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**SOAH DOCKET NO. 473-22-1073
PUC DOCKET NO. 52485**

APPLICATION OF SOUTHWESTERN PUBLIC SERVICE COMPANY TO AMEND ITS CERTIFICATE OF CONVENIENCE AND NECESSITY TO CONVERT HARRINGTON GENERATING STATION FROM COAL TO NATURAL GAS	§ § § § § § §	BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS
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**SOUTHWESTERN PUBLIC SERVICE COMPANY'S
RESPONSE TO SIERRA CLUB'S
THIRD REQUEST FOR INFORMATION
QUESTION NOS. 3-1 THROUGH 3-27**

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Southwestern Public Service Company's Response to

Sierra Club's Third Request for Information

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APPLICATION OF SOUTHWESTERN	§	
PUBLIC SERVICE COMPANY TO	§	BEFORE THE STATE OFFICE
AMEND ITS CERTIFICATE OF	§	
CONVENIENCE AND NECESSITY TO	§	OF
CONVERT HARRINGTON	§	
GENERATING STATION FROM COAL	§	ADMINISTRATIVE HEARINGS
TO NATURAL GAS	§	

**SOUTHWESTERN PUBLIC SERVICE COMPANY'S
RESPONSE TO SIERRA CLUB'S
THIRD REQUEST FOR INFORMATION
QUESTION NOS. 3-1 THROUGH 3-27**

Southwestern Public Service Company ("SPS") files this response to the Sierra Club's Third Request for Information, Question Nos. 3-1 through 3-27. SPS has provided notice, by email, to all parties that SPS's Responses to Sierra Club's Third Request for Information and accompanying exhibits (excluding voluminous and exhibits provided pursuant to the protective order) have been filed with the Commission and are available for download from the Commission's Interchange website.

I. WRITTEN RESPONSES

SPS's written responses to Sierra Club's Third Request for Information are attached and incorporated by reference. Each response is stated on or attached to a separate page on which the request has been restated. SPS's responses are made in the spirit of cooperation without waiving SPS's right to contest the admissibility of any of these matters at hearing. In accordance with 16 Tex. Admin. Code § 22.144(c)(2)(A) ("TAC"), each response lists the preparer or person under whose direct supervision the response was prepared and any sponsoring witness. When SPS provides certain information sought by the request while objecting to the provision of other

information, it does so without prejudice to its objection in the interests of narrowing discovery disputes under 16 TAC § 22.144(d)(5). Pursuant to 16 TAC § 22.144(c)(2)(F), SPS stipulates that its responses may be treated by all parties as if they were made under oath.

II. INSPECTIONS.

If responsive documents are more than 100 pages but less than eight linear feet in length, the response will indicate that the attachment is voluminous (“(V)”) and, pursuant to 16 TAC § 22.144(h)(2), the exhibit will be made available for inspection at SPS’s voluminous room at 600 Congress Avenue, Suite 2000, Austin, Texas 78701; telephone number (512) 721-2700.

If a response or the responsive documents are provided pursuant to the protective order in this docket, the response will indicate that it or the attachment is either Confidential (“CONF”) or Highly Sensitive (“HS”) as appropriate under the protective order. Access to Confidential and Highly Sensitive materials will be available on Coffin Renner’s file sharing link to all parties that have signed and filed the certification under the protective order entered in this docket. Confidential and Highly Sensitive responsive documents will also be made available for inspection at SPS’s voluminous room, unless they form a part of a response that exceeds eight linear feet in length; then they will be available at their usual repository in accordance with the following paragraph. Please call in advance for an appointment to ensure that there is sufficient space to accommodate your inspection.

If responsive documents exceed eight linear feet in length, the response will indicate that the attachment is subject to the FREIGHT CAR DOCTRINE, and, pursuant to 16 TAC § 22.144(h)(3), the attachment will be available for inspection at its usual repository, SPS's offices in Austin, Texas, unless otherwise indicated. SPS requests that parties wishing to inspect this material provide at least 48-hour notice of their intent by contacting Stephanie Tanner at Coffin Renner L.L.P. PC, 1011 West 31st Street, Austin, Texas 78705; telephone number (512) 879-0900; facsimile transmission number (512) 879-0912; email address stephanie.tanner@crtxlaw.com. Inspections will be scheduled to accommodate all requests with as little inconvenience to the requesting party and to SPS's operations as possible.

Respectfully submitted,



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ATTORNEYS FOR
SOUTHWESTERN PUBLIC SERVICE COMPANY

RESPONSES

QUESTION NO. Sierra Club 3-1:

State whether SPS evaluated the early retirement of Harrington, assuming that any remaining plant balance was depreciated over each unit' s current lifetime.

- a. If yes, provide all such analysis.
- b. If no, explain why no such analysis has been completed.

RESPONSE:

No.

- a. Not applicable.
- b. No, no such analysis was completed. First, such an analysis would not resolve the challenges SPS face if the Harrington Units are retired by the end of 2024. Second, such an analysis would require SPS customers to continue to incur depreciation expense for the Harrington Units up to 16 years after they are used and useful. Please refer to pages 8-9 of the Direct Testimony of Ben R. Elsey for additional information.

Preparer: Ben R. Elsey
Sponsors: Ben R. Elsey, William A. Grant

QUESTION NO. Sierra Club 3-2:

State whether SPS has evaluated the possibility of converting the undepreciated plant balance at Harrington into a regulatory asset and depreciating the balance over the current plant life if any of the units, or the entire plant, retires early.

- a. If yes, provide all analysis and reports evaluating this option.
- b. If no, explain why not

RESPONSE:

No.

- a. Not applicable.
- b. Please refer to SPS's response to Question No. SC 3-1.

Preparer: Ben R. Elsey

Sponsors: Ben R. Elsey, William A. Grant

QUESTION NO. Sierra Club 3-3:

State whether SPS has evaluated the possibility of securitizing the undepreciated plant balance at Harrington if any of the units, or the entire plant, retires early.

- a. It yes, provide all analysis and reports evaluating this option.
- b. If no, explain why not

RESPONSE:

No.

- a. Not applicable.
- b. Please refer to SPS's Response to Question No. SC 1-11.

Preparer: Counsel
Sponsor: William A. Grant

QUESTION NO. Sierra Club 3-4

State whether SPS tested a CO2 price as part of the Harrington analysis.

- a. If yes, provide all analysis.
- b. If no, explain why not.

RESPONSE:

No.

- a. Not applicable.
- b. SPS did not evaluate a speculative carbon pricing as part of the Harrington analysis as no such policy or regulation exists today or has even been proposed in an actionable forum.

Preparers: Ben R. Elsey, Jeffrey L. West

Sponsors: Ben R. Elsey, Jeffrey L. West

QUESTION NO. Sierra Club 3-5:

Explain the basis of SPS' s assumptions around the incremental decrease in Sustaining Capex and FOM costs as the Company retired one unit, two units, and three units in the different scenarios.

RESPONSE:

Please refer to SPS's Response to Question No. SC 2-3(a) and (b). Please refer to SPS's Response to Question No. SC 3-6 for additional information regarding FOM cost assumptions for 2022 – 2024 if all three Harrington Units are retired.

Preparer: Ben R. Elsey
Sponsor: Ben R. Elsey

QUESTION NO. Sierra Club 3-6:

Refer to the EnCompass files provided for the Harrington 2021 analysis.

- a. Explain what costs are represented in the Annual Capital Expenditures (\$000) timeseries.
- b. Explain what costs are represented in the Capital Expenditures (\$000) field.
- c. Explain why Scenario 5 (where units 1 and 2 retire early) uses the same FOM cost stream for Units 1 and 2 as Scenario 2 (where both units convert to gas), instead of the same cost stream as Scenario 1 (where all units retire early).
- d. Explain why Scenario 6 (where unit 1 retires early) uses the same FOM cost stream for unit 1 as Scenario 2 (where unit 1 converts to gas) instead of the same cost stream as Scenario 1 (where the unit retires early).

RESPONSE:

- a. SPS confirmed with Sierra Club this question is regarding the 'TimeSeriesDatedChanges' tab in the file 'SPS_ReferenceCase_1H21_2021-06-21.xlsx'.

The annual capital expenditures (\$,000) timeseries represents on-going capital expenditure forecasts for each unit. For example, the 'Early Retire 2024 Annual CapEx' time series includes on-going capital expenditure projections for Harrington units 0 – 3 assuming all three Harrington units retire end of year 2024. The 'Gas 20~~xx~~ Annual CapX' times series includes on-going capital expenditure projections for Harrington units 0 – 3 assuming all three units are converted to operate on natural gas and retire at the end of their currently scheduled service lives'.

*Note: In the second example above, the naming structure for the times series is specific to the unit's retirement date. For example, the time series for Unit 1 is called "Gas 2036 Annual CapEx", the time series for Unit 2 is called "Gas 2038 Annual CapEx" etc.

- b. SPS confirmed with Sierra Club this question is regarding the 'Project' tab in the file 'SPS_ReferenceCase_1H21_2021-06-21.xlsx'.

The column 'CapEx' generally represents the existing net book value plus decommissioning costs for each unit. In the case of the Harrington Units there are multiple entries depending on the fuel source and retirement date of the Harrington Units and additional entries for the SDA and DSI environmental control options. For example, the entry 'Harrington 1 - Coal 2036 CapEx' represents continued coal operation and depreciating the net book value through 2036. The entries 'Harrington 1 - Coal 2024 CapEx' and 'Harrington 1 - Gas 2036 CapEx' represent (1) converting the units to operate on natural gas, (2) depreciating the coal assets through 2024, and

(3) depreciating the remaining assets through 2036.

- c. As demonstrated in Exhibit SPS-SC 1-4(e)(i), for the years 2022 – 2024, SPS had originally intended to utilize a slightly lower fixed O&M forecast when comparing the cessation of coal scenarios against the continued coal operation scenarios. In other words, (1) retirement of all three units, (2) conversion of all three units, or any (3) combination of retirement and gas conversion would use a slightly lower O&M forecast in 2022 – 2024 when compared to either of the environmental control scenarios. However, upon discovering such a minor change was immaterial, SPS opted against adding another layer of complexity to the analysis and kept the fixed O&M forecast in 2022 – 2024 consistent across all scenarios, with the exception of retiring all three units. In doing so, the analysis understates the advantages of converting Harrington to gas compared against alternatives such as continued operation of coal and early retirement of the units.
- d. Please refer to subpart (c).

Preparer: Ben R. Elsey
Sponsor: Ben R. Elsey

QUESTION NO. Sierra Club 3-7:

Please refer to SPS's modeling files provided in response to SC 1-3(i). Please provide SPS's projected emission rates for the following pollutants at the Harrington units if converted to operate on gas:

- a. CO₂,
- b. NO_x,
- c. particulate matter.
- d. Explain in detail and provide all documentation supporting SPS's assumptions around the projected emissions rates for CO₂, NO_x, and particulate matter, if the Harrington units are converted to gas.

RESPONSE:

- a. Please refer to the Resource Annual Emissions tab in the EnCompass Output Files provided in Exhibit SPS-SC 1-3(i)(CONF).
- b. Please refer to subpart (a).
- c. Please refer to subpart (a).
- d. For the purposes of modeling the Harrington units following the gas conversion, SPS relied upon the emission rates of its most similar gas-steam unit, Jones 2. These will be refined as performance specifications for the modified equipment once they are obtained and verified.

Preparers: Jeffrey L. West, Ben R. Elsey
Sponsors: Ben R. Elsey, Jeffrey L. West

QUESTION NO. Sierra Club 3-8:

Refer to SPS's response to SC 1-5.b. Confirm that SPS is not aware of any transmission system updates or changes that would be needed to allow for the retirement of any of the Harrington units. If not confirmed, provide all documents related to any transmission upgrade necessary to retire any or all of units.

RESPONSE:

As stated in SPS's response to SC 1-5.b, any transmission system updates or changes needed, potentially including conversion of generation facilities to synchronous condensers which would become transmission assets, to allow for the retirement of any of the Harrington units will be studied and identified by the Southwest Power Pool. The Southwest Power Pool will perform the study and they will identify any transmission upgrades necessary to retire any or all of the units.

Preparer: Jarred Cooley
Sponsor: William A. Grant

QUESTION NO. Sierra Club 3-9:

Please refer to SPS's response to SC 1-6. Has SPS/Xcel evaluated whether any individual Harrington unit may require additional investments to comply with the Regional Haze Rule if converted to burn gas. If not, why? If so, please provide all supporting analyses, cost projections, calculations, data, documents, modeling input and output files, and work papers associated with compliance with the Regional Haze Rule at any or all units.

RESPONSE:

There are no additional investments required to comply with the Regional Haze Rule once the Harrington units are converted to gas. The units will be modified to allow for further gas combustion to meet the nameplate capacity. However, no other controls or investments are needed for compliance.

Preparer: Jeffrey L. West
Sponsor: Jeffrey L. West

QUESTION NO. Sierra Club 3-10:

Has SPS submitted to TCEQ any application to modify its Part 70 or Title V operating permit to reflect its proposed modification of the Harrington power plant? If yes, please provide SPS's application and all supporting modeling and documentation. If not, why not?

RESPONSE:

Yes. SPS submitted Pollution Control Project Standard Permit Applications and Permit Alteration Applications on March 30, 2021 to revise NSR Permits 1388 and 5129. SPS received the amended permits (1388 and 5129) on May 20, 2021. Please refer to Exhibit SPS-SC 3-10.

Preparer: Jeffrey L. West
Sponsor: Jeffrey L. West

QUESTION NO. Sierra Club 3-11:

Please refer to SPS Exhibit SPS-SC 1-27.1 at 4 of 90.

- a. Did SPS obtain any authorization from the U.S. Army Corps of Engineers for the proposed pipeline, including, but not limited to, any certification under Nationwide Permit 12 or any other authorization under the Clean Water Act or the Endangered Species Act? If so, please provide all such authorizations or documents reflecting any communications with the U.S. Army Corps of Engineers related to any such authorization. If not, why not?
- b. Please provide all communications with the U.S. Army Corps of Engineers related to the need for any authorization for the pipeline.

RESPONSE:

To date, there has been no correspondence with the U.S. Army Corp or Engineers regarding the proposed pipeline. This agency will be contacted in the future as required.

Preparer: Jeffrey L. West

Sponsor: Jeffrey L. West

QUESTION NO. Sierra Club 3-12:

Please refer to SPS Exhibit SPS-SC 1-27.1 at 17 of 90.

- a. Did SPS obtain any authorization from the Fish and Wildlife Service under the Endangered Species Act for the proposed pipeline? If so, please provide all such authorizations or documents reflecting any communications related to any such authorization. If not, why not?
- b. Please provide all communications with the Texas Parks & Wildlife Department related to the pipeline or its impacts to endangered species, including, but not limited to all assessments referenced in paragraph 12.3.
- c. Please provide all communications with the Fish and Wildlife Service related to the pipeline or its impacts to endangered species, including, but not limited to all assessments, all additional species-specific surveys, or seasonal restrictions referenced in paragraph 12.3.1

RESPONSE:

- a. There has been no correspondence with Fish and Wildlife Service to date. This agency will be contacted in the future as required.
- b. In Texas, the Texas Parks & Wildlife Department requested that SPS provide a copy of the Environmental Assessment filed in the Texas case (Docket No. 52485). Please refer to Exhibit SPS-SC 4-13 for a copy of the communication.
- c. See “a” above.

Preparer: Jeffrey L. West
Sponsor: Jeffrey L. West

QUESTION NO. Sierra Club 3-13:

Please refer to SPS Exhibit SPS-SC 1-27.1 at 18 of 90. Did SPS obtain any authorization from the U.S. Environmental Protection Agency or the Texas Commission on Environmental Quality for the proposed pipeline, including, but not limited to any authorization under the Clean Water Act or the Clean Air Act? If so, please provide all such authorizations or documents reflecting any communications related to any such authorization. If not, why not?

RESPONSE:

To date, there has been no communication with the US Environmental Protection Agency or the Texas Commission on Environmental Quality regarding the proposed pipeline.

This agency will be contacted in the future as required.

Preparer: Jeffrey L. West
Sponsor: Jeffrey L. West

QUESTION NO. Sierra Club 3-14:

Please provide all communications with the U.S. Environmental Protection Agency or the Texas Commission on Environmental Quality related to the pipeline, including, but not limited to all assessments referenced in paragraph 12.5.

RESPONSE:

There has been no communication with the US Environmental Protection Agency or the Texas Commission on Environmental Quality to date regarding the proposed pipeline. These agencies will be contacted in the future as required.

Preparer: Jeffrey L. West
Sponsor: Jeffrey L. West

QUESTION NO. Sierra Club 3-15:

Refer to SPS Response to SC 1-4(e)(i), Attachments Encompass Cost Inputs - Gas Conversion and Encompass Cost Inputs - Partial Gas Conversion.

- a. Explain the basis, and provide all documentation, for the Company's ongoing Capex assumption for units converted to operate on gas that are hard-coded in this attachment (e.g., sheets labeled, "Gas" tabs, cells H12 through H15).
- b. Please refer to the sheet labeled "GasCapX." Please provide SPS's actual capital expenditures for the Harrington facility and each of the Harrington units from 2000 through 2020, including the total amounts by year for each facility.
- c. Please provide a list of all maintenance projects or other projects or expenditures which were booked as capital expenditures for Harrington from 2005 through 2020, including the year, the amount of the expenditure, the respective unit, a description of what work was performed and/or equipment replaced, and for each such project, indicate whether it had any relation to the coal-handling equipment that is being discontinued.
- d. Please produce any documents which are maintenance plans or schedules for Harrington, which are in current use or have been in use at any time since 2010.
- e. Please refer to the sheet labeled "GasCapX," cell E69. Explain how frequently each Harrington unit requires a Generator Rotor Rewind, and please provide the history of such rewind expenses for each unit.
- f. Please refer to the sheet labeled "GasCapX," cell C71 and C72. Please explain the need for each listed expense, and provide the history of such expenses for each unit.
- g. Please refer to the sheet labeled "GasCapX," line 73.
 1. Please explain the expenses listed in this row, and provide all documentation supporting those expenses.
 11. Please explain the expense listed in G73, and provide all documentation supporting that expense.
- h. Please refer to the sheet labeled "Gas." Confirm that SPS's projections assume that the Harrington units, after they are converted to gas, will require zero capital expenditures to comply with environmental regulations from 2025 through the end of their useful life. If not confirmed, please identify and explain the projected environmental costs and where they appear in the attachment.

RESPONSE:

a. Please refer to SPS's response to Question No. SPS-SC 2-3(a). Cells H12:H15 on the sheet 'Gas' represent the annual capital expenditure forecast of \$3.75M per year (escalated at 2% per year), split evenly between Harrington Units 0-3.

b. The total expenditures for the Harrington facility, by unit and year, are shown in the table below. Please note, these are total capital expenditures, not solely Capital Additions.

Year	HAR Unit 0	HAR Unit 1	HAR Unit 2	HAR Unit 3	HAR Units 1 & 2
2000	\$ 600,836		\$ 69,375	\$ 1,151,189	
2001	\$ 1,135,602	\$ 5,807,348	\$ 644,988	\$ 1,412,510	\$ 17,064,627
2002	\$ 186,497	\$ 27,952	\$ 212,580	\$ 216,082	
2003	\$ 3,196,296	\$ 37,309	\$ 2,002,346	\$ 10,102,388	
2004	\$ 590,308	\$ 4,266,737	\$ 503,815	\$ 344,814	
2005	\$ 643,865	\$ 1,075,074	\$ 6,846,832	\$ 1,294,211	
2006	\$ 295,752	\$ 180,528	\$ 311,281	\$ 11,305,989	
2007	\$ 2,299,368	\$ 9,205,912	\$ 243,496	\$ 963,936	
2008	\$ 872,232	\$ 420,360	\$ 13,484,275	\$ 554,236	
2009	\$ 787,399	\$ 240,229	\$ 975,702	\$ 2,315,459	
2010	\$ 671,891	\$ 13,156,659	\$ 2,325,491	\$ 1,622,981	
2011	\$ 743,025	\$ 476,677	\$ 7,031,991	\$ 231,587	
2012	\$ 3,955,688	\$ 1,771,089	\$ 1,469,395	\$ 10,844,679	
2013	\$ 130,132	\$ 10,358,091	\$ 1,272,988	\$ 707,209	
2014	\$ 1,923,041	\$ 122,102	\$ 13,056,060	\$ 1,979,131	
2015	\$ 927,263	\$ 8,680,725	\$ 8,487,919	\$ 12,420,325	
2016	\$ 1,685,801	\$ 16,118,079	\$ 7,067,506	\$ 963,821	
2017	\$ 1,073,508	\$ 3,223,731	\$ 12,311,935	\$ 1,575,133	
2018	\$ 1,686,243	\$ 874,941	\$ 1,048,545	\$ 11,891,749	
2019	\$ 1,209,396	\$ 6,656,530	\$ 924,268	\$ 4,351,375	
2020	\$ 154,467	\$ 855,680	\$ 11,275,881	\$ 1,339,136	
Grand Total	\$ 24,768,611	\$83,555,754	\$91,566,669	\$77,587,940	\$ 17,064,627

"HAR UNIT 0" refers to costs assigned to the Harrington Station as a whole.

c. See Exhibit SPS-SC 3-15(c) .

d. See Exhibit SPS-SC 3-15(d)(V).

e. All of the generator rotors currently in place are original equipment. The Unit 2 generator rotor is exhibiting signs of end of life and will be rewound in the future. The remaining two generator rotors are not having issues and there are no plans to rewind them at the current time.

- f. Circulation Water piping liner replacement – This project consists of removing a liner and replacing it on Unit 3. The liner was installed in the past as a way to add structural and corrosion resistant support to the original steel piping. The liner is failing and need of replacement. All previous expenditures are listed in the following table.

Unit	Projects Description (WBS Level 4 Description)	Year	Total Expenditures
HAR Unit 1	HAR1C-H1 Rpl Failed Circ Pipe Liner	2013	133,602
HAR Unit 3	HAR3C-RPL Failed Circ Liner	2013	241,224

Cooling Tower Structural Replacement – This project is the final phase of the replacement of the Harrington Unit 3 Cooling Tower internal structure. After approximately forty years, the structure of the cooling tower has reached end of life. This will complete all of the cooling tower structure on all units. Previous expenditures are listed in the following table.

HAR Unit 1	HAR Unit 2	HAR Unit 3
\$ 8,814,850.65	\$ 10,212,206.72	\$ 1,431,715.16

- g. The \$64,214,669 included on Row 73 of the tab labeled “GasCapX” represents approximately \$65M in capital expenditure for converting all Harrington Units to operate on natural gas (inclusive of the gas pipeline). Please refer to SPS response to Question No. SPS-SC 2-1 for information on the estimated costs of converting all Harrington Units to operate on natural gas.
- h. Confirmed, to the extent the question is referring to new or proposed environmental regulations. SPS’s current capital cost projections do assume continued compliance with existing environmental rules and regulations.

Preparers: Ben R. Elsey, Mark Lytal
Sponsors: Ben R. Elsey, Mark Lytal

QUESTION NO. Sierra Club 3-16:

Please refer to SPS's response to SC 2-3 (a), in which you stated that "Based on discussions with the Xcel Energy Projects team, SPS then assumed an annual capital expenditure forecast of \$3.75M per year (escalated at 2% per year) after the units were converted to operate on natural gas." To the extent not already answered in your response to 5-1(a), please the detailed basis of the \$3.75M estimate and explain why SPS is assuming ongoing capital expenditures for the converted Harrington units which are materially less than the Company's historic expenditures provided in 1-7(i,j).

RESPONSE:

It is not clear what Sierra Club means by reference to 5-1(a) because there is no fifth set of discovery from Sierra Club. Nevertheless, SPS has already provided all responsive documentation to in response to SC RFI 2-3.

Historically, the Harrington Units were operated as baseload coal units. After the conversion to operate on natural gas, SPS anticipate the Harrington Units will be operated more as peaking units. Therefore, the reduction in projected ongoing capital expenditures is twofold: First, SPS will no longer be required to maintain the coal assets (e.g., coal mills, baghouse etc.). Second, operating the units at a much lower capacity factor will materially reduce capital expenditure.

Preparers: Ben R. Elsey, Mark Lytal

Sponsors: Ben R. Elsey, Mark Lytal

QUESTION NO. Sierra Club 3-17:

Refer to Exhibit SPS-SC 1-7(n) regarding the undepreciated plant balance remaining for Harrington.

- a. Explain where these costs are modeled in EnCompass. Specifically, state which field and which resource contain the undepreciated plant balances.
- b. State whether the undepreciated plant balance is entered in the EnCompass model as a onetime Capital Expenditure associated with a Company Asset.
- c. Explain why the onetime Capital Expenditures associated with each Company Asset differ across scenarios.
- d. Provide all workpapers showing how the undepreciated plant balance is converted into the cost streams we see in EnCompass.

RESPONSE:

- a. Please refer to Question No. 3-6(b)
- b. The undepreciated plant balance is entered in the EnCompass model as a onetime Capital Expenditure.
- c. The undepreciated plant balance differs across scenarios due to the different useful service lives in which the undepreciated plant balance is depreciated over.
- d. The conversion is calculated internally within the EnCompass model. SPS does not have any further workpapers to provide.

Preparer: Ben R. Elsey
Sponsor: Ben R. Elsey

QUESTION NO. Sierra Club 3-18:

Refer to Exhibit SPS-1-3(i) CONF (the Encompass files for the Harrington analysis).

- a. Explain how and where the decommissioning costs are included in the EnCompass model.
- b. Explain where the Scenario 2 files are located in the EnCompass files for the Harrington analysis. If they are not provided, please produce those files.

RESPONSE:

- a. Please refer to Question No. 3-6(b).
- b. Please refer to Question No. 3-19(a).

Preparers: Ben R. Elsey
Sponsors: Ben R. Elsey

QUESTION NO. Sierra Club 3-19:

It appears to Sierra Club that SPS has not provided Encompass files for the baseline scenario used in the Company's Harrington Analysis; but also that the baseline scenario is identical for Company's Harrington Analysis and for the Tolk Analysis, for which the Company previously produced its Encompass data files to Sierra Club in New Mexico Public Regulation Commission Case No. 21-00169-UT.

- a. Please confirm that the baseline scenario is identical for the Company's Harrington and Tolk Analyses, both in terms of the real-world scenarios which are modeled, and the modeling data and assumptions. If the baseline scenarios in the two analyses are not identical, please state the material differences.
- b. Please state any objections (either legal or methodological) that SPS may make to Sierra Club utilizing the Tolk Analysis Encompass data files for the baseline scenario produced to Sierra Club in the prior case for Sierra Club's modeling of Harrington retirement and conversion scenarios.

RESPONSE:

- a. Confirmed.

Note: The baseline scenario for the Harrington Analysis (2021 IRP_SC2) was included with the EnCompass input and output files provided in Exhibit SPS-SC 1-3(i)(CONF).

- c. As described in subpart (a), SPS has provided the EnCompass input and output files for the Harrington Analysis baseline scenario. The baseline scenario for the Harrington Analysis is identical to the baseline scenario for the Tolk Analysis. At this time, SPS is unable to take a position on whether it has any objections (legal or methodological) to Sierra Club utilizing the Tolk Analysis Encompass data files for the baseline scenario because SPS is unable to analyze how Sierra Club might use that data.

Preparer: Ben R. Elsey
Sponsor: Ben R. Elsey

QUESTION NO. Sierra Club 3-20:

Refer to SPS response to SC 1-4(e), regarding the Company's cost assumptions for new generic solar PV resources, new generic wind resources, and new generic battery storage resources provided as part of SC 1-3(i) CONF in the Company's EnCompass modeling files.

- a. State the source of each cost projection for all resources S23-S50, B23-B50, W23- W50.
- b. For each resource referenced in (a), state the assumptions included for each regarding the expiration of the ITC and PTC.
- c. For each solar and wind resource referenced in (a), provide all workpapers showing the Company's capital cost assumptions, and how they were converted into the LCOE used in the model.
- d. For each battery storage resource referenced in (a), provide all workpapers showing the Company's capital cost assumptions, and how they were converted into the fixed costs used in the mode.

RESPONSE:

- a. SPS used the 2020 NREL ATB dataset as the basis for the cost projections for generic renewable and storage projects. The 2020 NREL ATB data was adjusted to include SPS specific financial data.
- b. For generic wind and solar resources, please refer to Exhibit SPS-TIEC 2-7, specifically the file 'GenericCosts_2020 ATB_ZeroTRX_FlatPPA_2021-04-09.xlsm'. The PTC assumptions for generic wind can be found on the worksheet "PTC" and the ITC assumptions for generic solar can be found on the worksheet "Solar by year". SPS did not include an ITC for standalone storage projects.

Note: SPS only used generically priced resources beginning 1/1/2026. Prior to 1/1/2026, SPS relied upon the pricing received from the RFI proposals. SPS used the project-specific ITC and PTC for the proposals received in the RFI.

- c. Please refer to Exhibit SPS-TIEC 2-7.
- d. Please refer to Exhibit SPS-TIEC 2-7.

Preparer: Ben R. Elsey
Sponsor: Ben R. Elsey

QUESTION NO. Sierra Club 3-21:

Please refer to the Direct Testimony of Mark Lytal at page 9, line 7.

- a. Has SPS entered have any firm fuel supply or gas transmission contract(s) with ONEOK WestTex Transmission L.L.C. or any other natural gas provider for the firm supply of natural gas to operate the converted Harrington units? If yes, please provide all such contracts. If not, why not?
- b. If there are no contracts for the firm supply of natural gas, please explain how SPS intends to procure gas supply.
- c. If SPS determines to retire the converted Harrington units after ten years due to SPS market conditions or otherwise, can the Company terminate any firm fuel supply contract? Identify any provisions of the Agreement that provide customers with this type of protection.

RESPONSE:

- a. SPS contracts for firm gas transportation service with ONEOK, El Paso Natural Gas, Northern Natural Gas, MarkWest New Mexico and MarkWest Power Tex to support delivery of natural gas to all the SPS power plants, including Harrington Station. These contracts have remaining terms ranging from 1 to 11 years, and they have the ability to deliver to multiple power plant locations, providing SPS with the flexibility to redirect delivery of natural gas supplies where it is needed to support the ever-changing load demands on the system. SPS continually reviews its portfolio of gas transportation agreements and adjusts the level of contract capacity needed to support reliable system operations. This review includes determining whether to renew agreements when they expire. It also involves the evaluation of system need as generating units are retired, including the future retirement of the converted Harrington Station.
- b. SPS has engaged in preliminary discussions with ONEOK, El Paso Natural Gas and Natural Gas Pipeline Company of America regarding incremental gas transportation service to support future reliable operations of the SPS power plants, including the conversion of Harrington Station. Any such agreements SPS enters into will complement the existing portfolio of contracts to provide reliable service to all the SPS generating units. Regarding gas purchase contracts, the gas supply market in SPS' service territory is very liquid. Gas purchase contracts are not typically entered into years in advance of their use. Like most gas purchasers, SPS purchases its gas using a mix of seasonal, monthly, and daily contracts. Accordingly, gas supply for the Harrington Station will be acquired around the time the plant goes into service.

- c. See response to Sierra Club 3-21a. As noted, the gas transportation agreements provide the flexibility to redirect delivery of natural gas supplies where needed on the SPS system.

Preparer: Jeffrey Hild
Sponsor: William A. Grant

QUESTION NO. Sierra Club 3-22:

Has SPS evaluated the possibility that the converted Harrington units do not operate for the remainder of their currently projected useful life? If so, please provide all such analysis. If not, why?

RESPONSE:

No. SPS is unaware of any reason why the converted Harrington units would not operate for the remainder of their currently projected useful lives.

Preparer: Ben R. Elsey

Sponsors: Ben R. Elsey, William A. Grant

QUESTION NO. Sierra Club 3-23:

If the proposed converted Harrington units cease operating or cease burning gas before the expiration of their currently projected useful life, how does SPS intend to recover the undepreciated balance of the proposed investment to convert the units?

RESPONSE:

SPS anticipates that the recovery of undepreciated assets retired prior to the end of their useful lives will be provided for in a future rate proceeding.

Preparer: Mark Lytal
Sponsor: William A. Grant

QUESTION NO. Sierra Club 3-24:

Confirm that the Company plans to offer the converted Harrington units into the SPS energy market with a commitment status other than "must run" or "self commit" for all hours. If your answer is qualified, please explain that context in which the Company would offer these units as "must run" or "self commit" into the SPS energy market.

RESPONSE:

SPS plans to offer the converted Harrington units into the Southwest Power Pool market. SPS will offer the units with a commitment status of "market" with a few exceptions. SPS may offer Harrington in "self commit" status to complete required environmental testing, or for operational reliability purposes such as cold weather.

Preparer: Jeffrey Haskins
Sponsor: William A. Grant

QUESTION NO. Sierra Club 3-25:

Is the Company aware of any operational considerations that might cause the Company to offer the converted Harrington units into the SPS energy market with a "must run" or "self commitment" status? If yes, describe operational considerations that might cause the Company to offer these units as "must run" or "self commit."

RESPONSE:

Please see response to Question SC 3-24.

Preparer: Jeffrey Haskins
Sponsor: William A. Grant

QUESTION NO. Sierra Club 3-26:

Is the Company aware of any contractual reasons (such as a minimum take or minimum purchase obligation) that might cause the Company to offer the converted Harrington units into the energy market with a "must run" or "self commitment" status? If yes, describe operational considerations that might cause the Company to offer these units as "must run" or "self commit."

RESPONSE:

No, see response to Question SC 3-24 for operational considerations.

Preparers: Jeffrey Haskins, Richard Derryberry
Sponsors: William A. Grant

QUESTION NO. Sierra Club 3-27:

Is the Company aware of any contractual or other considerations that might cause the Company to offer the converted Harrington units into the SPS energy market at a price lower than their incremental cost, i.e., at a decrement price? If not, please confirm the Company's assurance that it will never be compelled to resort to decrement pricing for these converted units.

RESPONSE:

The company is not currently aware of any contractual, or other considerations that would cause an offer below cost. Without such a requirement the company will offer the units at cost.

Preparers: Jeffrey Haskins, Richard Derryberry
Sponsor: William A. Grant

CERTIFICATE OF SERVICE

I certify that, unless otherwise ordered by the presiding officer, notice of the filing of this document was provided to all parties of record via electronic mail on January 12, 2022, in accordance with the Order Suspending Rules, issued in Project No. 50664.



Mark A. Santos

Jon Niermann, *Chairman*

Emily Lindley, *Commissioner*

Bobby Janecka, *Commissioner*

Toby Baker, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

May 13, 2021

MR DAVID LOW
GENERAL MANAGER, POWER GENERATION
SOUTHWESTERN PUBLIC SERVICE COMPANY
790 S BUCHANAN ST
AMARILLO TX 79101-2510

Re: Pollution Control Projects Air Quality Standard Permit
(Effective 2/9/2011)
Standard Permit Registration Number: 164552
Standard Permit Expiration Date: May 13, 2031
Southwestern Public Service Company
Harrington Station Power Plant
Affected Permit: 1388
Amarillo, Potter County
Regulated Entity Number: RN100224849
Customer Reference Number: CN601481336

Dear Mr. Low:

Southwestern Public Service Company submitted an application on March 30, 2021 to register construction related to Pollution Control Projects to be located in Amarillo, Potter County. We understand that this registration is for emissions associated with the gas conversion project related to Unit 1 Boiler.

The Texas Commission on Environmental Quality (TCEQ) has determined that your proposed emissions are authorized by this standard permit pursuant to Title 30 Texas Administrative Code § 116.602 and Texas Health and Safety Code § 382.05195, if constructed and operated as described in your registration.

You must begin construction or modification of these facilities in accordance with this standard permit no later than 18 months after the date of this letter. After completion of construction or modification, the appropriate TCEQ Regional Office must be notified prior to commencing operation and the facility shall be operated in compliance with all applicable conditions of the claimed standard permit.

You are reminded that 30 TAC § 116.615 requires that any construction or change authorized by this standard permit be administratively incorporated into the affected facilities' permit(s) at the next amendment or renewal.

You are also reminded that these facilities must comply with all rules and regulations of the TCEQ and of the U.S. Environmental Protection Agency at all times.

If you need further information or have any questions, please contact Mr. Kevin Whitenight at (713) 767-3748 or write to the Texas Commission on Environmental Quality, Office of Air, Air Permits Division, MC-163, P.O. Box 13087, Austin, Texas 78711-3087.

Mr. David Low

Page 2

May 13, 2021

Re: Standard Permit Registration Number 164552

Sincerely,

A handwritten signature in black ink that reads "Kristyn Campbell". The signature is written in a cursive, flowing style.

Kristyn Campbell, Manager
Rule Registrations Section
Air Permits Division
Texas Commission on Environmental Quality

cc: Air Section Manager, Region 1 - Amarillo

Project Number: 327106

Jon Niermann, *Chairman*

Emily Lindley, *Commissioner*

Bobby Janecka, *Commissioner*

Toby Baker, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

May 13, 2021

MR DAVID LOW
GENERAL MANAGER, POWER GENERATION
SOUTHWESTERN PUBLIC SERVICE COMPANY
790 S BUCHANAN ST
AMARILLO TX 79101-2510

Re: Pollution Control Projects Air Quality Standard Permit
(Effective 2/9/2011)
Standard Permit Registration Number: 164554
Standard Permit Expiration Date: May 13, 2031
Southwestern Public Service Company
Harrington Station Power Plant
Affected Permit: 5129
Amarillo, Potter County
Regulated Entity Number: RN100224849
Customer Reference Number: CN601481336

Dear Mr. Low:

Southwestern Public Service Company submitted an application on March 30, 2021 to register construction related to Pollution Control Projects to be located in Amarillo, Potter County. We understand that this registration is for emissions associated with gas conversion project related to Units 2 and 3.

The Texas Commission on Environmental Quality (TCEQ) has determined that your proposed emissions are authorized by this standard permit pursuant to Title 30 Texas Administrative Code § 116.602 and Texas Health and Safety Code § 382.05195, if constructed and operated as described in your registration.

You must begin construction or modification of these facilities in accordance with this standard permit no later than 18 months after the date of this letter. After completion of construction or modification, the appropriate TCEQ Regional Office must be notified prior to commencing operation and the facility shall be operated in compliance with all applicable conditions of the claimed standard permit.

You are reminded that 30 TAC § 116.615 requires that any construction or change authorized by this standard permit be administratively incorporated into the affected facilities' permit(s) at the next amendment or renewal.

You are also reminded that these facilities must comply with all rules and regulations of the TCEQ and of the U.S. Environmental Protection Agency at all times.

If you need further information or have any questions, please contact Mr. Kevin Whitenight at (713) 767-3748 or write to the Texas Commission on Environmental Quality, Office of Air, Air Permits Division, MC-163, P.O. Box 13087, Austin, Texas 78711-3087.

Mr. David Low

Page 2

May 13, 2021

Re: Standard Permit Registration Number 164554

Sincerely,

A handwritten signature in black ink that reads "Kristyn Campbell". The signature is written in a cursive, flowing style.

Kristyn Campbell, Manager
Rule Registrations Section
Air Permits Division
Texas Commission on Environmental Quality

cc: Air Section Manager, Region 1 - Amarillo

Project Number: 327108

Jon Niermann, *Chairman*

Emily Lindley, *Commissioner*

Bobby Janecka, *Commissioner*

Toby Baker, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

May 20, 2021

MR DAVID LOW
GENERAL MANAGER, POWER GENERATION
SOUTHWESTERN PUBLIC SERVICE COMPANY
790 S BUCHANAN ST
AMARILLO TX 79101-2510

Re: Permit Alteration
Permit Number: 1388
Expiration Date: February 13, 2024
Southwestern Public Service Company
Harrington Station Power Plant
Amarillo, Potter County
Regulated Entity Number: RN100224849
Customer Reference Number: CN601481336
Associated Permit Number: PSDTX631M1

Dear Mr. Low:

Southwestern Public Service Company has requested alteration of the conditions of the above-referenced permit.

In accordance with Title 30 Texas Administrative Code §116.116(c), Permit Number 1388 is altered. Enclosed are the new general conditions and altered special conditions. Please attach these to your permit.

All preconstruction authorizations (including authorization for emissions of greenhouse gases, if applicable) should be obtained prior to start of construction.

If you need further information or have any questions, please contact Ms. Jennifer Washbourne at (512) 239-1263 or write to the Texas Commission on Environmental Quality, Office of Air, Air Permits Division, MC-163, P.O. Box 13087, Austin, Texas 78711-3087.

Sincerely,

A handwritten signature in black ink, appearing to read "Samuel Short", followed by a horizontal line.

Samuel Short, Deputy Director
Air Permits Division
Office of Air
Texas Commission on Environmental Quality

Mr. David Low

Page 2

May 20, 2021

Re: Permit Number: 1388

Enclosure

cc: Air Section Manager, Region 1 - Amarillo

Air Permits Section Chief, New Source Review Section (6PD-R), U.S. Environmental Protection
Agency, Region 6, Dallas

Project Number: 327104



Texas Commission on Environmental Quality Air Quality Permit

A Permit Is Hereby Issued To
Southwestern Public Service Company
Authorizing the Construction and Operation of
Harrington Station Power Plant
Located at Amarillo, Potter County, Texas
Latitude 35° 17' 55" Longitude -101° 44' 46"

Permit: 1388 and PSDTX631M1

Revision Date: May 20, 2021

Expiration Date: February 13, 2024


 For the Commission

1. **Facilities** covered by this permit shall be constructed and operated as specified in the application for the permit. All representations regarding construction plans and operation procedures contained in the permit application shall be conditions upon which the permit is issued. Variations from these representations shall be unlawful unless the permit holder first makes application to the Texas Commission on Environmental Quality (commission) Executive Director to amend this permit in that regard and such amendment is approved. [Title 30 Texas Administrative Code (TAC) Section 116.116 (30 TAC § 116.116)] ¹
2. **Voiding of Permit.** A permit or permit amendment is automatically void if the holder fails to begin construction within 18 months of the date of issuance, discontinues construction for more than 18 months prior to completion, or fails to complete construction within a reasonable time. Upon request, the executive director may grant an 18-month extension. Before the extension is granted the permit may be subject to revision based on best available control technology, lowest achievable emission rate, and netting or offsets as applicable. One additional extension of up to 18 months may be granted if the permit holder demonstrates that emissions from the facility will comply with all rules and regulations of the commission, the intent of the Texas Clean Air Act (TCAA), including protection of the public's health and physical property; and (b)(1) the permit holder is a party to litigation not of the permit holder's initiation regarding the issuance of the permit; or (b)(2) the permit holder has spent, or committed to spend, at least 10 percent of the estimated total cost of the project up to a maximum of \$5 million. A permit holder granted an extension under subsection (b)(1) of this section may receive one subsequent extension if the permit holder meets the conditions of subsection (b)(2) of this section. [30 TAC § 116.120]
3. **Construction Progress.** Start of construction, construction interruptions exceeding 45 days, and completion of construction shall be reported to the appropriate regional office of the commission not later than 15 working days after occurrence of the event. [30 TAC § 116.115(b)(2)(A)]
4. **Start-up Notification.** The appropriate air program regional office shall be notified prior to the commencement of operations of the facilities authorized by the permit in such a manner that a representative of the commission may be present. The permit holder shall provide a separate notification for the commencement of operations for each unit of phased construction, which may involve a series of units commencing operations at different times. Prior to operation of the facilities authorized by the permit, the permit holder shall identify the source or sources of allowances to be utilized for compliance with Chapter 101, Subchapter H, Division 3 of this title (relating to Mass Emissions Cap and Trade Program). [30 TAC § 116.115(b)(2)(B)]
5. **Sampling Requirements.** If sampling is required, the permit holder shall contact the commission's Office of Compliance and Enforcement prior to sampling to obtain the proper data forms and procedures. All sampling and testing procedures must be approved by the executive director and coordinated with the regional representatives of the commission. The permit holder is also responsible for providing sampling facilities and conducting the sampling operations or contracting with an independent sampling consultant. [30 TAC § 116.115(b)(2)(C)]
6. **Equivalency of Methods.** The permit holder must demonstrate or otherwise justify the equivalency of emission control methods, sampling or other emission testing methods, and monitoring methods proposed as alternatives to methods indicated in the conditions of the permit. Alternative methods shall be applied for in writing and must be reviewed and approved by the executive director prior to their use in fulfilling any requirements of the permit. [30 TAC § 116.115(b)(2)(D)]
7. **Recordkeeping.** The permit holder shall maintain a copy of the permit along with records containing the information and data sufficient to demonstrate compliance with the permit, including production records and

operating hours; keep all required records in a file at the plant site. If, however, the facility normally operates unattended, records shall be maintained at the nearest staffed location within Texas specified in the application; make the records available at the request of personnel from the commission or any air pollution control program having jurisdiction in a timely manner; comply with any additional recordkeeping requirements specified in special conditions in the permit; and retain information in the file for at least two years following the date that the information or data is obtained. [30 TAC § 116.115(b)(2)(E)]

1. **Maximum Allowable Emission Rates.** The total emissions of air contaminants from any of the sources of emissions must not exceed the values stated on the table attached to the permit entitled "Emission Sources--Maximum Allowable Emission Rates." [30 TAC § 116.115(b)(2)(F)]¹
2. **Maintenance of Emission Control.** The permitted facilities shall not be operated unless all air pollution emission capture and abatement equipment is maintained in good working order and operating properly during normal facility operations. The permit holder shall provide notification in accordance with 30 TAC §101.201, 101.211, and 101.221 of this title (relating to Emissions Event Reporting and Recordkeeping Requirements; Scheduled Maintenance, Startup, and Shutdown Reporting and Recordkeeping Requirements; and Operational Requirements). [30 TAC § 116.115(b)(2)(G)]
3. **Compliance with Rules.** Acceptance of a permit by an applicant constitutes an acknowledgment and agreement that the permit holder will comply with all rules and orders of the commission issued in conformity with the TCAA and the conditions precedent to the granting of the permit. If more than one state or federal rule or regulation or permit condition is applicable, the most stringent limit or condition shall govern and be the standard by which compliance shall be demonstrated. Acceptance includes consent to the entrance of commission employees and agents into the permitted premises at reasonable times to investigate conditions relating to the emission or concentration of air contaminants, including compliance with the permit. [30 TAC § 116.115(b)(2)(H)]
4. **This** permit may not be transferred, assigned, or conveyed by the holder except as provided by rule. [30 TAC § 116.110(e)]
5. **There** may be additional special conditions attached to a permit upon issuance or modification of the permit. Such conditions in a permit may be more restrictive than the requirements of Title 30 of the Texas Administrative Code. [30 TAC § 116.115(c)]
6. **Emissions** from this facility must not cause or contribute to "air pollution" as defined in Texas Health and Safety Code (THSC) §382.003(3) or violate THSC § 382.085. If the executive director determines that such a condition or violation occurs, the holder shall implement additional abatement measures as necessary to control or prevent the condition or violation.
7. **The** permit holder shall comply with all the requirements of this permit. Emissions that exceed the limits of this permit are not authorized and are violations of this permit.¹

¹ Please be advised that the requirements of this provision of the general conditions may not be applicable to greenhouse gas emissions.

Special Conditions

Permit Numbers 1388 and PSDTX631M1

1. This permit covers only those sources of emissions listed in the attached table entitled, "Emission Sources - Maximum Allowable Emission Rates" (MAERT), and those sources are limited to the emission limits and other conditions specified in that attached table. This permit authorizes maintenance, startup, and shutdown (MSS) activities which comply with the emission limits in the MAERT.

Operational Limitations

2. The emissions from the Unit No. 1 steam generator stack, Emission Point Number (EPN) HS-1, shall not exhibit an opacity greater than 20 percent (six-minute average), except as allowed under Title 30 Texas Administrative Code (30 TAC) § 111.111(a)(1)(E), Title 40 Code of Federal Regulations (40 CFR) § 60.42(a)(2), or Special Condition No. 16 of this permit.
3. Fuel shall be limited to the following:
 - A. Low sulfur western coal and/or an equivalent coal with properties that will ensure compliance with the permit maximum allowable emission rates as specified by the MAERT. This condition no longer applies after December 31, 2024, per the requirements of Agreed Order Docket No. 2020-0982-MIS. **(05/21)**
 - B. Pipeline quality sweet natural gas.
4. In order to determine continuing compliance with the MAERT, the firing rate of Unit No. 1 shall be limited to 3,630 million British thermal units per hour (MMBtu/hr) on an hourly average, based on fuel quality analysis and plant fuel flow monitoring.
5. The emissions of carbon monoxide (CO) from Unit No.1 shall not exceed 0.33 pound per MMBtu, on a 30-day rolling average. This limit does not apply during planned MSS activities.
6. Fly Ash Handling System (EPN HS-2). Fly ash loadout from the ash silo must be into enclosed trucks. A system shall be used to return to the ash silo any particulate dust emissions from the loading operations. Visible emissions from the truck loading operations shall not exceed 10 percent averaged over a six-minute period as measured by 40 CFR Part 60, Appendix A, Test Method 9.

Federal Applicability

7. The facilities shall comply with applicable requirements of EPA regulations in 40 CFR as follows:
 - A. Part 60, Standards of Performance for New Stationary Sources,
 - (1) Subpart A, General Conditions; and
 - (2) Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction Is Commenced after August 17, 1971.
 - B. Part 63, National Emission Standards for Hazardous Air Pollutants, Subpart UUUUU for Electric Utility Steam Generating Units. Six-months after ceasing coal operations, the unit will no longer be subject to Part 63, Subpart UUUUU. **(05/21)**

Special Conditions

Permit Numbers 1388 and PSDTX631M1

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- C. If any condition of this permit is more stringent than the regulations so incorporated, then for the purposes of complying with this permit, the permit shall govern and be the standard by which compliance shall be demonstrated.

Initial Determination of Compliance

- 8. Initial determination of compliance testing was completed in 1984.

Continuous Determination of Compliance

- 9. The holder of this permit shall install, calibrate, maintain, and operate a continuous emissions monitoring system (CEMS) to measure and record the concentrations of nitrogen oxides (NO_x) and diluent gases (oxygen or carbon dioxide) from EPN HS-1.
 - A. The CEMS shall meet the design and performance specifications, pass the field tests, and meet the installation requirements and the data analysis and reporting requirements specified in the applicable Performance Specification Nos. 2, 3, and 6 of 40 CFR Part 60, Appendix B, or an acceptable alternative. If there are no applicable performance specifications in 40 CFR Part 60, Appendix B, contact the Texas Commission on Environmental Quality (TCEQ) Air Permits Division in Austin for requirements to be met.
 - B. The holder of this permit shall assure that the CEMS meets the applicable quality-assurance requirements specified in 40 CFR Part 60, Appendix F, Procedure 1, or an acceptable alternative. Relative accuracy exceedances, as specified in 40 CFR Part 60, Appendix F, § 5.2.3 and any CEMS downtime shall be reported to the Director of the TCEQ Amarillo Regional Office, and necessary corrective action shall be taken. Supplemental stack concentration measurements may be required at the discretion of the appropriate TCEQ Regional Director.
 - C. The monitoring data shall be reduced to hourly average concentrations at least once every hour, using a minimum of four equally-spaced data points from each one-hour period. The individual average concentrations shall be reduced to units of the permit allowable emission rate in pounds per hour at least once every hour. Pound per hour data from EPN HS-1 shall be summed monthly to tons per year and used to determine compliance with the annual emissions limits of this permit.
 - D. All monitoring data and quality-assurance data shall be maintained by the source for a period of five years and shall be made available to the TCEQ Executive Director or his designated representative upon request.
 - E. The TCEQ Amarillo Regional Office shall be notified at least 30 days prior to any required relative accuracy test audits in order to provide them the opportunity to observe the testing.
 - F. In lieu of the requirements in Special Condition Nos. 9.A. through 9.E. pertaining to NO_x, the monitoring required by Special Condition No. 9 may be met by the use of a CEMS which will be required to meet the design and performance specifications, pass the field tests, and meet the installation requirements and data analysis and reporting requirements specified in the applicable performance specifications in 40 CFR Part 75, Appendix A. Title 40 CFR Part 75 is deemed an acceptable alternative to the performance specifications and quality-assurance requirements of 40 CFR Part 60.

Special Conditions

Permit Numbers 1388 and PSDTX631M1

Page 3

10. The holder of this permit will monitor EPN HS-1 with a continuous opacity monitoring system (COMS), operated in accordance with 40 CFR § 60.13. Opacity readings in excess of the standards outlined in Special Condition No. 2 or No. 16 are reportable under 30 TAC § 101.201, Subchapter F, Division 1, Emissions Event Reporting and Recordkeeping Requirements.
11. The holder of this permit will monitor sulfur dioxide (SO₂) from the exhaust stream of Unit 1 with a CEMS, operated in accordance with 40 CFR § 75.10.
12. Following a period not to exceed 180 days following the October 16, 2010 completion of the NO_x Improvement Project and continuing for a period of five years, the holder of this permit shall annually sample CO in the stack gases from EPN HS-1. Sampling methods shall be using relevant methods outlined in 40 CFR Part 60, Appendix A, Test Methods 1, 1A, 10, 10A and/or 10B. Alternative sampling methods may be used if approved, prior to testing, by the TCEQ Regional Director. Testing results, in pounds per hour of CO, shall be reported to the TCEQ Regional Director within 30-days following each test.
13. If any emission monitor fails to meet specified performance, it shall be repaired or replaced immediately, but no later than seven days after it was first detected by any employee at the facility, unless written permission is obtained from the TCEQ which allows for a longer repair/replacement time. The holder of this permit shall develop an operation and maintenance program (including stocking necessary spare parts) to ensure that the continuous monitors are available as required.

Recordkeeping

14. The following records shall be kept at the plant for the life of the permit and made available at the request of personnel from the TCEQ, EPA, or any air pollution control agency with jurisdiction.
 - A. A copy of this permit.
 - B. Permit application and subsequent representations submitted to the TCEQ.
 - C. A complete copy of the testing reports and records of the initial performance testing.
 - D. Stack sampling results, other air emissions testing, fuel quality analysis, and plant fuel flow monitoring that may be conducted on units authorized under this permit and subsequent modifications after the October 15, 2002 renewal of this permit.
15. The following records shall be retained for a minimum period of five years and made available at the request of personnel from the TCEQ, EPA, or any air pollution control agency with jurisdiction.
 - A. CEMS and COMS raw data and test results in compliance with Special Condition Nos. 9, 10, and 11.
 - B. Records to identify periods of planned MSS.
 - C. Records of opacity measurements by the COMS for the duration of the planned MSS activities.
 - D. Records to show that the work practices in Special Condition No. 21 are followed during the planned MSS activities.

Maintenance, Startup, and Shutdown

Special Conditions

Permit Numbers 1388 and PSDTX631M1

Page 4

16. Opacity greater than 20 percent from EPN HS-1 is authorized during planned MSS when the permit holder complies with the duration limitations and applicable work practices as follows.
 - A. The applicable work practices of Special Condition No. 21.
 - B. Periods of opacity greater than 20 percent from EPN HS-1 from planned MSS authorized by this Special Condition shall not exceed 144 hours in a calendar year.
 - C. For periods of MSS other than those subject to Paragraphs A. and B. of this Special Condition, 30 TAC §§ 111.111, 111.153, and 30 TAC § 101, Subchapter F apply.
17. This permit authorizes the emissions from the planned MSS activities listed in Attachment A [Inherently Low Emitting (ILE) maintenance activities], Attachment B (non-ILE maintenance activities), and the MAERT attached to this permit.
18. When a planned maintenance activity identified in Attachment B is associated with a VOC liquid storage facility and may result in VOC emissions from that facility, the permit holder shall not open that facility to the atmosphere in connection with the planned maintenance activity until the VOC liquids are removed from that facility to the maximum extent practicable.
19. No vacuum pump on a vacuum truck that is used to move solids (such as ash) during planned maintenance activities shall be operated unless the vacuum system exhaust is routed to a filtering system.
20. Vacuum trucks that are used to move liquids during planned maintenance activities shall utilize submerged loading.
21. The holder of this permit shall minimize emissions during planned MSS activities by operating the facility and associated air pollution control equipment in accordance with good air pollution control practices, safe operating practices, and protection of the facility, including the following work practices:
 - A. Comply with the boiler and electrostatic precipitator (ESP) manufacturer's operating procedures or the permittee's written standard operating procedures manual during planned MSS and operate in a manner consistent with those procedures to minimize opacity. The portion of this condition pertaining to the ESP no longer applies after December 31, 2024, per the requirements of Agreed Order Docket No. 2020-0982-MIS. **(05/21)**
 - B. When solid fuel is being burned, place the ESP into service as soon as practical during planned startups, but not longer than the durations identified in Special Condition No. 22, and keep the ESP in service while the unit is burning solid fuel. This condition no longer applies after December 31, 2024, per the requirements of Agreed Order Docket No. 2020-0982-MIS. **(05/21)**
 - C. The manufacturer's operating procedures or permittee's written standard operating procedure manual shall be located on-site and be available to the TCEQ regional investigator.
22. Emissions during planned startup and shutdown activities will be minimized by limiting the duration of operation in planned startup and shutdown mode as follows:

Special Conditions

Permit Numbers 1388 and PSDTX631M1

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- A. A planned startup of the Unit 1 steam generator is defined as the period that begins when a set of fans are placed into service and ends when the unit reaches a sustained load of 150 megawatts. In the event that the fans are already running for maintenance purposes as allowed in Attachment B of this permit, startup begins when main gas firing is commenced. In addition:
 - (1) A planned startup shall not exceed 48 hours after main gas firing has commenced, except as allowed in Special Condition No. 22.A.(2).
 - (2) An extended planned startup is defined as a startup that lasts more than 48 hours after main gas firing has commenced. The total amount of time that extended startups exceed 48 hours shall not exceed 300 hours on an annual basis.
 - B. A planned shutdown of the Unit 1 steam generator shall not exceed 36 hours. A planned shutdown is defined as the period that begins when the generator breaker is opened or at the point of main fuel no longer being fired in the boiler, whichever is earlier. Shutdown ends when the generator breaker is open and main fuel is no longer being fired in the boiler.
 - C. For purposes of counting startup and shutdown hours, any clock hour that includes one or more minutes of startup or shutdown activity is counted as one hour of startup or shutdown activity.
23. Compliance with the emissions limits for planned MSS activities identified in the MAERT attached to this permit may be demonstrated as follows:
- A. For each pollutant emitted during planned ILE maintenance activities, the permit holder shall annually confirm the continued validity of the estimated potential to emit represented in the permit application for all ILE planned maintenance activities. The total emissions from all planned ILE maintenance activities identified in Attachment A of this permit shall be considered to be no more than the estimated potential to emit for those activities that are represented in the permit application.
 - B. For each pollutant emitted during planned non-ILE maintenance activities identified in Attachment B of this permit, the permit holder shall do the following for each calendar month.
 - (1) Determine the total emissions of the pollutant from such non-ILE planned maintenance activities in accordance with Special Condition No. 24.
 - (2) Once monthly emissions have been determined in accordance with Special Condition No. 23.B.(1) for 12 months after the MSS permit amendment has been issued, the permit holder shall compare the sum of the rolling 12-month emissions for the pollutant for all non-ILE planned maintenance activities to the annual emissions limit for the pollutant in the MAERT.
 - (3) This excludes the emissions associated with the combustion unit tuning/optimization activities, which are included in the normal operation emission limits for EPN HS-1 in the MAERT.
24. The permit holder shall determine the emissions during planned MSS activities for use in Special Condition No. 23 as follows:

Special Conditions

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- A. For each pollutant whose emissions during normal facility operations are measured with a CEMS that has been certified to measure the pollutant's emissions over the entire range of a planned MSS activity, the permit holder shall measure the emissions of the pollutant during the planned MSS activity using the CEMS.
- B. For each pollutant not described in Special Condition No. 24.A., the permit holder shall calculate the pollutant's emissions during all occurrences of each type of planned MSS activity for each calendar month using the frequency of the planned MSS activity identified in work orders or equivalent records and the emissions of the pollutant during the planned MSS activity as represented in the planned MSS permit application. In lieu of using the emissions of the pollutant during the planned MSS activity as represented in the planned MSS permit application to calculate such emissions, the permit holder may determine the emissions of the pollutant during the planned MSS activity using an appropriate method, including but not limited to, any of the methods described in paragraphs 1 through 3 below, provided that the permit holder maintains appropriate records supporting such determination:
- (1) Use of emission factor(s), facility-specific parameter(s), and/or engineering knowledge of the facility's operations.
 - (2) Use of emissions data measured (by a CEMS or during emissions testing) during the same type of planned MSS activity occurring at or on a similar facility, and correlation of that data with the facility's relevant operating parameters, including, but not limited to, electric load, temperature, fuel input, and fuel sulfur content.
 - (3) Use of emissions testing data collected during a planned MSS activity occurring at or on the facility, and correlation of that data with the facility's relevant operating parameters, including, but not limited to, electric load, temperature, fuel input, and fuel sulfur content.
25. With the exception of the emission limits in the MAERT attached to this permit, the permit conditions relating to planned MSS activities do not become effective until 180 days after issuance of the permit amendment dated April 20, 2012.

Additional Authorizations

26. The following projects and facilities authorized by Permit by Rule (PBR) and Standard Permit (SP) are listed here for reference purposes only.

Project/Facility	Authorization	Registration No.
Fluorescent Bulb Crusher	30 TAC § 106.262 (PBR)	84932
ESP Improvements	Pollution Control Project (SP)	93027
Substitute nat. gas for coal	Pollution Control Project (SP)	108024

Date: May 20, 2021

Permit Numbers 1388 and PSDTX631M1

Attachment A

Inherently Low Emitting Maintenance Activities (ILEs)					
Planned Maintenance Activity	Emissions				
	NO _x	CO	VOC	PM	SO ₂
Miscellaneous particulate filter maintenance ¹				X	
Degassing for maintenance of storage vessels storing material with low vapor pressure (≤ 0.5 psia)			X		
Degassing for maintenance of storage vessels storing gasoline or other materials with high vapor pressure (> 0.5 psia) that does not require clearing the vessel to allow entry of personnel			X		
Boiler General Maintenance ²				X	
Inspection, repair, replacement, adjusting, testing, and calibration of analytical equipment, process instruments including sight glasses, meters, gauges, CEMS, and PEMS	X	X	X		X
Material handling system maintenance ³				X	
Small equipment and fugitive component repair/replacement in VOC service ⁴			X		
PM control device maintenance - unit offline				X	
Management of sludge from pits, ponds, sumps, and water conveyances ⁵			X		

Date: May 20, 2021

¹ Includes, but is not limited to: filters, and coal handling filters.

² Includes, but is not limited: pre-heater basket handling and maintenance, refractory change out, fan maintenance/balancing, damper/air heater/soot blower maintenance, and any other general boiler maintenance that does not exceed the worst-case emission representation in the application.

³ Material handling equipment includes, but is not limited to: silos, transport systems, coal bunkers, coal crushing equipment, coal handling, nuvafeeders, hoppers, and sludge handling systems. Materials handled include coal, ash, limestone, soda ash, and lime. This condition no longer applies after December 31, 2024, per the requirements of Agreed Order Docket No. 2020-0982-MIS. **(05/21)**

⁴ Includes, but is not limited to: (i) repair/replacement of pumps/compressors/valves/pipes/flanges/transport lines/filters/screens in natural gas/fuel oil/diesel oil/ammonia/lube oil/gasoline service, (ii) vehicle/mobile equipment that may involve small VOC emissions such as oil changes/transmission service/hydraulic system service.

⁵ Includes, but is not limited to: management by vacuum truck/dewatering of materials in open pits/ponds/sumps/tanks/other closed or open vessels, and water based washing. Materials removed by vacuum truck include water and sediment mixtures containing miscellaneous VOCs such as diesel, lube oil, and other waste oils.

Permit Numbers 1388 and PSDTX631M1

Attachment B

Non-Inherently Low Emitting Maintenance Activities (non-ILEs)						
Planned Maintenance Activity	EPN	Emissions				
		NO _x	CO	VOC	PM	SO ₂
Gaseous Fuel Venting ⁶	MSS-FUG			X		
Combustion optimization ⁷	HS-1	X	X	X	X	X
Vacuum truck solids loading ⁸	MSS-FUG				X	
Vacuum truck solids unloading	MSS-FUG				X	
PM control device - unit online	HS-1				X	
Use of fans during maintenance - unit offline	HS-1				X	

Date: February 13, 2014

⁶ Includes, but is not limited to: venting prior to pipeline pigging and meter proving.

⁷ Includes, but is not limited to: leak/operability checks, troubleshooting, and seasonal tuning.

⁸ Includes, but is not limited to: site-wide solids (ash) vacuuming operations (e.g. material handling baghouses/ ESP/ ducts/furnace/loop seals/stripper coolers/airlocks).

Emission Sources - Maximum Allowable Emission Rates

Permit Numbers 1388 and PSDTX631M1

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
HS-1	Harrington Station Unit No. 1 369 MW Coal-Fired Electric Generating Unit (5)	SO ₂	4,293	15,080
		CO	1,634	5,247
		NO _x	1,452	3,975
		PM	359	1,257
		PM ₁₀	359	1,257
		PM _{2.5}	322	1,128
		VOC	13.3	58.3
		Fluoride (as HF)	19	67.8
		Hydrogen Chloride	10.4	45.6
		Beryllium	0.0111	0.04
HS-2	Harrington Station Unit No. 1 Fly Ash Bin Vent Baghouse	PM	0.17	0.76
		PM ₁₀	0.08	0.36
		PM _{2.5}	0.01	0.05
HS-2A	Ash Handling System Pump A Discharge	PM	0.08	0.36
		PM ₁₀	0.08	0.36
		PM _{2.5}	0.04	0.19
HS-2B	Ash Handling System Pump B Discharge	PM	0.08	0.36
		PM ₁₀	0.08	0.36
		PM _{2.5}	0.04	0.19

Permit Numbers 1388 and PSDTX631M1

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
MSS-FUG	Maintenance, Startup, and Shutdown (MSS) Fugitives	SO ₂	<0.01	<0.01
		NO _x	<0.01	<0.01
		PM	7.39	4.95
		PM ₁₀	1.91	1.19
		PM _{2.5}	0.29	0.18
		VOC	33.50	0.42

- (1) Emission point identification - either specific equipment designation or emission point number from plot plan.
- (2) Specific point source name. For fugitive sources, use area name or fugitive source name.
- (3) VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code (TAC) § 101.1
 NO_x - total oxides of nitrogen
 SO₂ - sulfur dioxide
 PM - particulate matter emissions, as defined in Title 30 TAC § 101.1, including PM₁₀ and PM_{2.5}
 PM₁₀ - particulate matter emissions equal to or less than 10 microns in diameter, including PM_{2.5}
 PM_{2.5} - direct particulate matter emissions equal to or less than 2.5 microns in diameter
 CO - carbon monoxide
 HF - hydrogen fluoride
- (4) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period.
- (5) The lbs/hour and tpy emission limits specified in the MAERT for this facility include emissions from the facility during both normal operations and planned MSS activities.

Date: February 13, 2014

Common Acronyms in Air Permits

°C = Temperature in degrees Celsius
 °F = Temperature in degrees Fahrenheit
 °K = Temperature in degrees Kelvin
 µg = microgram
 µg/m³ = microgram per cubic meter
 acfm = actual cubic feet per minute
 AMOC = alternate means of control
 AOS = alternative operating scenario
 AP-42 = Air Pollutant Emission Factors, 5th edition
 APD = Air Permits Division
 API = American Petroleum Institute
 APWL = air pollutant watch list
 BPA = Beaumont/ Port Arthur
 BACT = best available control technology
 BAE = baseline actual emissions
 bbl = barrel
 bbl/day = barrel per day
 bhp = brake horsepower
 BMP = best management practices
 Btu = British thermal unit
 Btu/scf = British thermal unit per standard cubic foot or feet
 CAA = Clean Air Act
 CAM = compliance-assurance monitoring
 CEMS = continuous emissions monitoring systems
 cfm = cubic feet (per) minute
 CFR = Code of Federal Regulations
 CN = customer ID number
 CNG = compressed natural gas
 CO = carbon monoxide
 COMS = continuous opacity monitoring system
 CPMS = continuous parametric monitoring system
 DFW = Dallas/ Fort Worth (Metroplex)
 DE = destruction efficiency
 DRE = destruction and removal efficiency
 dscf = dry standard cubic foot or feet
 dscfm = dry standard cubic foot or feet per minute
 ED = (TCEQ) Executive Director
 EF = emissions factor
 EFR = external floating roof tank
 EGU = electric generating unit
 EI = Emissions Inventory
 ELP = El Paso
 EPA = (United States) Environmental Protection Agency
 EPN = emission point number
 ESL = effects screening level
 ESP = electrostatic precipitator
 FCAA = Federal Clean Air Act
 FCCU = fluid catalytic cracking unit
 FID = flame ionization detector
 FIN = facility identification number
 ft = foot or feet
 ft/sec = foot or feet per second
 g = gram
 gal/wk = gallon per week
 gal/yr = gallon per year
 GLC = ground level concentration
 GLC_{max} = maximum (predicted) ground-level concentration

gpm = gallon per minute
 gr/1000scf = grain per 1000 standard cubic feet
 gr/dscf = grain per dry standard cubic feet
 H₂CO = formaldehyde
 H₂S = hydrogen sulfide
 H₂SO₄ = sulfuric acid
 HAP = hazardous air pollutant as listed in § 112(b) of the Federal Clean Air Act or Title 40 Code of Federal Regulations Part 63, Subpart C
 HC = hydrocarbons
 HCl = hydrochloric acid, hydrogen chloride
 Hg = mercury
 HGB = Houston/Galveston/Brazoria
 hp = horsepower
 hr = hour
 IFR = internal floating roof tank
 in H₂O = inches of water
 in Hg = inches of mercury
 IR = infrared
 ISC3 = Industrial Source Complex, a dispersion model
 ISCST3 = Industrial Source Complex Short-Term, a dispersion model
 K = Kelvin; extension of the degree Celsius scaled-down to absolute zero
 LACT = lease automatic custody transfer
 LAER = lowest achievable emission rate
 lb = pound
 hp = horsepower
 hr = hour lb/day = pound per day
 lb/hr = pound per hour
 lb/MMBtu = pound per million British thermal units
 LDAR = Leak Detection and Repair (Requirements)
 LNG = liquefied natural gas
 LPG = liquefied petroleum gas
 LT/D = long ton per day
 m = meter
 m³ = cubic meter
 m/sec = meters per second
 MACT = maximum achievable control technology
 MAERT = Maximum Allowable Emission Rate Table
 MERA = Modeling and Effects Review Applicability
 mg = milligram
 mg/g = milligram per gram
 mL = milliliter
 MMBtu = million British thermal units
 MMBtu/hr = million British thermal units per hour
 MSDS = material safety data sheet
 MSS = maintenance, startup, and shutdown
 MW = megawatt
 NAAQS = National Ambient Air Quality Standards
 NESHAP = National Emission Standards for Hazardous Air Pollutants
 NGL = natural gas liquids
 NNSR = nonattainment new source review
 NO_x = total oxides of nitrogen
 NSPS = New Source Performance Standards
 PAL = plant-wide applicability limit
 PBR = Permit(s) by Rule

Pollution Control Project Permits

PCP = pollution control project
PEMS = predictive emission monitoring system
PID = photo ionization detector
PM = periodic monitoring
PM = total particulate matter, suspended in the atmosphere, including PM₁₀ and PM_{2.5}, as represented
PM_{2.5} = particulate matter equal to or less than 2.5 microns in diameter
PM₁₀ = total particulate matter equal to or less than 10 microns in diameter, including PM_{2.5}, as represented
POC = products of combustion
ppb = parts per billion
ppm = parts per million
ppmv = parts per million (by) volume
psia = pounds (per) square inch, absolute
psig = pounds (per) square inch, gage
PTE = potential to emit
RA = relative accuracy
RATA = relative accuracy test audit
RM = reference method
RVP = Reid vapor pressure
scf = standard cubic foot or feet
scfm = standard cubic foot or feet (per) minute
SCR = selective catalytic reduction
SIL = significant impact levels
SNCR = selective non-catalytic reduction
SO₂ = sulfur dioxide
SOCMI = synthetic organic chemical manufacturing industry
SRU = sulfur recovery unit
TAC = Texas Administrative Code
TCAA = Texas Clean Air Act
TCEQ = Texas Commission on Environmental Quality
TD = Toxicology Division
TLV = threshold limit value
TMDL = total maximum daily load
tpd = tons per day
tpy = tons per year
TVP = true vapor pressure
VOC = volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
VRU = vapor recovery unit or system

Jon Niermann, *Chairman*

Emily Lindley, *Commissioner*

Bobby Janecka, *Commissioner*

Toby Baker, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

May 20, 2021

MR DAVID LOW
GENERAL MANAGER, POWER GENERATION
SOUTHWESTERN PUBLIC SERVICE COMPANY
790 S BUCHANAN ST
AMARILLO TX 79101-2510

Re: Permit Alteration
Permit Number: 5129
Expiration Date: February 13, 2027
Southwestern Public Service Company
Harrington Station Units 2 And 3
Amarillo, Potter County
Regulated Entity Number: RN100224849
Customer Reference Number: CN601481336
Associated Permit Number: PSDTX017M2

Dear Mr. Low:

Southwestern Public Service Company has requested alteration of the conditions of the above-referenced permit.

In accordance with Title 30 Texas Administrative Code §116.116(c), Permit Number 5129 is altered. Enclosed are the new general conditions and altered special conditions. Please attach these to your permit.

All preconstruction authorizations (including authorization for emissions of greenhouse gases, if applicable) should be obtained prior to start of construction.

If you need further information or have any questions, please contact Ms. Andrea Cazares at (512) 239-1292 or write to the Texas Commission on Environmental Quality, Office of Air, Air Permits Division, MC-163, P.O. Box 13087, Austin, Texas 78711-3087.

Sincerely,

A handwritten signature in black ink, appearing to read "Samuel Short", followed by a horizontal line.

Samuel Short, Deputy Director
Air Permits Division
Office of Air
Texas Commission on Environmental Quality

Mr. David Low

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May 20, 2021

Re: Permit Number: 5129

Enclosure

cc: Air Section Manager, Region 1 - Amarillo

Air Permits Section Chief, New Source Review Section (6PD-R), U.S. Environmental Protection
Agency, Region 6, Dallas

Project Number: 327110



Texas Commission on Environmental Quality Air Quality Permit

A Permit Is Hereby Issued To
Southwestern Public Service Company
Authorizing the Construction and Operation of
Harrington Station Units 2 And 3
Located at Amarillo, Potter County, Texas
Latitude 35° 17' 55" Longitude -101° 44' 46"

Permits: 5129 and PSDTX017M2

Revision Date: May 20, 2021

Expiration Date: February 13, 2027



 For the Commission

1. **Facilities** covered by this permit shall be constructed and operated as specified in the application for the permit. All representations regarding construction plans and operation procedures contained in the permit application shall be conditions upon which the permit is issued. Variations from these representations shall be unlawful unless the permit holder first makes application to the Texas Commission on Environmental Quality (commission) Executive Director to amend this permit in that regard and such amendment is approved. [Title 30 Texas Administrative Code (TAC) Section 116.116 (30 TAC § 116.116)] ¹
2. **Voiding of Permit.** A permit or permit amendment is automatically void if the holder fails to begin construction within 18 months of the date of issuance, discontinues construction for more than 18 months prior to completion, or fails to complete construction within a reasonable time. Upon request, the executive director may grant an 18-month extension. Before the extension is granted the permit may be subject to revision based on best available control technology, lowest achievable emission rate, and netting or offsets as applicable. One additional extension of up to 18 months may be granted if the permit holder demonstrates that emissions from the facility will comply with all rules and regulations of the commission, the intent of the Texas Clean Air Act (TCAA), including protection of the public's health and physical property; and (b)(1) the permit holder is a party to litigation not of the permit holder's initiation regarding the issuance of the permit; or (b)(2) the permit holder has spent, or committed to spend, at least 10 percent of the estimated total cost of the project up to a maximum of \$5 million. A permit holder granted an extension under subsection (b)(1) of this section may receive one subsequent extension if the permit holder meets the conditions of subsection (b)(2) of this section. [30 TAC § 116.120]
3. **Construction Progress.** Start of construction, construction interruptions exceeding 45 days, and completion of construction shall be reported to the appropriate regional office of the commission not later than 15 working days after occurrence of the event. [30 TAC § 116.115(b)(2)(A)]
4. **Start-up Notification.** The appropriate air program regional office shall be notified prior to the commencement of operations of the facilities authorized by the permit in such a manner that a representative of the commission may be present. The permit holder shall provide a separate notification for the commencement of operations for each unit of phased construction, which may involve a series of units commencing operations at different times. Prior to operation of the facilities authorized by the permit, the permit holder shall identify the source or sources of allowances to be utilized for compliance with Chapter 101, Subchapter H, Division 3 of this title (relating to Mass Emissions Cap and Trade Program). [30 TAC § 116.115(b)(2)(B)]
5. **Sampling Requirements.** If sampling is required, the permit holder shall contact the commission's Office of Compliance and Enforcement prior to sampling to obtain the proper data forms and procedures. All sampling and testing procedures must be approved by the executive director and coordinated with the regional representatives of the commission. The permit holder is also responsible for providing sampling facilities and conducting the sampling operations or contracting with an independent sampling consultant. [30 TAC § 116.115(b)(2)(C)]
6. **Equivalency of Methods.** The permit holder must demonstrate or otherwise justify the equivalency of emission control methods, sampling or other emission testing methods, and monitoring methods proposed as alternatives to methods indicated in the conditions of the permit. Alternative methods shall be applied for in writing and must be reviewed and approved by the executive director prior to their use in fulfilling any requirements of the permit. [30 TAC § 116.115(b)(2)(D)]
7. **Recordkeeping.** The permit holder shall maintain a copy of the permit along with records containing the information and data sufficient to demonstrate compliance with the permit, including production records and

operating hours; keep all required records in a file at the plant site. If, however, the facility normally operates unattended, records shall be maintained at the nearest staffed location within Texas specified in the application; make the records available at the request of personnel from the commission or any air pollution control program having jurisdiction in a timely manner; comply with any additional recordkeeping requirements specified in special conditions in the permit; and retain information in the file for at least two years following the date that the information or data is obtained. [30 TAC § 116.115(b)(2)(E)]

1. **Maximum Allowable Emission Rates.** The total emissions of air contaminants from any of the sources of emissions must not exceed the values stated on the table attached to the permit entitled "Emission Sources-- Maximum Allowable Emission Rates." [30 TAC § 116.115(b)(2)(F)]¹
2. **Maintenance of Emission Control.** The permitted facilities shall not be operated unless all air pollution emission capture and abatement equipment is maintained in good working order and operating properly during normal facility operations. The permit holder shall provide notification in accordance with 30 TAC §101.201, 101.211, and 101.221 of this title (relating to Emissions Event Reporting and Recordkeeping Requirements; Scheduled Maintenance, Startup, and Shutdown Reporting and Recordkeeping Requirements; and Operational Requirements). [30 TAC § 116.115(b)(2)(G)]
3. **Compliance with Rules.** Acceptance of a permit by an applicant constitutes an acknowledgment and agreement that the permit holder will comply with all rules and orders of the commission issued in conformity with the TCAA and the conditions precedent to the granting of the permit. If more than one state or federal rule or regulation or permit condition is applicable, the most stringent limit or condition shall govern and be the standard by which compliance shall be demonstrated. Acceptance includes consent to the entrance of commission employees and agents into the permitted premises at reasonable times to investigate conditions relating to the emission or concentration of air contaminants, including compliance with the permit. [30 TAC § 116.115(b)(2)(H)]
4. **This** permit may not be transferred, assigned, or conveyed by the holder except as provided by rule. [30 TAC § 116.110(e)]
5. **There** may be additional special conditions attached to a permit upon issuance or modification of the permit. Such conditions in a permit may be more restrictive than the requirements of Title 30 of the Texas Administrative Code. [30 TAC § 116.115(c)]
6. **Emissions** from this facility must not cause or contribute to "air pollution" as defined in Texas Health and Safety Code (THSC) §382.003(3) or violate THSC § 382.085. If the executive director determines that such a condition or violation occurs, the holder shall implement additional abatement measures as necessary to control or prevent the condition or violation.
7. **The** permit holder shall comply with all the requirements of this permit. Emissions that exceed the limits of this permit are not authorized and are violations of this permit.¹

¹ Please be advised that the requirements of this provision of the general conditions may not be applicable to greenhouse gas emissions.

Special Conditions

Permit Numbers 5129 and PSDTX017M2

Emission Standards and Fuel Specifications

1. Compliance with the annual emissions limits, as specified in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates," is based on a consecutive 12-month period rather than the calendar year.
2. A copy of this permit shall be kept at the plant site and made immediately available at the request of personnel from the Texas Commission on Environmental Quality (TCEQ) or any air pollution control agency. In addition, the holder of this permit shall identify all equipment at the property with the potential of emitting air contaminants that is authorized under this permit. Permitted emission points shall be identified by the emission point numbering on the maximum allowable emission rates table (MAERT).
3. Fuels to be fired in the Unit 2 and Unit 3 Boilers are limited to:
 - A. Coal or mixtures of coals with a maximum as-fired sulfur content of 0.6 lb/MMBtu. (This condition no longer applies after December 31, 2024, per the requirements of Agreed Order Docket No. 2020-0982-MIS). **(05/21)**
 - B. Pipeline-quality natural gas with a maximum sulfur content of 20 grains of total sulfur per 100 dry standard cubic feet.
 - C. The use of any other fuel shall require authorization from the TCEQ. **(10/08)**
4. The firing rate of the Unit 2 and 3 Boilers (Emission Point Nos. 2-1 and 3-1) shall be limited to 3,830 and 3,870 MMBtu/hr, respectively, on an hourly average. **(10/08)**
5. As represented by the applicant, the following work and design practices will be maintained:
 - A. During fly ash unloading, the truck drop points will be enclosed by a shroud with the displace air routed back into the silo.
 - B. The vacuum pump will be preceded by a baghouse and an in-line cartridge filter. The vacuum pump will be equipped with a water jacket.
 - C. The bin vent on the fly ash silo will be equipped with a reverse pulse jet cleaning system.
6. The records required in Special Condition Nos. 8 and 9 shall constitute the method of demonstrating compliance with the limits specified in this permit.

Federal Regulation Applicability

7. The Unit Nos. 2 and 3 Boilers shall comply with all applicable requirements of Subparts A, D, and Y of Title 40 Code of Federal Regulations Part 60 (40 CFR Part 60) and with the applicable requirements of 40 CFR Part 75. If any condition of this permit is more stringent than the regulations so incorporated, then for the purposes of complying with this permit, the permit condition shall govern and be the standard by which compliance shall be demonstrated. **(PSD)**
(10/08)

Determination of Compliance With CO Emissions

Special Conditions

Permit Numbers 5129 and PSDTX017M2

Page 2

8. The holder of this permit shall perform stack sampling to establish the actual mass quantities of carbon monoxide (CO) being emitted into the atmosphere from Emission Point No. (EPN) 2-1. Sampling shall be conducted by appropriate procedures in accordance with the appropriate EPA Methods 10, 10B, or by other method approved by the Regional Director of the applicable TCEQ Regional Office. This stack sampling shall occur within six (6) months of the return to routine operations following completion of the project authorized by amendment approved October, 2008. The TCEQ Regional Office shall be notified within 15 days prior to the sampling and will be given the opportunity to observe the sampling procedure. This sampling must be performed at the permit holder's expense and results reported within 30 days to the TCEQ Region 1 Office. **(10/08)**

Recordkeeping Requirements

9. The following records shall be kept at the plant for the life of the permit. All records required in this permit shall be made available at the request of personnel from the TCEQ or any air pollution control agency with jurisdiction. **(03/07)**
 - A. A copy of this permit.
 - B. Permit renewal application dated November 10, 2006.
 - C. Stack sampling results or other testing conducted on units authorized under this permit after the date of issuance of this renewal.
 - D. The permit holder shall keep records to identify: periods of planned maintenance, startup and shutdown (MSS); the opacity measured by the continuous opacity monitoring system (COMS) for the duration of the planned MSS activities; and that the work practices in Special Condition Nos. 12 through 15 are followed during the planned MSS activities. **(05/12)**
10. The following records shall be maintained at the plant site by the holder of this permit, and data shall be retained for at least five years following the date the data is obtained.
 - A. Records of the hours of operation;
 - B. Records of weekly coal Btu testing; (This condition no longer applies after December 31, 2024, per the requirements of Agreed Order Docket No. 2020-0982-MIS). **(05/21)**
 - C. Records of monthly gas Btu testing;
 - D. Records of hourly electrical generation; and
 - E. Records of monthly fuel use by fuel type.

Maintenance, Startup, and Shutdown (MSS)

11. This permit authorizes the emissions from the MSS activities listed in Attachment A, Attachment B, and the MAERT attached to this permit. Attachment A identifies the inherently low emitting (ILE) planned maintenance activities that this permit authorizes to be performed. Attachment B identifies

Special Conditions

Permit Numbers 5129 and PSDTX017M2

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the planned maintenance activities that are non-ILE planned maintenance activities that this permit authorizes to be performed. **(05/12)**

12. When a planned maintenance activity identified in Attachment B is associated with a volatile organic compound (VOC) liquid storage facility and may result in VOC emissions from that facility, the permit holder shall not open that facility to the atmosphere in connection with the maintenance activity until the VOC liquids are removed from that facility to the maximum extent practicable. **(05/12)**
13. No vacuum pump on a vacuum truck that is used to move solids (such as ash) during planned maintenance activities shall be operated unless the vacuum system exhaust is routed to a filtering system. **(05/12)**
14. The holder of this permit shall minimize emissions during planned MSS activities by operating the facility and associated air pollution control equipment in accordance with good air pollution control practices, safe operating practices, and protection of the facility. **(05/12)**
15. Emissions during planned startup and shutdown activities will be minimized by limiting the duration of operation in planned startup and shutdown mode as follows: **(05/12)**
 - A. A planned startup of either of the two electric generating facilities (EGF) with EPNs 2-1 or 3-1 is defined as the period that begins when a set of fans are placed into service and ends when the unit reaches a sustained load of more than 150 Megawatts. In the event that the fans are already running for maintenance purposes as allowed in Attachment A, startup begins when main gas firing has commenced.
 - (1) A planned startup of either EGF shall not exceed 48 hours after main gas firing has commenced, except as allowed in Special Condition No. 15A(2).
 - (2) An extended planned startup is defined as a startup that lasts more than 48 hours after main gas firing has commenced. The total amount of time the extended startups exceed 48 hours at each boiler shall not exceed a combined total of 600 hours for both solid fuel fired boilers at the facility on an annual basis.
 - B. A planned shutdown of either EGF with EPNs 2-1 or 3-1 shall not exceed 36 hours and is defined as:
 - (1) the period that begins when the generator breaker is opened and ends when the main fuel is no longer being fired in the boiler; or
 - (2) the period that begins when the main fuel is no longer being fired in the boiler and ends when the generator breaker is opened.
16. Compliance with the emissions limits for planned MSS activities identified in the MAERT attached to this permit may be demonstrated as follows. **(05/12)**

Special Conditions

Permit Numbers 5129 and PSDTX017M2

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- A. For each pollutant emitted during ILE planned maintenance activities, the permit holder shall annually confirm the continued validity of the estimated potential to emit represented in the permit application for all ILE planned maintenance activities. The total emissions from all ILE planned maintenance activities (See Attachment A) shall be considered to be no more than the estimated potential to emit for those activities that are represented in the permit application.
 - B. For each pollutant emitted during non-ILE planned maintenance activities (See Attachment B) the permit holder shall do the following for each calendar month.
 - (1) Determine the total emissions of the pollutant from such non-ILE planned maintenance activities in accordance with Special Condition No. 17.
 - (2) Once monthly emissions have been determined in accordance with Special Condition No 16B(1) for 12 months after the MSS permit amendment has been issued, the permit holder shall compare the sum of the rolling 12-month emissions for the pollutant for all non-ILE planned maintenance activities to the annual emissions limit for the pollutant in the MAERT.
 - (3) This excludes the emissions associated with the combustion unit tuning/optimization activities, which are included in the normal operation limits for EPN 2-1 and 3-1 as listed in the MAERT.
17. The permit holder shall determine the emissions during planned MSS activities for use in Special Condition No. 16 as follows. **(05/12)**
- A. For each pollutant whose emissions during normal facility operations are measured with a CEMS that has been certified to measure the pollutant's emissions over the entire range of a planned MSS activity, the permit holder shall measure the emissions of the pollutant during the planned MSS activity using the CEMS.
 - B. For each pollutant not described in Special Condition No. 17A, the permit holder shall calculate the pollutant's emissions during all occurrences of each type of planned MSS activity for each calendar month using the frequency of the planned MSS activity identified in work orders or equivalent records and the emissions of the pollutant during the planned MSS activity as represented in the planned MSS permit application. In lieu of using the emissions of the pollutant during the planned MSS activity as represented in the planned MSS permit application to calculate such emissions, the permit holder may determine the emissions of the pollutant during the planned MSS activity using an appropriate method, including but not limited to, any of the methods described in paragraphs 1 through 3 below, provided that the permit holder maintains appropriate records supporting such determination:
 - (1) Use of emission factor(s), facility-specific parameter(s), and/or engineering knowledge of the facility's operations.
 - (2) Use of emissions data measured (by a CEMS or during emissions testing) during the same type of planned MSS activity occurring at or on a similar facility, and correlation of that data with the facility's relevant operating parameters, including, but not limited to, electric load, temperature, fuel input, and fuel sulfur content.

Special Conditions

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- (3) Use of emissions testing data collected during a planned MSS activity occurring at or on the facility, and correlation of that data with the facility's relevant operating parameters, including, but not limited to, electric load, temperature, fuel input, and fuel sulfur content.
- 18. With the exception of the emission limits in the MAERT attached to this permit, the permit conditions relating to planned MSS activities do not become effective until November 21, 2012.
(05/12)

Date: May 20, 2021

ATTACHMENT A
Permit Numbers 5129 and PSDTX017M2
Inherently Low Emitting (ILE) Planned Maintenance Activities

Planned Maintenance Activity	Emissions				
	VOC	NOx	CO	PM	SO ₂
Miscellaneous particulate filter maintenance ¹				X	
Degassing for maintenance of storage vessels storing material with vapor pressure <0.5 psia	X				
Boiler general maintenance ²				X	
Inspection, repair, replacement, adjusting, testing, and calibration of analytical equipment, process instruments including sight glasses, meters, gauges, CEMS, and PEMS.	X	X			X
Material handling system maintenance ³				X	
Small equipment and fugitive component repair/replacement in VOC service ⁴	X				
PM control device maintenance – unit offline				X	
Use of fans during maintenance - unit offline				X	

Notes for Attachment A:

1. Includes, but is not limited to, baghouse filters, coal handling filters, and combustion turbine air intake filters. Includes operation of baghouse ventilation duct fans with boiler offline.
2. Includes pre-heater basket handling and maintenance, refractory change-out, fan maintenance and balancing, damper, air heater, and soot blower maintenance, and any other general boiler maintenance that does not exceed the worst-case emissions representation in the application.
3. Material handling system equipment includes, but is not limited to, silos, transport systems, coal bunkers, coal crushing equipment, coal handling, nuvafeders, hoppers, and sludge handling system. Materials handled include coal, ash, limestone, soda ash, and lime.
4. Includes, but is not limited to, (i) repair/replacement of pumps, compressors, valves, pipes, flanges, transport lines, filters and screens in natural gas, fuel oil, diesel oil, lube oil, and gasoline service, and (ii) vehicle and mobile equipment maintenance that may involve small VOC emissions, such as oil changes, transmission service, and hydraulic system service.
5. After December 31, 2024, coal shall no longer be burned in the boiler, per the requirements of Agreed Order Docket 2020-0982-MIS.

Dated May 20, 2021

ATTACHMENT B
Permit Numbers 5129 and PSDTX017M2
Non-ILE Planned Maintenance Activities

Planned Maintenance Activity	EPN	Emissions				
		VOC	NOx	CO	PM	SO ₂
Gaseous fuel venting ¹	MSS-FUG2	x				
Combustion optimization ²	2-1 and 3-1	x	x	x	x	x
Vacuum truck solids loading ³	MSS-FUG2				x	
Vacuum truck solids unloading	MSS-FUG2				x	
Degassing for maintenance of storage vessels storing gasoline or other material with vapor pressure >0.5 psia that requires clearing of the vessels to allow for entry of personnel	MSS-FUG2	x				
PM control device maintenance – unit online	2-1 and 3-1				x	

Notes for Attachment B:

1. Includes, but is not limited to, venting prior to pipeline pigging, and meter proving.
2. Includes, but is not limited to, (i) leak and operability checks (e.g., turbine over-speed tests, troubleshooting), and (ii) tuning activities that occur during seasonal tuning or after the completion of initial construction, a combustor change-out, a major repair, maintenance to a combustor, or other similar circumstances.
3. Includes site-wide ash vacuuming operations (e.g., baghouse, ESP, ducts, furnace, loop seals, stripper coolers, and airlocks).
4. After December 31, 2024, coal shall no longer be burned in the boiler, per the requirements of Agreed Order Docket 2020-0982-MIS.

Date: May 20, 2021

Emission Sources - Maximum Allowable Emission Rates

Permit Number 5129 and PSDTX017M2

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
2-1	Unit 2 Boiler Stack (6)	NO _x	1,341.00	3,774.0
		CO	1,915.00	5,033.0
		VOC	14.00	56.0
		SO ₂	4,602.00	18,946.0
		PM ₁₀	383.00	1,579.0
2-2	Unit 2 Ash Handling System Bin Vent	PM ₁₀	0.50	2.2
2-2A	Unit 2 Ash Handling System Pump A Discharge	PM ₁₀	0.046	0.2
2-2B	Unit 2 Ash Handling System Pump B Discharge	PM ₁₀	0.046	0.2
3-1	Unit 3 Boiler Stack (6)	NO _x	1,161.00	5,085.0
		CO	581.00	2,543.0
		VOC	55.00	241.0
		SO ₂	4,151.00	18,181.0
		PM ₁₀	347.00	1,520.0
3-2	Fly Ash Silo Bin Vent	PM ₁₀	0.34	1.5
3-2A	Unit No. 3 Vacuum Pump Discharge	PM ₁₀	0.01	0.04

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
MSS-FUG2	MSS Fugitives (5)	SO ₂	<0.01	<0.01
		NO _x	<0.01	<0.01
		VOC	39.00	0.79
		PM	8.51	4.97
		PM ₁₀	2.45	1.20
		PM _{2.5}	0.37	0.18

- (1) Emission point identification - either specific equipment designation or emission point number from plot plan.
- (2) Specific point source name. For fugitive sources, use area name or fugitive source name.
- (3) VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1 (based on AP-42, "Tables 1.1-2 and 1.1-11")
- NO_x - total oxides of nitrogen
- SO₂ - sulfur dioxide
- PM - total particulate matter, suspended in the atmosphere, including PM₁₀ and PM_{2.5}, as represented
- PM₁₀ - total particulate matter equal to or less than 10 microns in diameter, including PM_{2.5}, as represented
- PM_{2.5} - particulate matter equal to or less than 2.5 microns in diameter
- CO - carbon monoxide
- (4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
- (5) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.
- (6) The lb/hr and tpy emission limits specified in the MAERT for this facility includes emissions from the facility during both normal operations and planned MSS activities. **(05/12)**

Date: May 21, 2012

Common Acronyms in Air Permits

°C = Temperature in degrees Celsius
 °F = Temperature in degrees Fahrenheit
 °K = Temperature in degrees Kelvin
 µg = microgram
 µg/m³ = microgram per cubic meter
 acfm = actual cubic feet per minute
 AMOC = alternate means of control
 AOS = alternative operating scenario
 AP-42 = Air Pollutant Emission Factors, 5th edition
 APD = Air Permits Division
 API = American Petroleum Institute
 APWL = air pollutant watch list
 BPA = Beaumont/ Port Arthur
 BACT = best available control technology
 BAE = baseline actual emissions
 bbl = barrel
 bbl/day = barrel per day
 bhp = brake horsepower
 BMP = best management practices
 Btu = British thermal unit
 Btu/scf = British thermal unit per standard cubic foot or feet
 CAA = Clean Air Act
 CAM = compliance-assurance monitoring
 CEMS = continuous emissions monitoring systems
 cfm = cubic feet (per) minute
 CFR = Code of Federal Regulations
 CN = customer ID number
 CNG = compressed natural gas
 CO = carbon monoxide
 COMS = continuous opacity monitoring system
 CPMS = continuous parametric monitoring system
 DFW = Dallas/ Fort Worth (Metroplex)
 DE = destruction efficiency
 DRE = destruction and removal efficiency
 dscf = dry standard cubic foot or feet
 dscfm = dry standard cubic foot or feet per minute
 ED = (TCEQ) Executive Director
 EF = emissions factor
 EFR = external floating roof tank
 EGU = electric generating unit
 EI = Emissions Inventory
 ELP = El Paso
 EPA = (United States) Environmental Protection Agency
 EPN = emission point number
 ESL = effects screening level
 ESP = electrostatic precipitator
 FCAA = Federal Clean Air Act
 FCCU = fluid catalytic cracking unit
 FID = flame ionization detector
 FIN = facility identification number
 ft = foot or feet
 ft/sec = foot or feet per second
 g = gram
 gal/wk = gallon per week
 gal/yr = gallon per year
 GLC = ground level concentration
 GLC_{max} = maximum (predicted) ground-level concentration

gpm = gallon per minute
 gr/1000scf = grain per 1000 standard cubic feet
 gr/dscf = grain per dry standard cubic feet
 H₂CO = formaldehyde
 H₂S = hydrogen sulfide
 H₂SO₄ = sulfuric acid
 HAP = hazardous air pollutant as listed in § 112(b) of the Federal Clean Air Act or Title 40 Code of Federal Regulations Part 63, Subpart C
 HC = hydrocarbons
 HCl = hydrochloric acid, hydrogen chloride
 Hg = mercury
 HGB = Houston/Galveston/Brazoria
 hp = horsepower
 hr = hour
 IFR = internal floating roof tank
 in H₂O = inches of water
 in Hg = inches of mercury
 IR = infrared
 ISC3 = Industrial Source Complex, a dispersion model
 ISCST3 = Industrial Source Complex Short-Term, a dispersion model
 K = Kelvin; extension of the degree Celsius scaled-down to absolute zero
 LACT = lease automatic custody transfer
 LAER = lowest achievable emission rate
 lb = pound
 hp = horsepower
 hr = hour lb/day = pound per day
 lb/hr = pound per hour
 lb/MMBtu = pound per million British thermal units
 LDAR = Leak Detection and Repair (Requirements)
 LNG = liquefied natural gas
 LPG = liquefied petroleum gas
 LT/D = long ton per day
 m = meter
 m³ = cubic meter
 m/sec = meters per second
 MACT = maximum achievable control technology
 MAERT = Maximum Allowable Emission Rate Table
 MERA = Modeling and Effects Review Applicability
 mg = milligram
 mg/g = milligram per gram
 mL = milliliter
 MMBtu = million British thermal units
 MMBtu/hr = million British thermal units per hour
 MSDS = material safety data sheet
 MSS = maintenance, startup, and shutdown
 MW = megawatt
 NAAQS = National Ambient Air Quality Standards
 NESHAP = National Emission Standards for Hazardous Air Pollutants
 NGL = natural gas liquids
 NNSR = nonattainment new source review
 NO_x = total oxides of nitrogen
 NSPS = New Source Performance Standards
 PAL = plant-wide applicability limit
 PBR = Permit(s) by Rule

Pollution Control Project Permits

PCP = pollution control project
PEMS = predictive emission monitoring system
PID = photo ionization detector
PM = periodic monitoring
PM = total particulate matter, suspended in the atmosphere, including PM₁₀ and PM_{2.5}, as represented
PM_{2.5} = particulate matter equal to or less than 2.5 microns in diameter
PM₁₀ = total particulate matter equal to or less than 10 microns in diameter, including PM_{2.5}, as represented
POC = products of combustion
ppb = parts per billion
ppm = parts per million
ppmv = parts per million (by) volume
psia = pounds (per) square inch, absolute
psig = pounds (per) square inch, gage
PTE = potential to emit
RA = relative accuracy
RATA = relative accuracy test audit
RM = reference method
RVP = Reid vapor pressure
scf = standard cubic foot or feet
scfm = standard cubic foot or feet (per) minute
SCR = selective catalytic reduction
SIL = significant impact levels
SNCR = selective non-catalytic reduction
SO₂ = sulfur dioxide
SOCMI = synthetic organic chemical manufacturing industry
SRU = sulfur recovery unit
TAC = Texas Administrative Code
TCAA = Texas Clean Air Act
TCEQ = Texas Commission on Environmental Quality
TD = Toxicology Division
TLV = threshold limit value
TMDL = total maximum daily load
tpd = tons per day
tpy = tons per year
TVP = true vapor pressure
VOC = volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
VRU = vapor recovery unit or system

Harrington Station Capital Expenditures

Docket No. 52485

Unit	Projects Description (WBS Level 4 Description)	Year	In-Service Date	Capital Addition Value	Removal Value	Total Expenditures	AFUDC
HAR Unit 3	HAR3C-H3 Install Ash Silo Elevator	2005	2/15/2005	300,235	-	300,235	2,947
HAR Unit 2	HAR2C-H2 Replace Coal Mill Exhauste	2005	11/3/2005	90,559	1,003	91,563	3,776
HAR Unit 2	HAR2C-H2 Inst Addl Blr Sootblowers	2005	11/30/2005	396,700	-	396,700	4,150
HAR Unit 3	HAR3C-H3 Repl Major Comp Soot Blow	2005	12/22/2005	493,028	27,515	520,543	6,336
HAR Unit 3	HAR3C-H3 Install Addl Boiler Long	2006	12/5/2006	432,541	-	432,541	6,491
HAR Unit 3	HAR3C-H3 Install Hi-Eff Coal Mill E	2007	1/1/2007	105,904	4,016	109,920	512
HAR Unit 3	HAR3C-Repl CEMS Soft/Hard/EDR	2007	5/31/2007	76,244	7,284	83,528	3,035
HAR Unit 1	HAR1C-Repl CEMS Field Hardware	2007	5/31/2007	111,684	3,441	115,125	128
HAR Unit 1	HAR1C-Repl CEMS Soft/Hard/EDR	2007	5/31/2007	93,830	7,194	101,024	3,219
HAR Unit 3	HAR3C-Repl CEMS Field Hardware	2007	7/24/2007	109,075	2,068	111,143	875
HAR Unit 2	HAR2C-Repl CEMS Field Hardware	2007	7/31/2007	129,322	5,822	135,144	878
HAR Unit 3	HAR3C-H3 Repl 3D Coal Mill	2007	9/1/2007	90,324	20,589	110,912	100
HAR Unit 2	HAR2C-Repl CEMS Soft/Hard/EDR	2007	9/27/2007	77,815	1,323	79,139	4,120
HAR Unit 1	HAR1C-Install Mercury CEMS Mon	2008	8/1/2008	354,464	-	354,464	5,303
HAR Unit 2	HAR2C-Install Mercury CEMS Mon	2008	8/1/2008	395,415	-	395,415	5,655
HAR Unit 3	HAR3C-Install Mercury CEMS Mon	2008	8/1/2008	439,767	-	439,767	5,857
HAR Unit 3	HAR3C-H3 Replace Drag Chain	2009	5/1/2009	46,901	159	47,059	328
HAR Unit 3	HAR3C-Coal Bunker Level Measure	2009	11/11/2009	61,288	335	61,623	582
HAR Unit 3	HAR3C-Rpl Bottom Ash Chute	2009	11/13/2009	55,283	36,790	92,074	294
HAR Unit 3	HAR3C-Coal Mill Journal Liners	2009	11/13/2009	9,429	887	10,317	-
HAR Unit 3	HAR3C-Rpl Baghouse Vent Dampers	2009	11/13/2009	55,348	8,668	64,016	280
HAR Unit 3	HAR3C-Coal Pipe Isolation Vlvs	2009	11/13/2009	180,152	-	180,152	753
HAR Unit 3	HAR3C-Neural System Purchase	2010	1/1/2010	716,956	-	716,956	26,696
HAR Unit 2	HAR2C-Rebag Baghouse Compartment	2010	1/22/2010	62,311	26,336	88,648	73
HAR Unit 1	HAR1C-Rpl Coal Bunker Level Meas	2010	2/1/2010	64,704	514	65,218	605
HAR Unit 1	HAR1C-Drag Chain eplacement	2010	3/1/2010	64,341	4,813	69,154	1,277
HAR Unit 2	HAR2C-Rpl Coal Bunker Level Measure	2010	3/5/2010	56,426	363	56,789	664
HAR Unit 1	HAR1C-Purch Neural System	2010	5/31/2010	359,110	-	359,110	4,665
HAR Unit 2	HAR2C-Rpl Coal Mill Duct Work	2010	7/12/2010	875,937	150,882	1,026,819	42
HAR Unit 2	HAR2C-Purch Neural Network	2010	9/10/2010	534,279	-	534,279	2,627
HAR Unit 1	HAR1C-Coal Pipe Isolation Vlvs	2010	10/15/2010	190,200	-	190,200	4,088
HAR Unit 1	HAR1C-Coal Mill Journal Liners	2010	10/15/2010	26,415	4,010	30,425	211
HAR Unit 1	HAR1C-H1 NOX Reduction Proje	2010	10/18/2010	4,586,022	200,526	4,786,548	121,110
HAR Unit 2	HAR2C-Rpl Baghouse Elevator	2010	11/24/2010	326,888	7,641	334,528	2,850
HAR Unit 3	HAR3C-Rpl Baghouse Elevator	2010	11/24/2010	302,025	35,158	337,183	2,844
HAR Unit 1	HAR1C-Inst H1 SootOpt Pkg	2011	2/7/2011	169,068	-	169,068	1,366
HAR Unit 2	HAR2C-Coal Piping Isolation Vlvs	2011	5/9/2011	174,783	-	174,783	1,252
HAR Unit 2	HAR2C-Rpl Coal Mill Jnl Liners	2011	5/9/2011	19,540	5,174	24,715	112
HAR Unit 2	HAR2C-Rpl Coal Mill Classfr Cones	2011	5/9/2011	91,471	9,653	101,124	740
HAR Unit 2	HAR2C-H2 Rpl Drag Chain	2011	5/10/2011	109,239	1,019	110,258	1,523
HAR Unit 2	HAR2C-Rebag 6 Cmprr Major 2011	2011	5/12/2011	128,991	12,753	141,744	1,006
HAR Unit 3	HAR3C-Rebag 3 Cmprr Mini 2011	2011	5/31/2011	48,945	9,703	58,648	53

Harrington Station Capital Expenditures

Docket No. 52485

Unit	Projects Description (WBS Level 4 Description)	Year	In-Service Date	Capital Addition Value	Removal Value	Total Expenditures	AFUDC
HAR Unit 0	HAR0C-Rpl Railroad Ballast	2012	3/29/2012	1,238,967	113,956	1,352,923	16,847
HAR Unit 3	HAR3C-Rpl Drag Chain	2012	4/26/2012	77,818	10,218	88,036	579
HAR Unit 2	HAR2C-Rebag 3 Cmptr Mini 12	2012	5/8/2012	45,490	10,863	56,353	210
HAR Unit 3	HAR3C-H3 Rpl Opacity Monitor	2012	5/8/2012	44,910	3,764	48,673	867
HAR Unit 3	HAR3C-Rebag 6 Cmptr Maj 12	2012	5/8/2012	100,598	31,125	131,723	1,553
HAR Unit 1	HAR1C-H1 Inst Ash Silo Elevator	2012	8/17/2012	599,502	-	599,502	9,204
HAR Unit 0	HAR0C-Rpl Ash Gate remote secu	2012	9/4/2012	30,726	655	31,381	290
HAR Unit 1	HAR1C-Rpl CEMs Sample Probe	2012	9/28/2012	12,307	651	12,957	18
HAR Unit 2	HAR2C-Rpl CEMs Sample Probe	2012	10/25/2012	11,734	1,667	13,401	57
HAR Unit 1	HAR1C-H1 A SB Air Compressor	2012	11/21/2012	131,378	2,462	133,840	525
HAR Unit 3	HAR3C-Rpl CEMs Sample Probe	2012	12/18/2012	16,218	1,301	17,520	179
HAR Unit 1	HAR1C-H1 Rpl Drag Chain	2013	3/8/2013	62,445	48,135	110,580	708
HAR Unit 2	HAR2C-H2 Rpl Opacity Monitor	2013	4/4/2013	47,235	795	48,030	218
HAR Unit 2	HAR2C-Rebag 14 Compartments	2013	4/9/2013	280,494	51,557	332,051	1,552
HAR Unit 3	HAR3C-Rebag 3 Cmptr Mini 2013	2013	5/16/2013	72,123	29,065	101,188	379
HAR Unit 3	HAR3C- U3 Coal Bunker CO monit	2013	6/27/2013	52,466	-	52,466	42
HAR Unit 2	HAR2C- U2 Coal Bunker CO monit	2013	6/27/2013	55,598	-	55,598	47
HAR Unit 1	HAR1C- U1 Coal Bunker CO monit	2013	6/27/2013	59,818	-	59,818	36
HAR Unit 3	HAR3C-3B Mill Brg Foundation P	2013	8/2/2013	33,305	18,718	52,023	163
HAR Unit 2	HAR2C-H2 Rebag Partial 14	2014	2/7/2014	170,974	37,866	208,840	780
HAR Unit 2	HAR2C-Rbld E Flyash Vac Pump	2014	3/7/2014	34,012	5,416	39,428	160
HAR Unit 2	HAR2C-H2 Replace Drag Chain 14	2014	3/7/2014	110,239	22,155	132,394	789
HAR Unit 2	HAR2C-H2 2C Coal Mill OH	2014	3/21/2014	180,934	14,294	195,227	1,120
HAR Unit 2	HAR2C-Rpl Ash Silo Collector	2014	3/28/2014	923,770	76,464	1,000,235	8,726
HAR Unit 3	HAR3C-H3 Rebag Partial 2014	2014	5/22/2014	100,061	19,150	119,210	322
HAR Unit 2	HAR2C-H2 2D Coal Mill OH	2014	9/17/2014	1,181,265	45,356	1,226,621	17,445
HAR Unit 3	HAR3C-H3 Mercury CEMs Upgrade	2014	10/14/2014	279,030	399	279,428	3,661
HAR Unit 2	HAR2C-H2 Mercury CEMs Upgrade	2014	10/15/2014	351,010	977	351,987	4,959
HAR Unit 1	HAR1C-H1 Rpl Opacity Monitor	2014	12/10/2014	75,348	918	76,265	313
HAR Unit 0	HAR0C-Direct ACI Mercury Reduction	2014	12/30/2014	2,079,551	-	2,079,551	26,416
HAR Unit 3	HAR3C-ACI-Mercury Reduction	2014	12/30/2014	525,001	-	525,001	10,022
HAR Unit 2	HAR2C-ACI-Mercury Reduction	2014	12/30/2014	520,014	-	520,014	10,334
HAR Unit 3	HAR3C-H3 Rebag Partial 2015	2015	1/30/2015	210,983	48,091	259,075	337
HAR Unit 1	HAR1C-ACI-Mercury Reduction	2015	2/27/2015	3,707,988	-	3,707,988	121,742
HAR Unit 2	HAR2C-H2 Rebag Partial 2015	2015	5/8/2015	186,058	25,485	211,543	248
HAR Unit 1	HAR1C-Inst ESP Chem Injection	2015	6/30/2015	1,205,766	1,181	1,206,947	6,723
HAR Unit 3	HAR3C-H3 Rpl Blr Elevator	2015	8/20/2015	391,862	4,508	396,369	3,036
HAR Unit 1	HAR1C-H1 E Mill Mtr Rwnd	2015	10/7/2015	46,623	1,755	48,378	153
HAR Unit 3	HAR3C-H3 CEMs Foxboro Upgrade	2015	10/7/2015	165,262	683	165,945	1,427
HAR Unit 3	HAR3C-Rpl Deflation Fans VFDs	2015	11/4/2015	28,759	2,056	30,815	303
HAR Unit 3	HAR3C-Rpl Deflation Fan Motors	2015	11/5/2015	18,747	3,949	22,696	67
HAR Unit 1	HAR1C-H1 Upgrade CEMs Foxboro	2015	11/6/2015	176,685	937	177,622	511

Harrington Station Capital Expenditures

Docket No. 52485

Unit	Projects Description (WBS Level 4 Description)	Year	In-Service Date	Capital Addition Value	Removal Value	Total Expenditures	AFUDC
HAR Unit 3	HAR3C-Coal Mill A Vane Wheels	2015	11/9/2015	61,047	6,221	67,268	423
HAR Unit 3	HAR3C-Coal Mill B Vane Wheels	2015	11/10/2015	70,929	2,676	73,605	450
HAR Unit 3	HAR3C-Rpl Mill C Vane Wheels	2015	11/10/2015	56,717	3,656	60,374	413
HAR Unit 3	HAR3C-Coal Mill D Vane Wheels	2015	11/13/2015	61,870	14,024	75,894	432
HAR Unit 3	HAR3C-Coal Mill E Vane Wheels	2015	11/13/2015	59,888	8,606	68,494	435
HAR Unit 3	HAR3C-H3 Rpl Drag Chain 2015	2015	11/16/2015	69,497	8,826	78,323	96
HAR Unit 3	HAR3C-Coal Mill C Exhauster Fan	2015	11/17/2015	181,659	3,779	185,438	1,066
HAR Unit 3	HAR3C-H3 Rebag Partial	2015	11/17/2015	108,503	18,868	127,371	127
HAR Unit 3	HAR3C-Coal Mill B Major OH	2015	11/19/2015	401,982	21,731	423,713	1,422
HAR Unit 2	HAR2C-H2 Mill C Mjr Mjr Overhaul	2015	11/29/2015	1,062,520	134,584	1,197,104	4,317
HAR Unit 2	HAR2C-Rpl SBAC 2C Vib Mon Sys	2016	5/31/2016	24,712	1,422	26,135	126
HAR Unit 2	HAR2C-E 2C SBAC Motor Rewind	2016	5/31/2016	120,313	(1,358)	118,956	633
HAR Unit 1	HAR1C-E Rpl Silo Aeration Blower	2016	5/31/2016	20,694	3,265	23,958	22
HAR Unit 3	HAR3C-Rpl Deflation Pipe 1/2	2016	6/28/2016	420,403	17,040	437,443	2,876
HAR Unit 2	HAR2C-SBAC 2C Mjr Reblid 2016	2016	6/28/2016	314,550	122,939	437,489	7,521
HAR Unit 3	HAR3C-E Rpl Flyash Fluidization htr	2016	6/28/2016	49,490	2,530	52,019	236
HAR Unit 1	HAR1C-H1 Rpl Bottom Ash Bunker	2016	8/30/2016	24,627	4,612	29,239	194
HAR Unit 2	HAR2C-E W Aeration Blwr Ovhl	2016	9/28/2016	36,369	1,054	37,423	336
HAR Unit 1	HAR1C-H1 ESP Rpl Rappers	2016	10/28/2016	472,684	8,647	481,330	3,485
HAR Unit 2	HAR2C-E West Flyash pump ovhl	2016	10/28/2016	42,342	3,234	45,576	370
HAR Unit 1	HAR1C-E Rbls Flyash Vac Pmps	2016	11/16/2016	124,634	5,744	130,378	529
HAR Unit 3	HAR3C-E Rwnd D Coal Mill Mtr	2016	11/16/2016	64,208	7,836	72,044	261
HAR Unit 3	HAR3C-E Rwnd E Coal Mill Mtr	2016	11/16/2016	47,625	4,431	52,056	346
HAR Unit 2	HAR2C-H2 Upgrade CEMs Foxboro	2016	12/20/2016	222,314	991	223,305	2,074
HAR Unit 1	HAR1C-Rpl H1 Mill A Exhauster Fan	2016	12/28/2016	176,192	9,502	185,693	5,230
HAR Unit 1	HAR1C-H1 Rpl Drag Chain	2016	12/28/2016	67,486	1,974	69,460	268
HAR Unit 3	HAR3C-Rpl Deflation Pipe 2/2	2017	1/30/2017	376,914	84,739	461,653	1,773
HAR Unit 1	HAR1C-E Rebuild TR Set	2017	1/30/2017	31,732	3,259	34,991	77
HAR Unit 3	HAR3C-H3 Rebag Partial 2017	2017	3/30/2017	144,745	8,158	152,903	1,536
HAR Unit 2	HAR2C-E Rpl C Mill Exh Fan Brg	2017	3/30/2017	193,676	912	194,588	2,164
HAR Unit 2	HAR2C-H2 Mill B Major Major OH	2017	5/18/2017	822,506	115,571	938,076	11,919
HAR Unit 3	HAR3C-Rpl SBAC JoyVibMonSys	2017	5/18/2017	31,532	1,739	33,271	124
HAR Unit 2	HAR2C-H2 Rpl Drag Chain 2017	2017	5/18/2017	58,564	3,163	61,727	77
HAR Unit 2	HAR2C-Rpl Bghse Doors -20587	2017	5/26/2017	284,407	54,123	338,530	1,224
HAR Unit 2	HAR2C-Rpl Bghse Inlet Exp Ints -20	2017	5/26/2017	208,881	59,949	268,830	522
HAR Unit 3	HAR3C-SBAC Joy Mjr Reblid 2016	2017	7/3/2017	480,173	59,847	540,021	7,989
HAR Unit 1	HAR1C-ESP Re-build TR-sets Ph1	2017	7/31/2017	91,658	8,995	100,653	346
HAR Unit 1	HAR1C-Rpl SBAC 1B Vib Mon Sys	2017	12/14/2017	23,421	2,575	25,996	182
HAR Unit 1	HAR1C-SBAC 1B Mjr Reblid 2017	2017	12/18/2017	516,725	24,505	541,230	3,241
HAR Unit 2	HAR2C-Rpl H2 Mill E Exhauster	2017	12/18/2017	83,375	14,396	97,771	216
HAR Unit 1	HAR1C-ESP Rebuild TR-sets PH2	2018	5/15/2018	91,868	5,038	96,906	1,205
HAR Unit 2	HAR2C-Rpl Deflation Fan Motors	2018	6/25/2018	17,716	4,078	21,794	80

Harrington Station Capital Expenditures

Docket No. 52485

Unit	Projects Description (WBS Level 4 Description)	Year	In-Service Date	Capital Addition Value	Removal Value	Total Expenditures	AFUDC
HAR Unit 2	HAR2C-H2 Install Ash Silo Elev	2018	9/18/2018	565,909	11,707	577,616	7,571
HAR Unit 3	HAR3C-W Vac Pump Overhaul	2018	11/13/2018	433	(433)	0	-
HAR Unit 3	HAR3C- Rpl Bghse Doors -20582	2018	11/19/2018	364,027	65,984	430,011	3,258
HAR Unit 3	HAR3C-Rebag Partial 2018	2018	11/23/2018	131,881	47,081	178,962	1,262
HAR Unit 3	HAR3C-Rpl Drag Chain 2018	2018	11/23/2018	71,774	7,628	79,402	712
HAR Unit 3	HAR3C-Rpl Bghse Inlet Duct Exp Jnts	2018	11/23/2018	131,949	136,640	268,589	1,151
HAR Unit 3	HAR3C-3D SBAC Motor Rewind	2018	12/21/2018	170,115	4,071	174,185	3,665
HAR Unit 1	HAR1C-Rpl Dust Sprrsn Pump Cable	2018	12/26/2018	31,062	5,227	36,288	106
HAR Unit 0	HAR0C-Rpl SBAC Controls	2018	12/26/2018	506,492	606	507,098	23,479
HAR Unit 1	HAR1C-Rpl ESP Wires Ph 1 of 2	2019	6/27/2019	397,516	96,542	494,059	6,080
HAR Unit 1	HAR1C-Rpl Drag Chain 2019	2019	6/27/2019	168,162	1,367	169,530	892
HAR Unit 2	HAR2C-Rebag Partial 2019	2019	6/27/2019	206,063	26,016	232,078	7,978
HAR Unit 1	HAR1C- ESP Re-build 10 TR-sets	2019	6/28/2019	291,415	10,554	301,969	3,514
HAR Unit 1	HAR1C-Rpl S. Vacuum Pump Motor	2019	6/28/2019	10,942	1,189	12,131	160
HAR Unit 2	HAR2C-Mill A Major Major OH	2019	8/1/2019	25,763	1,438	27,201	2,643
HAR Unit 1	HAR1C-SBAC 1A Mjr Rebid	2019	9/1/2019	24,982	248	25,230	649
HAR Unit 3	HAR3C Partial Rebag	2019	10/28/2019	119,132	21,112	140,244	561
HAR Unit 2	HAR2C-Rebuild 2C SBAC Blower	2019	12/19/2019	122,375	4,253	126,628	1,518
HAR Unit 3	HAR3C Rpl Mercury Analyzer	2020	3/23/2020	74,861	2,477	77,339	346
HAR Unit 2	HAR2C-H2 Rebag Partial 2020	2020	5/29/2020	252,383	35,428	287,811	1,486
HAR Unit 2	HAR2C Instl Sootblwr Bick Vlvs	2020	5/29/2020	81,229	-	81,229	899
HAR Unit 2	HAR2C-East Vac Pump Overhaul	2020	5/29/2020	50,359	6,498	56,857	302
HAR Unit 2	HAR2C-Rpl Drag Chain 2020	2020	5/29/2020	65,287	4,669	69,956	287
HAR Unit 1	HAR1C-Rpl SBAC 1A Vib Monitoring	2020	7/1/2020	28,900	882	29,782	1,370
HAR Unit 2	HAR2C Rpl 2A Mill Duct Exp Jnt	2020	7/1/2020	21,861	2,858	24,719	310
HAR Unit 2	HAR2C Rpl Mercury Analyzer	2020	7/24/2020	76,397	2,115	78,513	813
HAR Unit 3	HAR3C Rpl No33 Econ Hopper Vlv	2020	8/26/2020	8,446	310	8,756	81
HAR Unit 3	HAR3C-Mill B Major Overhaul	2020	9/24/2020	515,647	43,081	558,728	28,478
HAR Unit 3	HAR3C-Rbd E Flyash Vac Pump	2020	9/28/2020	59,764	7,170	66,934	332
HAR Unit 3	HAR3C-Rpl C Mill Exhauster Fan	2020	12/1/2020	71,440	14,239	85,679	1,370
HAR Unit 3	HAR3C-H3 Rebag Partial 2020	2020	12/15/2020	145,792	44,568	190,359	1,482
HAR Unit 3	HAR3 A Coal Mill Motor Rewind	2020	12/22/2020	66,381	12,248	78,628	345
HAR Unit 2	HAR2 Rpl Ash Silo Equal Vlv	2020	12/22/2020	10,130	(97)	10,033	29

PROUS-01 Complete Schedule				Jan-10-14 04:25 PM											
Activity ID	Activity Name	Maximo Work Order	Remaining Duration	Start	Finish	Responsibility Crew	January 2014	February 2014	March 2014						
							08	13	20	27	03	10	17	24	31
HAR2-OH-4-OH-6-TS-2 LP Turbine Disassembly															
A14060	DISASSEMBLY - UNBOLT & REMOVE L.P. MANHOLE COVERS	6420829	493.0h	Jan-04-14 07:00 AM A	Mar-14-14 03:00 PM										
A14030	DISASSEMBLY - UNBOLT & REMOVE CROSSOVER-UNBOLT & REMOVE EXPANSION JOINT	6420829	465.0h	Jan-04-14 07:00 AM A	Mar-11-14 10:00 PM										
A14090	DISASSEMBLY - UNBOLT & REMOVE ADAPTER & INNER EXPANSION JOINT	6420829	62.0h	Jan-04-14 08:00 AM A	Jan-09-14 02:00 PM	TURB									
A14160	LP TURBINE DISASSEMBLY - UNBOLT & REMOVE COUPLING COVERS #2 & #3, & SPLASH GUARDS HP-LP	6420829	0.0h	Jan-04-14 08:00 AM A	Jan-04-14 08:00 AM A	TURB									
A14170	LP TURBINE DISASSEMBLY - UNBOLT & REMOVE COUPLING COVERS #4	6420829	0.0h	Jan-04-14 09:00 AM A	Jan-04-14 11:40 AM A	TURB									
A14180	LP TURBINE DISASSEMBLY - UNBOLT & REMOVE COUPLING COVERS #4	6420829	0.0h	Jan-05-14 03:00 AM A	Jan-05-14 07:00 AM A	TURB									
A14180	LP TURBINE DISASSEMBLY - UNBOLT & REMOVE BRGS UPPER #3 & #4-UNBOLT & REMOVE OIL SEAL UPPERS (BOTH ENDS)	6420829	0.0h	Jan-05-14 12:00 PM A	Jan-05-14 12:00 PM A	TURB									
A14070	DISASSEMBLY - LP - UNBOLT & SLIDE GLAND SEALS BACK (BOTH ENDS) UPPER	6420829	0.0h	Jan-05-14 11:00 AM A	Jan-05-14 12:00 PM A	TURB									
A14950	LP TURBINE DISASSEMBLY - AS FOUND ALIGNMENT	6420829	0.0h	Jan-05-14 12:00 PM A	Jan-05-14 01:00 PM A	TURB									
A14040	LP TURBINE DISASSEMBLY - UNBOLT & REMOVE RING & KEYS	6420829	0.0h	Jan-05-14 01:00 PM A	Jan-05-14 04:00 PM A	TURB									
A14080	DISASSEMBLY - UNBOLT & REMOVE L.P. OUTER COVER-COVER HORIZONTAL JOINT WITH PLYWOOD	6420829	0.0h	Jan-05-14 04:00 PM A	Jan-05-14 05:00 PM A	TURB									
A14230	LP TURBINE DISASSEMBLY - UNBOLT COUPLING & REMOVE BULLGEAR, L.P. TO GEN.	6420829	0.0h	Jan-05-14 05:00 PM A	Jan-05-14 10:00 PM A	TURB									
A14240	LP TURBINE DISASSEMBLY - UNBOLT COUPLING & REMOVE SPACER HP TO LP	6420829	0.0h	Jan-05-14 10:00 PM A	Jan-05-14 10:00 PM A	TURB									
A14220	LP TURBINE DISASSEMBLY - REMOVE SEALS & SPRINGS IN HOUSINGS	6420829	2.0h	Jan-06-14 12:00 PM	Jan-06-14 02:00 PM	TURB									
A14100	LP TURBINE DISASSEMBLY - UNBOLT & REMOVE #1 CYL. COVER-UNBOLT & REMOVE HEAT SHIELD	6420829	10.0h	Jan-06-14 02:00 PM	Jan-07-14 12:00 AM	TURB									
A14110	LP TURBINE DISASSEMBLY - UNBOLT & REMOVE #2 CYLINDER COVER	6420829	10.0h	Jan-07-14 12:00 PM	Jan-07-14 02:00 PM	TURB									
A14120	LP TURBINE DISASSEMBLY - UNBOLT & REMOVE GOV. END UPPER BLADE RING	6420829	10.0h	Jan-07-14 02:00 PM	Jan-08-14 12:00 AM	TURB									
A14140	LP TURBINE DISASSEMBLY - UNBOLT & REMOVE GEN. END UPPER BLADE RING	6420829	10.0h	Jan-08-14 12:00 AM	Jan-08-14 02:00 PM	TURB									
A14150	LP TURBINE DISASSEMBLY - UNBOLT & REMOVE INLET FLOW GUIDE COVER	6420829	6.0h	Jan-08-14 02:00 PM	Jan-08-14 08:00 PM	TURB									
A14250	LP TURBINE TAKE AS FOUND READINGS - TAKE AS FOUND CLEARANCES-BLADE TIP CLEARANCES	6420863	7.0h	Jan-08-14 08:00 PM	Jan-09-14 03:00 AM	TURB									
A14260	LP TURBINE TAKE AS FOUND READINGS - TAKE AS FOUND CLEARANCES-SPRING BACK SEAL CLEARANCES	6420863	7.0h	Jan-09-14 02:00 AM	Feb-16-14 12:00 PM	TURB									
HAR2-OH-4-OH-6-TS-2 LP Turbine Rotor and Bearing Removal															
A14270	LP TURBINE - RIG TO REMOVE LP ROTOR	6420870	263.0h	Jan-09-14 02:00 PM	Feb-16-14 12:00 PM	TURB									
A14280	LP TURBINE - REMOVE ROTOR	6420870	3.0h	Jan-09-14 02:00 PM	Jan-09-14 05:00 PM	TURB									
A14290	LP TURBINE - REMOVE FLOW GUIDE	6420870	2.0h	Jan-09-14 05:00 PM	Jan-09-14 07:00 PM	TURB									
A14300	LP TURBINE - REMOVE GENERATOR END LOWER BLADE RINGS	6420870	4.0h	Jan-09-14 07:00 PM	Jan-09-14 11:00 PM	TURB									
A14940	LP Rotor Off-Site NDE Inspection	6420870	4.0h	Jan-11-14 01:00 PM	Jan-13-14 02:00 AM	TURB									
A14600	Ship LP Rotor for Offsite Inspection		719.0h	Jan-11-14 01:00 PM	Feb-16-14 12:00 PM	TURB									
A14190	LP TURBINE - REMOVE PACKING, UPPER STEAM SEALS (BOTH ENDS)	6420829	0.0h	Jan-11-14 01:00 PM	Jan-13-14 08:00 AM	TURB									
A14200	LP TURBINE - CLEAN SEALS & HOUSINGS (BEAD BLAST AS NEEDED)	6420829	2.0h	Jan-13-14 02:00 AM	Jan-13-14 08:00 AM	TURB									
A14310	LP TURBINE - REMOVE GOVERNOR END LOWER BLADE RINGS	6420870	3.0h	Jan-13-14 02:00 AM	Jan-13-14 09:00 AM	TURB									
A14210	LP TURBINE - REPAIR OR REPLACE SEALS & SPRINGS AS NEEDED	6420829	2.0h	Jan-13-14 08:00 AM	Jan-13-14 10:00 AM	TURB									
A14320	LP TURBINE - UNBOLT & REMOVE LOWER STEAM SEALS AND PACKAGING	6420870	4.0h	Jan-13-14 09:00 AM	Jan-13-14 01:00 PM	TURB									
A14330	LP TURBINE - CLEAN SEALS & HOUSINGS	6420870	4.0h	Jan-13-14 01:00 PM	Jan-13-14 05:00 PM	TURB									
A14340	LP TURBINE - REPAIR OR REPLACE SEALS & SPRINGS AS NEEDED	6420870	4.0h	Jan-13-14 05:00 PM	Jan-13-14 09:00 PM	TURB									
A14350	LP TURBINE - INSTALL SEALS & SPRINGS IN HOUSING, LOWER (BOTH ENDS)	6420870	4.0h	Jan-13-14 09:00 PM	Jan-14-14 01:00 AM	TURB									
A14360	LP TURBINE - REMOVE LOWER OIL SEALS & LOWER AND UPPER GASKETS	6420870	2.0h	Jan-14-14 01:00 AM	Jan-14-14 03:00 AM	TURB									
A14370	LP TURBINE - CLEAN ALL OIL SEALS	6420870	2.0h	Jan-14-14 03:00 AM	Jan-14-14 09:00 AM	TURB									
A14380	LP TURBINE - REPAIR SEALS AS NEEDED	6420870	1.0h	Jan-14-14 09:00 AM	Jan-14-14 10:00 AM	TURB									
A14390	LP TURBINE - INSTALL NEW GASKETS ON ALL OIL SEALS	6420870	1.0h	Jan-14-14 09:00 AM	Jan-14-14 10:00 AM	TURB									
A14400	LP TURBINE - MAKE ALL GASKETS AS NEEDED	6420870	2.0h	Jan-14-14 09:00 AM	Jan-14-14 11:00 AM	TURB									
A14410	LP TURBINE - ASSIST DON K. WITH INDE	6420870	2.0h	Jan-14-14 11:00 AM	Jan-14-14 11:00 AM	TURB									
A14420	LP TURBINE - REMOVE LOWER #1 CYLINDER BASE	6420870	10.0h	Jan-14-14 11:00 AM	Jan-15-14 03:00 PM	TURB									
A14430	LP TURBINE - REMOVE ALL SPRING BACK SEAL STRIPS (UPPERS & LOWERS)	6420870	5.0h	Jan-15-14 07:00 AM	Jan-15-14 12:00 PM	TURB									
TASK filter: All Activities															
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Harrington Unit 2 OVH HP/IP, LP, Gen				PROUS-01 Complete Schedule														Jan-10-14 04:25 PM													
Activity ID	Activity Name	Maximo Work Order	Remaining Duration	Start	Finish	Responsible Crew	Jan-06	Jan-13	Jan-20	Jan-27	Feb-03	Feb-10	Feb-17	Feb-24	Mar-03	Mar-10	Mar-17	Mar-24	Mar-31												
	LP TURBINE - CLEAN AND REPAIR ALL SPRING BACK SEAL STRIPS	6420870	5.0h	Jan-15-14 12:00 PM	Jan-15-14 05:00 PM	TURB																									
	LP TURBINE - INSTALL ALL SPRING BACK SEAL STRIPS AFTER CLEANING AND REPAIRS	6420870	5.0h	Jan-15-14 05:00 PM	Jan-15-14 10:00 PM	TURB																									
	LP TURBINE - REMOVE LOWER BEARINGS #3 & #4--CLEAN BEARINGS	6420870	3.0h	Jan-15-14 10:00 AM	Jan-16-14 01:00 AM	TURB																									
	LP TURBINE - BOLT UP BOTH BEARINGS	6420870	3.0h	Jan-16-14 01:00 AM	Jan-16-14 08:00 AM	TURB																									
	LP TURBINE - MIC & RECORD BEARING SIZES	6420870	3.0h	Jan-16-14 08:00 AM	Jan-16-14 11:00 AM	TURB																									
	LP TURBINE - MIC & RECORD JOURNAL SIZES	6420870	3.0h	Jan-16-14 08:00 AM	Jan-16-14 11:00 AM	TURB																									
	HAR2-OH-4-OH-6-TS-2-3 LP Turbine Inspection and Cleaning		65.0h	Jan-16-14 11:00 AM	Jan-21-14 08:00 AM																										
	LP TURBINE - SEAL & PREP FOR BEAD BLAST - REMOVE HORIZONTAL BOLTING AS NEEDED	6420916	2.0h	Jan-16-14 11:00 AM	Jan-16-14 01:00 PM	TURB																									
	LP TURBINE - BLAST HORIZONTAL JOINT	6420916	3.0h	Jan-16-14 01:00 PM	Jan-16-14 04:00 PM	TURB																									
	LP TURBINE - CLEAN & HONE ALL JOINT SURFACES	6420916	60.0h	Jan-16-14 04:00 PM	Jan-21-14 08:00 AM	TURB																									
	LP TURBINE - BEAD BLAST ALL SMALLER BOLTING & HARDWARE	6420916	20.0h	Jan-16-14 04:00 PM	Jan-17-14 04:00 PM	TURB																									
	LP TURBINE - CROSSOVER, LAY ON SIDE FOR INSP--INSPECT TURNING VANES	6420916	3.0h	Jan-17-14 04:00 PM	Jan-17-14 07:00 PM	TURB																									
	LP TURBINE - AFTER INSPECTION SET UPRIGHT	6420916	1.0h	Jan-17-14 07:00 PM	Jan-17-14 08:00 PM	TURB																									
	LP TURBINE - ASSIST IN SAND BLASTING	6420916	10.0h	Jan-17-14 08:00 PM	Jan-18-14 01:00 PM	TURB																									
	LP TURBINE - REMOVE PLYWOOD, CLEAN UP HORIZONTAL JNT AFTER SANDBLASTING	6420916	9.0h	Jan-18-14 01:00 PM	Jan-20-14 11:00 AM	TURB																									
	LP TURBINE - VACUUM OUT ALL BOLT HOLES	6420916	1.0h	Jan-20-14 11:00 AM	Jan-20-14 12:00 PM	TURB																									
	HAR2-OH-4-OH-6-TS-2-4 LP Turbine Reassembly		786.0h	Jan-20-14 12:00 PM	Mar-11-14 10:00 PM																										
	LP TURBINE - INSTALL ALL HORIZONTAL JOINT BOLTS	6420953	3.0h	Jan-20-14 12:00 PM	Jan-20-14 03:00 PM	TURB																									
	LP TURBINE - INSTALL ALL LOWER BLADE RINGS - INSTALL #1 LOWER CYLINDER BASE	6420953	6.0h	Jan-20-14 03:00 PM	Jan-20-14 09:00 PM	TURB																									
	LP TURBINE - INSTALL GOVERNOR END LOWER BLADE RINGS	6420953	6.0h	Jan-20-14 09:00 PM	Jan-21-14 03:00 AM	TURB																									
	LP TURBINE - INSTALL GENERATOR END LOWER BLADE RINGS	6420953	6.0h	Jan-21-14 07:00 AM	Jan-21-14 01:00 PM	TURB																									
	LP TURBINE - INSTALL INLET FLOW GUIDE, LOWER	6420953	6.0h	Jan-21-14 01:00 PM	Jan-21-14 07:00 PM	TURB																									
	LP TURBINE - INSTALL LOWER GLAND SEALS (BOTH ENDS)	6420953	6.0h	Jan-21-14 07:00 PM	Jan-22-14 01:00 AM	TURB																									
	LP TURBINE - INSTALL LOWER HALF BRGS. #3 & #4--INSTALL LOWER HALF OIL SEALS (BOTH ENDS)	6420953	15.0h	Jan-22-14 01:00 AM	Jan-22-14 08:00 PM	TURB																									
	LP TURBINE - RIG TO INSTALL ROTOR	6420953	6.0h	Feb-17-14 12:00 AM	Feb-17-14 10:00 AM	TURB																									
	Relieve LP Rotor from Offsite Inspection		0.0h	Feb-17-14 12:00 AM	Feb-17-14 12:00 AM	TURB																									
	LP TURBINE - TAKE ALL CLEARANCES & RECORD	6420953	8.0h	Feb-17-14 10:00 AM	Feb-17-14 06:00 PM	TURB																									
	LP TURBINE - CORRECT AS NEEDED	6420953	8.0h	Feb-17-14 06:00 PM	Feb-18-14 02:00 AM	TURB																									
	LP TURBINE - INSTALL ALL UPPER BLADE RINGS -INSTALL GOVERNOR END BLADE RINGS & BOLTING	6420953	8.0h	Feb-18-14 02:00 AM	Feb-18-14 02:00 PM	TURB																									
	LP TURBINE - INSTALL GENERATOR END BLADE RINGS & BOLTING	6420953	6.0h	Feb-18-14 02:00 AM	Feb-18-14 08:00 PM	TURB																									
	LP TURBINE - INSTALL INLET FLOW GUIDE & BOLTING	6420953	6.0h	Feb-18-14 08:00 AM	Feb-19-14 02:00 AM	TURB																									
	LP TURBINE - INSTALL #1 CYLINDER COVER & BOLTING	6420953	6.0h	Feb-19-14 02:00 AM	Feb-19-14 12:00 PM	TURB																									
	LP TURBINE - INSTALL HEAT SHIELD	6420953	6.0h	Feb-19-14 12:00 PM	Feb-19-14 06:00 PM	TURB																									
	LP TURBINE - INSTALL ADAPTER, INNER EXPANSION JOINT & KEYS	6420953	6.0h	Feb-19-14 06:00 PM	Feb-20-14 12:00 AM	TURB																									
	LP TURBINE - INSTALL #2 CYLINDER COVER--CHECK L-O BLADE TIP CLEARANCES	6420953	30.0h	Feb-20-14 12:00 AM	Feb-21-14 02:00 PM	TURB																									
	LP TURBINE - INSTALL OUTER COVER	6420953	15.0h	Feb-21-14 02:00 PM	Feb-22-14 12:00 PM	TURB																									
	LP TURBINE - INSTALL KEYS IN OUTER COVER	6420953	20.0h	Feb-22-14 12:00 PM	Feb-24-14 09:00 AM	TURB																									
	LP TURBINE - INSTALL BRG. UPPER #3 & #4--CHECK TOTAL TRAVEL L.P. ROTOR	6420953	5.0h	Feb-24-14 09:00 AM	Feb-25-14 02:00 AM	TURB																									
	LP TURBINE - CHECK ALIGNMENT (CORRECT AS NEEDED)	6420953	25.0h	Mar-07-14 07:00 PM	Mar-10-14 04:00 PM	TURB																									
	LP TURBINE - INSTALL BULLGEAR & COUPLING BOLTS--INSTALL COUPLING SPLASH GUARD, LP TO GEN	6420953	3.0h	Mar-10-14 04:00 PM	Mar-10-14 07:00 PM	TURB																									
	LP TURBINE - INSTALL BEARING OIL SEALS, UPPER	6420953	1.0h	Mar-10-14 07:00 PM	Mar-10-14 08:00 PM	TURB																									
	LP TURBINE - ADJUST OIL SEALS AS REQUIRED	6420953	1.0h	Mar-10-14 08:00 PM	Mar-10-14 09:00 PM	TURB																									
	LP TURBINE - INSTALL GLAND SEAL, UPPER	6420953	2.0h	Mar-10-14 09:00 PM	Mar-10-14 11:00 PM	TURB																									
	LP TURBINE - ADJUST GLAND SEALS AS REQUIRED	6420953	1.0h	Mar-10-14 11:00 PM	Mar-11-14 12:00 AM	TURB																									
	LP TURBINE - RECORD ALL CLEARANCES	6420953	2.0h	Mar-11-14 12:00 AM	Mar-11-14 02:00 AM	TURB																									
	LP TURBINE - INSTALL SPACER & BOLTING, HP TO LP--INSTALL COUPLING SPLASH GUARD	6420953	1.0h	Mar-11-14 02:00 AM	Mar-11-14 03:00 AM	TURB																									
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Project Baseline Bar
Actual Work
Remaining Work
Critical Remaining Work

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Harrington Unit 2 OVH HP/IP, LP, Gen				PROUS-01 Complete Schedule												Jan-10-14 04:25 PM											
Activity ID	Activity Name	Maximo Work Order	Remaining Duration	Start	Finish	Responsible Crew	06	13	20	27	03	10	17	24	03	10	17	24	03	10	17	24					
A14870	LP TURBINE - INSTALL BEARING OIL SEALS	6420953	1.0h	Mar-11-14 07:00 AM	Mar-11-14 08:00 AM	TURB																					
A14880	LP TURBINE - ADJUST OIL SEALS AS REQUIRED	6420953	1.0h	Mar-11-14 08:00 AM	Mar-11-14 09:00 AM	TURB																					
A14890	LP TURBINE - INSTALL GLAND SEAL - UPPER	6420953	1.0h	Mar-11-14 09:00 AM	Mar-11-14 10:00 AM	TURB																					
A14900	LP TURBINE - ADJUST GLAND SEALS AS REQUIRED	6420953	1.0h	Mar-11-14 10:00 AM	Mar-11-14 11:00 AM	TURB																					
A14910	LP TURBINE - RECORD CLEARANCES	6420953	1.0h	Mar-11-14 11:00 AM	Mar-11-14 12:00 PM	TURB																					
A14920	LP TURBINE - INSTALL #2 & #3 COUPLING COVERS-CHECK, SET, & RECORD CLEARANCES	6420953	6.0h	Mar-11-14 12:00 PM	Mar-11-14 06:00 PM	TURB																					
A14930	LP TURBINE - INSTALL #4 & #5 COUPLING COVERS-CHECK, SET & RECORD CLEARANCES	6420953	8.0h	Mar-11-14 12:00 PM	Mar-11-14 08:00 PM	TURB																					
A14980	LP TURBINE - INSTALL LP MANHOLE COVERS	6420953	2.0h	Mar-11-14 08:00 PM	Mar-11-14 10:00 PM	TURB																					
HAR2-OH-4-OH-6-TS-3 HP-IP Turbine Inspection																											
HAR2-OH-4-OH-6-TS-3-1 HP-IP Disassembly																											
A2120	HP/IP - REMOVE MAIN STEAM BOLTING		451.0h	Jan-08-14 02:00 PM	Mar-12-14 03:00 PM																						
A2130	HP/IP - REMOVE GOVERNOR PEDESTAL COVER	6420942	33.0h	Jan-08-14 02:00 PM	Jan-14-14 01:00 AM	TURB																					
A2190	HP/IP - COUPLING COVERS - CHECK & RECORD THRUST BEARING CLEARANCE & ROTOR POSITION	6420942	3.0h	Jan-08-14 02:00 PM	Jan-08-14 05:00 PM	TURB																					
A2230	HP/IP - REMOVE TOP HALF OF THRUST BEARING	6420942	2.0h	Jan-10-14 07:00 AM	Jan-10-14 09:00 AM	TURB																					
A2240	HP/IP - REMOVE THRUST SHOES & ROCKER ASSEMBLIES	6420988	4.0h	Jan-10-14 01:00 PM	Jan-10-14 05:00 PM	TURB																					
A2250	HP/IP - REMOVE TOP HALVES OF #1 & #2 BEARINGS	6420988	2.0h	Jan-10-14 05:00 PM	Jan-10-14 07:00 PM	TURB																					
A2350	HP/IP - REMOVE GOVERNOR END Inner GLAND COVERS	6420988	3.0h	Jan-10-14 07:00 PM	Jan-10-14 10:00 PM	TURB																					
A2360	HP/IP - REMOVE GENERATOR END INNER GLAND COVERS	6420988	3.0h	Jan-10-14 10:00 PM	Jan-11-14 08:00 AM	TURB																					
A2390	HP/IP - REMOVE GENERATOR END OUTER GLAND PIPING	6420988	2.0h	Jan-11-14 08:00 AM	Jan-11-14 10:00 AM	TURB																					
A2310	HP/IP - REMOVE GOVERNOR END OUTER GLAND PIPING	6420988	2.0h	Jan-11-14 08:00 AM	Jan-11-14 10:00 AM	TURB																					
A2300	HP/IP - REMOVE GENERATOR END OUTER GLAND	6420988	4.0h	Jan-11-14 10:00 AM	Jan-11-14 02:00 PM	TURB																					
A2320	HP/IP - REMOVE GOVERNOR END OUTER GLAND	6420988	4.0h	Jan-11-14 10:00 AM	Jan-11-14 02:00 PM	TURB																					
A2200	HP/IP - REMOVE TOP OF MAIN OIL PUMP	6420988	1.0h	Jan-11-14 02:00 PM	Jan-11-14 03:00 PM	TURB																					
A2330	HP/IP - REMOVE OUTER CYLINDER AND Bolting	6420988	20.0h	Jan-13-14 12:00 AM	Jan-14-14 12:00 AM	TURB																					
A2210	HP/IP - CHECK & RECORD MAIN OIL PUMP RING CLEARANCE	6420988	1.0h	Jan-14-14 12:00 AM	Jan-14-14 01:00 AM	TURB																					
HAR2-OH-4-OH-6-TS-3-2 HP-IP Rotor and Bearing Removal																											
A2370	HP/IP - REMOVE LP DUMMY RING COVER	6421032	675.0h	Jan-14-14 01:00 AM	Feb-26-14 12:00 PM	TURB																					
A2380	HP/IP - REMOVE #2 IP BLADE RING COVER	6421032	4.0h	Jan-14-14 01:00 AM	Jan-14-14 09:00 AM	TURB																					
A2390	HP/IP - REMOVE IP INNER CYLINDER COVER	6421032	4.0h	Jan-14-14 01:00 PM	Jan-14-14 05:00 PM	TURB																					
A2400	HP/IP - REMOVE HP INNER CYLINDER COVER	6421032	4.0h	Jan-14-14 05:00 PM	Jan-14-14 09:00 PM	TURB																					
A2410	HP/IP - REMOVE #1 IP BLADE RING COVER	6421032	4.0h	Jan-14-14 09:00 PM	Jan-15-14 01:00 AM	TURB																					
A2420	HP/IP - REMOVE HP BLADE RING COVER	6421032	4.0h	Jan-15-14 01:00 AM	Jan-15-14 09:00 AM	TURB																					
A2430	HP/IP - REMOVE IP DUMMY RING COVER	6421032	4.0h	Jan-15-14 09:00 AM	Jan-15-14 01:00 PM	TURB																					
A2440	HP/IP - REMOVE HP DUMMY RING COVER	6421032	4.0h	Jan-15-14 01:00 PM	Jan-15-14 05:00 PM	TURB																					
A2460	HP/IP - REMOVE SEAL RINGS FROM #1 EXT. COVER	6421032	4.0h	Jan-15-14 05:00 PM	Jan-15-14 09:00 PM	TURB																					
A2470	HP/IP - RECORD AS FOUND CLEARANCES-RADIAL ONLY	6421032	4.0h	Jan-15-14 09:00 PM	Jan-16-14 01:00 AM	TURB																					
A2480	HP/IP - RIG & REMOVE ROTOR	6421032	4.0h	Jan-16-14 01:00 AM	Jan-16-14 09:00 AM	TURB																					
A3400	HP/IP - Topless Alignment As Found		12.0h	Jan-16-14 09:00 AM	Jan-16-14 09:00 PM	TURB																					
A2490	HP/IP - LOOSEN ALL LINER SUPPORT SCREWS ON BLADE RING BASES	6421032	2.0h	Jan-16-14 11:00 PM	Jan-16-14 11:00 PM	TURB																					
A2500	HP/IP - REMOVE HP DUMMY RING BASE	6421032	2.0h	Jan-16-14 11:00 PM	Jan-17-14 01:00 AM	TURB																					
A2510	HP/IP - REMOVE IP DUMMY RING BASE	6421032	2.0h	Jan-17-14 01:00 AM	Jan-17-14 03:00 AM	TURB																					
A2520	HP/IP - REMOVE HP BLADE RING BASE	6421032	2.0h	Jan-17-14 07:00 AM	Jan-17-14 09:00 AM	TURB																					
A2530	HP/IP - REMOVE #1 IP BLADE RING BASE	6421032	2.0h	Jan-17-14 09:00 AM	Jan-17-14 11:00 AM	TURB																					
A2540	HP/IP - REMOVE HP INNER CYLINDER BASE	6421032	2.0h	Jan-17-14 11:00 AM	Jan-17-14 01:00 PM	TURB																					
A2550	HP/IP - REMOVE IP INNER CYLINDER BASE	6421032	2.0h	Jan-17-14 01:00 PM	Jan-17-14 03:00 PM	TURB																					
A2560	HP/IP - REMOVE DUMMY RING BASE	6421032	2.0h	Jan-20-14 05:00 PM	Jan-20-14 07:00 PM	TURB																					
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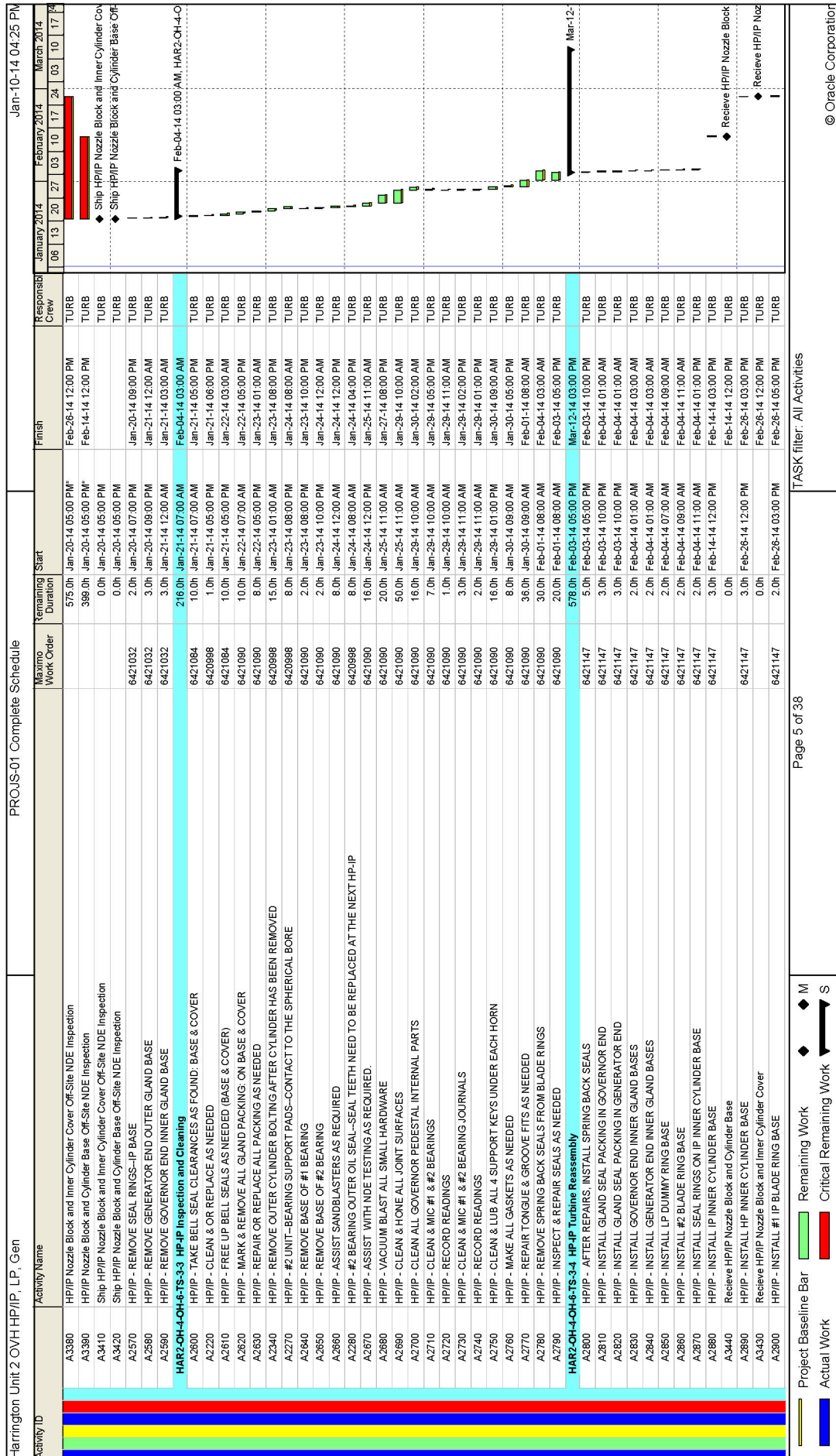
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Harrington Station Maintenance Schedules



Harrington Unit 2 OVH HP/IP, LP, Gen			PROUS-01 Complete Schedule										Jan-10-14 04:25 PM											
Activity ID	Activity Name	Maximo Work Order	Remaining Duration	Start	Finish	Responsible Crew																		
A3210	HP/IP - INSTALL HP BLADE RING BASE	6421147	2.0h	Feb-26-14 05:00 PM	Feb-26-14 07:00 PM	TURB																		
A3220	HP/IP - INSTALL IP DUMMY RING BASE	6421147	2.0h	Feb-26-14 07:00 PM	Feb-26-14 09:00 PM	TURB																		
A3300	HP/IP - INSTALL HP DUMMY RING BASE	6421147	2.0h	Feb-26-14 09:00 PM	Feb-26-14 11:00 PM	TURB																		
A3340	HP/IP - INSTALL ALL LINER SUPPORT SCREWS	6421147	4.0h	Feb-26-14 11:00 PM	Feb-27-14 03:00 AM	TURB																		
A3500	HP/IP - INSTALL BASES OF #1 & #2 BEARINGS	6421147	4.0h	Feb-26-14 11:00 PM	Feb-27-14 03:00 AM	TURB																		
A3560	HP/IP - INSTALL BASE OIL SEALS FOR #1 & #2 BEARINGS	6421147	3.0h	Feb-27-14 07:00 AM	Feb-27-14 10:00 AM	TURB																		
A3670	HP/IP - RIG & INSTALL HP ROTOR	6421147	24.0h	Feb-27-14 10:00 AM	Feb-28-14 02:00 PM	TURB																		
A3680	HP/IP - SET BASE OIL SEALS ON #1 & #2 BEARINGS	6421147	2.0h	Feb-28-14 02:00 PM	Feb-28-14 04:00 PM	TURB																		
A3690	HP/IP - INSTALL TOP ON #1 & #2 BEARINGS	6421147	4.0h	Feb-28-14 04:00 PM	Feb-28-14 08:00 PM	TURB																		
A3000	HP/IP - CHECK & RECORD ROTOR BORE CLEARANCES	6421147	3.0h	Feb-28-14 08:00 PM	Feb-28-14 11:00 PM	TURB																		
A3010	HP/IP - CHECK & RECORD HP ROTOR TOTAL TRAVEL	6421147	2.0h	Feb-28-14 11:00 PM	Mar-01-14 08:00 AM	TURB																		
A3020	HP/IP - SET ROTOR ON K POSITION	6421147	2.0h	Mar-01-14 08:00 AM	Mar-01-14 10:00 AM	TURB																		
A3030	HP/IP - CHART ROTOR BLADE TIP CLEARANCES	6421147	3.0h	Mar-01-14 10:00 AM	Mar-01-14 01:00 PM	TURB																		
A3040	HP/IP - INSTALL HP DUMMY RING COVER	6421147	4.0h	Mar-01-14 01:00 PM	Mar-03-14 02:00 AM	TURB																		
A3050	HP/IP - INSTALL IP DUMMY RING COVER	6421147	4.0h	Mar-03-14 02:00 AM	Mar-03-14 10:00 AM	TURB																		
A3060	HP/IP - INSTALL HP BLADE RING COVER	6421147	4.0h	Mar-03-14 10:00 AM	Mar-03-14 02:00 PM	TURB																		
A3070	HP/IP - INSTALL #1 IP BLADE RING COVER	6421147	4.0h	Mar-03-14 02:00 PM	Mar-03-14 06:00 PM	TURB																		
A3080	HP/IP - INSTALL HP DUMMY RING COVER	6421147	4.0h	Mar-03-14 06:00 PM	Mar-03-14 10:00 PM	TURB																		
A3090	HP/IP - INSTALL IP INNER CYLINDER COVER	6421147	4.0h	Mar-03-14 10:00 PM	Mar-04-14 02:00 AM	TURB																		
A3100	HP/IP - INSTALL #2 IP BLADE RING COVER	6421147	4.0h	Mar-04-14 02:00 AM	Mar-04-14 06:00 PM	TURB																		
A3110	HP/IP - INSTALL LP DUMMY RING COVER	6421221	4.0h	Mar-04-14 06:00 PM	Mar-04-14 10:00 PM	TURB																		
A3120	HP/IP - INSTALL GOVERNOR END INNER GLAND COVER	6421221	20.0h	Mar-04-14 10:00 PM	Mar-05-14 10:00 PM	TURB																		
A3130	HP/IP - INSTALL GENERATOR END INNER GLAND COVER	6421221	20.0h	Mar-05-14 10:00 PM	Mar-06-14 12:00 PM	TURB																		
A3140	HP/IP - INSTALL BOLTING BEFORE INSTALLING COVER	6421221	2.0h	Mar-06-14 12:00 PM	Mar-07-14 12:00 AM	TURB																		
A3150	HP/IP - INSTALL SEAL RINGS IN HP OUTER COVER #1 EXT.	6421221	3.0h	Mar-07-14 12:00 AM	Mar-07-14 03:00 AM	TURB																		
A3170	HP/IP - SET GOVERNOR END OUTER GLAND COVER	6421221	3.0h	Mar-07-14 07:00 AM	Mar-07-14 10:00 AM	TURB																		
A3180	HP/IP - BOLT UP GOVERNOR END OUTER GLAND COVER	6421221	3.0h	Mar-07-14 10:00 AM	Mar-07-14 01:00 PM	TURB																		
A3190	HP/IP - MAKE UP GOVERNOR END OUTER GLAND PIPING	6421221	3.0h	Mar-07-14 01:00 PM	Mar-07-14 04:00 PM	TURB																		
A3200	HP/IP - SET GENERATOR END OUTER GLAND COVER	6421221	3.0h	Mar-07-14 04:00 PM	Mar-07-14 07:00 PM	TURB																		
A3210	HP/IP - BOLT UP GENERATOR END OUTER GLAND COVER	6421221	3.0h	Mar-07-14 07:00 PM	Mar-07-14 10:00 PM	TURB																		
A3220	HP/IP - MAKE UP GENERATOR END OUTER GLAND PIPING	6421221	20.0h	Mar-07-14 10:00 PM	Mar-10-14 11:00 AM	TURB																		
A3230	HP/IP - INSTALL BLANKETS ON HP	6421258	10.0h	Mar-07-14 07:00 PM	Mar-08-14 12:00 PM	TURB																		
A3240	HP/IP - CHECK ALIGNMENT, CORRECT AS NEEDED	6421258	16.0h	Mar-08-14 12:00 PM	Mar-10-14 05:00 PM	TURB																		
A3250	HP/IP - MAKE UP MAIN STEAM INLET FLANGES	6421258	4.0h	Mar-10-14 05:00 PM	Mar-10-14 09:00 PM	TURB																		
A3260	HP/IP - INSTALL THRUST BEARING AN ALL INTERNAL PARTS	6421258	6.0h	Mar-10-14 09:00 PM	Mar-11-14 03:00 AM	TURB																		
A3270	HP/IP - CHECK & RECORD THRUST CLEARANCE & CORRECT AS NEEDED	6421280	4.0h	Mar-11-14 03:00 PM	Mar-11-14 11:00 AM	TURB																		
A3280	HP/IP - ASSEMBLE HP-LP COUPLING	6421280	4.0h	Mar-11-14 11:00 AM	Mar-11-14 03:00 PM	TURB																		
A3290	HP/IP - BOLT UP COUPLINGS	6421280	2.0h	Mar-11-14 05:00 PM	Mar-11-14 07:00 PM	TURB																		
A3300	HP/IP - CHECK HP-LP COUPLING RUN OUT	6421280	2.0h	Mar-11-14 07:00 PM	Mar-11-14 09:00 PM	TURB																		
A3310	HP/IP - INSTALL COUPLING COVERS	6421280	2.0h	Mar-11-14 09:00 PM	Mar-11-14 05:00 PM	TURB																		
A3320	HP/IP - CHECK PINCH ON #2 BEARING-CORRECT AS NEEDED	6421280	10.0h	Mar-11-14 07:00 PM	Mar-12-14 03:00 AM	TURB																		
A3330	HP/IP - SET LOWER OIL SEALS	6421280	8.0h	Mar-11-14 07:00 PM	Mar-12-14 03:00 AM	TURB																		
A3340	HP/IP - INSTALL CROSSOVER PIPE	6421280	4.0h	Mar-12-14 03:00 AM	Mar-12-14 11:00 AM	TURB																		
A3350	HP/IP - INSTALL MAIN OIL PUMP RINGS	6421280	4.0h	Mar-12-14 07:00 AM	Mar-12-14 11:00 AM	TURB																		
A3360	HP/IP - INSTALL OIL PUMP COVER	6421280	4.0h	Mar-12-14 11:00 AM	Mar-12-14 03:00 AM	TURB																		

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Harrington Unit 2 OVH HPI/P, LP, Gen				PROUS-01 Complete Schedule										Jan-10-14 04:25 PM									
Activity ID	Activity Name	Maximo Work Order	Remaining Duration	Start	Finish	Responsibility	January 06	January 13	January 20	January 27	February 03	February 10	February 17	February 24	March 03	March 10	March 17	March 24	March 31	April 07	April 14	April 21	April 28
A13100	#6 H2 SEAL RING-UNBOLT & REMOVE H2 SEAL RING	6420554	2.0h	Jan-20-14 05:00 PM	Jan-20-14 07:00 PM	TURB																	
A13110	#6 H2 SEAL RING-UNBOLT & REMOVE H2 SEAL RING	6420554	2.0h	Jan-20-14 07:00 PM	Jan-20-14 09:00 PM	TURB																	
A13120	#6 H2 BRACKET LOWER-RIG TOOL & REMOVE LOWER BRACKET	6420554	2.0h	Jan-20-14 09:00 PM	Jan-20-14 11:00 PM	TURB																	
A14050	#6 Bearing Bracket Slope Check	6420554	5.0h	Jan-21-14 12:00 AM	Jan-21-14 12:00 AM	TURB																	
A23000	#6 Bearing Bracket Slope Check	6420554	5.0h	Jan-21-14 12:00 AM	Jan-21-14 12:00 AM	TURB																	
A13130	#6 H2 BRACKET LOWER-RIG TOOL & REMOVE LOWER BRACKET	6420554	2.0h	Jan-21-14 09:00 AM	Jan-21-14 11:00 AM	TURB																	
A13140	INSTALL SUPPORT FOR REMOVAL OF AIR BAFFLE	6420554	4.0h	Jan-21-14 11:00 AM	Jan-21-14 03:00 PM	TURB																	
A13150	REMOVE TOP 3 SHROUD PIECES. REMOVE ALL BLOWER BLADES	6420554	15.0h	Jan-21-14 11:00 AM	Jan-22-14 02:00 AM	TURB																	
A13160	INSTALL COME-A-LONGS & SUPPORTS. LOWER BOTTOM HALF BRACKET	6420554	6.0h	Jan-22-14 02:00 AM	Jan-22-14 12:00 PM	TURB																	
HAR2-OH-4-OH-6-TS-4-3 Generator Rotor Removal																							
A13170	GENERATOR EE-INSTALL TOMB STONE ON ROTOR	6420564	4.0h	Jan-22-14 12:00 PM	Feb-17-14 11:00 PM	TURB																	
A13180	GENERATOR ROTOR-PREPARE SKID PLATE INSTALLATION	6420564	1.0h	Jan-22-14 01:00 PM	Jan-22-14 02:00 PM	TURB																	
A13190	INSTALL SKID PLATE & TE SHOE	6420564	4.0h	Jan-22-14 02:00 PM	Jan-22-14 06:00 PM	TURB																	
A13200	GENERATOR EE-REMOVE AIR BAFFLE & INSTALL EE SHOE ON SHAFT	6420564	3.0h	Jan-22-14 06:00 PM	Jan-22-14 09:00 PM	TURB																	
A13210	GENERATOR ROTOR-RIG & REMOVE #6 BEARING LOWER HALF & SUPPORT INSULATOR	6420564	3.0h	Jan-23-14 12:00 AM	Jan-23-14 12:00 AM	TURB																	
A13220	GENERATOR ROTOR-RIG & REMOVE ROTOR & SKID PLATE	6420564	10.0h	Jan-23-14 12:00 AM	Jan-23-14 02:00 PM	TURB																	
A13230	GENERATOR #6 BEARING BRACKET-RIG & REMOVE LOWER HALF BRACKET	6420564	4.0h	Jan-23-14 02:00 PM	Jan-23-14 06:00 PM	TURB																	
A14130	Generator Rotor On-Site NDE Inspection and Repairs	6443156	349.0h	Jan-25-14 09:00 AM	Feb-17-14 11:00 PM	Mits																	
A14980	Start On-Site Generator Rotor Inspection		0.0h	Jan-25-14 09:00 AM	Feb-17-14 11:00 PM	Mits																	
HAR2-OH-4-OH-6-TS-4-4 Generator Clean and Hone																							
A13250	GENERATOR GASKETS SURFACES-MAKE ALL GASKETS AS NEEDED	6420594	7.0h	Jan-25-14 09:00 AM	Feb-03-14 10:00 AM	TURB																	
A13260	CLEAN & HONE ALL SURFACES ON GENERATOR AREA	6420594	12.0h	Jan-25-14 09:00 AM	Feb-03-14 01:00 AM	TURB																	
A13260	MEASURE H2 SEAL RINGS, JOURNALS & BEARINGS. RECORD READINGS	6420594	1.0h	Jan-27-14 01:00 AM	Jan-27-14 05:00 PM	TURB																	
A13270	GENERATOR ROTOR RETAINING RINGS-CLEAN & PREPARE FOR NDT	6420594	1.0h	Jan-27-14 01:00 AM	Jan-27-14 02:00 AM	TURB																	
A13280	NDE INSPECTION	6420594	10.0h	Jan-27-14 02:00 AM	Jan-27-14 04:00 PM	TURB																	
A13290	GENERATOR EXCITER END-RUN AIR TEST ON RADIAL LEAD SEALS	6420594	8.0h	Jan-27-14 02:00 AM	Jan-27-14 02:00 PM	ELC																	
HAR2-OH-4-OH-6-TS-4-9 Generator Electrical Testing																							
A12570	REMOVE GENERATOR FLEX LINKS	6420361	105.5h	Jan-23-14 06:00 PM	Jan-30-14 03:30 PM	ELC																	
A12580	COIL VENT TUBE TEST	6420361	4.0h	Jan-23-14 10:00 PM	Jan-23-14 10:00 PM	ELC																	
A12590	MAIN LEAD BUSHING VENT TEST	6420361	3.0h	Jan-24-14 10:00 AM	Jan-24-14 01:00 AM	ELC																	
A12600	PARALLEL RING VENT TEST	6420361	1.0h	Jan-24-14 01:00 AM	Jan-24-14 02:00 AM	ELC																	
A12610	TUBE TO TUBE RESISTANCE	6420361	3.0h	Jan-24-14 07:00 AM	Jan-24-14 10:00 AM	ELC																	
A12620	TUBE TO COPPER RESISTANCE	6420361	2.5h	Jan-24-14 10:00 AM	Jan-24-14 12:30 PM	ELC																	
A12630	ROTOR FIELD RESISTANCE MEASUREMENT	6420361	3.0h	Jan-24-14 12:30 PM	Jan-24-14 03:30 PM	ELC																	
A12640	ROTOR POLE BALANCE TEST	6420361	0.5h	Jan-24-14 03:30 PM	Jan-24-14 04:00 PM	ELC																	
A12650	ROTOR INSULATION TEST	6420361	3.0h	Jan-24-14 04:00 PM	Jan-24-14 07:00 PM	ELC																	
A12660	RESISTANCE MEASUREMENT OF STATOR RTDS-M-OHMM	6420361	2.0h	Jan-24-14 07:00 PM	Jan-24-14 09:00 PM	ELC																	
A12670	INSULATION RESISTANCE OF STATOR RTDS-MEGGER	6420361	3.0h	Jan-24-14 09:00 PM	Jan-25-14 12:00 AM	ELC																	
A12680	PSDS TEST WEDGE MEASUREMENTS	6420361	3.0h	Jan-25-14 07:00 AM	Jan-25-14 10:00 AM	ELC																	
A12690	RESISTANCE MEASUREMENT OF STATOR PHASES-M-OHMM	6420361	1.0h	Jan-25-14 10:00 AM	Jan-25-14 11:00 AM	ELC																	
A12700	MEGGER THROUGH BOLTS	6420361	3.0h	Jan-25-14 11:00 AM	Jan-25-14 02:00 PM	ELC																	
A12710	INSULATION RESISTANCE OF STATOR PHASES-MEGGER	6420361	1.0h	Jan-25-14 02:00 PM	Jan-25-14 03:00 PM	ELC																	
A12720	HUPOUT GENERATOR STATOR	6420361	5.5h	Jan-27-14 12:00 AM	Jan-27-14 09:30 AM	ELC																	
A12730	RESISTANCE OF STATOR RTDS	6420361	0.5h	Jan-27-14 09:30 AM	Jan-27-14 10:00 AM	ELC																	
A12740	INSULATION RESISTANCE OF STATOR RTDS	6420361	4.0h	Jan-27-14 10:00 AM	Jan-27-14 02:00 PM	ELC																	
A12750	RESISTANCE OF AC STATOR	6420361	4.0h	Jan-27-14 02:00 PM	Jan-27-14 06:00 PM	ELC																	

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Remaining Work
 Critical Remaining Work

Project Baseline Bar
 Actual Work

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Harrington Unit 2 OVH HPI/P, LP, Gen			PROUS-01 Complete Schedule										Jan-10-14 04:25 PM									
Activity ID	Activity Name	Maximo Work Order	Remaining Duration	Start	Finish	Responsible Crew	January 2014			February 2014			March 2014									
	RESISTANCE OF FIELD LIMITING RESISTOR	6420361	12.0h	Jan-27-14 06:00 PM	Jan-28-14 10:00 AM	ELC																
	INSULATION OF PMG WINDINGS	6420361	3.0h	Jan-28-14 10:00 AM	Jan-28-14 01:00 PM	ELC																
	INSULATION RESISTANCE OF PMG WINDINGS	6420361	2.0h	Jan-28-14 01:00 PM	Jan-28-14 03:00 PM	ELC																
	COIL BALANCE TEST	6420361	3.5h	Jan-28-14 03:00 PM	Jan-28-14 06:30 PM	ELC																
	MEGGER AC STATOR	6420361	2.5h	Jan-28-14 06:30 PM	Jan-28-14 09:00 PM	ELC																
	EXCITER WIRING DISCONNECT FOR REMOVAL	6420361	2.5h	Jan-28-14 09:00 PM	Jan-28-14 11:30 PM	ELC																
	EXCITER CLEAN AND INSPECT	6420361	7.0h	Jan-28-14 11:30 PM	Jan-29-14 10:30 AM	ELC																
	EXCITER WIRING RE CONNECT	6420361	2.0h	Jan-29-14 10:30 AM	Jan-29-14 12:30 PM	ELC																
	EXCITER FUSE AND DIODE CHECK	6420361	3.0h	Jan-29-14 12:30 PM	Jan-29-14 03:30 PM	ELC																
	CLEAN GENERATOR	6420361	12.0h	Jan-29-14 03:30 PM	Jan-30-14 07:30 AM	Mits																
	GENERATOR LEAD BOX INSPECT	6420361	4.0h	Jan-30-14 07:30 AM	Jan-30-14 11:30 AM	ELC																
	GENERATOR FLEX LINKS INSTALL	6420361	4.0h	Jan-30-14 11:30 AM	Jan-30-14 03:30 PM	ELC																
	HAR2-OH-4-OH-6-TS-4-5 Generator Rotor Installation																					
	INSTALL SKID PLATE & SHOES. PREPARE TO INSTALL ROTOR	6420732	405.0h	Jan-27-14 02:00 PM	Feb-21-14 03:00 PM																	
	GENERATOR #6 BEARING BRACKET LOWER-DROP IN PLACE & HANG WITH COME-A- LONGS.	6420732	3.0h	Jan-27-14 02:00 PM	Jan-27-14 05:00 PM	TURB																
	RIG & INSTALL ROTOR.	6420732	8.0h	Jan-27-14 05:00 PM	Jan-28-14 01:00 AM	TURB																
	Complete On-Site Generator Rotor Inspection		0.0h	Feb-17-14 11:00 PM*	Feb-18-14 01:00 PM	TURB																
	GENERATOR #5 BEARING & SUPPORT-INSTALL BEARING. MEGGAR TO ROTOR TO FRAME	6420732	4.0h	Feb-18-14 01:00 PM	Feb-18-14 05:00 PM	TURB																
	GENERATOR EE AIR BAFFLE-INSTALL AIR BAFFLE	6420732	3.0h	Feb-18-14 05:00 PM	Feb-18-14 08:00 PM	TURB																
	REMOVE SKID PLATE & SHOES	6420732	3.0h	Feb-18-14 08:00 PM	Feb-18-14 11:00 PM	TURB																
	GENERATOR #6 BEARING BRACKET-INSTALL LOWER HALF END BELL	6420732	6.0h	Feb-18-14 11:00 PM	Feb-19-14 09:00 AM	TURB																
	GENERATOR #5 H2 BRACKET-INSTALL LOWER H2 BRACKET. MEGGAR ROTOR TO FRAME	6420732	8.0h	Feb-19-14 09:00 AM	Feb-19-14 05:00 PM	TURB																
	GENERATOR BLOWER BLADES-CHANGE OUT BLOWER BLADE SEAL STRIPS	6420732	3.0h	Feb-19-14 05:00 PM	Feb-19-14 08:00 PM	TURB																
	GENERATOR H2 BLOWER BLADES-INSTALL ALL BLOWER BLADES	6420732	15.0h	Feb-19-14 08:00 PM	Feb-20-14 03:00 PM	TURB																
	INSTALL 3 BLOWER BLADE SEGMENTS	6420732	10.0h	Feb-20-14 03:00 PM	Feb-21-14 01:00 AM	TURB																
	MEGGAR ROTOR TO FRAME	6420732	10.0h	Feb-21-14 01:00 AM	Feb-21-14 03:00 PM	TURB																
	HAR2-OH-4-OH-6-TS-4-6 Generator Reassembly																					
	GENERATOR LOWER MANHOLE-INSTALL ALL RED IRON & MANHOLE COVER	6420750	66.0h	Feb-21-14 03:00 PM	Feb-26-14 01:00 PM																	
	GENERATOR LEAD BOX-INSTALL THE GASKET ON COVER & INSTALL COVER	6420750	6.0h	Feb-21-14 03:00 PM	Feb-21-14 09:00 PM	TURB																
	GENERATOR #6 BEARING-INSTALL TOP HALF OF BEARING. MEGGAR ROTOR TO FRAME	6420750	3.0h	Feb-21-14 09:00 PM	Feb-21-14 06:00 PM	TURB																
	GENERATOR #6 H2 BRACKET-INSTALL LOWER HALF OF BRACKET. MEGGAR ROTOR TO FRAME	6420750	6.0h	Feb-21-14 06:00 PM	Feb-22-14 12:00 AM	TURB																
	GENERATOR #6 H2 SEAL RING-INSTALL SEAL RING. CHECK FOR FREE MOVEMENT	6420750	6.0h	Feb-22-14 07:00 AM	Feb-22-14 01:00 PM	TURB																
	GENERATOR #5 H2 SEAL RING-INSTALL H2 SEAL RING. CHECK FOR MOVEMENT	6420750	2.0h	Feb-22-14 01:00 PM	Feb-22-14 03:00 PM	TURB																
	GENERATOR #5 H2 SEAL RING-INSTALL H2 SEAL RING. CHECK FOR MOVEMENT	6420750	2.0h	Feb-24-14 12:00 AM	Feb-24-14 02:00 AM	TURB																
	GENERATOR #6 H2 BRACKET-INSTALL TOP HALF OF BRACKET. CHECK FOR MOVEMENT. MEGGAR	6420750	8.0h	Feb-24-14 02:00 AM	Feb-24-14 02:00 PM	TURB																
	GENERATOR #5 H2 BRACKET-INSTALL TOP HALF OF BRACKET. CHECK FOR MOVEMENT. MEGGAR	6420750	8.0h	Feb-24-14 02:00 PM	Feb-24-14 02:00 PM	TURB																
	GENERATOR #5 BEARING TOP-INSTALL TOP HALF. MEGGAR ROTOR TO FRAME	6420750	3.0h	Feb-24-14 02:00 PM	Feb-24-14 05:00 PM	TURB																
	INSTALL TOP #5 END BELL. INSTALL INSULATOR. MEGGAR ROTOR TO FRAME	6420750	10.0h	Feb-24-14 05:00 PM	Feb-25-14 03:00 AM	TURB																
	GENERATOR #6 BEARING OIL SEAL-INSTALL LOWER OIL SEAL. MEGGAR ROTOR TO FRAME	6420750	4.0h	Feb-25-14 07:00 AM	Feb-25-14 11:00 AM	TURB																
	GENERATOR #5 BEARING OIL SEAL-INSTALL LOWER OIL SEAL. MEGGAR ROTOR TO FRAME	6420750	4.0h	Feb-25-14 07:00 AM	Feb-25-14 11:00 AM	TURB																
	GENERATOR #5 BEARING OIL SEAL-INSTALL TOP BRNG OIL SEAL. ADJUST TO RECD CLEARANCE. M	6420750	1.0h	Feb-25-14 11:00 AM	Feb-25-14 12:00 PM	TURB																
	GENERATOR #6 BEARING OIL SEAL-INSTALL TOP BRNG OIL SEAL. ADJUST TO RECD CLEARANCE. M	6420750	1.0h	Feb-25-14 11:00 AM	Feb-25-14 12:00 PM	TURB																
	GENERATOR AIR GAP BAFFLE-BOLT UP AIR GAP BAFFLE	6420750	5.0h	Feb-25-14 12:00 PM	Feb-25-14 05:00 PM	TURB																
	GENERATOR #6 BRNG BRCKT-INSTALL TOP HALF BRNG BRCKT & INSULATOR. MEGGAR ROTOR TO FR	6420750	10.0h	Feb-25-14 05:00 PM	Feb-26-14 03:00 AM	TURB																
	GENERATOR OIL PIPING-INSTALL ALL OIL PIPING.	6420750	16.0h	Feb-25-14 05:00 PM	Feb-26-14 01:00 PM*	TURB																
	HAR2-OH-4-OH-6-TS-4-7 Generator LP Coupling																					
	GENERATOR TO LP COUPLING ALIGNMENT-CHECK ALIGNMENT. CORRECT AS NEEDED	6420777	50.0h	Mar-07-14 07:00 PM	Mar-11-14 09:00 PM																	
	GENERATOR TO LP COUPLING ALIGNMENT. CORRECT AS NEEDED	6420777	30.0h	Mar-07-14 07:00 PM	Mar-10-14 09:00 PM	TURB																
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	Project Baseline Bar																					
	Actual Work																					
	Remaining Work																					
	Critical Remaining Work																					
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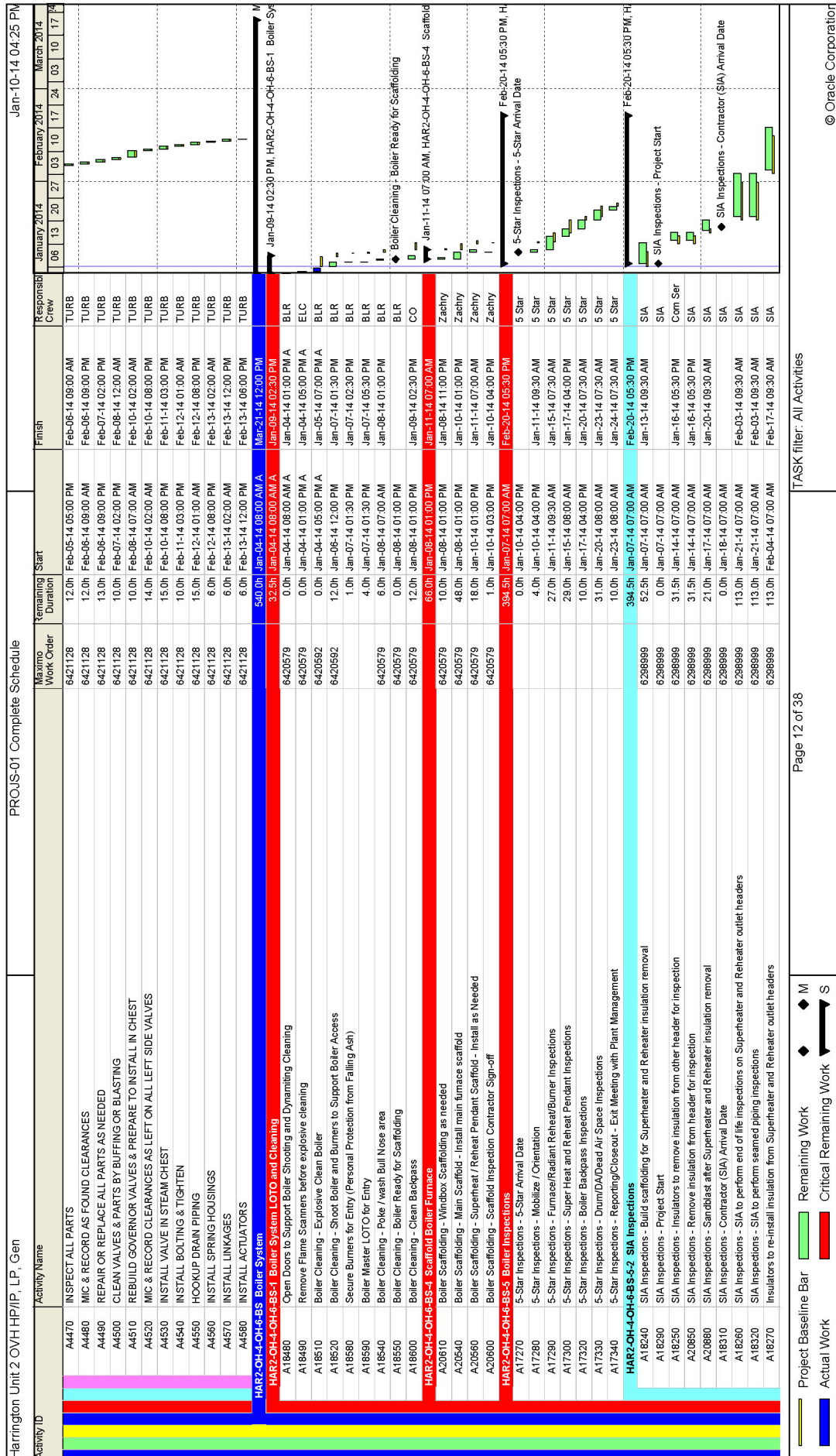
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Actual Work 

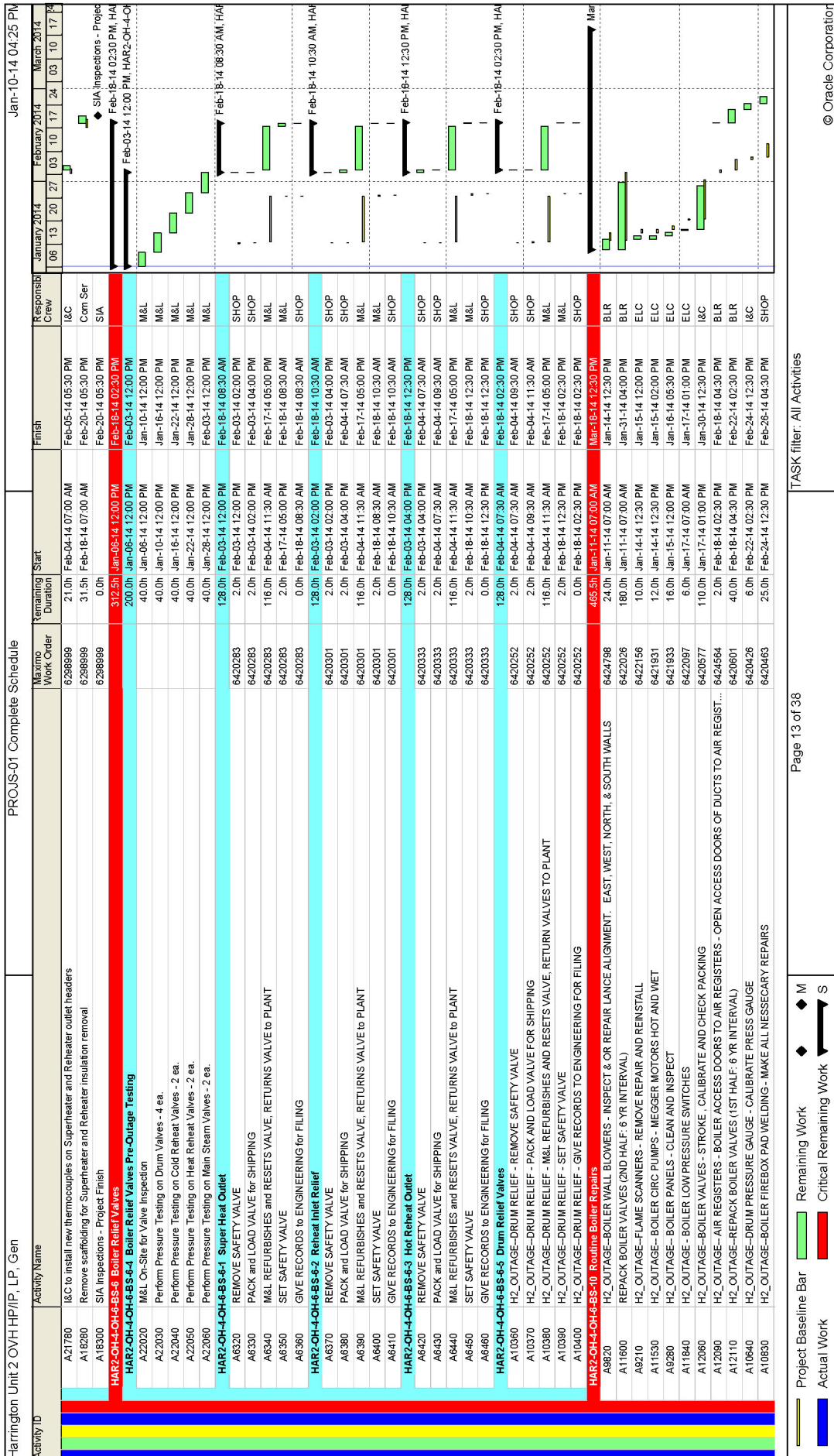
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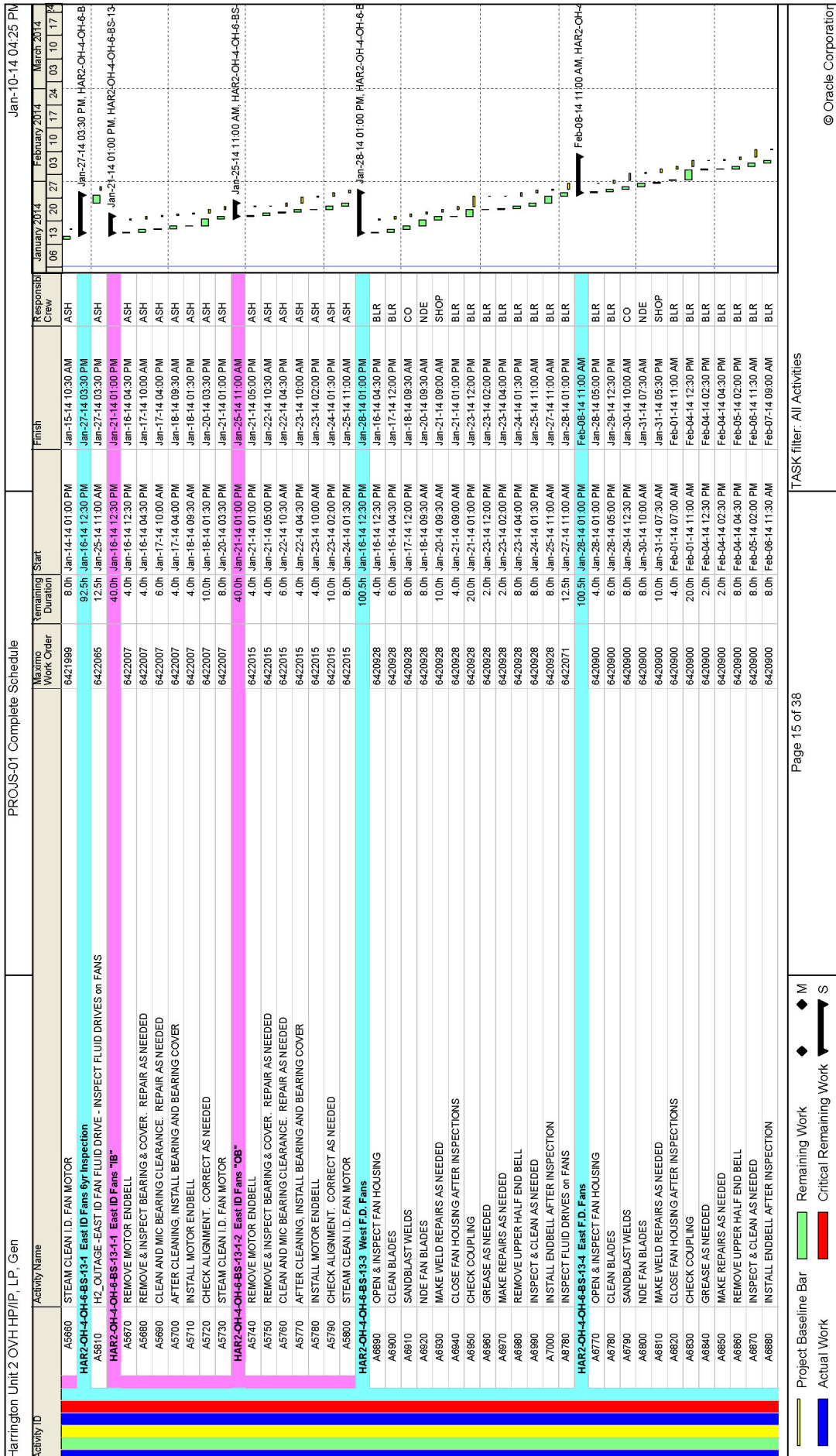
PROUS-01 Complete Schedule										Jan-10-14 04:25 PM									
Activity ID	Activity Name	Maximo Work Order	Remaining Duration	Start	Finish	Responsible Crew	Jan-06-14	Jan-13-14	Jan-20-14	Feb-03-14	Feb-10-14	Feb-17-14	Feb-24-14	Mar-03-14	Mar-10-14				
A13600	GENERATOR BULLGEAR & COUPLING-INSTALL BULLGEAR & COUPLING BOLTS	6420777	10.0h	Mar-10-14 09:00 PM	Mar-11-14 11:00 AM	TURB													
A13610	GENERATOR TURNING GEAR COVER-INSTALL COVER	6420777	10.0h	Mar-11-14 11:00 AM	Mar-11-14 09:00 PM	TURB													
A13620	GENERATOR ENDBELLS-PUMP ALL JOINTS WITH SEALANT	6420777	10.0h	Mar-11-14 11:00 AM	Mar-11-14 09:00 PM	TURB													
HARR-2-OH-4-OH-6-TS-5-10 Exciter Reinstallation																			
A9230	H2 OUTAGE-EXCITER - CLEAN AND INSPECT	6420492	671.0h	Jan-30-14 12:00 PM	Mar-14-14 03:00 PM	TURB													
A13630	INSTALL EXCITER & ALL PIPING	6420785	15.0h	Jan-30-14 12:00 PM	Jan-31-14 03:00 AM	TURB													
A13640	REMOVE #7 BEARING COVER	6420785	3.0h	Mar-11-14 09:00 PM	Mar-12-14 12:00 AM	TURB													
A13650	REMOVE #7 BEARING TOP HALF	6420785	3.0h	Mar-11-14 09:00 PM	Mar-12-14 03:00 AM	TURB													
A13660	REMOVE BEARING OIL SEAL	6420785	1.0h	Mar-12-14 07:00 AM	Mar-12-14 08:00 AM	TURB													
A13670	INSTALL EXCITER TO GENERATOR COUPLING BOLTS & SLEEVES	6420785	6.0h	Mar-12-14 08:00 AM	Mar-12-14 02:00 PM	TURB													
A13680	REMOVE THE PMG FOR SWING CHECK	6420785	1.0h	Mar-12-14 08:00 AM	Mar-12-14 09:00 AM	TURB													
A13690	REMOVE LOWER HALF #7 BEARING	6420785	1.0h	Mar-12-14 09:00 AM	Mar-12-14 10:00 AM	TURB													
A13710	STICK NEW GASKETS ON OIL SEALS	6420785	2.0h	Mar-12-14 10:00 AM	Mar-12-14 12:00 PM	TURB													
A13700	CHECK BEARING & MIC	6420785	3.0h	Mar-12-14 10:00 AM	Mar-12-14 01:00 PM	TURB													
A13720	SETUP & PERFORM SWING CHECK	6420785	12.0h	Mar-12-14 12:00 PM	Mar-13-14 12:00 AM	TURB													
A13730	INSTALL #7 BEARING AFTER SWING CHECK	6420785	4.0h	Mar-13-14 12:00 AM	Mar-13-14 08:00 AM	TURB													
A13740	INSTALL & SET OIL SEALS CLEARANCES. INSTALL #7 BEARING COVER	6420785	3.0h	Mar-13-14 12:00 AM	Mar-13-14 03:00 AM	TURB													
A13750	CHECK BOLT TORQUE ON PMG AND CHECK STUB SHAFT CLEARANCES	6420785	3.0h	Mar-13-14 07:00 AM	Mar-13-14 10:00 AM	TURB													
A13760	INSTALL PMG & SET CLEARANCE	6420785	3.0h	Mar-13-14 10:00 AM	Mar-13-14 01:00 PM	TURB													
A13770	INSTALL RED IRON	6420785	10.0h	Mar-13-14 10:00 AM	Mar-13-14 08:00 PM	TURB													
A13780	INSTALL EXCITER HOUSE	6420785	5.0h	Mar-13-14 08:00 PM	Mar-14-14 01:00 AM	TURB													
A13790	INSTALL ACWPIPING	6420785	6.0h	Mar-14-14 01:00 AM	Mar-14-14 11:00 AM	TURB													
A13800	REPAIR DOORS SEALS AS NEEDED	6420785	10.0h	Mar-14-14 01:00 AM	Mar-14-14 03:00 PM	TURB													
A13810	SETUP & RUN AIR TEST ON GENERATOR	6420811	2.0h	Mar-14-14 01:00 AM	Mar-14-14 03:00 AM*	I&C													
HARR-2-OH-4-OH-6-TS-5-10 Generator Routine Maintenance (Hydrogen and Electrical)																			
A11480	H2 OUTAGE-- F-G TRANSFORMER - CLEAN NEUTRAL BUSHINGS	6422228	104.0h	Jan-25-14 09:00 AM	Jan-31-14 10:00 PM	ELC													
A9110	H2 OUTAGE-EXCITER - CHECK FUSE AND DIODES	6420519	20.0h	Jan-25-14 09:00 AM	Jan-27-14 06:00 PM	ELC													
A11490	H2 OUTAGE-EXCITER - CHECK FUSE AND DIODES	6420519	32.0h	Jan-27-14 06:00 PM	Jan-29-14 10:00 AM	ELC													
A11490	H2 OUTAGE-GENERATOR - MEGGER PT AND NEUTRAL TRANSFORMERS	6420458	6.0h	Jan-27-14 06:00 PM	Jan-28-14 12:00 AM	ELC													
A9190	H2 OUTAGE--VOLTAGE REGULATOR (NERO) - CLEAN AND TEST REGULATOR	6421484	10.0h	Jan-29-14 10:00 AM	Jan-29-14 08:00 PM	ELC													
A9200	H2 OUTAGE--VOLTAGE REGULATOR (MAIN PRAC)	6420511	10.0h	Jan-29-14 10:00 AM	Jan-29-14 08:00 PM	ELC													
A11510	H2 OUTAGE-- G4H BREAKER - ROUTINE AND CLEAN BREAKER	6422232	4.0h	Jan-29-14 10:00 AM	Jan-29-14 02:00 PM	ELC													
A8220	H2 OUTAGE--GEN POTENTIAL NEUTRAL CABINETS - CLEAN AND INSPECT--CHECK ALIGNMENT OF ALL CONTACTS	6420509	12.0h	Jan-29-14 08:00 PM	Jan-30-14 12:00 PM	ELC													
A11540	H2 OUTAGE-GENERATOR - MEGGER	6420462	4.0h	Jan-30-14 12:00 PM	Jan-30-14 04:00 PM	ELC													
A11550	H2 OUTAGE-- ISOLATED PHASE - INSTALL GROUND CABLE	6420469	4.0h	Jan-30-14 04:00 PM	Jan-30-14 08:00 PM	ELC													
A11560	H2 OUTAGE--ISOLATED PHASE - REMOVE GROUND CABLE AND CLOSE ALL DOORS	6420487	4.0h	Jan-30-14 08:00 PM	Jan-31-14 12:00 AM	ELC													
A11570	H2 GENERATOR FIELD BREAKER - CLEAN CABINET AND INSPECT	6420489	5.0h	Jan-31-14 12:00 AM	Jan-31-14 09:00 AM	ELC													
A11790	H2 OUTAGE--HYDROGEN DRYER - CHANGE DESICANT	6420816	6.0h	Jan-31-14 09:00 AM	Jan-31-14 03:00 PM	ELC													
A9140	H2 OUTAGE--GENERATOR CT CONDUITS - INSPECT	6420515	5.0h	Jan-31-14 03:00 PM	Jan-31-14 08:00 PM	ELC													
A9150	H2 OUTAGE--TURBINE OIL TANK MOTORS	6421489	2.0h	Jan-31-14 08:00 PM	Jan-31-14 10:00 PM	ELC													
HARR-2-OH-4-OH-6-TS-5-10 HP-IP Valve Inspections																			
HARR-2-OH-4-OH-6-TS-5-1 Throttle Valves Inspection/Repairs																			
A4750	REMOVE SPRING HOUSING, ACTUATOR & LINKAGE	6421264	100.0h	Jan-05-14 09:00 AM A	Jan-31-14 06:00 PM	TURB													
A4760	UNBOLT, RIG & REMOVE VALVE FROM STEAM CHEST	6421264	0.0h	Jan-05-14 09:00 AM A	Jan-05-14 12:00 PM A	TURB													
A4770	REMOVE CROSS HEAD, PILOT VALVE & STEM	6421264	0.0h	Jan-05-14 01:00 PM A	Jan-05-14 02:00 PM A	TURB													
A4780	REMOVE MAIN VALVE BODY & STEM	6421264	0.0h	Jan-05-14 02:00 PM A	Jan-05-14 03:00 PM A	TURB													
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Harrington Station Maintenance Schedules



Harrington Station Maintenance Schedules





Harrington Unit 2 OVH HP/IP, LP, Gen			PROUS-01 Complete Schedule										Jan-10-14 04:25 PM									
Activity ID	Activity Name	Maximo Work Order	Remaining Duration	Start	Finish	Responsible Crew																
A8770	INSPECT FLUID DRIVES ON FANS	6422069	12.5h	Feb-07-14 09:00 AM	Feb-08-14 11:00 AM	BLR																
HAR2-OH-4-OH-6-BB-14 Air Preheater Cleaning and Repairs							Feb-24-14 11:00 AM															
A8820	PREP WORK FOR AIR PREHEATER WASH - INSTALL DRAINAGE PIPING FOR AIR PREHEATER WASH	6422023	16.0h	Feb-08-14 11:00 AM	Feb-10-14 04:00 PM	ASH																
A8830	PREP WORK FOR AIR PREHEATER WASH - REMOVE DRAINAGE PIPING FOR AIR PREHEATER WASH	6422023	16.0h	Feb-10-14 04:00 PM	Feb-11-14 12:00 PM	ASH																
A8900	Perform APH Wash	6089097	26.0h	Feb-10-14 04:00 PM	Feb-11-14 10:00 PM	WS																
A9120	H2 OUTAGE-AIR PREHEATER ROTATION MOTOR - CHANGE BEARINGS	6421935	2.0h	Feb-11-14 12:00 PM	Feb-11-14 02:00 PM	BLR																
HAR2-OH-4-OH-6-BB-14-1 East Air Preheater							Feb-17-14 03:00 PM															
A6470	OPEN ACCESS DOORS OF PREHEATER FOR INSPECTION	6420471	1.0h	Feb-11-14 12:00 PM	Feb-11-14 01:00 PM	BLR																
A6480	LAY TARPS & KNOCK ASH OUT OF EXPANSION JOINTS	6420471	6.0h	Feb-11-14 01:00 PM	Feb-11-14 07:00 PM	BLR																
A6490	SHOTGUN AS NEEDED TO REMOVE ASH	6420471	3.0h	Feb-11-14 07:00 PM	Feb-11-14 10:00 PM	BLR																
A6500	CONTRACTOR REPAIR EXPANSION JOINTS, SUPPORT STRUCTURE, ETC	6420471	15.0h	Feb-11-14 10:00 PM	Feb-12-14 05:00 PM	BLR																
A6510	CLEAN TARPS OFF	6420471	2.0h	Feb-12-14 05:00 PM	Feb-12-14 07:00 PM	BLR																
A6520	REMOVE TARPS	6420471	3.0h	Feb-12-14 07:00 PM	Feb-12-14 10:00 PM	BLR																
A6530	DRAIN OIL FROM GEAR BOX	6420471	6.0h	Feb-12-14 10:00 PM	Feb-13-14 08:00 AM	BLR																
A6540	INSPECT GEARBOX & COUPLING. REPAIR AS NEEDED	6420471	9.0h	Feb-13-14 08:00 AM	Feb-13-14 05:00 PM	BLR																
A6550	CHANGE FILTERS ON SUPPORT AND GUIDE BEARINGS	6420471	3.0h	Feb-13-14 05:00 PM	Feb-13-14 08:00 PM	BLR																
A6560	REFILL GEARBOX WITH NEW OIL	6420471	6.0h	Feb-13-14 08:00 PM	Feb-14-14 02:00 PM	BLR																
A6570	CLEAN STEAM COILS AS NEEDED	6420471	12.0h	Feb-14-14 02:00 AM	Feb-14-14 06:00 PM	BLR																
A6580	INSPECT AIR PREHEATER AND MAKE REPAIRS AS NEEDED	6420471	2.0h	Feb-14-14 06:00 PM	Feb-14-14 08:00 PM	BLR																
A6590	CHECK PREHEATER SEALS: ROTOR TOP RADIAL, BOTTOM RADIAL, TOP BY-PASS, ROTOR AXIAL & POST	6420471	6.0h	Feb-14-14 08:00 PM	Feb-15-14 09:00 AM	BLR																
A6600	CHECK ALIGNMENT (CORRECT AS NEEDED)	6420471	9.0h	Feb-15-14 09:00 AM	Feb-17-14 03:00 AM	BLR																
A6610	CLOSE DOORS	6420471	8.0h	Feb-17-14 07:00 AM	Feb-17-14 03:00 PM	BLR																
HAR2-OH-4-OH-6-BB-14-2 West Air Preheater							Feb-24-14 11:00 AM															
A6620	OPEN ACCESS DOORS OF PREHEATER FOR INSPECTION	6420491	1.0h	Feb-17-14 03:00 PM	Feb-17-14 04:00 PM	BLR																
A6630	LAY TARPS & KNOCK ASH OUT OF EXPANSION JOINTS	6420491	6.0h	Feb-17-14 04:00 PM	Feb-17-14 10:00 PM	BLR																
A6640	SHOTGUN AS NEEDED TO REMOVE ASH	6420491	3.0h	Feb-17-14 10:00 PM	Feb-18-14 01:00 AM	BLR																
A6650	CONTRACTOR REPAIR EXPANSION JOINTS, SUPPORT STRUCTURE, ETC	6420491	15.0h	Feb-18-14 01:00 AM	Feb-18-14 08:00 PM	BLR																
A6660	CLEAN TARPS OFF	6420491	2.0h	Feb-18-14 08:00 PM	Feb-18-14 10:00 PM	BLR																
A6670	REMOVE TARPS	6420491	3.0h	Feb-18-14 10:00 PM	Feb-19-14 01:00 AM	BLR																
A6680	DRAIN OIL FROM GEAR BOX	6420491	6.0h	Feb-19-14 01:00 AM	Feb-19-14 11:00 AM	BLR																
A6690	INSPECT GEARBOX & COUPLING. REPAIR AS NEEDED	6420491	9.0h	Feb-19-14 11:00 AM	Feb-19-14 08:00 PM	BLR																
A6700	CHANGE FILTERS ON SUPPORT AND GUIDE BEARINGS	6420491	3.0h	Feb-19-14 08:00 PM	Feb-19-14 11:00 PM	BLR																
A6710	REFILL GEARBOX WITH NEW OIL	6420491	6.0h	Feb-19-14 11:00 PM	Feb-20-14 09:00 AM	BLR																
A6720	CLEAN STEAM COILS AS NEEDED	6420491	12.0h	Feb-20-14 09:00 AM	Feb-20-14 09:00 PM	BLR																
A6730	INSPECT AIR PREHEATER AND MAKE REPAIRS AS NEEDED	6420491	2.0h	Feb-20-14 09:00 PM	Feb-20-14 11:00 PM	BLR																
A6740	CHECK PREHEATER SEALS: ROTOR TOP RADIAL, BOTTOM RADIAL, TOP BY-PASS, ROTOR AXIAL & POST	6420491	6.0h	Feb-20-14 11:00 PM	Feb-21-14 09:00 AM	BLR																
A6750	CHECK ALIGNMENT (CORRECT AS NEEDED)	6420491	9.0h	Feb-21-14 09:00 AM	Feb-21-14 06:00 PM	BLR																
A6760	CLOSE DOORS	6420491	8.0h	Feb-22-14 02:00 PM	Feb-24-14 11:00 AM	BLR																
HAR2-OH-4-OH-6-BB-15 Boiler Hydro & Vacuum Check							Mar-15-14 07:00 AM															
A22250	Pressurize Boiler	6420894	2.0h	Mar-14-14 07:00 AM	Mar-14-14 09:00 AM	Ops																
A22260	Inspect Boiler Internals	6420894	8.0h	Mar-14-14 09:00 AM	Mar-14-14 05:00 PM	BLR																
A22270	Inspect for External Piping	6420894	2.0h	Mar-14-14 05:00 PM	Mar-14-14 07:00 PM	BLR																
A22280	Repair External Piping Leaks	6420894	12.0h	Mar-14-14 07:00 PM	Mar-15-14 07:00 AM	SHOP																
HAR2-OH-4-OH-6-BB-16 Boiler Chemical Cleaning							Mar-21-14 12:00 PM															
A21790	Set Up Equipment, Pump Trailer, Frac Tanks Onsite	6441776	10.0h	Mar-03-14 10:30 AM	Mar-04-14 10:30 AM	Acid																
A21800	Pump Trailer Wired, Hoses Connected	6441776	10.0h	Mar-04-14 10:00 AM	Mar-05-14 09:30 AM	Acid																
Project Baseline Bar							TASK filter: All Activities															
Actual Work							Remaining Work															
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TASK filter: All Activities

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 Remaining Work
 Critical Remaining Work
 Actual Work

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Harrington Unit 2 OVH HP/IP, LP, Gen			PROUS-01 Complete Schedule										Jan-10-14 04:25 PM									
Activity ID	Activity Name	Maximo Work Order	Remaining Duration	Start	Finish	Responsible Crew	06	13	20	27	03	10	17	24	31	03	10	17				
A20660	Cooling Towers - INSPECT COOLING TOWER STRUCTURE AND BASIN PROTECTIVE PAINT, PAINT AS NEEDED.	5952252	10.0h	Jan-30-14 07:00 PM	Jan-31-14 09:00 AM	Zachry																
A11620	Cooling Towers - INSPECT/REPAIR COOLING TOWER STRUCTURE AS REQUIRED	5952344	15.0h	Jan-31-14 09:00 AM	Feb-01-14 12:00 AM	Zachry																
A20670	Cooling Towers - INSPECT/REPAIR COOLING TOWER STRUCTURE AS REQUIRED	5952345	15.0h	Feb-01-14 07:00 AM	Feb-03-14 11:00 AM	Zachry																
A20680	Cooling Towers - INSPECT/REPAIR COOLING TOWER STRUCTURE AS REQUIRED	5952346	15.0h	Feb-03-14 11:00 AM	Feb-04-14 02:00 AM	Zachry																
A20690	Cooling Towers - INSPECT/REPAIR COOLING TOWER STRUCTURE AS REQUIRED	5952347	15.0h	Feb-04-14 02:00 AM	Feb-04-14 09:00 PM	Zachry																
A20710	Cooling Towers - Inspect header piping	6041659	10.0h	Feb-04-14 09:00 PM	Feb-05-14 11:00 AM	Zachry																
A20720	Cooling Towers - Inspect header piping thickness	6041661	10.0h	Feb-04-14 09:00 PM	Feb-05-14 11:00 AM	Zachry																
HARR2-OH-4-OH-6-CT-1-2 Misc CT Work																						
A22920	Replace H2 Cooling Tower Fan #5	6298983	25.0h	Jan-29-14 09:00 AM	Jan-31-14 01:00 PM	Zachry																
HARR2-OH-4-OH-6-CW Circulating Water System			0.0h																			
HARR2-OH-4-OH-6-CW-1 Controls System Shutdown & LOTO			0.0h																			
HARR2-OH-4-OH-6-MC Condenser			246.0h	Jan-11-14 07:00 AM	Feb-08-14 11:00 AM																	
A5320	MAIN CONDENSER WATER BOXES - OPEN ALL MAIN CONDENSER DOORS FOR INSPECTION	6422177	8.0h	Jan-11-14 07:00 AM	Jan-11-14 03:00 PM	TAUX																
A5330	MAIN CONDENSER WATER BOXES - CONTRACTOR CLEAN CONDENSER TUBES	6422177	120.0h	Jan-13-14 07:00 AM	Jan-25-14 02:00 PM	TEI																
A5340	MAIN CONDENSER WATER BOXES - CONTRACTOR REPAIR CONDENSER WALL COATING	6422177	20.0h	Jan-25-14 02:00 PM	Jan-26-14 03:30 PM	TEI																
A5350	MAIN CONDENSER WATER BOXES - CLOSE ALL MAIN CONDENSER DOORS FOLLOWING INSPECTION AND CLEANING	6422177	8.0h	Jan-26-14 03:30 PM	Jan-29-14 01:00 PM	TAUX																
A5360	MAIN COND. ISOLATION VALVS AND AMERTAP SCREENS - CLEAN AMERTAP SCREENS IN CONDENSER DISCHARGE CIRC PIPES	6422182	10.0h	Jan-28-14 01:00 PM	Jan-30-14 12:30 PM	TAUX																
A5370	MAIN COND. ISOLATION VALVS AND AMERTAP SCREENS - INSPECT CLEARANCES ON SCREENS	6422182	2.0h	Jan-30-14 12:30 PM	Jan-30-14 02:30 PM	TAUX																
A5380	MAIN COND. ISOLATION VALVS AND AMERTAP SCREENS - INSPECT CONDENSER CIRC PIPE SHUTOFF VALVES	6422182	2.0h	Jan-30-14 02:30 PM	Jan-31-14 04:30 PM	TAUX																
A5390	MAIN CONDENSER HOT WELL - OPEN DOORS	6422186	3.0h	Jan-30-14 04:30 PM	Jan-31-14 09:00 AM	TAUX																
A5400	MAIN CONDENSER HOT WELL - REMOVE BOTH STRAINERS	6422186	3.0h	Jan-31-14 09:00 AM	Jan-31-14 12:00 PM	TAUX																
A5410	MAIN CONDENSER HOT WELL - CLEAN HOT WELL & STRAINERS	6422186	8.0h	Jan-31-14 12:00 PM	Feb-01-14 09:30 AM	TAUX																
A5420	MAIN CONDENSER HOT WELL - INSTALL STRAINERS, & CLOSE DOORS TO HOTWELL	6422186	6.0h	Feb-01-14 09:30 AM	Feb-03-14 11:30 AM	TAUX																
A5430	NORTH CONDENSATE PUMP - CHECK COUPLING	6422191	4.0h	Feb-03-14 07:30 AM	Feb-03-14 11:30 AM	TAUX																
A5440	NORTH CONDENSATE PUMP - CHECK ALIGNMENT-CORRECT AS NEEDED	6422191	4.0h	Feb-03-14 11:30 AM	Feb-03-14 03:30 PM	TAUX																
A5450	NORTH CONDENSATE PUMP - CHANGE OIL IN BEARINGS	6422191	4.0h	Feb-03-14 03:30 PM	Feb-04-14 09:00 AM	TAUX																
A5460	NORTH CONDENSATE PUMP - GREASE COUPLING	6422191	4.0h	Feb-04-14 09:00 AM	Feb-04-14 01:00 PM	TAUX																
A5470	NORTH CONDENSATE PUMP - BOLT COUPLING BACK UP	6422191	4.0h	Feb-04-14 01:00 PM	Feb-04-14 05:00 PM	TAUX																
A5480	SOUTH CONDENSATE PUMP - CHECK COUPLING	6422197	4.0h	Feb-04-14 05:00 PM	Feb-05-14 10:30 AM	TAUX																
A5490	SOUTH CONDENSATE PUMP - CHECK ALIGNMENT-CORRECT AS NEEDED	6422197	4.0h	Feb-05-14 10:30 AM	Feb-05-14 02:30 PM	TAUX																
A5500	SOUTH CONDENSATE PUMP - CHANGE OIL IN BEARINGS	6422197	4.0h	Feb-05-14 02:30 PM	Feb-06-14 08:00 AM	TAUX																
A5510	SOUTH CONDENSATE PUMP - GREASE COUPLING	6422197	4.0h	Feb-06-14 08:00 AM	Feb-06-14 12:00 PM	TAUX																
A5520	SOUTH CONDENSATE PUMP - BOLT COUPLING BACK UP	6422197	4.0h	Feb-06-14 12:00 PM	Feb-06-14 04:00 PM	TAUX																
A10600	VACUUM PUMP SEAL WATER PRESS SWITCHES - PS-3 #1 ASH SYS VAC PMP SEAL WTR PRESS LOW	6419647	4.0h	Feb-06-14 04:00 PM	Feb-07-14 09:30 AM	ELC																
A10610	VACUUM PUMP SEAL WATER PRESS SWITCHES - PS-4 #2 ASH SYS VAC PMP SEAL WTR PRESS LOW	6419647	4.0h	Feb-07-14 09:30 AM	Feb-07-14 01:30 PM	ELC																
A10620	VACUUM PUMP SEAL WATER PRESS SWITCHES - PS-1	6419647	4.0h	Feb-07-14 01:30 PM	Feb-07-14 05:30 PM	ELC																
A10630	VACUUM PUMP SEAL WATER PRESS SWITCHES - PS-2	6419647	4.0h	Feb-08-14 07:00 AM	Feb-08-14 11:00 AM	ELC																
HARR2-OH-4-OH-6-FW Feedwater			92.0h	Jan-16-14 05:00 PM	Jan-30-14 09:00 AM																	
HARR2-OH-4-OH-6-FW-4 Feedwater Relief Valve Work			92.0h	Jan-16-14 05:00 PM	Jan-30-14 09:00 AM																	
A23590	Feedwater High Pressure #1 Heater Tube Side Relief Valve	6425131	2.0h	Jan-16-14 05:00 PM	Jan-16-14 07:00 PM	SHOP																
A23600	Feedwater High Pressure #1 Heater Shell Side Relief Valve	6425137	1.0h	Jan-16-14 07:00 PM	Jan-16-14 08:00 PM	SHOP																
A23610	Feedwater High Pressure #2 Heater Tube Side Relief Valve	6425161	2.0h	Jan-20-14 12:00 PM	Jan-20-14 02:00 PM	SHOP																
A23620	Feedwater High Pressure #2 Heater Shell Side Relief Valve	6425143	1.0h	Jan-20-14 02:00 PM	Jan-20-14 03:00 PM	SHOP																
A23630	Feedwater High Pressure #3 Heater Tube Side Relief Valve	6425155	2.0h	Jan-24-14 12:00 PM	Jan-24-14 02:00 PM	SHOP																
TASK filter: All Activities																						
Project Baseline Bar						Page 18 of 38																
Actual Work						Remaining Work																
Critical Remaining Work																						
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Harrington Station Maintenance Schedules

