I. Optimize NOx steam injection
J. Maximize demineralizer train throughput (do we need to regin)
K. Determine backwash needs and possibility of delaying
L. Maximize well field production
M. Discuss other supply options with CRMWD
N. Divert RO reject to cooling tower
O. Maximize purchase options from all suppliers
P. Consider trucking options or temporary pipeline supply options

Each item will be evaluated to determine best possible outcome based on water shortage duration and generation needs. Operations personnel will be instructed as appropriate to conserve water usage.

Constant communications with all outside parties is critical to the success of this plan (plant status, how can you help, willing to review and consider all options, etc).

15.4 Restoration of Service Annex

If the emergency situation involved a release of hazardous material, appropriate areas of the plant will be monitored to determine the extent of contamination and concentration. When Re-Entry to a contaminated area is required for inspection or work, the activity will be preplanned, and Plant Safety Policy will be followed.

In cooperation with the local and state agencies, an evaluation will be completed, and recommendations made regarding performance of procedures, personnel, and equipment for re-entry into the evacuated areas.

The objectives following any emergency declaration will be to alleviate the consequences of the event and to take those steps to minimize any effects on the health and safety of plant personnel and the public. Once the emergency situation has ended, the goal will be to restore the plant to normal operating status. For some situations, such as an incident involving a natural phenomenon that has no effect on the plant operation, the emergency situation may not require any change from normal operations; therefore, no formal transition will be required. In circumstances that may involve suspected or actual damage to the plant, a transition will be appropriate. This transition is defined as the **RECOVERY PHASE**.

The General Manager will determine when the Recovery Phase begins. The following guidelines, as applicable to the specific situation, will be observed prior to ending the emergency:

The affected equipment is in stable condition and can be maintained in that condition indefinitely.

Releases of hazardous materials to the environment have ceased.

Fire or other similar emergency conditions no longer constitute a hazard to personnel or equipment.

Once the above conditions have been satisfied, the General Manager will announce that the emergency is terminated, and the plant is in the Recovery Mode. PRI recognizes that the success of this plan will be dependent upon the magnitude of the event and the availability of employees. The PRI facility staffing level consist of 17 employees, requiring employees to work very closely together, and to perform multiple job recovery tasks, with the key focus on employees, safety, equipment protection, compliance, and facility restoration.

The generating plants within BHE Renewables are geographically separated by vast distances and operated independently. The fact that they share similar operating philosophies and primary daily functions gives PRI an advantage in supporting or covering many job functions needed to maintain customer service during local and regional events.

15.5 Hurricane Annex

Not applicable to Projects as none exist within hurricane evacuation zones identified by TDEM

15.6 Cyber Security Annex

A. The purpose of this procedure is to specify consistent and sustainable security management controls that establish responsibility and accountability to protect BES Cyber Systems against compromise that could lead to misoperation or instability in the Bulk Electric System (BES) in relationship to Cyber Security Incident Response.
B. Responsibilities
    1. Power Resources personnel and contractors shall notify the Operations Manager of any actual or suspected Cyber Security Incidents.
    2. Operations Manager shall take appropriate responses to Cyber Security Incidents and notify the Plant Manager and CIP Senior Manager.
    3. General Manager, CIP Senior Manager or designee, and Operations Manager shall coordinate on Cyber Security Incident investigation, classification, reporting, and mitigation.
        - Technical Support and Security personnel shall assist in the investigation, classification, reporting, mitigation, and response to Cyber Security Incidents as requested.
    4. General Manager shall ensure that the Cyber Security Incident Plan is updated as necessary.
C. Immediate Response

1. Upon Identification of a Cyber Security Incident (or suspected Incident) Power Resources personnel shall immediately report the Incident to the Operations Manager and any other available appropriate Plant Management personnel.
    - Operations Manager shall contact and coordinate with the General Manager and CIP Senior Manager or designee on the appropriate Cyber Security Incident Reporting and Response.
2. General Manager, CIP Senior Manager, and any appropriate designated personnel shall respond to and mitigate Cyber Security Incidents. Considerations shall include:
    - Stage of the incident (beginning, in-progress, or previously occurred)
    - Potential dangers or safety effects on facility operation or personnel
    - Systems and equipment that are or may be affected
    - Availability of backup or redundant systems
    - The groups that may be affected
    - Who should be part of the immediate response (Security, IT, Engineering, Maintenance, etc.)
3. Electronic Security Perimeter (ESP) Breaches -The immediate response should focus on containment of the problem to minimize its effects on equipment and stop the spread to other parts of the system. This may include:
    - Disabling connectivity
    - Implementing access restrictions
    - Removing equipment or programs from service (provided its removal does not itself compromise or disrupt stable operations).
    - Requesting technical support as needed (engineering, maintenance, IT) to ensure proper response and for the backup and storage of information required to recover BES Cyber System functionality.
4. Electronic Security Perimeter (ESP) attacks -The immediate response should focus on ensuring the ESP is still secure and that the Cyber Attack did not result in an ESP Breach. Responses may include:
    - Reviewing ESP configurations (firewall settings, intrusion detection logs, etc.)
    - Validation that Cyber Assets have not been compromised
    - Requesting technical support as needed (engineering, maintenance, IT) to ensure proper response.
5. Electronic Security Perimeter (ESP) threats -although uncommon, threats to the ESP should be responded to using the same measures as ESP attacks.

D. Suspected Activities

1. All suspected activities should be treated as breaches until investigations have been completed. The Operations Manager should be notified of the Suspected Activity. If a suspected PSP / ESP breach is determined to be invalid, normal operations should continue. Suspected Activities may include:
    - Suspicious Activity within or near the Facility
    - Unknown devices, equipment, packages within the Facility
    - Unknown (abnormal) personnel
    - Unexplained equipment malfunctions
    - Abnormal behavior of Cyber Assets

E. Documentation

1. All Cyber Security Incidents (physical and electronic) shall be documented. Documentation shall include:

- Incident details
- Mitigation and Response Actions taken
- Lessons Learned
- Post-incident analysis
- Corrective Action Plan including planned future prevention methods

15.7 Physical Security Incident Annex

A. The purpose of this procedure is to specify consistent and sustainable security management controls that establish responsibility and accountability to protect BES Cyber Systems against compromise that could lead to misoperation or instability in the Bulk Electric System (BES) in relationship to Cyber Security Incident Response.

B. Responsibilities
1. Power Resources personnel and contractors shall notify the Operations Manager of any actual or suspected Cyber Security Incidents.
2. Operations Manager shall take appropriate responses to Cyber Security Incidents and notify the Plant Manager and CIP Senior Manager.
3. General Manager, CIP Senior Manager or designee, and Operations Manager shall coordinate on Cyber Security Incident investigation, classification, reporting, and mitigation.
    - Technical Support and Security personnel shall assist in the investigation, classification, reporting, mitigation, and response to Cyber Security Incidents as requested.
4. General Manager shall ensure that the Cyber Security Incident Plan is updated as necessary.

C. Immediate Response
1. Upon Identification of a Cyber Security Incident (or suspected Incident) Power Resources personnel shall immediately report the Incident to the Operations Manager and any other available appropriate Plant Management personnel.
    - Operations Manager shall contact and coordinate with the General Manager and CIP Senior Manager or designee on the appropriate Cyber Security Incident Reporting and Response.
2. General Manager, CIP Senior Manager, and any appropriate designated personnel shall respond to and mitigate Cyber Security Incidents. Considerations shall include:
    - Stage of the incident (beginning, in-progress, or previously occurred)
    - Potential dangers or safety effects on facility operation or personnel
    - Systems and equipment that are or may be affected
    - Availability of backup or redundant systems
    - The groups that may be affected
    - Who should be part of the immediate response (Security, IT, Engineering, Maintenance, etc.)

3. Physical Security Perimeter (PSP) Breaches -Physical security breaches should be investigated and the security perimeter secured. If determined to be a malicious act or potentially malicious act, responses may include:
    - Ensuring the safety of on-site personnel
    - Notifying law enforcement (as appropriate)
    - Determining whether the attack has caused damage to equipment that could compromise or disrupt reliable operations
4. Physical Security Perimeter (PSP) attacks -The immediate response should focus on ensuring the safety of on-site personnel and mitigating the risk to reliable operations by protecting, restoring, or securing equipment or by otherwise stabilizing or securing plant operations.
5. Physical Security Perimeter (PSP) threats (bombs, sabotage, weaponry, etc) -Conduct a review of protective measures that are in place to ensure mitigation capability is intact.
    - Implement increased security measures such as more frequent security patrols or additional security personnel (as appropriate).
    - Conduct searches of security perimeters and plant spaces for signs of ingress or attempted ingress and report to the Operations Manager and other appropriate management.
    - Once the threat window has passed, consider returning measures and controls to the baseline security posture.
6. Verbal Threats -Obtain all available information regarding the threat so that appropriate notifications and actions may begin.
    - If a caller is involved, question them and obtain type of threat and any other available details. Keep on the line as long as possible for tracing purposes (if possible).
    - Notify the Operations Manager and other appropriate management so that reporting requirements may be considered.

D. Suspected Activities

7. All suspected activities should be treated as breaches until investigations have been completed. The Operations Manager should be notified of the Suspected Activity. If a suspected PSP breach is determined to be invalid, normal operations should continue. Suspected Activities may include:
    - Suspicious Activity within or near the Facility
    - Unknown devices, equipment, packages within the Facility
    - Unknown (abnormal) personnel
    - Unexplained equipment malfunctions
    - Abnormal behavior of Cyber Assets

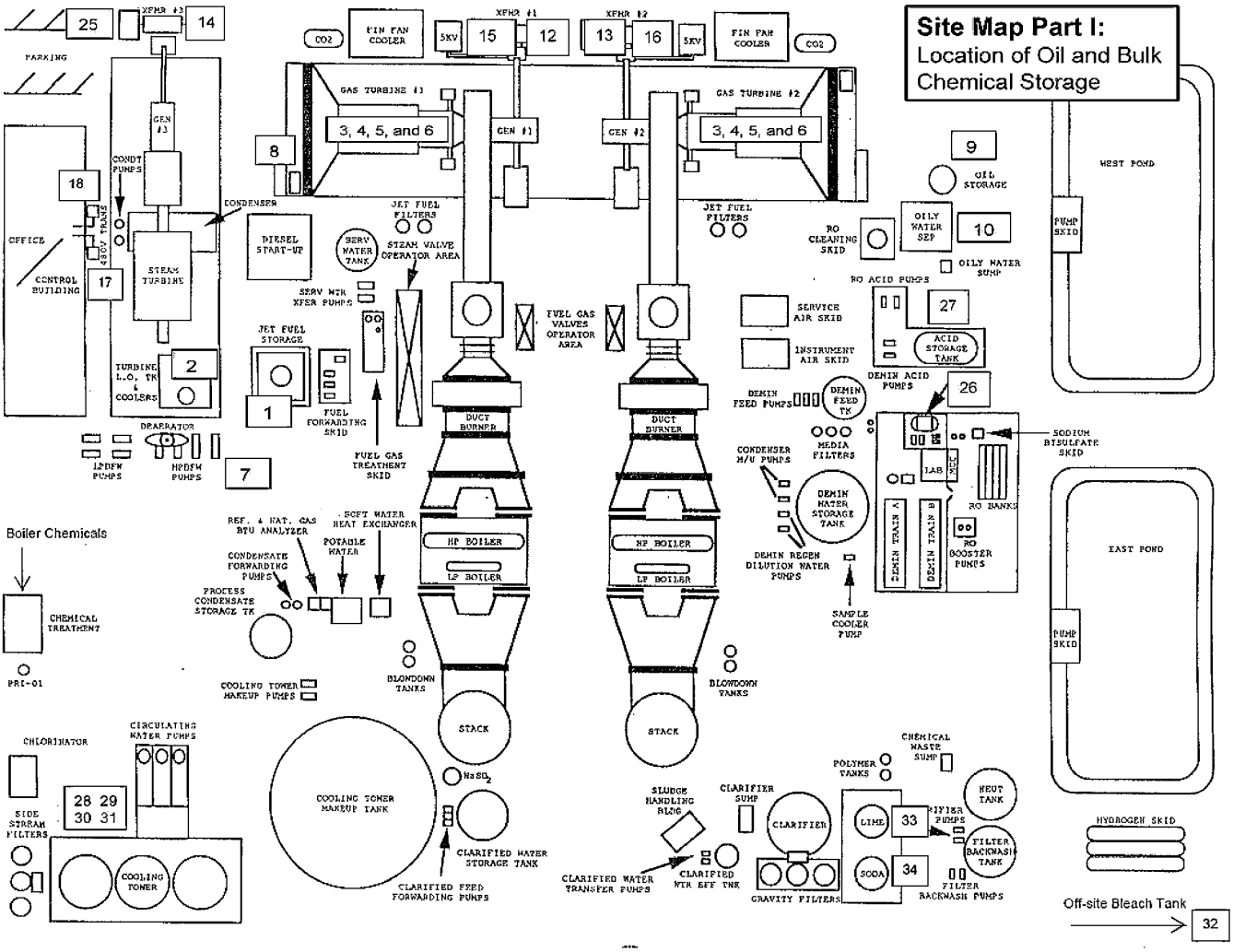
E. Documentation

8. All Cyber Security Incidents (physical and electronic) shall be documented. Documentation shall include:
    - Incident details
    - Mitigation and Response Actions taken
    - Lessons Learned
    - Post-incident analysis
    - Corrective Action Plan including planned future prevention methods

APPENDIX

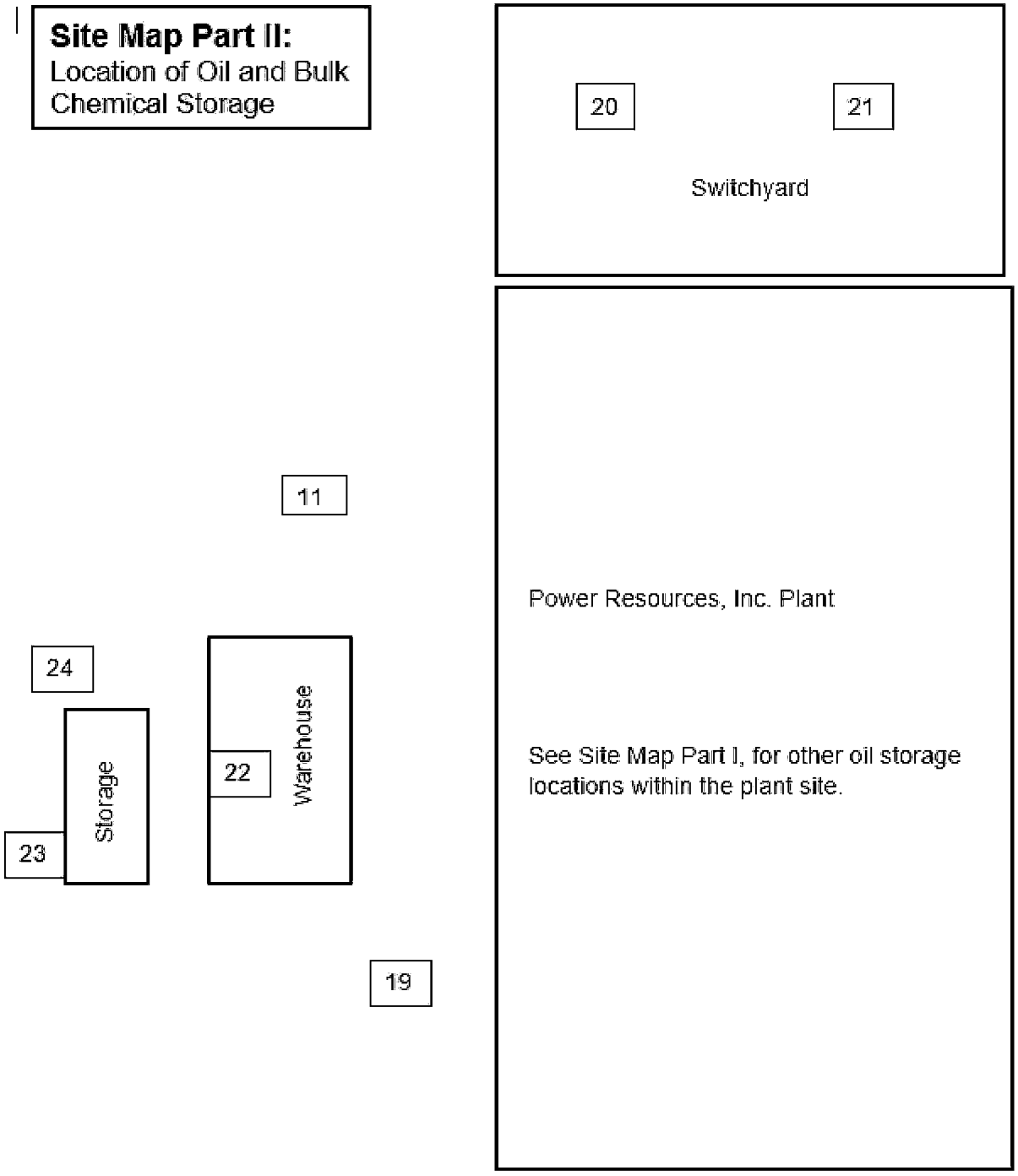
Critical Forms

SITE MAP #1



Corresponding ID numbers along with source names and materials storage quantities are shown in the table following the site maps.

SITE MAP #2



Corresponding ID numbers along with source names and materials storage quantities are shown in the table following the site maps.

PETROLEUM AND BULK CHEMICAL STORAGE

The following table summarizes oil and chemical bulk storage amounts, locations, and secondary containment.

Source No.	Source Name & Stored Material	Maximum Storage Capacity (gal)	Secondary Containment Capacity (gal)[1]	Secondary Containment Type
1.	Jet Fuel or Diesel Storage Tank	6,300	5,426 plus West Pond [2]	Concrete walls, sump, and separator to West Pond
2.	Steam Turbine Lube Oil Tank	2,642	West Pond [2]	Concrete walls, sump, and separator to West Pond
3.	Gas Turbine Main Lube Oil Tanks (2)	2,000 ea.	West Pond [2]	Concrete walls, sump, and separator to West Pond
4.	Gas Turbine Main Surge Tanks (2) (Lube Oil)	500 ea.	West Pond [2]	Concrete walls, sump, and separator to West Pond
5.	Gas Turbine Auxiliary Surge Tanks (2) (Lube Oil)	250 ea.	West Pond [2]	Concrete walls, sump, and separator to West Pond
6.	Gas Turbine Lube Oil Piping (2)	100 ea.	West Pond [2]	Concrete walls, sump, and separator to West Pond
7.	Steam Turbine Area Rectifier (Mineral Oil)	55	West Pond [2]	Concrete walls, sump, and separator to West Pond
8.	Gas Turbine Area Rectifier (Mineral Oil)	55	68 [1]	Metal dike and under roof so no rainfall
9.	Used Oil Storage Tank	2,000	225 plus East Pond [3]	Concrete walls and drains to East Pond
10.	Oil/Water Separator	1,500	225 plus East Pond [3]	Concrete walls and drains to East Pond
11.	Gasoline Storage Tank	337	514	Concrete Walls
12.	T-1 Transformer (Mineral Oil)	5,961	4,465 plus West Pond [2]	Concrete walls, sump, and separator to West Pond
13.	T-2 Transformer (Mineral Oil)	5,961	4,981 plus West Pond [2]	Concrete walls, sump, and separator to West Pond
14.	T-3 Transformer (Mineral Oil)	5,961	4,647 plus West Pond [2]	Concrete walls, sump, and separator to West Pond
15.	T-4 Transformer (Mineral Oil)	1,081	4,465 plus West Pond [2]	Concrete walls, sump, and separator to West Pond
16.	T-5 Transformer (Mineral Oil)	820	4,981 plus West Pond [2]	Concrete walls, sump, and separator to West Pond
17.	T-6 Transformer (Mineral Oil)	510	532 plus West Pond [2]	Concrete walls, sump, and separator to West Pond
18.	T-7 Transformer (Mineral Oil)	510	426 plus West Pond [2]	Concrete walls, sump, and separator to West Pond
19.	T-8 Transformer (Mineral Oil)	753	910	Concrete Walls
20.	AT-1 Transformer (Mineral Oil)	18,193	12,374 plus West Pond [2]	Concrete walls, sump, and separator to West Pond
21.	AT-2 Transformer (Mineral Oil)	18,193	12,374 plus West Pond [2]	Concrete walls, sump, and separator to West Pond

Source No.	Source Name & Stored Material	Maximum Storage Capacity (gal)	Secondary Containment Capacity (gal)[1]	Secondary Containment Type
22.	55-Gallon Lube Oil Drums	55 each	166 [1]	Concrete walls, max. 35 drums, under roof so no rainfall
23.	Old Spare Transformer (Mineral Oil)	820	1,001	Corrugated Metal Dike
24.	138 Spare Transformer (Mineral Oil)	8,437	9,364	Concrete Walls
25.	Belly Tank for Maintenance Generator (Jet Fuel or Diesel)	142	See SPCC Oil Spill Contingency Plan	See SPCC Attachment A.16 Oil Spill Contingency Plan
26.	Caustic Tank in Demin Building	6,000	8,000	Concrete Walls
27.	Sulfuric Acid Tank by Demin Building	6,000	6,133	Concrete Walls
28.	Hydrogen Peroxide Tank	2,000	7,200	Concrete Walls
29.	Caustic Tank by Cooling Tower	2,000	7,200	Concrete Walls
30.	Sulfuric Acid Tank by Cooling Tower	4,000	7,200	Concrete Walls
31.	Triacetin Tank	1,000	7,200	Concrete Walls
32.	Off-site Bleach Tank	1,000	>1,000	Earth Berm
33.	Lime Silo	52,000 lbs	N/A	N/A - solid granular material
34.	Soda Ash Silo	52,000 lbs	N/A	N/A - solid granular material

[1] Containment estimates for all petroleum units factor in rainfall freeboard, except for these units which are under a roof and thus do not receive rainfall.
[2] West Pond capacity is 500,000 gallons.
[3] East Pond capacity is 170,000 gallons.

CRO LEVEL 1 or LEVEL 2 EMERGENCY SIGNIFICANT EVENT REPORT

"This is _____ at the _____ Facility. We are located inside the Delek Refinery. We have declared a Level _____ emergency at _____.

A description of the event follows:

_____
_____
_____
_____

The following Acute Hazards, Chronic Hazards, and Emergency First Aid Procedures are associated with exposure to this event:

Acute Hazards:

_____
_____
_____
_____
_____

Chronic Hazards:

_____
_____
_____

Emergency and First Aid Procedures are:

_____
_____
_____
_____

Management Notification:

_____
_____
_____

OIL/CHEMICAL SPILL / RELEASE NOTIFICATION

Name of person reporting: _____ Date:_____
Name of Company: _____
Company Address: _____ Time:_____
Telephone Number: _____.

Name of CHEMICAL RELEASED / SPILLED (name on label).
What is the Chemical name listed on the "Extremely Hazardous Substance" or "CERCLA" list: _____.

Quantity released or spilled (estimate) _____.

When did the event begin and end, (dates and times): _____.
Location of release or spill:
State: _____
City: _____
Directions to location:
_____
_____

Spilled or Release discharged to:

_____
_____

Cause of Spill or release:

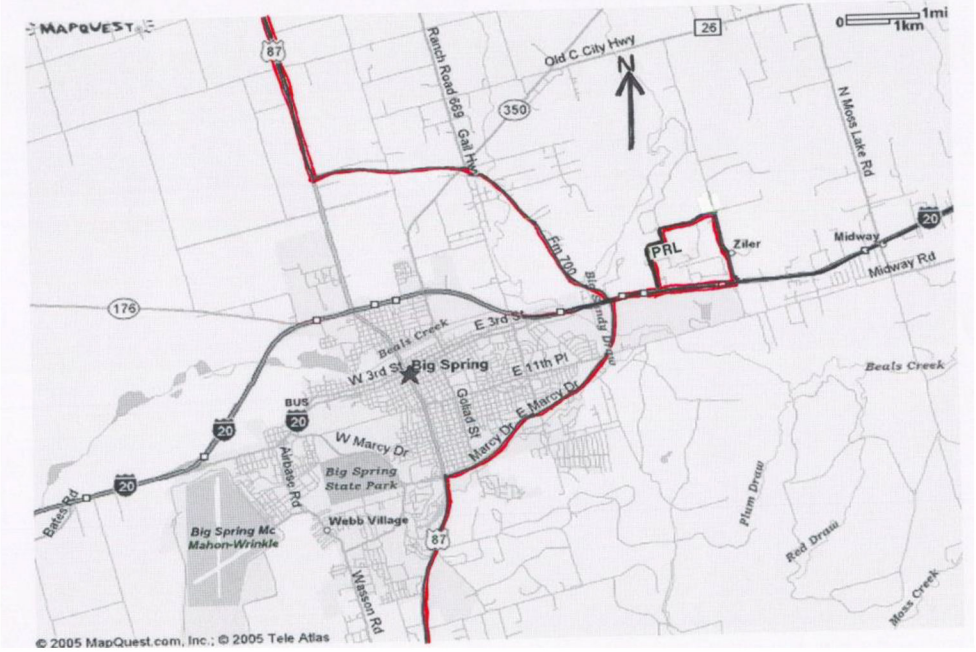
_____
_____

Corrective action taken:
_____
_____
_____
_____

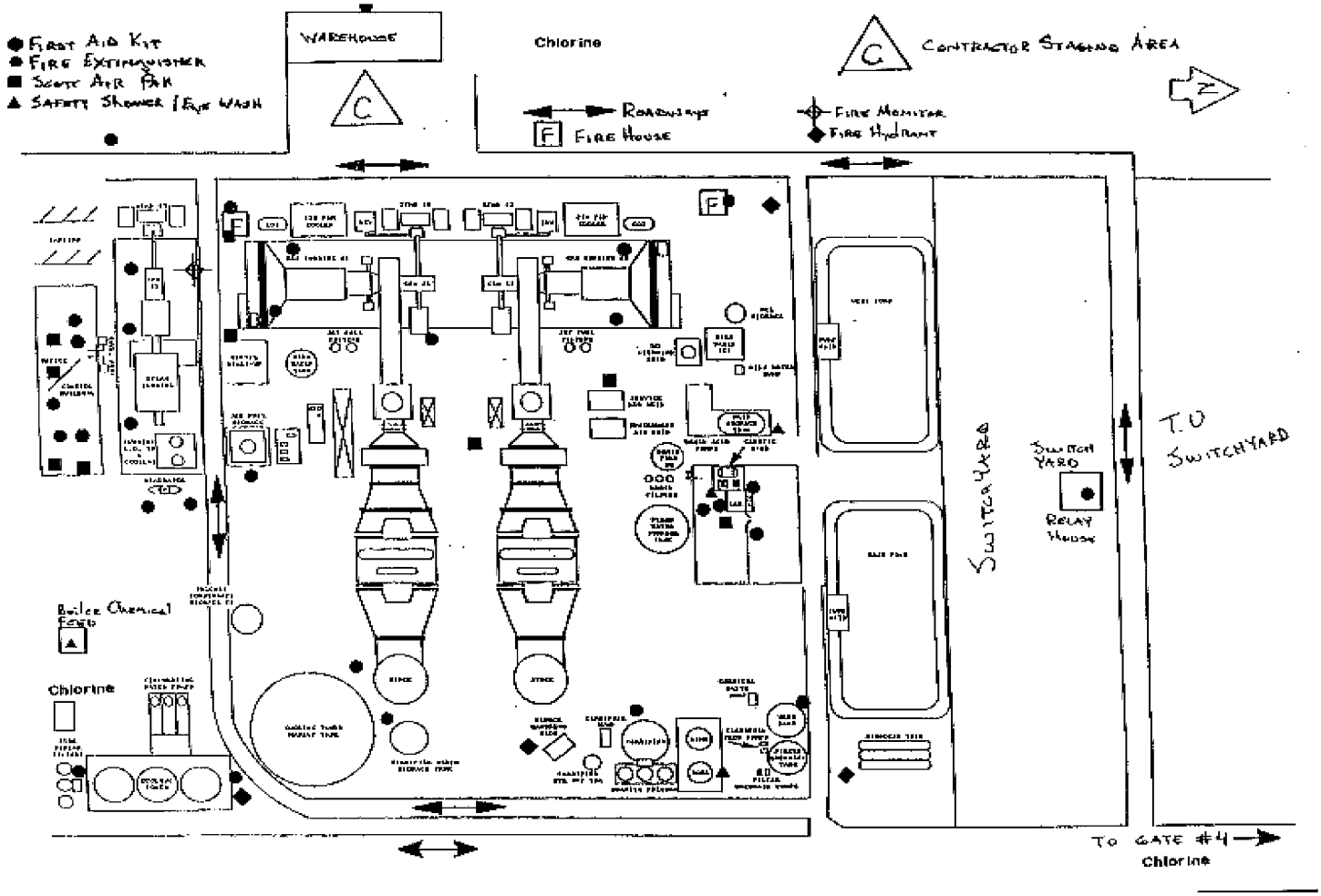
Are there any known or anticipate acute or chronic health risk with the release or spill:
_____
_____

Any medical advice for exposure to individuals:

Hazardous Cargo Routes To and From PRL



PRL Evacuation Routes


First Aid Kit
Fire Extinguisher
Scott Air Pak
Safety Shower / Eye Wash
Warehouse
Chlorine
Contractor Staging Area
Roadways
Fire House
Fire Monitor
Fire Hydrant
Switchyard
Switch Yard
Relay House
T.O Switchyard
Boiler Chemical Feed
Chlorine
To Gate #4
Chlorine

Power Resources, Inc.
Plant Weatherization Plans and Procedures

Power Resources, Ltd. ("PRI") management staff is committed to ensuring the PRI facility is kept in a reliable and ready to run condition at all times unless planned maintenance activities are occurring. In order to meet this goal, it is very important that all employees are trained and provided with the necessary tools and equipment to execute on these plans in a safe and efficient manner. It is equally important to monitor and identify weaknesses or areas for improvement each year to allow for continuous development and improvement. PRI's management staff needs to ensure proper funding is allocated each year to enable execution of all action items and will take a lead role in the continuous development and execution of this plan to maintain reliable operations.

This plan is designed to prepare the facility and its employees in advance of extreme weather conditions which may impact plant operations such as those experienced during the peak winter and summer months.

Winter Weatherization Plans

Prior to December 1st each year (normally started in September) PRI will implement the below pre-cold weather activities.

Management activities will include:

Update and review previous year training material to ensure it remains applicable to the new year.

Conduct training with all employees on rounds, critical equipment and cold weather readiness plans and activities. Include a drill to confirm employee knowledge and readiness.

Conduct a review of the previous year's cold weather events to ensure corrective actions were put in place to prevent re-occurrence. This will include a review of work orders, freeze list issues, cause and corrective actions.

Operations activities shall include:

A documented insulation survey to identify the need for insulation repairs or replacement.

Inspect all Thermon box covers and valve station boxes for proper closure and sealing.

Hang all cold weather tarps in strategic locations identified on **Pre-Cold Weather Preparation Check Sheet- Tarps.**

Install winter duct covers on all side wall building vents as identified on **Pre-Cold Weather Preparation Check Sheet – Building Louvers.**

Test fire heater to ensure proper operations and place in strategic locations as identified on form **Pre-Cold Weather Preparation Check Sheet** (attached).

Ensure the fuel cart is operational and ready for use (pump, battery, all hoses and connections.

Place heat lamps in strategic locations as identified on **Pre-Cold Weather Preparation Check Sheet - Heaters.**

The control room operator will review all cold weather procedures/forms for necessary revisions or corrections based on previous year's activities and plant modifications.

Secure and drain summer use equipment that will not require winter usage. See **Pre-Cold Weather Preparation Check Sheet – Equipment Drain.**

Ensure digital thermometers are functioning on upper platform levels.

Ensure minimum jet fuel quantities are maintained per inventory requirements (for emergency generators and heaters).

Confirm proper operations of iMonnit monitoring system.

Maintenances activities shall include:

Conduct a heat tracing audit to determine needed repairs. Audit will include testing that confirms proper operations such as meggar, voltage, amperage testing and confirmation of indicator light operations. Compare AMP readings on the heat trace circuits from year to year to ensure no major change. A major change would indicate a problem.

Critical Circuits

- HRSG #1 (LIC-122) & #2 HP (LIC-143) drum level transmitters and sensing line
- HRSG #1 (LIC-126) & #2 LP (LIC-147) drum level transmitters and sensing line
- HP steam drum pressure #1 (PIC-9) and #2 (PIC-35)
- High pressure atmospheric dump (PIC 56)
- Low pressure atmospheric dump (PIC 58)
- Dearator level transmitter and sensing line (LIC 173)
- Gas turbine #1 nox steam flow (FI-4104)
- Gas turbine #2 nox steam flow (FI-4604)

Ensure all heating strips are working properly in Thermon boxes.

Ensure transformer oil levels adequate.

Confirm all battery bank fluid levels.

Ensure preventative maintenance on all emergency equipment has been completed and units are ready for use (emergency generators, air compressors, automatic blowdown systems).

Compare previous years amp results to current years.

Test and confirm proper instrument air dryer operation.

Purchasing activities shall include:

Confirmation that cold weather minimum level inventories are available per **Pre-Cold Weather preparation Check Sheet – Extra Supplies Inventory.**

Secure warehouse roof vents.

Confirm proper operations of building heaters.

When ambient temperatures reach 40º F and are projected to drop below freezing, the Control Room Operator, "CRO" will implement the following cold weather operations procedures and checklist.

Control Room Operator

CRO will prepare plant in advance of freezing conditions to allow for continued operations of water plant during extended hours of expected freezing conditions (Delek raw water, clarifier, RO and demin trains).

Cooling tower fans are rotated every hour, and other operating equipment is to be rotated every two hours by the control room operator. Rotation of equipment is tracked and noted on the **Cold Weather Equipment Rotation Check** sheets (online or off-line) attached.

Begin pump rotations at 32º F. per **On-line or Off-line Rotation Check Sheet** attached.

Monitor remote monitoring temperature devices.

Outside Operator ("RO") will implement the following procedures and notify the CRO once complete.

Kerosene heaters as well as heat lamps will be utilized when the ambient temperature drops to 35º F. and are projected to drop below freezing.

RO will complete **Winter Freeze Protection Checklist** attached which list plant lines and equipment that are to be blocked in and drained or cracked open to allow for a constant flow to prevent freezing.

RO will conduct periodic inspections of heat trace electrical panels, Thermon box heaters, temperature gauges and building heaters when ambient temperature reaches 35º F. All inspections are documented on the **Cold Weather Operations Log sheet** (attached). Any observed issues will be reported to the CRO so a work order can be generated, and items placed on freeze list. Utilization of alternative freeze protection methods shall be applied where applicable (tarps, heaters, flow).

Ensure operations truck is parked inside building.

Close all building doors, wall louvers and shut off ceiling fans.

Project Analyst

Ensure warehouse pick-up and forklift are parked inside warehouse building.

Maintenance

Park work carts inside building.

Secure shop doors.

Address critical equipment freezing issues as they occur.

Management

Plant management will consider these other extreme cold weather options to determine the need for additional support or protective measures:

- Determine the need for a stand-by air compressor on site in case it is required. The stand-by compressor should be run for twenty minutes every three hours during the weather event to ensure starting capability if needed.
- Additional staffing needs (day and night), to assist as needed.

Determine if additional food rations are necessary.

Determine the need to provide sleeping arrangements if weather conditions prevent entry and egress.

POWER RESOURCES COLD WEATHER PROCEDURES

Natural Gas Available

Utilize Human Performance Improvement Tools (HPI)

Prejob Brief – Discuss roles and responsibilities, and physical locations to ensure everyone understands exactly what they will be doing
First check – every time you move to a new physical location or switch make sure you are at the correct pump, valve, pipe, heater by using a **peer check** or describing your location to the switching order controller
Self-Check STAR – Each time a person is going to manipulate a valve or start a piece of equipment, point to or place your hand on the device to be manipulated, think about what you are going to do and the expected outcome as well as what to do if you don't get the expected outcome, act, then review if the expected outcome occurred
Circle slash –Circle the step you are on. Slash the circle when the step is complete
Go/No-go Criteria –Do not proceed to the next step unless the expected outcome of the previous step has occurred met
Three Way communication – Use three-way communication when communicating action and results to the person controlling in plant activities activity
Phonetic Alphabetic – Use the phonetic alphabet to ensure accurate communication
Questioning attitude and Stop when unsure – if there is the slightest doubt that circumstances are not as expected, stop and discuss
Post job review – Following the days activities or after an important discussion with upper management, review decisions made, what went well, what could have gone better and improve the plan

Plant Management Cold Weather Guidelines
(Plant Not Running, Natural Gas Available)

At minimum, circle / slash procedure will be utilized at each step in this procedure

Cold Weather preparations should begin at 40 degree's with temperatures dropping below 32 degrees for 3 hours or more

If weather forecast supports temperatures below 32 degrees for 3 hours or more perform the following:

Increase frequency of calls with EDF to a minimum of twice a day ensuring complete vision of market conditions/volatility and natural gas availability

Have BHER Senior Director of Energy Markets investigate if a multiple day gas package is available and viable

Have BHER Senior Director of Energy Markets investigate if pulling back from the day ahead market decreases risk (ancillary, non-spin and power)

Daily calls with senior management

Control Room Operator Cold Weather Guidelines
(Plant Not Running, Natural Gas Available)

At minimum, circle / slash procedure will be utilized at each step in this procedure

Cold Weather preparations should begin at 40 degree's with temperatures dropping below 32 degrees for 3 hours or more

- Ensure Roving Technician completes Freeze Protection Check Sheet and Thermon Box Check Sheet
- CRO Starts pump rotations at 35 degrees
- CRO will prepare plant in advance of freezing conditions to allow for operation of water plant during extended hours of freezing temperatures. (Alon raw water, clarifier Reverse Osmosis (RO) and Train)
- Ensure Roving Technician stages cold weather equipment and ensures operational integrity

During extreme freezing conditions where temperatures are below 32 degrees for more than 4 hours and are expected to continue dropping OR temperatures staying at 32 degrees of slightly below for 8 hours or more, the following will be executed along with the above:

1. If Power Resources is only able to get small amounts of natural gas, FIRE STARTS will be performed AND NOT RUN UP TO FSNL. Gas turbines will be fired for (20 to 30 minutes or until HP and LP are steaming). Start both gas turbines every 12 hours (or sooner if needed based on internal temperature sensors) to keep boilers from freezing
2. Control Room Operator will run a low-pressure feed water pump continuously with bypass chain valve opened at (Feed Pumps) and crack open feed water valves at each HRSG. Open HV-17 & HV-43 LP B/D's (5%) from control room
3. Roving technician will also crack open Low Pressure Blow Down valves (road side) on each HRSG Root (upstream) valve will be opened all the way
4. Roving technician will crack open (road side) High Pressure Blow Down downstream valve just enough to flow water. Root (upstream) valve will be opened all the way
5. Control Room Operator will ensure diesel fuel tank is kept at a minimum of six feet

Direction for High Pressure Feed Pumps

During extreme freezing conditions where temps are below 32 degrees for more than 6 hours and are expected to continue dropping OR temps staying at 32 degrees for 8 hours or longer. The following will be executed along with the above

Control Room Operator will start a HPFP every 3 hours and confirm flow to boilers. Run pump 15 minutes at a high flow rate (300 to 400 gpm)

If signs of freezing exist or temps below 20 degrees, run pump every hour for 20 minutes or longer

Control Room Operator will have Roving Technician increase High Pressure blow down flow. Root valve fully open and second downstream valve opened 2 to 3 rounds to prevent freezing

Control Room Operator will have Roving Technician open the High Pressure Blow Down valve hourly to confirm proper operation of valve (no signs of freezing). Valve will be opened enough to physically see a drop in steam drum level on IA

POWER RESOURCES COLD WEATHER PROCEDURES

Natural Gas NOT Available

Utilize Human Performance Improvement Tools (HPI)

Prejob Brief – Discuss roles and responsibilities, and physical locations to ensure everyone understands exactly what they will be doing
First check – every time you move to a new physical location or switch make sure you are at the correct pump, valve, pipe, heater by using a **peer check** or describing your location to the switching order controller
Self-Check STAR – Each time a person is going to manipulate a valve or start a piece of equipment, point to or place your hand on the device to be manipulated, think about what you are going to do and the expected outcome as well as what to do if you don't get the expected outcome, act, then review if the expected outcome occurred
Circle slash –Circle the step you are on. Slash the circle when the step is complete
Go/No-go Criteria –Do not proceed to the next step unless the expected outcome of the previous step has occurred met
Three Way communication – Use three-way communication when communicating action and results to the person controlling in plant activities activity
Phonetic Alphabetic – Use the phonetic alphabet to ensure accurate communication
Questioning attitude and Stop when unsure – if there is the slightest doubt that circumstances are not as expected, stop and discuss
Post job review – Following the days activities or after an important discussion with upper management, review decisions made, what went well, what could have gone better and improve the plan

Plant Management Cold Weather Guidelines (Plant Not Running, Natural Gas NOT Available)

At minimum, circle / slash procedure will be utilized at each step in this procedure

If Temperatures Fall Below 35 degrees and Natural Gas Becomes NOT Available, perform the following:

Request senior management activate Business Continuity Plan

Have BHER Senior Director of Energy Markets investigate if a multiple day gas package is available and viable

Daily calls with senior management

Increase frequency of calls with EDF to a minimum of twice a day ensuring complete vision of market conditions/volatility and natural gas availability

Control Room Operator Cold Weather Guidelines (Plant Not Running, Natural Gas NOT Available)

At minimum, circle / slash procedure will be utilized at each step in this procedure

If Temperatures Fall Below 35 degrees and Natural Gas Becomes NOT Available, perform the following:

Contact Plant Management to inform them that Natural Gas is NOT available

If HRSG's are cold (plant has not been running), and small amounts of natural gas is still available, both gas turbines WILL be fired to place heat inside them before natural gas is isolated from plant

If plant has been running, heat inside should be utilized until duct temps and/or temperature sensors reach 50*F, before completely draining HRSG

Ensure Roving Technician stages cold weather equipment and ensures operational integrity

NOTE: Water inside HRSG will be extremely hot if plant has been running. Caution should be used when opening any opened ended drains

Ensure Roving Technician drains water from both Heat Recovery Steam Generators (HRSG's) and verify by opening newly installed T-joints

If water is still not drained, ROD out tubing so water can drain to ground freely

If Roving Technician is unsure if HRSG's are drained, plant management needs to be immediately notified. At that point start operation of salamander heaters at economizer section and super heater section door openings of HRSG's

Ensure Roving Technician starts operation of salamander heaters around HRSG drain lines inside of skirting

Start salamander heaters at low pressure and high pressure feed water pumps and both HRSG blow down valves

If decision by management to remove all water from the boilers, feed pumps and associated feed water piping/equipment, the operators will use the Boiler and Associated Feed Water Piping/Equipment Draining Checklist

BOILER AND ASSOCIATED FEED WATER PIPING/EQUIPMENT DRAINING CHECKLIST

This checklist will be completed when directed by plant management if Natural Gas is NOT AVAILABLE

Utilize Human Performance Improvement Tools (HPI)

Prejob Brief – Discuss roles and responsibilities, and physical locations to ensure everyone understands exactly what they will be doing

First check – every time you move to a new physical location or switch make sure you are at the correct pump, valve, pipe, heater by using a **peer check** or describing your location to the switching order controller

Self-Check STAR – Each time a person is going to manipulate a valve or start a piece of equipment, point to or place your hand on the device to be manipulated, think about what you are going to do and the expected outcome as well as what to do if you don't get the expected outcome, act, then review if the expected outcome occurred

Circle slash –Circle the step you are on. Slash the circle when the step is complete

Go/No-go Criteria –Do not proceed to the next step unless the expected outcome of the previous step has occurred met

Three Way communication – Use three-way communication when communicating action and results to the person controlling in plant activities activity

Phonetic Alphabetic – Use the phonetic alphabet to ensure accurate communication

Questioning attitude and Stop when unsure – if there is the slightest doubt that circumstances are not as expected, stop and discuss

Post job review – Following the days activities or after an important discussion with upper management, review decisions made, what went well, what could have gone better and improve the plan

At minimum, circle / slash procedure will be utilized at each step in this checklist

All drains valves cracked open or fully opened must be positively verified to be draining

Notify CRO if drain valve/piping will not drain

USE EXTREME CAUTION WHEN OPENING ANY DRAIN VALVE OR VENT VALVE DUE TO EXTREME HEAT AND PRESSURE

Draining HP and LP Feed Water Pumps

CRO will determined when safe to perform.
System de-pressurized and at safe temperature not ambient related

Initial after each step is completed

_____ Open Main Breakers to all HP Feed Pumps A, B, C, & D
_____ Open Main Breakers to all LP Feed Pumps A, B, C & D
_____ Open all vent valves on all 4 HP Feed Pumps
_____ Open all drain valves on all 4 HP Feed Pumps
_____ Open all cooling water supply and return drain valves on all 4 HP Feed Pumps
_____ Open all discharge drain valves on all 4 LP Feed Pumps
_____ Open all Cooling Water (Seal Water) drain valves on all 4 LP Feed Pumps

HRSG's

HP & LP feed water pumps must be out of service before continuing

Control Room Operator will complete the following:

_____ Open HRSG # 1 HP Feed Water Control valve (FIC-122) to 100%
_____ Open HRSG # 1 LP Feed Water Control valve (FIC-126) to 100%
_____ Open HRSG # 2 HP Feed Water Control valve (FIC-143) to 100%
_____ Open HRSG # 2 LP Feed Water Control valve (FIC-147) to 100%
_____ Open HRSG #1 LP Auto Blowdown valve HV-17 to 100%
_____ Open HRSG #2 LP Auto Blowdown valve HV-47 to 100%

_____ Open HRSG #1 HP attemperators HV-14 and TIC-6 to fully open position

_____ Open HRSG #2 HP attemperators HV-116 and TIC-32 to fully open position

BOILER AND ASSOCIATED FEED WATER PIPING/EQUIPMENT DRAINING

Roving Technician – HRSG #1

CRO will determined when safe to perform.
System de-pressured and at safe temperature not ambient related

_____ Open HRSG # 1 HP and LP Blowdown valves on NORTH side. (Both sets of valves fully open)

_____ Open all HRSG # 1 economizer drain valves on NORTH side fully opened position.

_____ Open all HRSG # 1 super heater drain valves on NORTH side fully opened position. (4 valves)

_____ Open HRSG # 1 HP and LP Blowdown valves on SOUTH side. (Both sets of valves fully open)

_____ Open all HRSG # 1 economizer drain valves on SOUTH side to fully opened position.

_____ Open all HRSG # 1 super heater drain valves on SOUTH side to fully opened position. (4 valves)

_____ Open HRSG # 1 HP Feed Water Loop (FIC-122) drain valves to fully opened position. (2 valves)

_____ Open HRSG # 1 LP Feed Water Loop (FIC-126) drain valve to fully opened position.

_____ Open HRSG # 1 underground drain valve

All open ended "T-Joint" drain valves opened / If water is not draining out, insert a rod to ensure piping is not plugged or frozen (USE EXTREME CAUTION) If still plugged or frozen notify plant management immediately

_____ Open HRSG # 1 HP TIC-6 attemperators drain valves to fully opened position. (2 valves)

_____ Open HRSG # 1 HP and LP Steam Drum Vent valves at the top of the Boilers. (All valves fully opened)

_____ Open HRSG # 1 HP and LP Hydrasteps drain valves to fully open position

_____ Open HRSG # 1 HP and LP Steam Drums drain valves to fully open position. (Bottom of steam drum)

Roving Technician – HRSG #2

CRO will determined when safe to perform.
System de-pressured and at safe temperature not ambient related

_____ Open HRSG # 2 HP and LP Blowdown valves on NORTH side. (Both sets of valves fully open).

_____ Open all HRSG # 2 economizer drain valves on NORTH side fully open position.

_____ Open all HRSG # 2 super heater drain valves on NORTH side fully opened position. (4 valves)

_____ Open HRSG # 2 HP and LP Blowdown valves on SOUTH side. (Both sets of valves fully open)

_____ Open all HRSG # 2 economizer drain valves on SOUTH side to fully opened position.

_____ Open all HRSG # 2 super heater drain valves on SOUTH side to fully opened position. (4 valves)

_____ Open HRSG # 2 HP Feed Water Loop (FIC-143) drain valves to fully opened position. (2 valves)

_____ Open HRSG # 2 LP Feed Water Loop (FIC-147) drain valve to fully open position.

_____ Open HRSG # 2 underground drain valve

All open ended "T-Joint" drain valves opened / If water is not draining out, insert a rod to ensure piping is not plugged or frozen

(USE EXTREME CAUTION) If still plugged or frozen notify plant management immediately

_____ Open HRSG # 2 HP TIC-32 attemperators drain valves to fully open position. (2 valves)

_____ Open HRSG # 2 HP and LP Steam Drum Vent valves at the top of the Boilers. (All valves fully opened)

_____ Open HRSG # 2 HP and LP Hydrasteps drain valves to fully open position

_____ Open HRSG # 2 HP and LP Steam Drums drain valves to fully open position. (Bottom of steam drum)

DEAERATOR (DA)

(If steam/water pressure and temperature are safe to do so)

CRO

- _____CRO will open LIC-173 Control valve to 100%
- _____CRO will open PIC-172 Control valve to 100%

Roving Tech

_____Open the DA storage tank drain valve (north side at the bottom) to fully opened position

Summer Weatherization Plans

In the spring after nighttime freezing ceases, summer weatherization activities are conducted to prepare the facility for high ambient temperatures. Below are the key job task responsibilities.

Operations

Remove protective tarps for wind/freeze protection around plant equipment.

Properly store all auxiliary heating devices (lamps, heaters).

Ensure heat tracing circuits are de-energized or in off position.

Ensure all air conditioning systems are functioning properly. These areas are monitored daily during operator rounds.

Remove all building side wall vent covers.

Test building roof fans for proper operations.

Strategically locate portable fan around high pressure feedwater pump motors to provide extra air circulation as needed.

Normal operator readings should be taken with extra attention given to transformer temperature reading, fan operation, evaporative cooler operations, lube oil temperatures and abnormal conditions that may be a result of hotter ambient temperatures.

Test run evaporative cooler, inspect cooler pads for water coverage.

Maintenance

Gas turbine fin fan coolers, gas turbine evaporative coolers and the associated equipment are inspected for readiness. Any maintenance items found are addressed in a timely manner.

Emergency generators, fin fan coolers and air compressor cooling fluid levels are inspected, and additional fluid is added as needed.

Confirm proper transformer fan switch settings.

Project Analyst

Open warehouse roof vents.

Turn off all heater circuits.

Maintain adequate drinking water and ice inventories (procure as necessary).

Maintain supply of warm weather personal protective equipment and cooling aid supplies:

Leather gloves

Hard hat sweat bands

Kool neck wraps