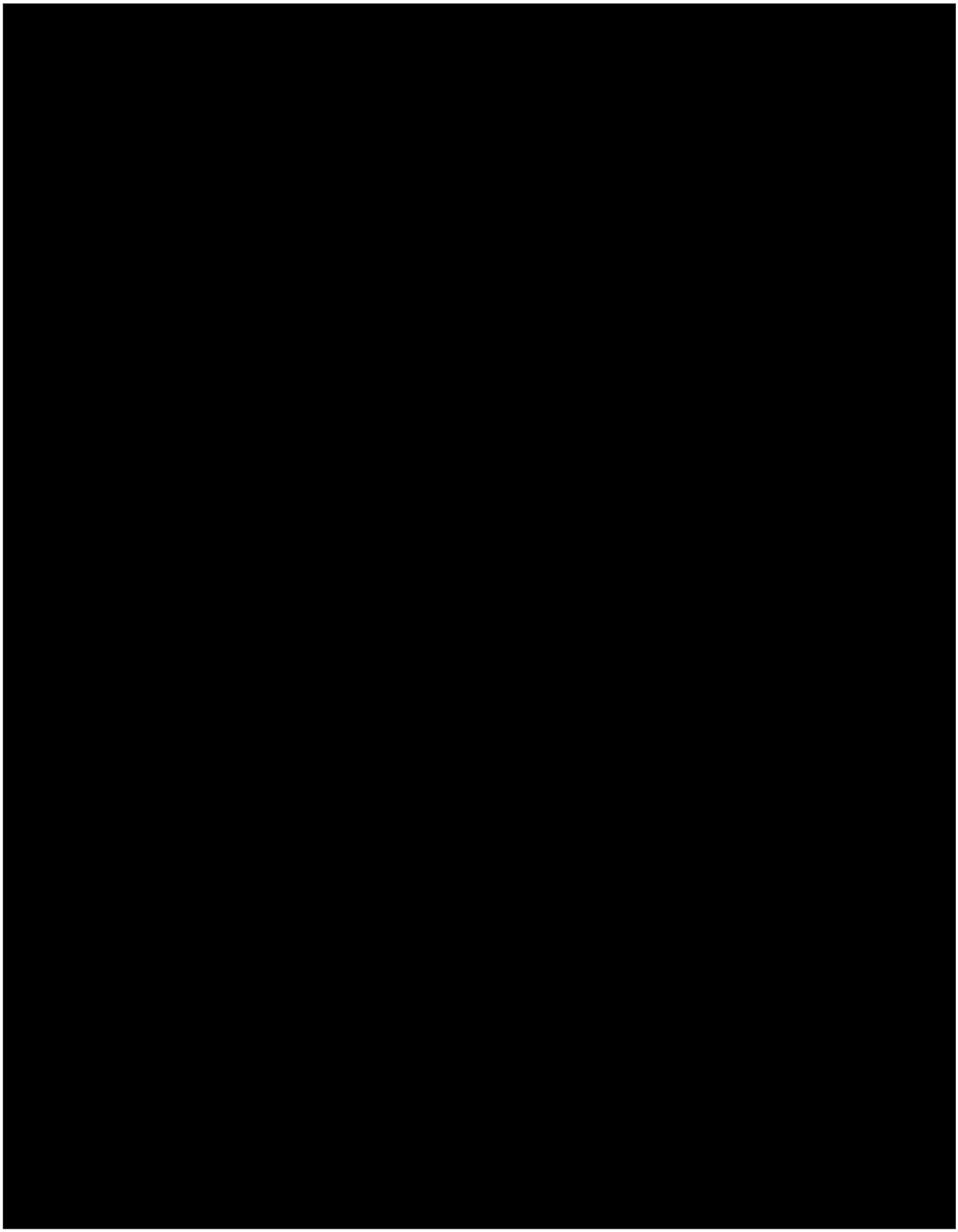

2. Conduct first Winter Readiness meeting. Seasonal Readiness Coordinator, Plant Engineer, and plant management should be in attendance. Review of action item lists and discussion of special actions needed for Winter Readiness should be included. _____

3. The Plant Engineer shall conduct system material condition reviews between April 1 and May 15 for winter to ensure scope recommendation and challenge review complete. Attachment 2 should be used to guide and document the reviews. To ensure alignment with the system outage schedule, communication with the Planner/Scheduler should occur during this review. Submission of completed Attachment 2 and supporting documentation is to be submitted by the Plant Engineer to the Seasonal Readiness Coordinator. _____

4. The Plant Engineer shall conduct a challenge review with the Seasonal Readiness Coordinator and plant management before June 1. _____

2.2 April/May/June

A. Complete reviews with LCRA of all planned maintenance scheduled for switchyard equipment prior to and during the winter period with LCRA to ensure it is completed prior to Oct 15. At a minimum, this review should encompass the following physical equipment:

1. Breakers. _____
2. Disconnects. _____
3. Relay house ventilation. _____
4. High voltage ceramic insulators. _____
5. Switchyard equipment batteries. _____
6. Current transformers, potential transformers. _____

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7. Verify all work identified as Winter Readiness has been properly coded and incorporated into the plant work schedule by July 1 for completion prior to October 15. _____

2.3 October

1. Ensure switchyard free of debris that can become flying objects during high wind condition. _____

2. Verify all department checklists are complete by October 15. _____

3. Review forced outage list with plant management to ensure each member understands requirements, roles, and responsibilities. Also, review Winter Readiness actions taken to prepare the plant for winter operation, status of contingency work orders, and location of parts. Review expected response of members in the event of a loss of grid event when normal notification and commercial communication channels may not be available. _____

4. Complete all non-emergent work identified as Winter Readiness prior to October 15. _____

5. Perform required Winter Preparedness training with plant personnel as deemed appropriate. _____

2.4 November

Plant Manager shall provide a certification letter to the Regional VP by November 20. Attachment 3 (Typical Guadalupe Seasonal Readiness Certification Letter) is provided as guidance for content of the letter _____

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Initials

2.0 SUMMER READINESS ACTION TIMELINE

2.1 September

1. Conduct a summer readiness critique meeting by September 15 to review current year summer performance and identify lessons learned for incorporation into future summers' preparation _____

2. Conduct the first Summer Readiness meeting in preparation for the next summer. The Seasonal Readiness Coordinator shall chair the meeting. Key support departments should be in attendance. Review of action item lists and discussion of special actions needed for Summer Readiness should be included. _____

3. The Plant Engineer shall conduct system material condition reviews between November 1 and December 1 for summer to ensure scope recommendation and challenge reviews complete. Attachment 2 (System Readiness Review) should be used to guide and document the reviews. To ensure alignment with the system outage schedule, communication with Scheduler/Planner should occur during this review. Submission of completed Attachment 2 and supporting documentation is to be submitted by the system engineer to the Seasonal Readiness Coordinator _____

4. CONDUCT challenge reviews for the system reviews between the Plant Engineer, the Seasonal Readiness Coordinator, and plant management. _____

5. IDENTIFY needed improvements, corrective maintenance, or preventative maintenance to improve the cooling capability of systems and cooling water sources, and schedule for completion prior to May 1. _____

2.2 October

1. CODE identified work as Summer Readiness by January 15 and provide a tracking mechanism to ensure those _____

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items are completed prior to May 1

2. From this point forward, Operations shall continue to screen new WOs for Summer Readiness applicability and code new WOs having summer impact as Summer Readiness, track completion of deficiency resolution and ensure those items are completed by June 1. Additions and Deletions of work from the established Summer Readiness work list must be approved by the Plant Manager. _____

3. REQUEST certification via letter from DCP and OASIS by May 1st that gas yard equipment maintenance and testing is current and fully functional for summer operation. This certification letter should also affirm that no intrusive work is scheduled for the plant gas yard during the summer period. Verify DCP and OASIS received the request. _____

2.3 January

A. COMPLETE reviews with LCRA of all planned maintenance scheduled for switchyard equipment prior to and during the summer period with to ensure it is completed prior to May 1st. At a minimum, this review should encompass the following physical equipment:

1. Breakers _____
2. Disconnects _____
3. Relay house ventilation _____
4. High voltage ceramic insulators _____
5. Switchyard equipment batteries _____
6. Current Transformers/Potential Transformers _____

B. COMPLETE reviews of calibrations or other instrument work required for switchyard protective relaying and metering to ensure all such preventative maintenance work and testing activity due prior to September 15 is scheduled to be completed prior to May 1. _____

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C. PERFORM physical action (e.g., surveillance, sounding, etc.) to determine whether dredging is required at Raw Water Pump Intake Structure. Make arrangements to have identified dredging completed prior to May 1. _____

D. ENSURE Information Technology has scheduled actions to ensure:

1. Adequate cooling of heat sensitive IT systems and equipment. _____
2. Requisite IT monitoring systems tested and verified operable. _____

E. VERIFY all work identified as Summer Readiness has been properly coded and scoped by Jan 15 and incorporated into the Online Work Management Process for completion prior to May 1. _____

2.4 February

A. COMPLETE evaluation of production risk work and testing (i.e., production risk activities, high risk evolutions, first-time evolutions) scheduled during the summer months, and where possible, move that work out of the summer period.

1. Where possible, SCHEDULE work and/or testing requiring load decreases or that is defined as production risk outside of this period; any exceptions to this scheduling must be identified in the Summer Readiness Certification Letter _____
2. When impairment work is planned during the summer period, efforts should be made to LIMIT impairment scheduled time. Work should be structured such that recovery from a forced outage would not be significantly delayed while the impairment is exited. _____
3. Production risk work and testing that shall be performed during the summer months shall be REVIEWED by the Plant Manager and concurrence that the production risk activities should remain in the summer period shall be documented in the Plant Summer Readiness Certification _____

   Letter. Evaluate warm weather driven plant equipment manipulations for potential production risk activities that

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could be performed prior to the summer (e.g., placing an additional ST Lube Oil Cooler in service, etc...). Schedule these equipment shifts.

B. EXECUTE identified Summer Readiness scope between Jan 15 and May 1.

2.5 March

1. VERIFY installed communication systems at the plant are fully operational, with particular focus on ensuring backup power supplies (including batteries) are available and functional, and that, in the event of a loss of power, communication capability still exists. _____
2. REVIEW PM templates for spare transformers and ensure recommended PMs are accurate, thorough, and current for all spare transformers _____
3. VERIFY spare parts inventory for transformers, including bushings, gasket kits, fan motors, pumps, etc.... _____

2.6 April

A. Operations to ENSURE that the Summer Readiness Training for operators is completed. This training should include the following elements:

1. REVIEW of station switchyard components and their operation protocol. _____
2. REVIEW of the symptoms of grid disturbance and the possible effect on the generator and generator auxiliaries. _____
3. REVIEW grid and plant response to an under- frequency event. _____
4. REVIEW of plant procedures for response to grid anomalies. _____
5. REVIEW of the forced outage list. _____
6. DISCUS with Operators fast-turnaround start-up with focus on plant line-ups, conditions, and other unique requirements for a quick turnaround. _____

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7. REVIEW forced outage list with plant management to ensure each member understands requirements, roles, and responsibilities. Also, review Summer Readiness actions taken to prepare the plant for summer operation, status, and location of contingency work packages/parts, and review initial actions of transformer replacement plans. Review expected response of duty team members in the event of a loss of offsite power event when normal notification and land-line and cellular communication channels may not be available. _____

2.7 May

1. COMPLETE any appropriate VAR testing of each unit if required by the transmission provider. These dates may be moved due to System load issues experienced at this time of year _____

2. COMPLETE all non - emergent work identified as Summer Readiness prior to May 1 _____

3. CONDUCT Summer Readiness Training for Plant as necessary _____

4. PERFORM switchyard and main transformer area walkdowns to ensure yards are free of debris that can become flying objects during high wind condition _____

5. VERIFY transformer cooling coils are clean/clear of obstruction. _____

Plant Manager shall provide a certification letter to the Regional VP, Operations by May 15 that Guadalupe Energy is ready for summer operation. Attachment 3 is provided as guidance for content of the letter. _____

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Attachment 9 -Guadalupe Activities List

Item	Plant	Standard	PM #	Complete (Y/N)	If (N) – Expected Completion Date
1	GUAD	Minimum Plant Design Operating Temperature. The minimum design temperature for Plant operations is contained in the Plant Plan. The Plant reviews any Plant modifications made in the previous year to verify that the modifications have not impacted the minimum plant design operating temperature.	PM#117503		
2	GUAD	Review of Lessons Learned. The Plant reviews equipment freezing issues experienced over the previous year to determine lessons learned and incorporates lessons learned into the Plant Plan to avoid any reoccurrence. Winter Storm Uri Lessons Learned should be incorporated into the Plant's Plan for Winter 2022.	PM#110237		
3	GUAD	Review Critical Equipment List. A list of Plant Critical Equipment that may be impacted by cold weather as contained in the Plan.	PM #117509		

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4	GUAD	Inspection and Testing of Heat Trace Panels and Heat Tracing for Critical Equipment Breakers. The type of heat tracing used at the Plant is mineral, insulated constant wattage, and self-regulating type. Heat tracing is used to protect instruments and other vulnerable equipment from freezing. Attached in the Plan in Heat Tracing Equipment.	PM #117504 is used to be used for monthly testing from Nov. 1 to March 31 The 1Y PM 29790229 was completed on 9-24-21		
5	GUAD	Perform Instrument Air System Maintenance. The Instrument Air System is critical to the operation of the Plant. Instrument Air System components are given high priority when malfunctions occur. The Plant's Instrument Air System is designed to maintain a dew point of -40°F dew point temperature. A dew point meter is installed in the discharge of plant air compressors and has indication and alarms tied into the DCS. The instrument air system automatically blows down moisture at the air compressor. Plant Operators will verify automatic valves are working correctly and manually blow down other air system low points of moisture prior to extreme cold	PM #105262, 107388, 107389, 107900, 107901		

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		conditions.			
6	GUAD	Review Corrective Maintenance Work Orders. As part of the Winter Period preparation, a review of open Corrective Maintenance Work Orders having program code "Seasonal", and Task Code "Winter" is conducted to determine their potential impact on winter readiness and shall be integrated into the Plant's work week.	PM #108283		
7	GUAD	Perform Plant Insulation Walk down. Perform a Plant walk down of the Critical Equipment's insulation and lagging and identify areas of insulation that should be considered for repair prior to winter operation.	PM #110063		
8	GUAD	Winter Readiness Consumables and Supplies. A list of consumables and supplies kept in store for freeze protection is contained in the Plan.	PM #110085		
9	GUAD	Test Portable Heaters and Heat Lamps. Portable space heaters used for freeze protection are kept in a designated storage area for winter supplies and tested annually prior to winter.	PM #109734		
10	GUAD	Test Permanent Building Space Heaters. An annual operational/functional check of all space heaters permanently installed in plant	PM #113301		

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		buildings is conducted to ensure proper operation. A copy of the list of permanent building space heaters and their location is contained in the Plan.			
11	GUAD	Check Glycol Concentration. Required plant systems (i.e. closed loop systems) are checked to ensure that the fluid freezing point is at or below the plant minimum design temperature.	N/A	N/A	N/A
12	GUAD	Space Heaters on Critical Instrument Breakers. To ensure the protection of the critical instrument breakers testing is performed annually to inspect and function test the space heaters. A list of breakers and inspection criteria is contained in the Plan.	PM #105114		
13	GUAD	Operation Check of Instruments with Instrument Box Heaters. Instrument box heaters (O'Brien, Hoffman, etc) are checked to verify correct operation.	PM #117505		
14	GUAD	Installation and Disassembly of Temporary Wind Breaks / Enclosures. Windbreaks and temporary heaters are installed annually to protect critical equipment from freezing. A map of temporary windbreak locations	PM #111575		

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		around the Plant is contained in the Plan.			
15	GUAD	Draining Equipment. During the Winter Period, there is no equipment at the Plant that is drained as a matter of course, if the Plant is online. A list of such equipment is contained in the Plan.	PM # 113306		
16	GUAD	Fuel Oil Handling Equipment. Not applicable. The Plant does not have any fuel oil handling equipment.	N/A		
17	GUAD	Icing Prevention Equipment. Icing prevention equipment is checked in accordance with the associated PMs.	PM #105720, 105721, 105722 and 105723 (inlet welds and FME on duct compressor inlet icing prevention on all 4 Plant GTs		
19	GUAD	Annual Plan Review. This Plan will be reviewed annually by Plant management.	PM #110237	**Y**	
20	GUAD	Personnel/Operator Training. Winter readiness refresher training is completed annually as part of the Plant's Procedure prior to the Winter Period. The training will include any applicable Plant modifications, past winter lesson's learned, alternative instrumentation should the Plant's primary	PM #111792	**Y**	

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		instrumentation becomes unreliable. Documented in Attachment 9 (Personnel/Operator Training)			
21	GUAD	Winter Readiness Action Timeline. Attachment 10 (Winter Readiness Action Timeline) of this Plan contains a timeline for winter readiness actions and milestones.	N/A	N/A	N/A

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CALPINE®
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Hidalgo Energy Center Procedure Manual

DOCUMENT: PLANT SPECIFIC WINTER READINESS PLAN

REVISION: 1

DocuSigned by: Robert Latham DS MA
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PLANT MANAGER

11-22-2021
DATE

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1.0 PURPOSE

The purpose of this document is to describe the process to be used for preparing the Plant for reliable operations during the Winter Period by ensuring compliance with the Plant Specific Winter Readiness Plan (the "Plan"). The Plan is to be used in conjunction with the Winter Readiness Standard (the "Standard"), Plant Specific Winter Operations Procedure (the "Procedure"), the Winter Readiness Actions Timeline, checklists, worksheets, and Maximo PMs.

2.0 SCOPE

For the purpose of this procedure, the Winter Period is from November 1 through March 15. This Plan directs the management of the scope of work activities for staff to complete before cold weather arrives. This Winter Readiness Plan is not the same as the Procedure. The Plan is to provide guidance for *preparing* the plant to endure winter temperatures without unplanned or forced outages or derates. The Plant staff will implement the Procedure only when the ambient temperature is low enough to cause potential problems. The intent of the Plan is to identify reliability issues that are directly related to cold weather, not reliability issues in general.

3.0 DEFINITIONS

Critical Equipment: Plant equipment that, during cold weather events, has the potential to: initiate a unit trip, impact unit startup, initiate an automatic runback, adversely affect environmental controls that may cause an outage or derate, adversely affect the delivery of fuel or water supply to the unit, or create a safety hazard.

Winter Period: The period from November 1 through March 15.

4.0 RESPONSIBILITIES

Plant Manager

The Plant Manager is responsible for:

- Developing and revising (based on lessons learned) the Plant's Plan and the Procedure. The Plan and Procedure must address all recommendations in the Standard that are applicable to the Plant.
- Performing or delegating Winter Readiness Coordinator responsibilities.
- Approving Plant Specific Plans and Procedures and ensuring all identified winter readiness work is completed prior to its required winter completion date.
- Ensure all Plant specific planned winter readiness activities and identified preventive maintenance ("PM") and corrective maintenance are entered into Maximo. All winter planned and repair work is to be documented in Maximo using the program category

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"Seasonal" and the task category "Winter".

- Routinely updating the RVP on the Plant's winter readiness status.
- Verifying the Plant's winter readiness and formally certifying that readiness to the RVP prior to winter.
- During cold weather operation, ensuring the Plant Procedure is implemented, and any issues identified are corrected in a timely manner to assure continued reliable winter operation.

Maintenance Manager

The Maintenance Manager is responsible for:

- Implementing the Plant Plan and revising the Plan as required based on lessons learned.
- Ensuring the Winter Readiness PMs and other activities are in Maximo and implemented in accordance with the timeline included in the Plant's Plan and documented in Maximo (using the category "Seasonal" and the task category "Winter").
- Ensuring initial adequate stock of any consumables and supplies required to be on hand prior to any significant cold weather event (list included in the Plan) and re-ordering such stock of consumables and supplies when appropriate.
- During Winter Period, timely identifying and addressing any equipment deficiencies that could impact reliable operation during cold weather and properly documenting all repairs in Maximo.

Operations Manager

The Operations Manager is responsible for:

- Implementing the Plant Procedure and revising the Procedure as advisable based on lessons learned.
- Reviewing the Plant Operations Procedure before each Winter Period (October) to ensure the operating procedures, checklists, and instructions are current and include any new equipment added to the plant configuration since the previous Winter Period. Include in the review, Calpine fleet lesson learned, NERC lessons learned, and general industrial best practices that may have become known since last Winter Period.
- Reviewing the ongoing winter operation activities implemented during cold weather events, including activities identified in the rounds sheets and other checklists, in the Plant Procedure.

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- Verifying that the Plant communications system is operational and that backup communications are in place.

Winter Readiness Coordinator

A Winter Readiness Coordinator shall be appointed by the Plant Manager. The Winter Readiness Coordinators are responsible for communicating and tracking activities needed to achieve sustained reliability and availability during extreme weather events and for routinely reporting to the Plant Manager the status of the Plant's winter readiness preparations. The Plant Winter Readiness Coordinator supports the Operations and Maintenance Managers as required in performing their responsibilities as outlined above.

Specific responsibilities include:

- Chairing scheduled winter readiness meetings at intervals appropriate to the Plant.
- Tracking and reporting status of the Plant's winter readiness preparations.
- Procuring and positioning winter readiness consumables and supplies required to be on hand prior to any significant cold weather event (list included in the Plant Plan).

5.0 THE PLAN

In accordance with the Standard, the Plant has developed a Plan which includes its performance and documentation of the following activities, whenever applicable:

1. Minimum Plant Design Operating Temperature. The minimum design temperature for Plant operations is [redacted].

   The Plant reviews any Plant modifications made in the previous year to verify that the modifications have not impacted the minimum plant design operating temperature.

   This annual review is scheduled on PM #110171 and the results are documented in the Plant's SharePoint or Maximo.

2. Review of Lessons Learned. The Plant reviews equipment freezing issues experienced over the previous year to determine lessons learned and incorporates lessons learned into the Plant Plan to avoid any reoccurrence.

   This review is scheduled in PM #110171 and any identified action items are placed in Maximo work orders and identified with program code "Season" and Task Code "Winter" and reviewed during annual training with Plant staff. Any lessons learned may also be documented in the Plant's SharePoint.

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3. Review Critical Equipment List. A list of Plant Critical Equipment that may be impacted by cold weather is attached as Attachment 1 to this Plan (Critical Instrument List).

4. Inspection and Testing of Heat Trace Panels and Heat Tracing for Critical Equipment. The type of heat tracing used at the Plant is the constant wattage type. Heat tracing is used to protect instruments and other vulnerable equipment from freezing. PM #117515 is in Maximo for monthly testing. Any issues found during these PM checks are documented as follow up work orders in Maximo and identified with program code "Season" and Task Code "Winter." Attached to the Plan is Attachment 2 (Heat Trace List), identifying the circuits, testing method, ambient temperature when tested and testing results. PM #101781, 101782, 101783, 101784 (Annual Heat Trace Survey) and 110173 (Critical Instrument Heat Trace Survey).

5. Perform Instrument Air System Maintenance. The Instrument Air System is critical to the operation of the Plant. Instrument Air System components are given high priority when malfunctions occur. To maintain the system integrity, moisture is removed from the system by:

   - Automatic blowdown of the system air receiver on a tied basis. OR
   - Manual blow down of individual components and low points.

   The dewpoint is monitored by Operations personnel and an annual walk down of the system is performed as part of the Procedure. Additionally, any preventive or corrective maintenance is documented in general Maximo work orders which can be queried using "IAS" system code in Maximo. An annual review of the Instrument Air system maintenance is performed on PM #110108 prior to winter.

6. Review Corrective Maintenance Work Orders. As part of the Winter Period preparation, a review of open Corrective Maintenance Work Orders having program code "Seasonal", and Task Code "Winter" is conducted to determine their potential impact on winter readiness and shall be integrated into the Plant's work week.

   The review is documented as part of the Plan on PM #110171.

7. Perform Plant Insulation Walkdown. Perform a Plant walk down of the Critical Equipment's insulation and lagging and identify areas of insulation that should be considered for repair prior to winter operation. PM #110091 is in place to generate a work order for this review. Any corrective work is documented in Maximo by corrective work orders created during the Winter Readiness walkdown under PM #110091.

8. Winter Readiness Consumables and Supplies. A list of consumables and supplies kept in store for freeze protection is contained in Attachment 3 (Winter Readiness Consumables and Supplies). An inventory check is performed on by Operations personnel (PM #110103) as part of the Procedure prior to the Winter Period. A second inventory check

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