

Exhibit No.:
Issue: Dismantlement Costs
Witness: Christopher "Chris" Robert Rogers
Type of Exhibit: Direct Testimony
Sponsoring Party: Kansas City Power & Light Company
Case No.: ER-2016-0285
Date Testimony Prepared: July 1, 2016

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO.: ER-2016-0285

DIRECT TESTIMONY

OF

CHRISTOPHER "CHRIS" ROBERT ROGERS

ON BEHALF OF

KANSAS CITY POWER & LIGHT COMPANY

**Kansas City, Missouri
July 2016**

DIRECT TESTIMONY
OF
CHRISTOPHER “CHRIS” ROBERT ROGERS

Case No. ER-2016-0285

1 **Q: Please state your name and business address.**

2 A: My name is Christopher “Chris” Robert Rogers and my business address is Sega, Inc.,
3 16041 Foster Street, Overland Park, Kansas 66085.

4 **Q: On whose behalf are you testifying?**

5 A: I am testifying on behalf of Kansas City Power & Light Company (“KCP&L” or the
6 “Company”).

7 **Q: What is the purpose of your testimony?**

8 A: The purpose of my testimony is to present and support the report attached to my
9 testimony as Schedule CRR-2 which separately addresses the near term costs of
10 retirement and the potential future costs for dismantlement of KCP&L’s fossil-fueled and
11 wind electric generating units. All costs are presented in 2016 dollars as if incurred
12 overnight. No timeline for retirement or dismantlement was considered in this study. As
13 described later, certain activities are required by permit, regulation or contract to be
14 performed upon retirement of a unit and the costs of such activities would be incurred
15 immediately upon retirement.

16 **Q: Please describe your educational background, professional training and experience.**

17 A: Since graduating from Kansas State University with a Bachelor of Science in Mechanical
18 Engineering, I have practiced engineering, principally in the power industry, for more
19 than 40 years. During the first decade of my career, I performed design, construction

1 contracting, scheduling, and resident construction management services for new coal-
2 fired electric generating stations with a nationally-recognized architect/engineer firm
3 headquartered in Kansas City. During this interval I also completed a Master of Science
4 in Civil Engineering specializing in construction management from the University of
5 Missouri-Columbia.

6 From 1983 through 1986 I served as the Manager of Generating Facilities on the
7 staff of the Missouri Public Service Commission (“Commission” or “MPSC”) and
8 participated in several major rate cases, including the AmerenUE Callaway Nuclear Plant
9 and KCP&L Wolf Creek Nuclear Plant rate cases before the MPSC. Later while
10 employed as a consultant, I provided testimony on behalf of Aquila, Inc. in the South
11 Harper Generating Facility certification case before the MPSC. I have also testified
12 before the Hawaii Public Utilities Commission on behalf of the Hawaii State Consumer
13 Advocate.

14 I am currently an employee-owner and Vice President of Sega, Inc. (“Sega”), an
15 engineering and technical services firm located in Overland Park, Kansas. Among other
16 things, I provide consulting and project management services for Sega’s electric power
17 generating clients. Since joining Sega, Inc. in 1994, I have worked on many projects for
18 KCP&L and our other electric utility clients. Sega, Inc. has performed numerous plant
19 betterment engineering projects for KCP&L’s generation stations.

20 **Q: Do you hold any professional licenses?**

21 A: Yes. I am a licensed professional engineer in the State of Missouri (License No. 21087)
22 and 12 other states. I also hold a Certificate of Record from the National Council of
23 Examiners for Engineering and Surveying (No. 19249).

1 **Q: Have you prepared an appendix that describes your training, licenses and power**
2 **industry experience?**

3 A: Yes. My professional qualifications are provided in Schedule CRR-1.

4 **Q: Have you previously testified in a proceeding before the MPSC or before any other**
5 **utility regulatory agency?**

6 A: Yes, I have previously testified before the MPSC, the Public Utility Commission of the
7 State of Hawaii and the Kansas Corporation Commission.

8 In 2012, I provided pre-filed testimony in support of KCP&L before the Kansas
9 Corporation Commission in Docket No. 12-KCPE-764-RTS regarding the near term
10 costs of retirement and the potential future costs for dismantlement of the Company's
11 fossil-fueled electric generating units. In 2014, I also provided pre-filed testimony for
12 KCP&L before the MPSC in Case No. ER-2014-0370 on this issue.

13 In 2016, I provided pre-filed direct testimony on support of KCP&L Greater
14 Missouri Operations Company, Inc. (GMO) before the Missouri Public Service
15 Commission in Case No. ER-2016-0156 concerning the near terms costs of retirement
16 and potential future costs for dismantlement of the GMO's fossil-fueled electric
17 generating Stations.

18 The subject matter and references for all the cases in which I have participated are
19 provided at the back of Schedule CRR-1.

1 **SUMMARY**

2 **Q: Would you briefly describe the retirement and dismantlement costs developed for**
3 **KCP&L's non-nuclear generating units?**

4 A: Sega, Inc. was retained by KCP&L to study the cost of decommissioning KCP&L's non-
5 nuclear generating units. Decommissioning is the planned and orderly retirement of a
6 generating unit and the dismantlement and reclamation of the site. The term
7 *decommissioning* includes both retirement and dismantlement activities. Upon retirement
8 from service, a generating unit may either be rendered safe and stored in-situ almost
9 indefinitely through on-going maintenance and security measures or it can be dismantled
10 completely and the site reclaimed for other potential uses. Based upon our experience in
11 the electric generation industry at large and our familiarity with KCP&L's generating
12 fleet, Sega developed opinions of probable cost for KCP&L to retire each of its fossil-
13 fueled generating units. Costs for dismantlement were also developed separately for each
14 unit.

15 **Q: Please summarize retirement of an electric generating unit.**

16 A: Retirement, as used in this study, refers to the planned, orderly and safe shutdown and
17 removal from service of an electric generating unit, and assumes that the unit will not be
18 used for service again. No actions will be taken to preserve the unit or any of its
19 components for reuse. Retirement activities are specific to each unit and to the common
20 facilities at sites with multiple generating units. Since each of KCP&L's units except
21 Osawatomie is located on a multiple unit site, it was assumed that the common site
22 facilities will remain in service until the last unit on that site is retired.

1 Approximately three to six months before initiating retirement, a specific
2 retirement plan will be prepared for each unit that takes into account environmental
3 permits and regulatory requirements for removing that unit from service. The retirement
4 plan will also provide for necessary safety and security measures during retirement of the
5 unit and for the time period from retirement until dismantlement commences.

6 First, the unit is rendered safe by de-energizing it and disconnecting it from the
7 electric grid. The switchyards at each unit will remain in service, but isolated to the
8 greatest extent possible from the retired facility. Mechanical systems are de-energized as
9 well. Fuel unloading, handling and storage facilities will be cleaned out, as well as all
10 liquids, chemicals, coolants and reagents. Certain activities are required by specific unit
11 permits and/or state or federal regulations to be performed when the unit ceases
12 operations. These may include closure of ash landfills, removal of river water intakes,
13 and/or removal of fuel oil storage tanks. However, retirement activities do not include
14 asbestos and lead paint abatement measures that are typically handled as ongoing
15 maintenance expenses during the operating life of the unit and continuing if necessary
16 after retirement. More detail is provided on retirement activities in the report, which is
17 Schedule CRR-2.

18 **Q: Please summarize dismantlement of an electric generating unit.**

19 A: Once the unit or facility has been retired and its dismantlement is scheduled, an Owner's
20 Engineer will be retained to assist with environmental issues and technical details in a
21 dismantlement plan. The unit or facility will be characterized and the boundaries for
22 demolition defined to set the scope of the work. A specialty demolition contractor will be
23 hired to perform dismantlement and salvage for the company. Dismantlement as

1 contemplated in this study provides for the orderly removal of the unit's components to
2 maximize safety and scrap value while preventing damage to any surrounding facilities.
3 The assumptions for dismantlement for each of the units and facilities are provided in
4 Schedule CRR-2.

5 **Q: Did you consider salvage value in reaching your opinion of probable dismantlement**
6 **costs for these units?**

7 A: Yes, the approximate scrap value for iron and steel and non-ferrous metals were tallied
8 for each unit or facility, based upon estimated quantities and averages of current-year
9 scrap prices. These scrap values were listed separately because the scrap metal prices
10 vary considerably, depending on industry trends, international events and uncontrollable
11 circumstances at the time of the salvage transactions.

12 **Q: What are the results of your study?**

13 A: The opinion of the probable costs for retirement and dismantlement developed by Segal
14 for each of KCP&L's fossil-fueled units and the common facilities at each plant site are
15 provided below in Table 1. All costs shown are in 2016 dollars and do not account for
16 ownership percentages and jurisdictional allocations. The development of these costs is
17 described and supported by the report in Schedule CRR-2.

18 As shown below in Table 1, there is a significant difference in cost between
19 retiring and dismantling a power plant. The cost to retire all of KCP&L's non-nuclear
20 generating units is estimated to be approximately \$235.9 million. To dismantle all of
21 KCP&L's non-nuclear units, I estimate that it would cost an additional \$301.2 million.
22 Some components could be sold for scrap during dismantlement thereby recovering an
23 estimated \$38.2 million at current average scrap prices, which brings the estimated Net

1 Terminal Value (cost to dismantle less salvage) for all of KCP&L's fossil-fueled plants to
 2 \$263.0 million.

Table 1 - Opinion of The Probable Costs for Decommissioning KCP&L's Electric Generating Units
 (All cost values in 2016 dollars)

Name	Unit No.	Capability ⁽¹⁾	First Year In Service	Retirement			Dismantlement		
				Unit Retirement	Activities Required by Permit, Regulation ⁽³⁾ , or Agreement ⁽⁴⁾	Total Retirement	Dismantlement	Scrap Value ⁽⁵⁾	Net Terminal Cost
Montrose	1 ⁽⁶⁾	170	1958	\$2,040,668	\$5,699,874	\$7,740,542	\$11,092,556	\$1,985,000	\$9,107,556
	2	164	1960	\$535,095	\$5,699,874	\$6,234,969	\$10,855,969	\$1,943,000	\$8,912,969
	3	176	1964	\$535,095	\$5,699,874	\$6,234,969	\$11,325,826	\$2,027,000	\$9,298,826
	Common			\$717,823	\$6,642,773	\$7,360,596	\$11,361,236	\$714,600	\$10,646,636
Hawthorn	5	564	1969 / 2001	\$1,021,157	\$12,445,589	\$13,466,746	\$22,571,517	\$4,076,000	\$18,495,517
	Common			\$360,857	\$7,840,251	\$8,201,108	\$10,411,094	\$489,120	\$9,921,974
LaCygne	1	736	1973	\$1,117,492	\$2,674,758	\$3,792,250	\$37,028,117	\$4,778,000	\$32,250,117
	2	662	1977	\$1,064,401	\$2,674,758	\$3,739,159	\$39,375,338	\$4,584,000	\$34,791,338
	Common			\$959,466	\$88,288,826	\$89,248,292	\$17,654,670	\$1,123,440	\$16,531,230
Iatan	1	713	1980	\$1,104,700	\$395,036	\$1,499,736	\$25,805,172	\$4,660,000	\$21,145,172
	2	882	2010	\$1,099,956		\$1,099,956	\$29,497,067	\$5,327,000	\$24,170,067
	Common			\$645,328	\$40,896,768	\$41,542,096	\$26,054,914	\$1,198,000	\$24,856,914
Northeast	11	52	1972	\$550,692					
	12	41	1972						
	13	46	1975						
	14	49	1975						
	15	53	1976						
	16	53	1976						
	17	53	1977						
	18	52	1977						
Common			\$553,553						
Hawthorn	7	78	2000	\$368,777	\$0	\$368,777	\$7,896,768	\$89,000	\$7,807,768
	8	79	2000						
West Gardner	1	80	2003	\$429,179	\$0	\$429,179	\$12,793,564	\$178,000	\$12,615,564
	2	79							
	3	77							
	4	78							
Osawatomie	1	76	2003	\$293,506	\$0	\$293,506	\$6,137,219	\$44,500	\$6,092,719
Hawthorn	6	235	1979	\$431,914	\$679,931	\$1,111,845	\$10,317,668	\$1,150,000	\$9,167,668
	9		2000						
Spearville ⁽²⁾	1	31	2006	\$16,274,266	\$12,532,822	\$28,807,088	\$0	\$2,359,000	(\$2,359,000)
	2	15	2010	\$8,238,655	\$5,369,894	\$13,608,549	\$0	\$1,127,000	(\$1,127,000)
TOTALS		5,294		\$37,789,027	\$198,094,580	\$235,883,607	\$301,220,875	\$38,208,660	\$263,012,215

Notes

- (1) Current net SPP accredited unit capability, MW.
- (2) Spearville Phase 1 nameplate capacity is 100.5 MW; Phase 2 nameplate capacity is 48 MW.
- (3) Activities required by permits and/or regulations that are to occur upon ceasing operations, including ash landfill closures, and river water intake.
- (4) The Spearville Wind Project Decommissioning Agreements require each wind turbine to be dismantled within 12 months of ceasing operation.
- (5) Current scrap values per averaged indices.
- (6) SPP Accredited capacity (MW) of Montrose Unit 1 just prior to retirement on April 16, 2016. Capacity provided to indicate relative size of unit.

3
 4 **Q: Are retirement costs optional for KCP&L?**

5 **A:** No. Retirement costs will unavoidably be incurred by the Company when the plant is
 6 shut-down, even if the closed plant is never dismantled. However, KCP&L is not
 7 currently required to dismantle its plants upon retirement, and therefore, it is not known

1 when, or even if, the portion of the costs in my study related only to dismantlement will
2 be incurred.

3 **Q: How have the results of your study been used in this case?**

4 A: It is my understanding that the retirement costs I have identified have been incorporated
5 into the depreciation study performed for KCP&L by Company witness, Mr. John
6 Spanos. It is also my understanding that Mr. Spanos has not included the dismantling
7 costs from my study in his depreciation study. By keeping the two categories of costs
8 separate in my study, I have facilitated Mr. Spanos' efforts in this regard, and I have
9 provided substantial evidence to the Commission clearly showing the distinction between
10 the two categories of costs.

11 **Q: Was the Schedule CRR-2 study prepared under your direction and supervision?**

12 A: Yes. I am the Officer-in-Charge at Sega for this study and participated in determining the
13 methodology and in oversight of our team's performance of the work. I have visited each
14 of the plant sites for previous studies. I supervised the preparation of the report, and
15 reviewed the results for reasonableness and appropriateness.

16 **Q: Does this conclude your testimony?**

17 A: Yes.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Kansas City Power & Light)
Company's Request for Authority to Implement) Case No. ER-2016-0285
A General Rate Increase for Electric Service)

AFFIDAVIT OF CHRISTOPHER R. ROGERS

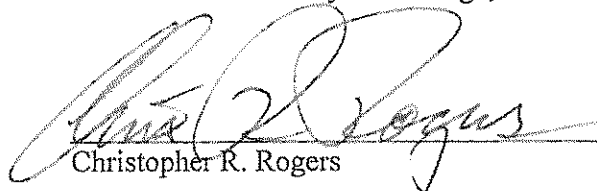
STATE OF KANSAS)
) ss
COUNTY OF JOHNSON)

Christopher R. Rogers, being first duly sworn on his oath, states:

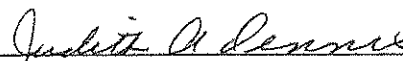
1. My name is Christopher R. Rogers. I am employed by Sega, Inc. I have been retained to serve as an expert witness to provide testimony on behalf of Kansas City Power & Light Company.

2. Attached hereto and made a part hereof for all purposes is my Direct Testimony on behalf of Kansas City Power & Light Company consisting of eight (8) pages, having been prepared in written form for introduction into evidence in the above-captioned docket.

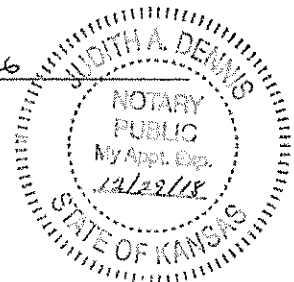
3. I have knowledge of the matters set forth therein. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded, including any attachments thereto, are true and accurate to the best of my knowledge, information and belief.


Christopher R. Rogers

Subscribed and sworn before me this 23rd day of June, 2016.


Notary Public

My commission expires: December 29, 2018



Chris R. Rogers, P.E.

POSITION Vice President, Sega Inc.

EDUCATION B.S.M.E., 1974
Kansas State University
Manhattan, Kansas

M.S.C.E. Civil Engineering – Construction Management, 1981
University of Missouri-Columbia
Columbia, Missouri

LICENSES Professional Engineer Licenses

- California
- Colorado
- Florida
- Hawaii
- Idaho
- Illinois
- Kansas
- Kentucky
- Michigan
- Missouri
- Montana
- North Carolina
- Utah
- NCEES Record Certificate

AFFILIATIONS American Society of Mechanical Engineers

EXPERIENCE SUMMARY

Mr. Rogers is a Vice President of Sega Inc. and a licensed professional engineer with 42 years of experience in the power industry. He leads the firm’s corporate risk management activities and directs the firm’s planning and studies practice. Mr. Rogers also provides project management and engineering services for Sega’s electric power generating clients.

He has provided engineering and management services for many types of electric generating plants, including simple and combined cycle combustion turbine projects, coal and waste coal-fired fluidized bed boiler projects, pulverized coal units, and biomass-fired projects. He has performed engineering and feasibility reviews for financing, construction monitoring, and performance testing of numerous generating facilities.

Mr. Rogers was the Manager of Generating Facilities in the Electric Department of the staff of the Missouri Public Service Commission from 1983 through 1986. He covered issues in conjunction with the construction management audits and rate cases for the Callaway Plant and Wolfcreek Nuclear Generating Station, had limited participation in the Grand Gulf Nuclear Station rate case, and performed other assignments concerning regulated generating facilities throughout the State of Missouri.

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During the first decade of his career, Mr. Rogers performed for mechanical engineering for large utility-owned coal-fired central generating facilities while employed by a nationally recognized consulting engineering firm. He served on project design teams in the main office and as the chief mechanical resident engineer on a plant construction site.

SELECTED PROJECT EXPERIENCE

- **Kansas City Power & Light Company, Kansas City, Missouri** - Officer-in-charge of the study for the 2016 Kansas City Power & Light – Greater Missouri Operations Company (GMO) Missouri rate case providing opinion of probable costs of retirement and dismantlement of 25 fossil-fueled generating units totaling approximately 1,720-MW of capacity, including six (6) coal-fired units, and fifteen (19) combustion turbines. Prepared direct testimony for filing with the Missouri Public Service Commission sponsoring Segal's report in Case No. ER-2016-0156.

Officer-in-charge of study for the 2014 Missouri rate case providing opinion of probable costs of retirement and dismantlement of 24 fossil-fueled generating units and 99 wind turbine generators totaling 5,306-MW of capacity, including eight (8) coal-fired units, one (1) combined-cycle plant, and fifteen (15) combustion turbines. Submitted pre-filed direct testimony before the Missouri Public Service Commission sponsoring Segal's report in Case No. ER-2014-0370.

Officer-in-charge of study for the 2014 Kansas rate case providing opinion of probable costs of retirement and dismantlement of 24 fossil-fueled generating units and 99 wind turbine generators totaling 5,306-MW of capacity, including eight (8) coal-fired units, one (1) combined-cycle plant, and fifteen (15) combustion turbines. Prepared direct testimony for filing with the Kansas Corporation Commission sponsoring Segal's report for Docket No. 15-KCPE-116-RTS.

Officer-in-charge of study for the 2012 Kansas rate case providing opinion of probable costs for retirement and dismantlement of 24 fossil-fueled generating units totaling 5,260-MW of capacity, including eight (8) coal-fired units, one (1) combined-cycle plant, and fifteen (15) combustion turbines. Provided pre-filed direct and rebuttal testimony before the Kansas Corporation Commission sponsoring Segal's report in Docket No. 12-KCPE-764-RTS.

- **Kansas City Power & Light Company, Kansas City, Missouri** - Officer-in-charge and project manager for 2014 power plant siting study to identify and evaluate multiple candidate sites for potential location of a new combined-cycle plants, simple-cycle peaking turbines, and reciprocating engine generating plants. Provided detailed report of findings to Kansas City Power & Light Company Resource Planning Department.

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- **Kansas City Power & Light Company, Kansas City, Missouri** – Officer-in-charge and project manager for 2010 Great Plains Energy combined cycle plant siting study to identify and evaluate multiple candidate sites for potential location of new 600-MW class combined-cycle plant. Provided detailed report of findings to Kansas City Power & Light Company Resource Planning Department.
- **Kansas City Power & Light Company, Lake Road Generating Station, St. Joseph, Missouri** – Officer-in-charge and project manager for a study that assessed the feasibility of the KCP&L industrial steam generation and delivery system to serve its industrial steam customers.
- **Kansas City Power & Light (Formerly Aquila), South Harper Peaking Facility, Peculiar, Missouri** – 315-MW simple-cycle peaking plant. Project manager of Owner's Engineer for siting, permitting support, detailed installation design, balance of plant procurement, construction management services, commissioning, and documentation support. Sega's project manager and site manager.
- **Kansas City Power & Light, West Gardner and Osawatomie Generating Stations** – Two simple-cycle peaking projects. Sega, Inc's turnkey proposal manager for engineered EPC proposal for 400-MW of GE 7E gas turbine generator sets.
- **Independence Power & Light Department, Independence, Missouri** – Master plan study for a nominal 320-MW municipal utility. Officer-in-charge and project manager for five-year planning study including existing generation assessment, transmission system assessment, load forecast, alternative power supply analysis and economic evaluation.
- **State of Hawaii Division of Consumer Advocacy** – Investigated island-wide blackouts that occurred on Oahu and Maui after the earthquakes on October 15, 2006 and on Oahu after lightning events on December 26, 2008. Officer-in-charge and project manager of team for investigation of causes of the outages, utility outage recovery operations and potential improvements to prevent or minimize future outages.
- **Utah Municipal Power Agency, Spanish Fork, Utah** – Officer-in-Charge and Project manager for a study assessing the feasibility of potential sites and development of opinions of probable cost for installation of simple-cycle combustion turbines and reciprocating engine generating sets as a subcontractor to Sawvel and Associates of Findlay, Ohio.
- **Utah Municipal Power Agency, Spanish Fork, Utah** – Officer-in-charge and project manager for due diligence assessment of a simple cycle 200-MW peaking plant consisting of five GE LM6000 combustion turbine generator sets.

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- **Kansas City Board of Public Utilities, Nearman Creek CT4, Kansas City, Kansas** – 85-MW simple-cycle peaking plant. Owner’s Engineer (Sega, Inc.) site manager for commissioning, including checkout, performance testing, emissions testing and management of construction completion closeout activities.
- **Idaho Power Company, Mountain Home, Idaho** – Sega, Inc.’s project manager for a study to convert 2 W 251B12 gas turbines from peaking to combined-cycle (150MW).
- **Trigen – Kansas City Energy Corporation, Kansas City, Missouri** – Sega, Inc.’s project manager for feasibility study to repower a district heating plant with an 80-MW combustion turbine and heat recovery steam generator cogeneration project.
- **Conserve Energy System, Centralia, Illinois** – Sega, Inc.’s project manager on a technical feasibility study for a 215-MW coal-fired atmospheric circulating fluidized bed boiler steam electric generating plant.
- **Tulare County Power Projects, Goshen and Tipton, California** – Sega, Inc.’s project manager for conceptual design and detailed design proposal for 24-MW net, natural gas-fired reciprocating engine generator set peaking plants located planned at four existing utility substations.
- **High Plains Corp Cogeneration Project, Wichita, Kansas** – Sega, Inc.’s project manager for conceptual design, feasibility study and detailed design-build proposal for a 6-MW net, landfill recovery gas-fired combustion turbine and heat recovery steam generator cogeneration project.
- **City Utilities of Springfield, Missouri** – Sega, Inc.’s project manager for feasibility study for a 8-MW net, natural gas-fired combustion turbine and heat recovery steam generator cogeneration project at local university campus.
- **Cargill, Inc., Blair, Nebraska** – Sega, Inc.’s project manager for feasibility study for an 100-MW net combustion turbine and heat recovery steam generator cogeneration project.
- **Quantum Dynamics, Inc./Quebecor Printing, Inc., Fernley, Nevada** – Sega Inc.’s project manager for balance-of-plant design/build contract on a 3-MW net, gas-fired combustion turbine (ASE40) and heat recovery project at a printing plant.
- **Trigen – St. Louis Energy Corporation, St. Louis, Missouri** – Sega, Inc.’s project manager providing detailed design, construction administration, and startup assistance

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for a 20-MW condensing steam turbine addition to an existing cogeneration plant on a fast-tracked basis.

- **University of Missouri-Rolla/Rolla Municipal Utilities** – Segal, Inc.'s project manager for a joint participation cogeneration project feasibility study that investigated alternative power supplies, generating options, and interconnection arrangements for the mutual benefit of the University and the City.
- **LTV Hennepin, Hennepin, Illinois** – Segal, Inc.'s project manager of an engineer-led EPC team for a 9-MW net, gas-fired combustion turbine (3 x ASE 40) and heat recovery project at LTV Steel Company plant in Hennepin, Illinois.
- **University of Missouri-Columbia** – Combustion turbine consultant for Owner's Engineer (Segal, Inc.) on feasibility study and subsequent detailed project design and equipment procurement for a 27-MW cogeneration project that used two Solar Titan combustion turbine generator sets and heat recovery steam generators.
- **Witco Corporation, Memphis, Tennessee** – Segal, Inc.'s project manager on engineer-led EPC team 7-MW net, gas-fired combustion turbine (2 x ASE 50) and heat recovery project at Witco Corporation plant in Memphis, Tennessee.
- **Trigen – St. Louis Energy Corporation, St. Louis, Missouri** – Segal, Inc.'s project manager for detailed installation design for 15-MW net, gas-fired combustion turbine (two Solar Taurus 60/STAC) and heat recovery project.
- **Independence Power & Light Department, Independence, Missouri** – Segal, Inc.'s project manager for major refurbishment program on six GE Frame 5 and one GE 7B-regenerative, oil and gas-fired gas turbines. Project included condition assessments, specifications, and contracting for renewal and upgrade components, unit controls replacement, remote digital controls addition, and major overhaul of each unit.
- **Somerset Generating Station, Somerset, Massachusetts** – Black & Veatch's project manager on independent engineering review, performing condition assessments for Montaup Electric Company's divestiture of a 40-MW net, oil-fired combustion turbine (2 x FT4) black start peaking unit, a 100-MW coal-fired power plant, a total of 16-MW of diesel generators (8 x 2-MW GM-EMD) and a 2-MW hydro electric plant.
- **Constellation Energy, Freehold, New Jersey** – Segal, Inc.'s project manager for review of project proforma and preparation of testimony before the New Jersey Board of Public Utilities concerning net present value of a 110-MW net, gas-fired combined cycle cogeneration project.

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- **Cherokee County Cogeneration Project, Gaffney, South Carolina** – Segal, Inc.'s project manager for an 80-MW net, gas-fired combined cycle (GE 106FA) cogeneration project in Gaffney, South Carolina for Prudential Power Financing. Performed technical review of project during design, permitting, contracting, and financing. Conducted construction monitoring for lender. Also served as interim president of project development entity during lender's takeover of project and equity sale to FP&L.
- **Independence of Power and Light, Independence, Missouri** – Segal, Inc.'s project manager for study of 100-MW coal-fired steam electric unit, including conceptual design and estimating performance and cost for client's comparison to participation in Iatan II Project. Compiled and compared capital and operation and maintenance cost of alternative 100-MW coal-fired steam electric plants including pulverized coal and CFB plants, and natural gas-fired combined cycle and simple cycle units of the same size.
- **University of New Mexico** – Segal, Inc.'s project manager for cogeneration feasibility study that evaluated replacement of campus central heating plant with a 30-MW net, gas-fired combustion turbine and heat recovery steam generator.
- **Florida State Correction Facility, Starke, Florida** – Bibb and Associates' project manager for independent review for potential equity investor, KLT Power, Inc. on a 23-MW, wood gasification and natural gas-fired, combined-cycle cogeneration project proposed near Starke, Florida.
- **Indeck-Oswego Energy Center, Oswego, New York** – Bibb and Associates' project manager on independent engineering review for BA Securities, Inc. regarding the power sales agreement during term of financing of 51-MW, gas-fired combined-cycle (GE6B) cogeneration project in Oswego, New York.
- **Honeywell FM&T, Kansas City, Missouri** – Bibb and Associates' project manager on AlliedSignal's engineering team for feasibility studies, conceptual design, permitting support, bidding, and evaluation of developer qualifications for a 40-MW, gas-fired, combustion turbine cogeneration project providing steam and electric service to a federal government complex in Kansas City, Missouri.
- **North Carolina EMC, Raleigh, North Carolina** – Bibb and Associates' project manager of the Owner's Engineer team that wrote specifications and evaluated EPC proposals for a 330-MW gas-fired combined-cycle project and 100-MW gas-fired simple-cycle project in North Carolina.
- **Indeck-Olean Energy Center, Olean, New York** – Bibb and Associates' project manager on independent engineering review for bank group consisting of Canadian Imperial Bank of Commerce, BOT Financial, Inc., Westpac Banking Corporation, and

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Toronto Dominion Bank. Project was a 79-MW, gas-fired combined-cycle (GE 6B) cogeneration project in Olean, New York. Scope included review of technical feasibility and economic viability of project for financing, construction progress monitoring and oversight of performance demonstration tests.

- **Orlando CoGen Limited, L.P, Orlando, Florida.** – Bibb and Associates' project manager for independent engineering review for senior lender, the Sumitomo Bank, Limited of a 120-MW gas-fired, single-shaft combined cycle (ABB11N1/VAX) cogeneration project in Orlando, Florida developed by Air Products and Chemicals, Inc. and Utilicorp United.
- **Empire Cogen, Tampa, Florida** – Bibb and Associates' project manager for an independent engineering review for senior lender, National Westminster Bank PLC of a 10-MW, gas-fired multiple gas turbine (Allison/US Turbine) cogeneration project located on MacDill Air Force Base near Tampa, Florida.
- **ACE Cogeneration Project, Trona, California** – Bibb and Associates' project manager for independent engineering review for equity investor, US West Capital, Inc., including design, permit status, operations and maintenance of an existing 96-MW, coal-fired CFB steam electric plant.
- **Arroyo Cogeneration, Escondido, California** – Bibb and Associates' project manager for engineering review of project for development financing for Heller Financial, Inc, including alternate site selection program for a 49.9-MW, gas-fired, combined cycle (GE LM6000) cogeneration project.
- **Nestles Freehold Cogeneration Project, Freehold, New Jersey** – Bibb and Associates' project manager for independent engineering review for development financing by Heller Financial, Inc. of a proposed 110-MW, gas-fired, single-shaft combined cycle (ABB11N1/VAX) cogeneration project by Constellation Energy.
- **Northeast Cogen, Solvay, New York** – Bibb and Associates' independent review engineer for development financing by Heller Financial, Inc. for a proposed 49-MW, gas-fired combined cycle (GE6B/LM6000) cogeneration project.
- **Newbay Cogeneration Project, East Providence, Rhode Island** – Bibb and Associates' project manager for independent engineering review for development/bridge financing by Heller Financial, Inc of a proposed 72.2 MW, coal-fired circulating fluidized bed boiler generating plant. Reviewed design, permit applications, and development status.

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- **Redding Power Project, Redding, California** – Bibb and Associates' project manager for independent engineering review for National Westminster Bank PLC during lay-up, preservation, foreclosure, receivership, and resale of 23-MW, two biomass-fired stoker boiler generating units.
- **San Joaquin Valley Energy Partners I, Fresno, California** – Bibb and Associates' project manager for independent engineering review for take-over lender Canadian Imperial Bank of Commerce, for the evaluation, and equity re-sale of a 43-MW, three unit, biomass-fired fluidized bed boiler plant.
- **Redding Peaking, Redding, California** – Bibb and Associates' project manager for engineering review for bridge financing for Heller Financial, Inc. of a proposed 49.9-MW, gas-fired simple cycle combustion turbine (GE 6) peaking plant.
- **Intercontinental Energy, Bellingham, Massachusetts and Sayreville, New Jersey** – Bibb and Associates' project manager for independent engineering review for potential equity investor, American Energy Division of Potomac Capital Investment Corporation, for two 300-MW, gas-fired combined cycle (2 x W501D) cogeneration projects.
- **Gifford-Hill Cement Cogeneration Project, Oro Grande, California** – Bibb and Associates' project manager for independent engineering review for US West Capital, Inc., for financing the sale/lease back of an existing 20-MW heat recovery steam electric cogeneration plant.
- **Sunnyside Cogeneration Project, Carbon County, Utah** – RW Beck and Associates' project manager for independent engineering review for senior lender, Swiss Bank Corporation, of the design and permitting review of a 50-MW waste coal-fired circulating fluidized bed boiler electric generating plant.
- **North Branch Power Project, Bayard, West Virginia** – RW Beck and Associates' project manager on independent engineering review for financing and construction monitoring for senior lender, Security Pacific Bank of a 80-MW waste coal-fired, circulating fluidized bed boiler project.
- **Unocal Geothermal, Monterey, California** – RW Beck and Associates' engineer, retained by Unocal to provide independent third-party oversight and monitoring of biennial performance tests by Pacific Gas and Electric Company at the Moss Landing Power Station (two 750-MW super-critical, gas and oil-fired steam electric generating units) related to geothermal steam pricing at Unocal's Geysers Geothermal projects.

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- **Viking Power Projects, Lincoln, Michigan, McBain, Michigan, and Northumberland, Pennsylvania** – RW Beck and Associates' project manager on independent engineering review for financing, construction monitoring and performance testing for senior lender, CIGNA, of three 16-MW biomass fueled stoker-generating plants.
- **St. Nicholas Power Project, Mahanoy Township, Pennsylvania** – RW Beck and Associates' project manager on independent engineering review for financing, construction monitoring and performance test monitoring for senior lender, Bank of New England for an 80-MW waste coal-fired steam electric plant.
- **Chinese Station, Inyokern, California** – RW Beck and Associates' project manager on engineering review for take-over and resale; reviewed design, plant betterment program, and projected operation and maintenance program of a 25-MW biomass-fired generating plant.
- **Koma Kulshan Hydro Project, Whatcom County, Washington** – RW Beck and Associates' project manager on independent engineering review of design and construction monitoring for senior lender National Westminster Bank PLC of a 12-MW hydroelectric station.
- **Scrubgrass Power Project, Venango County, Pennsylvania** – RW Beck and Associates' project manager on independent engineering review of design, permits, and contracts for financing and construction monitoring for senior lender, National Westminster Bank, PLC of an 80-MW waste coal-fired, circulating fluidized-bed boiler project.
- **Callaway Nuclear Generating Station, Fulton, Missouri** – Manager of Generating Facilities for the Missouri PSC staff, investigated and/or provided testimony concerning project construction management, in-service criteria, net electric capability, decommissioning funding, and in-service completion in rate case for a 1150-MW, PWR nuclear generating station.
- **Wolf Creek Nuclear Generating Station, Burlington, Kansas** – Manager of Generating Facilities for the Missouri PSC staff, investigated and/or provided testimony concerning project construction management, in-service criteria and startup, related fossil-fuel plant retirements, related plant accreditations, depreciation, and net electric capability in rate case for an 1120-MW PWR nuclear generating station.

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- **Grand Gulf Generating Station I, Grand Gulf, Mississippi** –. Manager of Generating Facilities for the Missouri PSC staff, investigated and provided testimony concerning in-service criteria, in-service status, and overall project NRC inspection and licensing status for a 1250-MW BWR nuclear generating station.
- **Plains-Escalante Generating Station, Unit 1, Prewitt, New Mexico** – Burns & McDonnell's senior mechanical design engineer for mechanical equipment and systems, equipment procurement, construction contracting and coordination; and chief resident mechanical engineer during construction of a 210-MW pulverized coal power plant.
- **EPRI-DOE Fuel Cell Demonstration Project, San Jose, California** – Burns & McDonnell's mechanical engineer on cogeneration feasibility study for commercial demonstration of 5-MW fuel cell cogeneration demonstration project.
- **Basin Electric Power Cooperative, Inc., Laramie River Station, Wheatland, Wyoming** - Burns & McDonnell's mechanical design engineer for equipment and systems, equipment procurement, and construction contracting and CPM scheduler for coordination of construction completion of systems with sequenced system start-up program for three, 550-MW net, pulverized coal-generating units for the Missouri Basin Joint Power Project Agency, lead by the Basin Electric Power Cooperative, Inc.

**TESTIMONY BEFORE THE
MISSOURI PUBLIC SERVICE COMMISSION**

<u>Issue Description</u>	<u>Exhibit No.</u>	<u>Transcript Vol. No.</u>	<u>Page Nos.</u>
AMEREN			
CASE NOS. EO-85-17 & ER-84-168 (on behalf of the MO PSC Staff)			
Phase I – Inservice Criteria	Direct Rebuttal Surrebuttal	A-7 A-12 A-14	7 492-83
Phase II – Net Electric Capability	Direct Surrebuttal	C-76 C-77	30 2852-2868
Phase III – Funding Decommissioning	Surrebuttal	C-38	28 2434-2440
Phase III – Inservice Review	Supplemental (1-28-85)	NA	NA NA
AMEREN			
CASE NO. ER-85-20 (on behalf of the MO PSC Staff)			
Status of Grand Gulf 1 and Waterford 3	Supplemental	12	4 118-181
KANSAS CITY POWER & LIGHT			
CASE NO. ER-85-128 & EO-85-185 (on behalf of the MO PSC Staff)			
Phase I – Inservice Criteria Startup	Affidavits Direct (filed 1/10/85)		NA NA
Phase IV – Fossil Plant Retirement Dates	Direct Surrebuttal	262 266	23 1798-1817
Phase IV – Depreciation – Wolf Creek	Rebuttal	259	
Phase IV – AWS Structural Steel Welding	Direct Surrebuttal	301 302	26 2294-2329
Phase IV – Net Electric Capability	Direct Surrebuttal	399 400	33 3682-3699
Phase IV – Accreditation Overview	Direct Surrebuttal Appendices (9/10/82)	262 436 263	23 7 1798-1817 4451-4483

**TESTIMONY BEFORE THE
MISSOURI PUBLIC SERVICE COMMISSION (Cont'd)**

Issue Description Exhibit No. Transcript Vol. No. Page Nos.

AMEREN

CASE NO. ER-85-265 (on behalf of the MO PSC Staff)

Functionalization and Classification of Surrebuttal 89 6 844-848
Costs (Jurisdictional Allocations)

KCP&L GREATER MISSOURI OPERATIONS COMPANY (Formerly AQUIL INC.)

CASE NO. EA-2006-0309 (on behalf of the Company)

South Harper Peaking Facility Site Direct (filed 01/27/06) N/A N/A
Selection

KANSAS CITY POWER & LIGHT COMPANY, INC.

CASE NO. ER-2014-0370 (on behalf of the Company)

The Costs of Retirement Direct Testimony 131 N/A N/A
and Dismantlement:
Decommissioning KCP&L
Fossil-Fueled Generating Units

KCP&L GREATER MISSOURI OPERATIONS COMPANY, INC.

CASE NO. ER-2016-0156 (on behalf of the Company)

The Costs of Retirement Direct Testimony ____ N/A N/A
and Dismantlement:
Decommissioning KCP&L-GMO
Fossil-Fueled Generating Units

**TESTIMONY BEFORE THE
KANSAS CORPORATION COMMISSION**

Issue Description Exhibit No. Transcript Vol. No. Page Nos.

KANSAS CITY POWER & LIGHT COMPANY, INC.

DOCKET NO. 12-KCPE-764-RTS

The Costs of Retirement Pre-filed Direct Testimony
and Dismantlement: Pre-filed Rebuttal Testimony
Decommissioning KCP&L
Fossil-Fueled Generating Units

**TESTIMONY BEFORE THE
PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII**

Issue Description Exhibit No. Transcript Vol. No. Page Nos.

**HAWAII ELECTRIC LIGHT COMPANY, INC.
DOCKET NO. 99-207 (on behalf of Consumer Advocate)**

Keahole Projects or Facilities:	Direct Pre-filed CA-T-		288 – 301
1. Shop/Warehouse Building	12	II	301 – 309
2. Fire Protection System	Direct Examination	II	309 - 313
3. Water Treatment System	Commissioners' Exam		
4. Inclusion in Rate Base Amounts			

**HAWAII ELECTRIC COMPANY, INC.,
MAUI ELECTRIC COMPANY, LTD., AND
HAWAII ELECTRIC LIGHT COMPANY, INC.
DOCKET NO. 2006-0431 (on behalf of Consumer Advocate)**

Consumer Advocates Statement of Position:	Filed August 24, 2007
Consumer Advocate's Supplement	Filed: September , 19, 2008

Kansas City Power & Light Co.



The Costs of Retirement and Dismantlement: *Decommissioning KCP&L's Generating Units*



Kansas City Power & Light Co.



The Costs of Retirement and Dismantlement: *Decommissioning KCP&L's Generating Units*

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CERTIFICATION

CERTIFICATION

I hereby certify that this document was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Missouri.



Christopher Robert Rogers
June 28, 2016

Christopher Robert Rogers, P.E.
State of Missouri P.E. No. E-21087

SECTION 1

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

1.1 INTRODUCTION

Kansas City Power & Light Company (KCP&L) retained Segal, Inc. (Segal) to provide an opinion of probable costs for retirement and dismantlement of its electric generating units with the exception of the Wolf Creek Nuclear Generating Facility which has been covered under a separate study. This report updates the cost results presented in Segal's October 2014 study (Segal Project No. 14-0162) for decommissioning these facilities.

Decommissioning is comprised of two principal phases: *retirement* and *dismantlement*. *Retirement* is the shutdown or closure and removal from service of a generating unit or facility, and includes disconnection, de-energization, cleanout, and securing of the units to render them safe. *Retirement* triggers unavoidable costs for compliance with the mandatory provisions of the various plants' permits and with the specific requirements of State and Federal regulations for the closure of ash landfills, the removal and remediation of fuel-oil tanks, and the reclamation of river water intakes.

KCP&L is not required to dismantle its plants upon retirement, and therefore, it is not known when, or even if, dismantlement costs will be incurred. Often a unit may not be dismantled until sometime after it is retired, particularly if there are other operational generating units on the same site. *Dismantlement* is the orderly demolition of the unit in a controlled and safe manner so as to preserve the scrap value of reclaimed materials while appropriately protecting the workers and the environment. Scrap values are considered separately from dismantlement costs because scrap values have proven volatile over time. Scrap values in this report were developed from current average index prices, and were netted out against dismantlement costs to produce net terminal costs for each unit. All costs are provided in current day, 2016 dollars.

1.2 DESCRIPTION OF FACILITIES

The KCP&L generating facilities are located on eight sites and include 15 simple-cycle combustion turbines, one combined-cycle plant, two wind generation units, and eight steam electric generating units. The major attributes of each unit are provided in *Figure 1.1* and further described below.

Plant Name	Unit No.	Current Net SPP Accredited Capability, MW	First Year In Service	Fuel / Type
Montrose	1	170	1958	Coal / Steam
	2	164	1960	
	3	176	1964	
Hawthorn	5	564	1969 / 2001	Coal / Steam
La Cygne	1	736	1973	Coal / Steam
	2	662	1977	Coal / Steam
Iatan	1	713	1980	Coal / Steam
	2	882	2010	Coal / Steam
Northeast	11	52	1972	Distillate-Fired Combustion Turbines
	12	41		
	13	46	1975	
	14	49		
	15	53	1976	
	16	53		
	17	53	1977	
18	52			
Hawthorn	7	78	2000	Natural Gas-Fired Gas Turbines
	8	79	2000	
Hawthorn	6	235	1997	Natural Gas-Fired Gas Turbine
	9		2000	HRSG & Turbine in Combined Cycle
West Gardner	1	80	2003	Natural Gas-Fired Gas Turbines
	2	79		
	3	77		
	4	78		
Osawatomie	1	76	2003	Natural Gas-Fired Gas Turbine
Spearville	1	100.5	2006	Wind
	2	48	2010	

Figure 1.1 - KCP&L Electric Generating Units

1.2.1 Facility Descriptions

Montrose Generating Station is a three-unit pulverized coal-fired electric generating station located in rural Henry County, near the town of Montrose, Missouri. Each Montrose unit has an electrostatic precipitator. This report includes actual reported costs for retirement of Unit 1 and opinion of probable costs for Units 2 and 3.

Hawthorn Generating Station is located in eastern Kansas City within Jackson County, Missouri and is comprised of several different types of units. Unit 5 is a pulverized coal-fired steam electric plant with a selective catalytic reduction (SCR) system, baghouse, and dry scrubber. Unit 6 is a natural gas-fired combustion turbine generator that can be operated alone in simple cycle through its bypass stack or in combined cycle in conjunction with Unit 9, a heat recovery steam generator (HRSG) with a condensing steam turbine generator that was originally part of Unit 4. Units 1 through 3 and the remainder of Unit 4 were coal and natural gas-fired steam electric generators that were retired in place awaiting dismantlement. Units 7 and 8 are simple-cycle, natural gas-fired combustion turbine generator sets.

La Cygne Generating Station is comprised of two coal-fired steam electric units in rural Linn County near the town of La Cygne, Kansas. Unit 1 is a super-critical, coal-fired cyclone boiler steam electric plant with an SCR. Unit 2 is a pulverized coal-fired steam electric plant with an SCR. Both units have a baghouse and wet scrubber.

Iatan Generating Station is located in rural Platte County, near the town of Weston, Missouri. Unit 1 is a pulverized coal-fired, sub-critical steam electric plant with an SCR, baghouse, and wet scrubber. Unit 2 is a pulverized coal-fired, super-critical steam electric plant with an SCR, baghouse, and wet scrubber.

Northeast Generating Station is an eight-unit, distillate oil-fired combustion turbine peaking plant located near downtown Kansas City, in Jackson County, Missouri.

West Gardner Generating Station is a four-unit, natural gas-fired combustion turbine peaking plant in suburban Johnson County, near the town of Gardner, Kansas.

Osawatomie Generating Station is a single-unit, natural gas-fired combustion peaking plant located in rural Miami County, between the towns of Osawatomie and Paola, Kansas.

Spearville Generating Station is a wind generation plant located in rural Ford County near Spearville, Kansas. Unit 1 has 67 wind turbines. Unit 2 has 32 wind turbines.

1.3 APPROACH

As part of the 2012 report, Segal met with representatives of KCP&L to gather information about the generating units and visited each of the plant sites. Discussions were held with certain plant staff, further documentation was obtained, and a walkdown of each unit was conducted. Segal utilized Microsoft® Project (MS Project), Version 2010 software with resource loading to develop and compile an opinion of probable costs and schedule for the retirement of each unit. Costs were developed based on KCP&L current labor rates and those of its present maintenance contractors. Site-specific retirement costs were developed using a bottom-up approach for each task.

For the 2016 report, the methodology remains the same; however, costs and tasks were updated using MS Project, Version 2013 software with revised loaded resources using client data or inflation adjusted costs. Asset retirement obligation (ARO) activities, union rates, single bulk activities (i.e., stack capping), and miscellaneous individual line items were included in the updated opinion of probable costs where actual costs were not available.

For the 2012 study, the basis and limits for retiring or dismantling each unit were defined while visiting the plant sites. For instance, it was assumed that the switchyard and/or substation (as applicable) for each generator would remain in service following either retirement or dismantlement. In general, plant roads, fencing, and site grading were

presumed to remain undisturbed unless otherwise specifically required to be removed. Closure of ash landfills, and the removal and remediation of river water intakes and fuel oil storage tanks were included in the retirement phase as required by applicable permits. This approach remains unchanged from the 2012 original report.

Because specific quantity information was available for Iatan Unit 1 and La Cygne Unit 2, the dismantlement costs of these two units were developed from the ground up. It was assumed that common facilities at each plant site, such as coal unloading, storage and handling systems, water treatment systems, ash handling systems, and office buildings, would remain in service until the last unit is retired. For multiple-unit sites, retirement and dismantlement costs were developed separately for the common plant facilities. In the case of Hawthorn, the common facilities associated with the coal-fired unit, Hawthorn 5, will be retired with that unit. The remaining units at the Hawthorn site are gas-fired and do not require many of the common site facilities for operation.

Spearville will be dismantled per the Spearville Wind Project Decommissioning Agreement between KCP&L and Ford County, Kansas. This agreement states that the dismantlement of each wind turbine shall include the removal of the turbine and tower, removal of the tower foundation to a depth at least 4 feet below grade, and removal of the interconnection transmission poles and lines. The dismantlement of the wind turbines shall commence within 12 months after each unit is retired.

The estimates of probable cost for “stack removal” and “final site grading and drainage” for the various sites were not developed using MS Project software. The “stack removal” costs for the various stacks were based on the actual costs to dismantle the La Cygne Units 1 and 2 stack. This cost was scaled to estimate the demolition for the other stacks involved in this study. The “final site grading and drainage” estimate of probable cost was developed by Segal but was not developed in an MS Project schedule. Both of these activities are represented in the MS Project schedule in Appendix A for the applicable units as a onetime cost/use in the resource allocation section of the file; therefore, they appear as a one-day activity in the schedule with the estimated costs as a one-time expense.

1.4 RESULTS

The opinion of the probable costs for retirement and dismantlement developed by Segal for each of KCP&L's units and the common facilities at each plant site are provided in *Figure 1.2*. All costs shown are in 2016 dollars. The costs are provided for the full ownership of these generating facilities. Fractional shares of ownership and jurisdictional allocations have not been taken into account in these costs. Ongoing expenses for the sites such as security, routine inspections, groundwater monitoring, etc., which would continue as long as the Company continues to own the sites, are included in the decommissioning costs. Retirement costs are separately provided for each unit and for related common plant facilities. The costs of dismantlement and scrap values are provided for each unit and for common plant, as well as the final net terminal costs.

As shown in *Figure 1.2*, there is a significant difference between the costs of retiring and the costs of dismantling a power plant. In Segal's opinion, the probable cost to dismantle all of KCP&L's units is approximately \$319 million. Some materials could be sold for scrap, thereby recovering approximately \$38 million and bringing the estimated net terminal value for dismantling all of KCP&L's plants to \$281 million, based upon the current averaged scrap indices.

However, were KCP&L to retire its generating units in place without dismantlement, Segal believes the cost would be approximately \$236 million. As explained more fully in Section 2 - Retirement, the bulk of these retirement costs are tied to activities that must be completed upon retirement of the unit or whenever the unit ceases operations, as required by regulation, permits, or agreements. KCP&L accounts for most of these costs in AROs.

Name	Unit No.				Dismantlement		
		Unit Retirement	Activities Required by Permit Agreement ⁽⁴⁾ or Regulation ⁽²⁾	Total Retirement	Dismantlement	Scrap Value ⁽³⁾	Net Terminal Cost
Montrose	1	\$2,040,668	\$5,699,874	\$7,740,542	\$11,092,556	\$1,985,000	\$9,107,556
	2	\$535,095	\$5,699,874	\$6,234,969	\$10,855,969	\$1,943,000	\$8,912,969
	3	\$535,095	\$5,699,874	\$6,234,969	\$11,325,826	\$2,027,000	\$9,298,826
	Common	\$717,823	\$6,642,773	\$7,360,596	\$11,361,236	\$714,600	\$10,646,636
Hawthorn	5	\$1,021,157	\$12,445,589	\$13,466,746	\$22,571,517	\$4,076,000	\$18,495,517
	Common	\$360,857	\$7,840,251	\$8,201,108	\$10,411,094	\$489,120	\$9,921,974
La Cygne	1	\$1,117,492	\$2,674,758	\$3,792,249	\$37,028,117	\$4,778,000	\$32,250,117
	2	\$1,064,401	\$2,674,758	\$3,739,158	\$39,375,338	\$4,584,000	\$34,791,338
	Common	\$959,466	\$88,288,826	\$89,248,293	\$17,654,670	\$1,123,440	\$16,531,230
Iatan	1	\$1,104,700	\$395,036	\$1,499,736	\$25,805,172	\$4,660,000	\$21,145,172
	2	\$1,099,956		\$1,099,956	\$29,497,067	\$5,327,000	\$24,170,067
	Common	\$645,328	\$40,896,768	\$41,542,095	\$26,054,914	\$1,198,000	\$24,856,914
Northeast	11	\$555,987		\$1,109,540	\$11,042,180	\$356,000	\$10,686,180
	12						
	13						
	14						
	15						
	16						
	17						
18							
Common		\$553,553					
Hawthorn	7	\$368,777	\$0	\$368,777	\$7,896,768	\$89,000	\$7,807,768
	8						
West Gardner	1	\$429,179	\$0	\$429,179	\$12,793,564	\$178,000	\$12,615,564
	2						
	3						
	4						
Osawatomie	1	\$293,506	\$0	\$293,506	\$6,137,219	\$44,500	\$6,092,719
Hawthorn	6	\$431,914	\$679,931	\$1,111,846	\$10,317,668	\$1,150,000	\$9,167,668
	9						
Spearville ⁽⁴⁾	1	\$16,274,266	\$12,532,822	\$28,807,088	\$0	\$2,359,000	(\$2,359,000)
	2	\$8,238,655	\$5,396,894	\$13,635,549	\$0	\$1,127,000	(\$1,127,000)
		\$37,794,323	\$198,121,580	\$235,915,903	\$301,220,874	\$38,208,660	\$263,012,214

- (1) All values in 2016 U.S. dollars.
- (2) Activities required by permits and/or regulations that are to occur upon ceasing operations, including ash landfill closures, and river water intake.
- (3) Current scrap values per averaged indices.
- (4) The Spearville Land Lease requires the wind turbines be dismantled within 12 months of retirement.

**Figure 1.2 - Probable Costs of Decommissioning
KCP&L Electric Generating Units ⁽¹⁾**

1.5 REVISION SUMMARY

This document is a stand-alone report; however, the cost values contained in this report have been updated and revised based from previous work versions. The major revisions are described as follows.

1.5.1 Coal Combustion Residue / Effluent Limitation Guidelines Regulatory Changes

The United States Environmental Protection Agency (EPA) implemented new rules regulating the disposal of coal combustion residue (CCR) in the fall of 2015. Among other things, the final CCR rules established new requirements applicable to CCR landfills, CCR surface impoundments, and all lateral expansions of CCR units. These requirements, which were intended to reduce the risks of catastrophic structural failures and to protect groundwater quality, pertain to operation, closure, and post-closure of all CCR facilities at coal-fired generating units.

The existing KCP&L ARO accounts for tracking funding for closure of CCR landfills and surface impoundments that were required to be implemented upon retirement of their coal units under existing permits and regulations were used in Segal's previous reports. In order to capture the costs of the significantly increased requirements in the 2015 CCR rules, KCP&L commissioned studies to determine the impacts and estimate the costs of implementing the new CCR rules on each unit. These studies (performed by others) became the basis for KCP&L's revised ash pond/impoundment AROs for each of the coal-fired units. This report incorporated KCP&L's revised CCR AROs in the retirement category of costs for activities required by permit, agreement or regulation, as previously shown in *Figure 1.2*.

1.5.2 Asbestos Remediation Costs

In prior studies, asbestos abatement was not included for any unit or facility. Asbestos abatement activities were being implemented at affected sites throughout the operating life of the units in conjunction with major maintenance activities. However, KCP&L previously set up AROs for asbestos removal at the Montrose, Hawthorn Unit 5, and La Cygne plants to more accurately capture the actual costs KCP&L expects to incur at retirement. While asbestos remediation is not strictly required at the time of retirement by permit, contract or regulation, KCP&L is ultimately responsible for remediation of all such hazardous materials at all of its facilities. If not handled at retirement, asbestos could be exposed or released while the facilities set idle awaiting dismantlement. This could cause ongoing issues and increase the maintenance costs for non-producing assets. KCP&L is unavoidably responsible for asbestos remediation prior to dismantlement in any event. Thus, the AROs for asbestos abatement were added into the retirement category of costs for activities required by permit, agreement or regulation, as previously shown in *Figure 1.2*.

1.5.3 Current Dismantlement Activities

As a result of the La Cygne Environmental Retrofit projects, several components are currently being dismantled. Therefore, Sega utilized the fully burdened KCP&L costs for dismantlement of these components to more accurately capture the overall dismantlement costs for these units. In Sega's prior decommissioning reports the construction quantities, which were known for La Cygne Unit 2, were used for development of dismantlement costs for that unit and became the basis for scaling the costs of other similar units. To the extent that portions of the dismantlement cost of La Cygne Unit 2 are now known, those costs were utilized to adjust the total dismantlement costs. The known ongoing dismantlement costs were for the following components:

1. La Cygne Unit 1:
 - a. Wet Scrubber Building.
 - b. Induced Draft (ID) Fans and Drives.
 - c. Limestone Ball Mill Facility.

- d. Stack.
- 2. La Cygne Unit 2:
 - a. Electrostatic Precipitator.
 - b. Stack.

1.5.4 Montrose Unit 1 Retirement

Montrose Unit 1 was retired on April 16, 2016. In previous decommissioning studies, Segra developed opinions of the probable of retirement. One component of retirement is a planning study that is performed three to six months prior to retirement. Specific retirement activities are adjusted as a result of the planning study because greater detail is known and the configuration and operating plans of the remaining units and common facilities are known at that point. The retirement plan is currently being implemented on Unit 1 while Units 2 and 3 remain in operation. Segra utilized the actual cost of the planning study and other ongoing retirement activities for Montrose Unit 1 in this report and accordingly reduced the Owner's Contingency allowance from 25 percent to 5 percent.

1.5.5 Other Adjustments

Base calculations used in prior studies, other than those described above were updated for the changes in escalation from 2014 through 2016. ARO values were adjusted using the basis for each previously set by KCP&L. Finally, scrap prices were adjusted to reflect the currently reduced values of 2016 average indices.

SECTION 2

RETIREMENT

RETIREMENT

2.1 INTRODUCTION

Sega developed an opinion of probable costs to retire the KCP&L facilities previously listed in *Figure 1.1* and further described in Appendix A. The opinion of probable costs is a buildup of estimated costs to perform the retirement activities to leave each facility in a safe state. A resource-loaded MS Project schedule was developed for the retirement of each facility where actual costs were not available. Each schedule includes the activity, duration of the activity, resources required for each activity, and the probable cost of each activity. The results for each facility are provided in Appendix A of this report.

The opinion of probable costs for the retirement of each coal-fired generating facility is broken down into the retirement of each unit, plus the retirement of the common facilities. With the exception of Hawthorn, the common facilities will be retired when the last unit is retired at a site. In the case of Hawthorn, the common facilities associated with the coal-fired unit, Hawthorn 5, will be retired with that unit. The remaining units at the Hawthorn site are gas-fired and do not require many of the common site facilities for operation.

2.2 OPINION OF PROBABLE COSTS BASIS

Retirement activities will be performed by KCP&L bargaining unit personnel and managed by KCP&L. Man-hour costs for both management and bargaining unit personnel were provided by KCP&L. At the direction of KCP&L, the direct man-hour rate was multiplied by 1.4 to account for benefits and overhead loadings.

The estimates of probable cost to retire the combustion turbines are based on retiring all of the combustion turbines at a given site, not on an individual combustion turbine retirement basis.

A 5-percent “Owner Internal Costs” is included in the opinion of probable cost. This line item is included to cover the costs of various internal KCP&L departments that will charge to the project during the implementation of the retirement activities.

A 25-percent “Owner Contingency” is included in the opinion of probable cost. This level of contingency is consistent with Association for the Advancement of Cost Engineering (AACE-International) contingency level guidelines based on the engineering progress completed at the point when the cost estimate was developed. For Montrose Unit 1, the Owner Contingency is 5 percent based on actual costs for the retirement activities.

2.3 RETIREMENT ACTIVITIES

Prior to starting the actual retirement activities, a retirement plan will be developed. This plan will address any laws, ordinances, regulations, and standards dictating how ash, slag, scrubber by-products, and any other waste stream is stored and/or removed from the plant site. An environmental assessment will be performed to develop a plan to address these issues and to assure that permits required to complete the retirement activities are in place. The retirement plan will also address plant safety during the time interval between plant retirement and eventual dismantlement. This plan should include the requirements for periodic inspections to assess the condition and integrity of the plant structures so that contractors can safely demolish the plant when so required. The costs to perform these activities are estimated in the “Pre-Retirement Activities” line item of each facility’s opinion of probable cost.

The following activities and conditions are required to leave a generating facility (unit, common facilities, or entire plant, as may be applicable) in a safe state and are included in each facility’s opinion of probable cost:

3. All equipment, tanks, vessels, containers, drums, headers, exchangers, and sumps will be drained and vented. Fuel oil, lubricating oil, liquid propane, bulk hydrogen, Halon, liquid ammonia, water treatment chemicals, lab chemicals, cleaning solutions, and Freon will be handled per plant procedures and plan permitting requirements. Man-ways, hand-holes, vents, and drains will be opened to ensure drainage. Drains will remain open.

4. The electrical sources will be isolated from the facility. The exact details of this scope of work will be determined during the pre-retirement activities phase. At a minimum, all electrical buses will be disconnected at the source. The medium- and low-voltage switchgear will be racked out by fully withdrawing the circuit breakers. Fuses will be removed, and circuit breakers and disconnect switches will be left in the open position. Motors will be disconnected at the source and motor lube oil will be drained (as applicable).
5. Fuel yard equipment will be cleaned and vacuumed to reduce or eliminate the hazards of fugitive coal dust.
6. To the maximum extent possible, all drains will be emptied and vented. Low-point drains will remain open.
7. Fuel gas piping and city/rural water piping will be cut and capped at the property line.
8. Chimney Federal Aviation Agency (FAA) required lighting will be kept in service.
9. Buildings will be “secured”. The determination of the detailed activities required to leave a building in a secure state is included in the pre-retirement activities and will include isolating all power sources, draining potable water lines, draining and venting sewage lines, securing doors and windows, capping any means of egress for vermin, removing hazardous materials, and moving any relevant plant documentation to alternate off-site storage sites.
10. Fuel oil and waste oil will be drained and removed.
11. Boiler chemicals will be drained and removed.
12. Boilers and HRSGs will be drained. The water and steam side will be vented. The gas side will be vacuumed to remove ash and slag. Drum doors and boiler doors will be left open. Bottom ash systems will be drained, cleaned, and vented.
13. Ductwork will be vacuumed and left opened.
14. Condensate and feedwater piping will be drained and vented.
15. Feedwater heaters will be drained and vented.
16. Deaerator and deaerator storage tanks will be drained and vented.
17. The turbine and condenser will be drained and vented. Turbine lube oil will be removed.

18. The generator will be electrically and mechanically isolated. The generator and exciter cooling water systems will be drained and vented. Hydrogen gas tanks and the generator hydrogen systems will be vented.
19. Compressed air systems will be drained and vented. Desiccant will be removed from the compressed air dryer systems.
20. Circulating water systems and turbine cooling water systems will be drained and vented. Circulating water chemical feeds will be drained and vented.
21. Baghouses will be opened, cleaned, and vented. Filter bags and cages will be removed.
22. Wet Flue Gas Desulfurization (FGD) systems will be drained, opened, cleaned, and vented.
23. Dry FGD systems will be drained, opened, cleaned, and vented.
24. Re-agent preparation facilities will be drained, opened, cleaned, and vented.
25. SCRs will be opened, cleaned, and vented. Catalyst will be removed. Ammonia storage tanks will be emptied and vented.
26. The battery systems will have the battery electrolytes and battery cells removed and disposed.
27. Sewage treatment facilities will be drained, cleaned, and vented.
28. Oily drain tanks will be opened and pumped out.
29. CO₂ systems used for fire protection will be drained, opened, and vented.
30. Any other activities required by law, regulation, or permit for a specific unit, common facility, or plant site will be performed.

Once the site retirement activities are complete, several months of post-retirement activities will commence. These activities include determining the disposition of site documentation, assuring permits are in correct condition, developing plans to monitor the retired facility, accounting and environmental activities, and re-assigning personnel as required.

2.4 ASSET RETIREMENT OBLIGATION ACTIVITIES

AROs are a means that KCP&L utilizes to track the costs of activities that are required to be performed when one of its generating units ceases operation and is removed from service. These are activities that are required to be performed upon retirement according to permits, statutes, agreements, and regulations. For certain activities, such as ash landfill closures, KCP&L is required to periodically report estimated cost updates to state environmental agencies (Kansas Department of Health and Environment and Missouri Department of Natural Resources). These agencies require KCP&L to periodically demonstrate the ability to fund these closure activities. This is because the costs for ash landfill closures and post-closure activities are significant. In fact, landfill closure costs and post-closure activities exceed the costs of all other retirement activities for the respective units at the Montrose, La Cygne, and Iatan Generating Stations.

Other activities, such as the removal of river water intakes, are stated requirements in the standard form permits issued by the United States Army Corp of Engineers. Also included in AROs are amounts for the abatement and removal of fuel oil storage tanks of the plants located in Missouri (Montrose, Northeast, and Iatan Generating Stations). Since the Kansas fuel oil tank permits do not specifically require their removal upon ending operation, the costs for their removal are in the demolition (La Cygne Generating Station).

Asbestos abatement activities in AROs for the La Cygne, Montrose, and Hawthorn Generating Stations are included in the general ARO costs and as separate line items from the retirement and decommissioning costs. Asbestos abatement activities are ongoing at each of these sites during the life of the units, and will continue to be performed after retirement, but before dismantlement.

In addition, Sega included amounts for closure and removal of the sanitary waste lagoons at the Montrose and La Cygne Generating Stations, since these activities are required by Kansas and Missouri regulations when operations cease. However, the probable costs for these closures are below KCP&L's threshold for maintaining an ARO.

Wherever KCP&L already had estimates and a basis for valuing the costs of such ARO closure activities, Segal reviewed and utilized these estimates, adjusting to 2016 present-day dollars. Where there was no prior estimate available, Segal developed an opinion of probable costs for their closure. Each of these costs is provided in Appendix A.

Appendix D is a table showing the source of the requirement that dictates each ARO Activity.

SECTION 3

DISMANTLEMENT

DISMANTLEMENT

3.1 INTRODUCTION

Sega developed an opinion of probable costs to dismantle the KCP&L facilities that are listed in Appendix A. The opinion of probable costs is a buildup of estimated costs to perform the dismantlement activities to remove equipment and building superstructures down to grade-level foundations. Below-grade foundations, piping, and duct banks will be abandoned in place. A resource-loaded MS Project schedule was developed for the dismantlement of the facilities. Each schedule includes the activity, duration of the activity, resource required for each activity, and the probable cost of each activity. The results for each of the facilities are provided in Appendix A.

The opinion of probable costs for the dismantlement of each coal-fired generating facility is broken down into the dismantlement of each unit, plus the dismantlement of the common facilities. The common facilities will be dismantled when the last unit at the site is dismantled.

The estimate of probable cost to dismantle the combustion turbines are based on dismantling all of the combustion turbines at the site, not on an individual combustion turbine dismantlement basis.

The estimate of probable costs to dismantle the wind generation facility is based on dismantling all of the wind turbines at the site, not on an individual wind turbine dismantlement basis.

3.2 OPINION OF PROBABLE COSTS BASIS

The project will be managed by KCP&L staff. KCP&L will hire an Owner's Engineer to assist with environmental issues and the technical dismantlement details. KCP&L will hire a Demolition General Contractor (DGC) to perform the complete dismantlement of each unit.

The opinion of probable costs is presented as the straight netting of the DGC's firm price cost, minus the current scrap value of the equipment and materials.

At the initiation of dismantlement, this study assumes that the unit or common facility has been previously decommissioned as detailed in Section 2 - Retirement.

A resource-loaded MS Project dismantlement schedule and opinion of probable costs were developed for Spearville (both units), Northeast (all eight units), Hawthorn 7 and 8 (both units combined), West Gardner (all four units), Osawatomie (one unit), Hawthorn 6 and 9 (both units combined), Iatan Unit 1, La Cygne Unit 2, and the Common facilities for each of these plant sites. The dismantlement schedules for Iatan Unit 1 and La Cygne Unit 2 were developed based on the actual quantities and materials documented in the final construction reports for each unit. The costs for these units were used to derive the dismantlement costs for Montrose Units 1, 2, and 3, Iatan Unit 2, Hawthorn Unit 5, and La Cygne Unit 1 using the AACE International Capacity Factor Method.

A 5-percent "Owner Internal Cost" is included in the opinion of probable cost. This line item is included to cover the costs of various internal KCP&L departments that will charge to the project during the implementation of the dismantlement activities.

A 25-percent "Owner Contingency" is included in the opinion of probable cost. This level of contingency is consistent with the AACE International contingency level based on the engineering progress completed at the point when the cost estimate is developed.

3.3 DISMANTLEMENT ACTIVITIES

The dismantlement of a facility is divided into pre-dismantlement activities, dismantlement activities, and project closure activities.

3.3.1 Pre-Dismantlement Activities

Pre-dismantlement activities consist of the detailed pre-planning of the dismantlement process. This pre-planning includes establishing the KCP&L project management team;

hiring an Owner's Engineer; developing a detailed dismantlement scope of work, including how to address any environmental issues; developing a level 1 project schedule; and contracting with a DGC.

The KCP&L project management team will be responsible for the project execution and will consist of a full-time project manager, two full-time engineers, a full-time project administrative assistant, and a part-time procurement specialist. This team will have the authority to manage the dismantlement of the plant.

The Owner's Engineer will assist KCP&L with the technical aspects of executing the project. The Owner's Engineer will help establish the boundaries of demolition, provide environmental consulting, and develop the technical specifications for the DGC contract request for proposal. The Owner's Engineer will provide 1-1/2 full-time equivalent field engineers during the demolition phase of the project. The Owner's Engineer will also provide detailed design for equipment that requires modifications to keep other units or common facilities in operation during demolition and after the unit is dismantled.

The KCP&L project management team and the Owner's Engineer will review all existing permits to assure that any relevant existing permit requirements are met during demolition. This team will also put into place any additional required permits for demolition (outside of the normal permits that are the responsibility of the DGC).

Prior to dismantlement activities, a detailed site characterization study will be performed. This study involves a series of site investigations to determine potential subsurface environmental issues at the site, a description of the hydrological and hydrogeological conditions on the site, and a determination of potential waste streams generated during the demolition work. Based on the outcome of the site characterization study, reclamation, and remediation plans that address the environmental issues and site conditions will be developed. The site characterization study and the development of the remediation plans can take up to six months to complete. The site characterization study will be performed by the Owner's Engineer.

The KCP&L project management team will identify the boundaries of dismantlement and the location of system and equipment isolation points between the unit to be demolished, common facilities, and units to remain.

The KCP&L project management team will be responsible for bidding and contracting with a qualified DGC.

Prior to the DGC mobilizing on site, the KCP&L project management team will confirm that the unit to be dismantled is ready to be turned over to the DGC.

3.3.2 Dismantlement Activities for a Coal-Fired Unit

The demolition contractor will be structured into several crews that will bring equipment and materials to the ground. A separate dedicated crew will be responsible for classifying the scrap by type and removing the scrap from the site.

The coal-fired units will be demolished in a phased and sequential manner to assure worker safety and to minimize any interferences with surrounding equipment. Please refer to the man-power loaded schedule and graphs in Appendix A for the details of each demolition phase.

3.3.2.1 *Phase 1 Demolition - Boiler and Turbine Equipment Removal*

Mechanical and electrical equipment and material inside the boiler and turbine building footprints will be removed. The goal of this phase is to remove the majority of the equipment in the boiler and turbine buildings leaving only the boiler, turbine, building, and support steel.

In this phase of the project, the switchyard is disconnected from the generating facility.

3.3.2.2 Phase 2 Demolition - Boiler and Turbine Removal

The boiler equipment will be removed at the start of this phase. Then, the boiler furnace and backpass will be removed from the bottom up (boilers are hung from the top of the boiler structure) and the structural steel is removed from the top down. Once the structural steel and all equipment are removed, the boiler equipment foundations will be demolished to existing grade.

In parallel with the above activities, the turbine, condenser neck heat exchangers, condenser, and miscellaneous turbine equipment will be removed. The turbine building and turbine pedestal is then demolished to grade.

3.3.2.3 Phase 3 Demolition - Precipitator and AQCS Dismantlement

If the unit has a precipitator, the precipitator will be removed similar to the process for removing the boiler. The precipitator internals will be removed from the bottom up and the precipitator structural steel will be removed from the top down. The precipitator foundation will be removed down to grade.

If the unit has a wet or dry scrubber and/or a baghouse, the dismantlement will start at the stack and work back towards the boiler to avoid dismantlement activities interferences.

3.3.2.4 Phase 4 Demolition - Yard Demolition

This phase removes equipment and materials external to the boiler and turbine areas. Underground piping, conduit, and duct banks will be abandoned in place with the exception of the circulating water pipe. The concrete reinforced circulating water pipes will be excavated, collapsed by crushing, and backfilled. Electrical man-holes will be collapsed by crushing and backfilled. Special care will be taken to assure that any materials left in the ground will not adversely impact site drainage.

3.3.2.5 *Phase 5 - Final Site Grading and Drainage*

Final grading and drainage includes a minimum amount of grading to assure that the site drainage facilities remain in place and includes final seeding of the site.

3.3.3 Dismantlement Activities for a Combustion Turbine Site

The demolition contractor will be structured into several crews that will bring equipment and materials to the ground. A separate dedicated crew will be responsible for classifying the scrap by type and removing the scrap from the site.

The combustion turbines, auxiliary equipment, and buildings will be demolished in a phased and sequential manner to assure worker safety and to minimize any interferences with surrounding equipment. Please refer to the man-power loaded schedule and graphs in Appendix A for the details of each demolition phase.

Final grading and drainage includes a minimum amount of grading to assure that the site drainage facilities remain in place and includes final seeding of the site.

3.3.4 Dismantlement Activities for Common Facilities

The demolition contractor will be structured into several crews that will bring equipment and materials to the ground. A separate dedicated crew will be responsible for classifying the scrap by type and removing the scrap from the site.

The common facilities dismantlement activities consist primarily of the removal of chimneys, fuel yard equipment, removal of site-specific common equipment, and the removal of facility buildings. The phasing of the common dismantlement processes are site specific and will be determined during the pre-dismantlement activity phase of the project.

Final grading and drainage includes a minimum amount of grading to assure that the site drainage facilities remain in place and includes final seeding of the site.

3.3.5 Dismantlement Activities for Wind Generation Plants

Each wind turbine will be brought down to the ground. The scrap structural steel, generators, and gearboxes will be loaded onto trucks and transported to the appropriate recycling facility. The turbine blades are fabricated from polyester thermoset glass reinforced plastic which is currently not a recyclable material and will have to be landfilled. The turbine blades will be cut into pieces on site, loaded onto 53-foot trailers, and transported to the appropriate landfill. The underground collection cables will be removed and the cable will be recycled. The foundation support columns will be removed down to the foundation bases. The plant roads will be removed by removing the geo-fabric and gravel.

3.4 PROJECT CLOSURE ACTIVITIES

This phase of the project confirms that the remediation and reclamation of the site has been successfully complete and that all required “record” documentation needed by KCP&L is complete and on file.

3.5 SCRAP METAL VALUES

Scrap metal weights were developed for Iatan Unit 1 based on the actual quantities and materials documented in the final construction reports. These scrap metal weights were applied to the other coal-fired units using the AACE International Capacity Factor Method.

Scrap metal weights for the combustion turbines were based on combustion turbine weights and generator weights for similar-sized combustion turbines and generators from previous Sega projects.

Scrap metal weights for the wind turbines were based on actual quantities and materials documented in the shipping bill of lading found in the original plant construction documentation.

Please see Appendix B for the opinion of current average scrap values for each unit.

SECTION 4

APPENDICES

APPENDIX A

OPINIONS OF COSTS BY UNITS

MONTROSE GENERATING STATION

MONTROSE GENERATING STATION

The Montrose Generating Station consists of three coal-fired power plants.

Montrose Unit 1 has an SPP-accredited unit rating of 170 MW and was placed in service in 1958. Unit 1 has a sub-critical Combustion Engineering boiler and a General Electric turbine. Lake water is used for condenser cooling. Unit 1 has an electrostatic precipitator for particulate removal.

Montrose Unit 2 has an SPP-accredited unit rating of 164 MW and was placed in service in 1960. Unit 2 has a sub-critical Combustion Engineering boiler and a General Electric turbine. Lake water is used for condenser cooling. Unit 2 has an electrostatic precipitator for particulate removal.

Montrose Unit 3 has an SPP-accredited unit rating of 176 MW and was placed in service in 1964. Unit 3 has a sub-critical Combustion Engineering boiler and a Westinghouse turbine. Lake water is used for condenser cooling. Unit 3 has an electrostatic precipitator for particulate removal.

The Montrose fuel yard has a rotary car dumper to unload unit trains of coal. Coal is stored in a common fuel yard. Fuel is reclaimed from the common fuel yard via a reclaim pit. Coal is transferred from the common conveyor system to dedicated unit conveyors (located near the final coal transfer points for each unit).

All three Montrose units have a fuel oil igniter system. The units are supplied with fuel oil from a common fuel oil unloading and storage facility.

All three units beneficially use coal combustion products off site. Coal combustion products that are not beneficially used off site are disposed of in the on-site solid waste landfill.

The following are the major systems and equipment that were included in the retirement and dismantlement of each unit and the major systems and equipment that were considered common (additional details are listed in the attached retirement and dismantlement schedules included in this Appendix).

It should be noted that Unit 1 at Montrose Generating Station includes KCP&L's actual retirement costs. The costs for retirement were directly supplied by the Owner and were incorporated into the study analysis. These costs were not developed by Segal using the MS Project rate sheet and resource loaded schedule as shown in other cases.

MONTROSE UNIT 1

1. Boiler and boiler auxiliaries.
2. Turbine, heat balance equipment, and turbine auxiliaries.
3. Electrostatic precipitator.
4. Circulating water intake structure.
5. Dedicated Unit 1 fuel handling equipment.
6. Dedicated Unit 1 fuel oil equipment.

MONTROSE UNIT 2

1. Boiler and boiler auxiliaries.
2. Turbine, heat balance equipment, and turbine auxiliaries.
3. Electrostatic precipitator.
4. Circulating water intake structure.
5. Dedicated Unit 2 fuel handling equipment.
6. Dedicated Unit 2 fuel oil equipment.

MONTROSE UNIT 3

1. Boiler and boiler auxiliaries.
2. Turbine, heat balance equipment, and turbine auxiliaries.
3. Electrostatic precipitator.
4. Circulating water intake structure and piping.
5. Dedicated Unit 3 fuel handling equipment.
6. Dedicated Unit 3 fuel oil equipment.

COMMON

1. Administration building.
2. Fuel yard office building.
3. Training building.
4. Warehouses.
5. Maintenance shops.
6. Water treatment.
7. Miscellaneous small buildings and enclosures
8. Common fuel handling equipment.
9. Fuel oil storage and unloading.
10. Fire water systems.
11. Stacks (three).
12. Landfill.

UNIT 1

Montrose 1 Retirement

Owner Costs

Pre-Retirement Activities	\$120,000
Retirement Activities	\$1,704,382
Post-Retirement Activities	\$26,564

Owner Direct Total \$1,850,946

Owner Internal Costs 5.00% \$92,547

Owner Contingency: 5.00% \$97,175

Montrose 1 Retirement Cost: \$2,040,668

Activities Required by Permit or Regulation

Asbestos Abatement	\$5,699,874	
Activities Required by Permit or Regulation		\$5,699,874

Montrose 1 Dismantlement

Owner Costs

Pre-Dismantlement Activities	\$478,260
Overhead During Dismantlement	\$868,081
Post-Dismantlement Activities	\$30,097

Owner Costs Total \$1,376,438

Demolition General Contractor (DGC) Costs

Site Management	\$419,630
Equipment Rental	\$707,233
Consumables	\$705,579
Scrap Crew(s)	\$689,061
Dismantlement*	\$3,391,803

DGC Insurance 2.00% \$118,266

Contingency/Profit 15.00% \$904,736

Performance Bond 2.00% \$138,726

Contractor Costs Total: \$7,075,034

Total: \$8,451,471

Owner Internal Costs: 5.00% \$422,574

Owner Contingency: 25.00% \$2,218,511

Montrose Unit 1 Dismantlement Opinion of Probable Cost: \$11,092,556

UNIT 2

Montrose 2 Retirement

Owner Costs

Pre-Retirement Activities	\$106,968
Retirement Activities	\$272,542
Post-Retirement Activities	\$28,182

Owner Direct Total \$407,692

Owner Internal Costs 5.00% \$20,385

Owner Contingency: 25.00% \$107,019

Montrose 2 Retirement Opinion of Probable Cost: \$535,095

Activities Required by Permit or Regulation

Asbestos Abatement	\$5,699,874	
Activities Required by Permit or Regulation		\$5,699,874

ID	Task Name	Remaining
1	Montrose 2 Retirement	\$407,691.60
2	Pre-Engineering	\$106,967.52
3	Permit review and engineering analysis, establish isolation points, and confirm fuel yard inventory has been reduced to zero tons.	\$106,967.52
4	KCL&L Overhead Costs	\$91,361.92
5	KCP&L Retirement Manager	\$91,361.92
6	Equipment Rentals	\$30,624.48
7	Vacuum truck	\$30,624.48
8	Retirement	\$150,555.28
9	Electrical	\$20,553.92
10	Medium and Low Voltage Draw out Switchgear	\$2,903.52
11	De-energize all buses at the source.	\$483.92
12	Open all circuit breakers.	\$483.92
13	Rack all circuit breakers into the fully withdrawn, disconnected position.	\$483.92
14	Verify that the closing/tripping springs are discharged.	\$483.92
15	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	\$967.84
16	Motor Control Centers	\$1,935.68
17	De-energize all buses at the source.	\$483.92
18	Open all circuit breakers and disconnect switches.	\$483.92
19	Remove all fuses in control circuits.	\$967.84
20	Low-voltage Switchboards and Panelboards	\$967.84
21	De-energize all buses at the source.	\$483.92
22	Open all circuit breakers and disconnect switches.	\$483.92
23	Oil-Filled Power Transformers	\$6,072.32
24	De-energize all transformer primaries and verify that the secondary is de-energized.	\$967.84
25	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	\$967.84
26	Drain and dispose of oil.	\$2,867.52
27	Clean up and dispose of oil on surface areas around the transformers on in containment pits.	\$1,269.12
28	Dry-type Power Transformers	\$1,935.68
29	De-energize all transformer primaries and verify that the secondary is de-energized.	\$967.84
30	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	\$967.84
31	Motors	\$6,738.88
32	De-energize all primary power at the source.	\$1,935.68
33	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	\$1,935.68
34	Drain lube oil system (if applicable) and dispose of oil.	\$2,867.52
35	Coal Handling	\$30,905.36
36	Empty all transfer hoppers.	\$1,853.84

ID	Task Name	Remaining
37	Burn out coal silos.	\$1,834.56
38	Confirm all fuel lines, conveyors and trippers are clear of fuel.	\$1,834.56
39	Perform cleaning of the coal handling equipment to assure that all coal and coal dust has been removed from site.	\$25,382.40
40	Fuel Oil and Igniter System	\$2,751.84
41	Drain fuel oil system	\$2,751.84
42	Waste Oil System	\$1,834.56
43	Drain all waste oil systems	\$1,834.56
44	Boiler Chemical Feed	\$1,834.56
45	Drain all chemical feed tanks.	\$1,834.56
46	Boiler	\$30,927.60
47	Open boiler doors.	\$955.84
48	Gas side - perform cleaning of the boiler and bottom ash system.	\$25,382.40
49	Drain boiler, drum, downcomers and headers.	\$917.28
50	Open drum doors.	\$955.84
51	Drain and clean the submerged flight conveyor system.	\$2,716.24
52	Stack and Ductwork	\$13,647.04
53	Open ductwork doors.	\$955.84
54	Perform cleaning of the ductwork.	\$12,691.20
55	Condensate and Feedwater Piping	\$1,834.56
56	Drain water from the system.	\$917.28
57	Leave open vents and drains.	\$917.28
58	Feedwater heaters	\$2,751.84
59	Drain feedwater heaters	\$917.28
60	Leave open vents and drains.	\$1,834.56
61	Deaerator and Deaerator Storage Tank	\$1,834.56
62	Drain Deaerator and Storage	\$917.28
63	Leave open vents and drains.	\$917.28
64	Precipitator	\$15,358.64
65	Multiple cleaning cycles for collection plates.	\$2,751.84
66	Clear hoppers of all ash	\$3,103.68
67	Disconnect transformers.	\$2,160.96
68	Mechanically secure all compartment dampers and hopper outlet valves in open position.	\$955.84
69	Disconnect ash transport piping and washdown baghouse hoppers and interior of casing.	\$1,571.12
70	Install bird screens across hopper ash outlet and ash line flanges.	\$955.84
71	Padlock or tack weld all hopper doors shut. (note: if ash hopper doors are indoors, they could be removed and the opening covered with bird screens.)	\$955.84
72	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	\$2,903.52
73	Turbine(s) and Condenser	\$5,715.76
74	Drain hotwell and leave doors open.	\$936.56
75	Open main turbine doors.	\$955.84
76	Open bfp turbine doors.	\$955.84
77	Remove lube oil.	\$2,867.52

ID	Task Name	Remaining
78	Generator	\$6,618.48
79	Verify that generator circuit breaker is open and racked out or that high-voltage disconnect switch on substation side of GSU transformer is locked in the open position.	\$483.92
80	Verify that generator field breaker or contactor (if applicable) is open.	\$483.92
81	De-energize power supplies to generator excitation system at the source.	\$483.92
82	De-energize AC and DC power supplies to generator and exciter space heaters, cooling equipment, controls, lighting, etc. at the source and open circuit breakers or remove fuses at the generator and exciter.	\$483.92
83	Drain generator and exciter cooling water systems (if applicable).	\$936.56
84	Disconnect and remove hydrogen gas tanks and purge generator hydrogen system.	\$1,834.56
85	Disconnect and remove fire protection system gas/foam tanks and purge fire protection system.	\$1,911.68
86	Circulation Water and Turbine Cooling Water System	\$3,707.68
87	Drain.	\$1,834.56
88	Open water box doors.	\$955.84
89	Drain any circulating water chemical feed tanks.	\$917.28
90	Compressed Air System	\$917.28
91	Open vents and drains.	\$917.28
92	Auxiliary Steam System	\$1,834.56
93	Drain water from system.	\$917.28
94	Remove aux boiler chemicals.	\$917.28
95	Auxiliary Cooling Water System	\$917.28
96	Drain water from system.	\$917.28
97	Condenser Air Extraction	\$917.28
98	Drain water from system.	\$917.28
99	Building Heating System	\$917.28
100	Drain water from system.	\$917.28
101	Battery System	\$4,775.20
102	De-energize all battery chargers from the source.	\$483.92
103	Open all AC and DC circuit breakers and/or fused switches on battery chargers and disconnect cables from batteries.	\$483.92
104	Remove and dispose of battery electrolyte.	\$1,903.68
105	Remove and dispose of battery cells.	\$1,269.12
106	Clean up and dispose of electrolyte on surface areas around batteries.	\$634.56
107	Post Retirement Activities	\$28,182.40
108	Post Retirement Activities	\$28,182.40

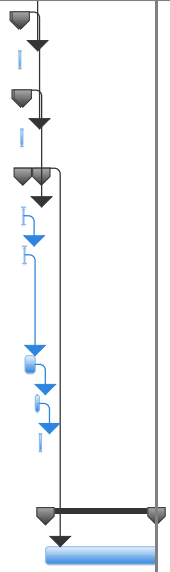
ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1	Montrose 2 Retirement	245 days														
2	Pre-Engineering	66 days														
3	Permit review and engineering analysis, establish isolation points, and confirm fuel yard inventory has been reduced to zero tons.	66 days														
4	KCL&L Overhead Costs	139 days														
5	KCP&L Retirement Manager	139 days														
6	Equipment Rentals	139 days														
7	Vacuum truck	139 days														
8	Retirement	139 days														
9	Electrical	22 days														
10	Medium and Low Voltage Draw out Switchgear	3 days														
11	De-energize all buses at the source.	0.5 days														
12	Open all circuit breakers.	0.5 days														
13	Rack all circuit breakers into the fully withdrawn, disconnected position.	0.5 days														
14	Verify that the closing/tripping springs are discharged.	0.5 days														
15	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	1 day														
16	Motor Control Centers	2 days														
17	De-energize all buses at the source.	0.5 days														
18	Open all circuit breakers and disconnect switches.	0.5 days														
19	Remove all fuses in control circuits.	1 day														
20	Low-voltage Switchboards and Panelboards	1 day														
21	De-energize all buses at the source.	0.5 days														
22	Open all circuit breakers and disconnect switches.	0.5 days														
23	Oil-Filled Power Transformers	7 days														
24	De-energize all transformer primaries and verify that the secondary is de-energized.	1 day														

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
25	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	1 day														
26	Drain and dispose of oil.	3 days														
27	Clean up and dispose of oil on surface areas around the transformers on in containment pits.	2 days														
28	Dry-type Power Transformers	2 days														
29	De-energize all transformer primaries and verify that the secondary is de-energized.	1 day														
30	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	1 day														
31	Motors	7 days														
32	De-energize all primary power at the source.	2 days														
33	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	2 days														
34	Drain lube oil system (if applicable) and dispose of oil.	3 days														
35	Coal Handling	25 days														
36	Empty all transfer hoppers.	1 day														
37	Burn out coal silos.	2 days														
38	Confirm all fuel lines, conveyors and trippers are clear of fuel.	2 days														
39	Perform cleaning of the coal handling equipment to assure that all coal and coal dust has been removed from site.	20 days														
40	Fuel Oil and Igniter System	3 days														
41	Drain fuel oil system	3 days														
42	Waste Oil System	2 days														
43	Drain all waste oil systems	2 days														
44	Boiler Chemical Feed	2 days														
45	Drain all chemical feed tanks.	2 days														
46	Boiler	27 days														

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
47	Open boiler doors.	1 day														
48	Gas side - perform cleaning of the boiler and bottom ash system.	20 days														
49	Drain boiler, drum, downcomers and headers.	1 day														
50	Open drum doors.	1 day														
51	Drain and clean the submerged flight conveyor system.	5 days														
52	Stack and Ductwork	11 days														
53	Open ductwork doors.	1 day														
54	Perform cleaning of the ductwork.	10 days														
55	Condensate and Feedwater Piping	2 days														
56	Drain water from the system.	1 day														
57	Leave open vents and drains.	1 day														
58	Feedwater heaters	3 days														
59	Drain feedwater heaters	1 day														
60	Leave open vents and drains.	2 days														
61	Deaerator and Deaerator Storage Tank	2 days														
62	Drain Deaerator and Storage	1 day														
63	Leave open vents and drains.	1 day														
64	Precipitator	11 days														
65	Multiple cleaning cycles for collection plates.	3 days														
66	Clear hoppers of all ash	4 days														
67	Disconnect transformers.	2 days														
68	Mechanically secure all compartment dampers and hopper outlet valves in open position.	1 day														
69	Disconnect ash transport piping and washdown baghouse hoppers and interior of casing.	1 day														
70	Install bird screens across hopper ash outlet and ash line flanges.	1 day														
71	Padlock or tack weld all hopper doors shut. (note: if ash hopper doors are indoors, they could be removed and the opening covered with bird screens.)	1 day														
72	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	3 days														

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
73	Turbine(s) and Condenser	6 days														
74	Drain hotwell and leave doors open.	1 day														
75	Open main turbine doors.	1 day														
76	Open bfp turbine doors.	1 day														
77	Remove lube oil.	3 days														
78	Generator	7 days														
79	Verify that generator circuit breaker is open and racked out or that high-voltage disconnect switch on substation side of GSU transformer is locked in the open position.	0.5 days														
80	Verify that generator field breaker or contactor (if applicable) is open.	0.5 days														
81	De-energize power supplies to generator excitation system at the source.	0.5 days														
82	De-energize AC and DC power supplies to generator and exciter space heaters, cooling equipment, controls, lighting, etc. at the source and open circuit breakers or remove fuses at the generator and exciter.	0.5 days														
83	Drain generator and exciter cooling water systems (if applicable).	1 day														
84	Disconnect and remove hydrogen gas tanks and purge generator hydrogen system.	2 days														
85	Disconnect and remove fire protection system gas/foam tanks and purge fire protection system.	2 days														
86	Circulation Water and Turbine Cooling Water System	3 days														
87	Drain.	2 days														
88	Open water box doors.	1 day														
89	Drain any circulating water chemical feed tanks.	1 day														
90	Compressed Air System	1 day														
91	Open vents and drains.	1 day														
92	Auxiliary Steam System	2 days														
93	Drain water from system.	1 day														
94	Remove aux boiler chemicals.	1 day														
95	Auxiliary Cooling Water System	1 day														
96	Drain water from system.	1 day														

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
97	Condenser Air Extraction	1 day														
98	Drain water from system.	1 day														
99	Building Heating System	1 day														
100	Drain water from system.	1 day														
101	Battery System	7 days														
102	De-energize all battery chargers from the source.	0.5 days														
103	Open all AC and DC circuit breakers and/or fused switches on battery chargers and disconnect cables from batteries.	0.5 days														
104	Remove and dispose of battery electrolyte.	3 days														
105	Remove and dispose of battery cells.	2 days														
106	Clean up and dispose of electrolyte on surface areas around batteries.	1 day														
107	Post Retirement Activities	40 days														
108	Post Retirement Activities	40 days														



Montrose 2 Dismantlement

Owner Costs

Pre-Dismantlement Activities	\$468,059
Overhead During Dismantlement	\$849,566
Post-Dismantlement Activities	\$29,455

Owner Costs Total \$1,347,081

Demolition General Contractor (DGC) Costs

Site Management	\$410,680
Equipment Rental	\$692,148
Consumables	\$690,530
Scrap Crew(s)	\$674,364
Dismantlement*	\$3,319,461

DGC Insurance 2.00% \$115,744

Contingency/Profit 15.00% \$885,439

Performance Bond 2.00% \$135,767

Contractor Costs Total: \$6,924,134

Total: \$8,271,215

Owner Internal Costs: 5.00% \$413,561

Owner Contingency: 25.00% \$2,171,194

Montrose Unit 2 Dismantlement Opinion of Probable Cost: \$10,855,969

UNIT 3

Montrose 3 Retirement

Owner Costs

Pre-Retirement Activities	\$106,968
Retirement Activities	\$272,542
Post-Retirement Activities	\$28,182

Owner Direct Total \$407,692

Owner Internal Costs 5.00% \$20,385

Owner Contingency: 25.00% \$107,019

Montrose 3 Retirement Opinion of Probable Cost: \$535,095

Activities Required by Permit or Regulation

Asbestos Abatement	\$5,699,874	
Activities Required by Permit or Regulation		\$5,699,874

ID	Task Name	Remaining
1	Montrose 3 Retirement	\$407,691.60
2	Pre-Engineering	\$106,967.52
3	Permit review and engineering analysis, establish isolation points, and confirm fuel yard inventory has been reduced to zero tons.	\$106,967.52
4	KCL&L Overhead Costs	\$91,361.92
5	KCP&L Retirement Manager	\$91,361.92
6	Equipment Rentals	\$30,624.48
7	Vacuum truck	\$30,624.48
8	Retirement	\$150,555.28
9	Electrical	\$20,553.92
10	Medium and Low Voltage Draw out Switchgear	\$2,903.52
11	De-energize all buses at the source.	\$483.92
12	Open all circuit breakers.	\$483.92
13	Rack all circuit breakers into the fully withdrawn, disconnected position.	\$483.92
14	Verify that the closing/tripping springs are discharged.	\$483.92
15	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	\$967.84
16	Motor Control Centers	\$1,935.68
17	De-energize all buses at the source.	\$483.92
18	Open all circuit breakers and disconnect switches.	\$483.92
19	Remove all fuses in control circuits.	\$967.84
20	Low-voltage Switchboards and Panelboards	\$967.84
21	De-energize all buses at the source.	\$483.92
22	Open all circuit breakers and disconnect switches.	\$483.92
23	Oil-Filled Power Transformers	\$6,072.32
24	De-energize all transformer primaries and verify that the secondary is de-energized.	\$967.84
25	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	\$967.84
26	Drain and dispose of oil.	\$2,867.52
27	Clean up and dispose of oil on surface areas around the transformers on in containment pits.	\$1,269.12
28	Dry-type Power Transformers	\$1,935.68
29	De-energize all transformer primaries and verify that the secondary is de-energized.	\$967.84
30	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	\$967.84
31	Motors	\$6,738.88
32	De-energize all primary power at the source.	\$1,935.68
33	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	\$1,935.68
34	Drain lube oil system (if applicable) and dispose of oil.	\$2,867.52
35	Coal Handling	\$30,905.36
36	Empty all transfer hoppers.	\$1,853.84

ID	Task Name	Remaining
37	Burn out coal silos.	\$1,834.56
38	Confirm all fuel lines, conveyors and trippers are clear of fuel.	\$1,834.56
39	Perform cleaning of the coal handling equipment to assure that all coal and coal dust has been removed from site.	\$25,382.40
40	Fuel Oil and Igniter System	\$2,751.84
41	Drain fuel oil system	\$2,751.84
42	Waste Oil System	\$1,834.56
43	Drain all waste oil systems	\$1,834.56
44	Boiler Chemical Feed	\$1,834.56
45	Drain all chemical feed tanks.	\$1,834.56
46	Boiler	\$30,927.60
47	Open boiler doors.	\$955.84
48	Gas side - perform cleaning of the boiler and bottom ash system.	\$25,382.40
49	Drain boiler, drum, downcomers and headers.	\$917.28
50	Open drum doors.	\$955.84
51	Drain and clean the submerged flight conveyor system.	\$2,716.24
52	Stack and Ductwork	\$13,647.04
53	Open ductwork doors.	\$955.84
54	Perform cleaning of the ductwork.	\$12,691.20
55	Condensate and Feedwater Piping	\$1,834.56
56	Drain water from the system.	\$917.28
57	Leave open vents and drains.	\$917.28
58	Feedwater heaters	\$2,751.84
59	Drain feedwater heaters	\$917.28
60	Leave open vents and drains.	\$1,834.56
61	Deaerator and Deaerator Storage Tank	\$1,834.56
62	Drain Deaerator and Storage	\$917.28
63	Leave open vents and drains.	\$917.28
64	Precipitator	\$15,358.64
65	Multiple cleaning cycles for collection plates.	\$2,751.84
66	Clear hoppers of all ash	\$3,103.68
67	Disconnect transformers.	\$2,160.96
68	Mechanically secure all compartment dampers and hopper outlet valves in open position.	\$955.84
69	Disconnect ash transport piping and washdown baghouse hoppers and interior of casing.	\$1,571.12
70	Install bird screens across hopper ash outlet and ash line flanges.	\$955.84
71	Padlock or tack weld all hopper doors shut. (note: if ash hopper doors are indoors, they could be removed and the opening covered with bird screens.)	\$955.84
72	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	\$2,903.52
73	Turbine(s) and Condenser	\$5,715.76
74	Drain hotwell and leave doors open.	\$936.56
75	Open main turbine doors.	\$955.84
76	Open bfp turbine doors.	\$955.84
77	Remove lube oil.	\$2,867.52

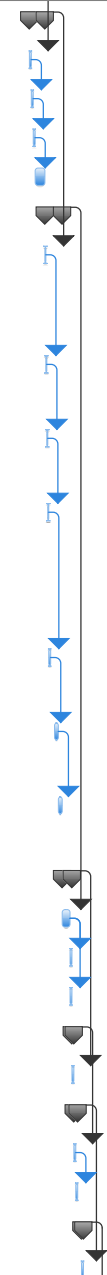
ID	Task Name	Remaining
78	Generator	\$6,618.48
79	Verify that generator circuit breaker is open and racked out or that high-voltage disconnect switch on substation side of GSU transformer is locked in the open position.	\$483.92
80	Verify that generator field breaker or contactor (if applicable) is open.	\$483.92
81	De-energize power supplies to generator excitation system at the source.	\$483.92
82	De-energize AC and DC power supplies to generator and exciter space heaters, cooling equipment, controls, lighting, etc. at the source and open circuit breakers or remove fuses at the generator and exciter.	\$483.92
83	Drain generator and exciter cooling water systems (if applicable).	\$936.56
84	Disconnect and remove hydrogen gas tanks and purge generator hydrogen system.	\$1,834.56
85	Disconnect and remove fire protection system gas/foam tanks and purge fire protection system.	\$1,911.68
86	Circulation Water and Turbine Cooling Water System	\$3,707.68
87	Drain.	\$1,834.56
88	Open water box doors.	\$955.84
89	Drain any circulating water chemical feed tanks.	\$917.28
90	Compressed Air System	\$917.28
91	Open vents and drains.	\$917.28
92	Auxiliary Steam System	\$1,834.56
93	Drain water from system.	\$917.28
94	Remove aux boiler chemicals.	\$917.28
95	Auxiliary Cooling Water System	\$917.28
96	Drain water from system.	\$917.28
97	Condenser Air Extraction	\$917.28
98	Drain water from system.	\$917.28
99	Building Heating System	\$917.28
100	Drain water from system.	\$917.28
101	Battery System	\$4,775.20
102	De-energize all battery chargers from the source.	\$483.92
103	Open all AC and DC circuit breakers and/or fused switches on battery chargers and disconnect cables from batteries.	\$483.92
104	Remove and dispose of battery electrolyte.	\$1,903.68
105	Remove and dispose of battery cells.	\$1,269.12
106	Clean up and dispose of electrolyte on surface areas around batteries.	\$634.56
107	Post Retirement Activities	\$28,182.40
108	Post Retirement Activities	\$28,182.40

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Montrose 3 Retirement	245 days	[Gantt bar spanning from start of 1st Quarter to end of 1st Quarter]														
2	Pre-Engineering	66 days	[Gantt bar from start of 1st Quarter to end of 2nd Quarter]														
3	Permit review and engineering analysis, establish isolation points, and confirm fuel yard inventory has been reduced to zero tons.	66 days	[Blue Gantt bar from start of 2nd Quarter to end of 2nd Quarter]														
4	KCL&L Overhead Costs	139 days	[Gantt bar from start of 2nd Quarter to end of 4th Quarter]														
5	KCP&L Retirement Manager	139 days	[Blue Gantt bar from start of 2nd Quarter to end of 4th Quarter]														
6	Equipment Rentals	139 days	[Gantt bar from start of 2nd Quarter to end of 4th Quarter]														
7	Vacuum truck	139 days	[Blue Gantt bar from start of 2nd Quarter to end of 4th Quarter]														
8	Retirement	139 days	[Gantt bar from start of 2nd Quarter to end of 4th Quarter]														
9	Electrical	22 days	[Gantt bar from start of 2nd Quarter to end of 2nd Quarter]														
10	Medium and Low Voltage Draw out Switchgear	3 days	[Gantt bar from start of 2nd Quarter to end of 2nd Quarter]														
11	De-energize all buses at the source.	0.5 days	[Blue Gantt bar from start of 2nd Quarter to end of 2nd Quarter]														
12	Open all circuit breakers.	0.5 days	[Blue Gantt bar from start of 2nd Quarter to end of 2nd Quarter]														
13	Rack all circuit breakers into the fully withdrawn, disconnected position.	0.5 days	[Blue Gantt bar from start of 2nd Quarter to end of 2nd Quarter]														
14	Verify that the closing/tripping springs are discharged.	0.5 days	[Blue Gantt bar from start of 2nd Quarter to end of 2nd Quarter]														
15	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	1 day	[Blue Gantt bar from start of 2nd Quarter to end of 2nd Quarter]														
16	Motor Control Centers	2 days	[Gantt bar from start of 2nd Quarter to end of 2nd Quarter]														
17	De-energize all buses at the source.	0.5 days	[Blue Gantt bar from start of 2nd Quarter to end of 2nd Quarter]														
18	Open all circuit breakers and disconnect switches.	0.5 days	[Blue Gantt bar from start of 2nd Quarter to end of 2nd Quarter]														
19	Remove all fuses in control circuits.	1 day	[Blue Gantt bar from start of 2nd Quarter to end of 2nd Quarter]														
20	Low-voltage Switchboards and Panelboards	1 day	[Gantt bar from start of 2nd Quarter to end of 2nd Quarter]														
21	De-energize all buses at the source.	0.5 days	[Blue Gantt bar from start of 2nd Quarter to end of 2nd Quarter]														
22	Open all circuit breakers and disconnect switches.	0.5 days	[Blue Gantt bar from start of 2nd Quarter to end of 2nd Quarter]														
23	Oil-Filled Power Transformers	7 days	[Gantt bar from start of 2nd Quarter to end of 2nd Quarter]														
24	De-energize all transformer primaries and verify that the secondary is de-energized.	1 day	[Blue Gantt bar from start of 2nd Quarter to end of 2nd Quarter]														

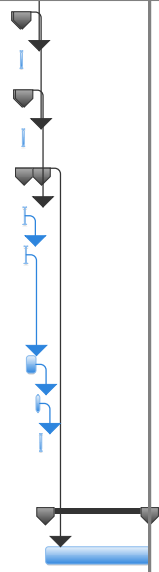
ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
25	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	1 day															
26	Drain and dispose of oil.	3 days															
27	Clean up and dispose of oil on surface areas around the transformers on in containment pits.	2 days															
28	Dry-type Power Transformers	2 days															
29	De-energize all transformer primaries and verify that the secondary is de-energized.	1 day															
30	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	1 day															
31	Motors	7 days															
32	De-energize all primary power at the source.	2 days															
33	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	2 days															
34	Drain lube oil system (if applicable) and dispose of oil.	3 days															
35	Coal Handling	25 days															
36	Empty all transfer hoppers.	1 day															
37	Burn out coal silos.	2 days															
38	Confirm all fuel lines, conveyors and trippers are clear of fuel.	2 days															
39	Perform cleaning of the coal handling equipment to assure that all coal and coal dust has been removed from site.	20 days															
40	Fuel Oil and Igniter System	3 days															
41	Drain fuel oil system	3 days															
42	Waste Oil System	2 days															
43	Drain all waste oil systems	2 days															
44	Boiler Chemical Feed	2 days															
45	Drain all chemical feed tanks.	2 days															
46	Boiler	27 days															

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
47	Open boiler doors.	1 day															
48	Gas side - perform cleaning of the boiler and bottom ash system.	20 days															
49	Drain boiler, drum, downcomers and headers.	1 day															
50	Open drum doors.	1 day															
51	Drain and clean the submerged flight conveyor system.	5 days															
52	Stack and Ductwork	11 days															
53	Open ductwork doors.	1 day															
54	Perform cleaning of the ductwork.	10 days															
55	Condensate and Feedwater Piping	2 days															
56	Drain water from the system.	1 day															
57	Leave open vents and drains.	1 day															
58	Feedwater heaters	3 days															
59	Drain feedwater heaters	1 day															
60	Leave open vents and drains.	2 days															
61	Deaerator and Deaerator Storage Tank	2 days															
62	Drain Deaerator and Storage	1 day															
63	Leave open vents and drains.	1 day															
64	Precipitator	11 days															
65	Multiple cleaning cycles for collection plates.	3 days															
66	Clear hoppers of all ash	4 days															
67	Disconnect transformers.	2 days															
68	Mechanically secure all compartment dampers and hopper outlet valves in open position.	1 day															
69	Disconnect ash transport piping and washdown baghouse hoppers and interior of casing.	1 day															
70	Install bird screens across hopper ash outlet and ash line flanges.	1 day															
71	Padlock or tack weld all hopper doors shut. (note: if ash hopper doors are indoors, they could be removed and the opening covered with bird screens.)	1 day															
72	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	3 days															

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
73	Turbine(s) and Condenser	6 days															
74	Drain hotwell and leave doors open.	1 day															
75	Open main turbine doors.	1 day															
76	Open bfp turbine doors.	1 day															
77	Remove lube oil.	3 days															
78	Generator	7 days															
79	Verify that generator circuit breaker is open and racked out or that high-voltage disconnect switch on substation side of GSU transformer is locked in the open position.	0.5 days															
80	Verify that generator field breaker or contactor (if applicable) is open.	0.5 days															
81	De-energize power supplies to generator excitation system at the source.	0.5 days															
82	De-energize AC and DC power supplies to generator and exciter space heaters, cooling equipment, controls, lighting, etc. at the source and open circuit breakers or remove fuses at the generator and exciter.	0.5 days															
83	Drain generator and exciter cooling water systems (if applicable).	1 day															
84	Disconnect and remove hydrogen gas tanks and purge generator hydrogen system.	2 days															
85	Disconnect and remove fire protection system gas/foam tanks and purge fire protection system.	2 days															
86	Circulation Water and Turbine Cooling Water System	3 days															
87	Drain.	2 days															
88	Open water box doors.	1 day															
89	Drain any circulating water chemical feed tanks.	1 day															
90	Compressed Air System	1 day															
91	Open vents and drains.	1 day															
92	Auxiliary Steam System	2 days															
93	Drain water from system.	1 day															
94	Remove aux boiler chemicals.	1 day															
95	Auxiliary Cooling Water System	1 day															
96	Drain water from system.	1 day															



ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
97	Condenser Air Extraction	1 day															
98	Drain water from system.	1 day															
99	Building Heating System	1 day															
100	Drain water from system.	1 day															
101	Battery System	7 days															
102	De-energize all battery chargers from the source.	0.5 days															
103	Open all AC and DC circuit breakers and/or fused switches on battery chargers and disconnect cables from batteries.	0.5 days															
104	Remove and dispose of battery electrolyte.	3 days															
105	Remove and dispose of battery cells.	2 days															
106	Clean up and dispose of electrolyte on surface areas around batteries.	1 day															
107	Post Retirement Activities	40 days															
108	Post Retirement Activities	40 days															



Montrose 3 Dismantlement

Owner Costs

Pre-Dismantlement Activities	\$488,317
Overhead During Dismantlement	\$886,336
Post-Dismantlement Activities	\$30,730

Owner Costs Total \$1,405,384

Demolition General Contractor (DGC) Costs

Site Management	\$428,454
Equipment Rental	\$722,105
Consumables	\$720,417
Scrap Crew(s)	\$703,552
Dismantlement*	\$3,463,130

DGC Insurance 2.00% \$120,753

Contingency/Profit 15.00% \$923,762

Performance Bond 2.00% \$141,643

Contractor Costs Total: \$7,223,817

Total: \$8,629,201

Owner Internal Costs: 5.00% \$431,460

Owner Contingency: 25.00% \$2,265,165

Montrose Unit 3 Dismantlement Opinion of Probable Cost: \$11,325,826

COMMON

Montrose Common Retirement

Owner Costs

Pre-Retirement Activities	\$54,474
Retirement Activities	\$476,006
Post-Retirement Activities	\$16,432

Owner Direct Total \$546,913

Owner Internal Costs 5.00% \$27,346

Owner Contingency: 25.00% \$143,565

Montrose Common Retirement Opinion of Probable Cost: \$717,823

Activities Required by Permit or Regulation

Asbestos Abatement	\$1,899,958
Fuel Oil Tank Removal	\$264,743
Landfill Closure	\$2,329,000
Landfill Post Closure	\$1,874,330
Ash Pond(s)	\$274,742

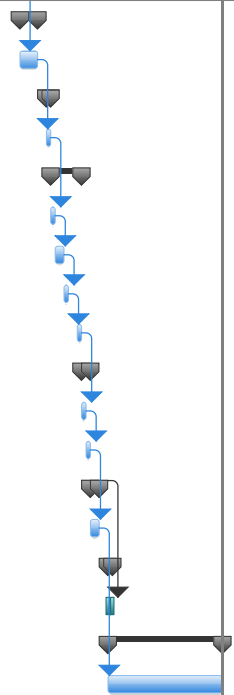
Activities Required by Permit or Regulation \$6,642,773

ID	Task Name	Remaining
1	Montrose Common Retirement	\$546,885.20
2	Pre-Retirement Activities	\$54,456.00
3	Permitting Review	\$27,228.00
4	Develop Detailed Retirement Plan	\$27,228.00
5	Overheads	\$105,298.48
6	Common Retirement Overheads	\$92,299.60
7	Added Overhead Staff for Common Retirement	\$92,299.60
8	Common Retirement Equipment Rental	\$12,998.88
9	Common Removal Equipment Rental	\$12,998.88
10	Retirement Activities	\$370,707.52
11	Administration Building	\$25,700.80
12	Secure Administration Building	\$25,700.80
13	Fuel Yard Office Building	\$15,420.48
14	Secure Fuel Yard Office Building	\$15,420.48
15	Training Building	\$15,420.48
16	Secure Training Building	\$15,420.48
17	Warehouse(s)	\$11,688.80
18	Secure Unit Warehouse(s)	\$11,688.80
19	Maintenance Shop	\$46,755.20
20	Secure Maintenance Shop	\$46,755.20
21	Fuel Yard	\$101,153.60
22	Crusher Tower	\$27,771.20
23	Clean Crusher Tower	\$9,172.80
24	Conveyors	\$18,345.60
25	Clean Conveyor 10,42,43,44, 51	\$18,345.60
26	Car Dumper	\$22,014.72
27	Empty Car Dumper Hoppers	\$3,669.12
28	Clean Car Dumper	\$9,172.80
29	Secure Dumper Building	\$9,172.80
30	Reclaim	\$33,022.08
31	Clean Unit 1 Reclaim	\$5,503.68
32	Secure Unit 1 Reclaim Building	\$9,172.80
33	Clean Stock Out Conveyor Reclaim	\$18,345.60
34	Sewage Treatment	\$6,420.96
35	Clean Sewage Treatment and Transfer Points	\$6,420.96
36	Fuel Oil Storage and Unloading	\$917.28
37	Remove Fuel Oil from Fuel Oil Storage and Vent	\$917.28
38	Water Treatment	\$7,338.24
39	Drain All Tanks and Vessels	\$1,834.56
40	Remove Membranes, Resin and Sand from Filters	\$3,669.12
41	Remove Chemicals	\$917.28
42	Open and Vent Vessels	\$917.28
43	Compressed Air	\$1,834.56
44	Vent Compressed Air	\$917.28
45	Vent Compressed Air Vessels	\$917.28
46	Yard Fire Water Systems	\$2,771.12

ID	Task Name	Remaining
47	Drain Yard Fire Water System	\$2,771.12
48	Wastewater Lagoons	\$135,286.00
49	Removal of Lagoons	\$135,286.00
50	Post Retirement Closure Activities	\$16,423.20
51	Post Retirement Closure Activities	\$16,423.20

ID	Task Name	Duration	1st Quarter			2nd Quarter			
			Dec	Jan	Feb	Mar	Apr	May	Jun
1	Montrose Common Retirement	119 days		[Gantt bar from Dec to Jun]					
2	Pre-Retirement Activities	40 days		[Gantt bar from Dec to Feb]					
3	Permitting Review	20 days		[Gantt bar from Jan to Feb]					
4	Develop Detailed Retirement Plan	20 days		[Gantt bar from Jan to Feb]					
5	Overheads	59 days		[Gantt bar from Feb to May]					
6	Common Retirement Overheads	59 days		[Gantt bar from Feb to May]					
7	Added Overhead Staff for Common Retirement	59 days		[Gantt bar from Feb to May]					
8	Common Retirement Equipment Rental	59 days		[Gantt bar from Feb to May]					
9	Common Removal Equipment Rental	59 days		[Gantt bar from Feb to May]					
10	Retirement Activities	60 days		[Gantt bar from Feb to May]					
11	Administration Building	15 days		[Gantt bar from Feb to Mar]					
12	Secure Administration Building	15 days		[Gantt bar from Feb to Mar]					
13	Fuel Yard Office Building	9 days		[Gantt bar from Mar to Apr]					
14	Secure Fuel Yard Office Building	9 days		[Gantt bar from Mar to Apr]					
15	Training Building	9 days		[Gantt bar from Mar to Apr]					
16	Secure Training Building	9 days		[Gantt bar from Mar to Apr]					
17	Warehouse(s)	5 days		[Gantt bar from Apr to May]					
18	Secure Unit Warehouse(s)	5 days		[Gantt bar from Apr to May]					
19	Maintenance Shop	20 days		[Gantt bar from Apr to May]					
20	Secure Maintenance Shop	20 days		[Gantt bar from Apr to May]					
21	Fuel Yard	45 days		[Gantt bar from Feb to May]					
22	Crusher Tower	5 days		[Gantt bar from Feb to Mar]					
23	Clean Crusher Tower	5 days		[Gantt bar from Feb to Mar]					
24	Conveyors	10 days		[Gantt bar from Mar to Apr]					
25	Clean Conveyor 10,42,43,44, 51	10 days		[Gantt bar from Mar to Apr]					
26	Car Dumper	12 days		[Gantt bar from Mar to Apr]					
27	Empty Car Dumper Hoppers	2 days		[Gantt bar from Mar to Apr]					
28	Clean Car Dumper	5 days		[Gantt bar from Mar to Apr]					
29	Secure Dumper Building	5 days		[Gantt bar from Mar to Apr]					
30	Reclaim	18 days		[Gantt bar from Mar to Apr]					
31	Clean Unit 1 Reclaim	3 days		[Gantt bar from Apr to May]					
32	Secure Unit 1 Reclaim Building	5 days		[Gantt bar from Apr to May]					
33	Clean Stock Out Conveyor Reclaim	10 days		[Gantt bar from Apr to May]					

ID	Task Name	Duration	1st Quarter				2nd Quarter			
			Dec	Jan	Feb	Mar	Apr	May	Jun	
34	Sewage Treatment	4 days								
35	Clean Sewage Treatment and Transfer Points	4 days								
36	Fuel Oil Storage and Unloading	1 day								
37	Remove Fuel Oil from Fuel Oil Storage and Vent	1 day								
38	Water Treatment	5 days								
39	Drain All Tanks and Vessels	1 day								
40	Remove Membranes, Resin and Sand from Filters	2 days								
41	Remove Chemicals	1 day								
42	Open and Vent Vessels	1 day								
43	Compressed Air	2 days								
44	Vent Compressed Air	1 day								
45	Vent Compressed Air Vessels	1 day								
46	Yard Fire Water Systems	2 days								
47	Drain Yard Fire Water System	2 days								
48	Wastewater Lagoons	1 day								
49	Removal of Lagoons	1 day								
50	Post Retirement Closure Activities	20 days								
51	Post Retirement Closure Activities	20 days								



Montrose Common Dismantlement

Owner Additional Costs

Pre-Dismantlement Activities	\$0
Overhead During Dismantlement	\$0

Owner Costs Total \$0

Demolition General Contractor (DGC) Costs

Additional Site Management	\$46,650
Equipment Rental	\$723,933
Consumables	\$225,120
Scrap Crew(s)	\$329,385
Dismantlement	\$5,909,737

DGC Insurance 2.00% \$144,697

Contingency/Profit 15.00% \$1,106,928

Performance Bond 2.00% \$169,729

Contractor Costs Total: \$8,656,180

Total: \$8,656,180

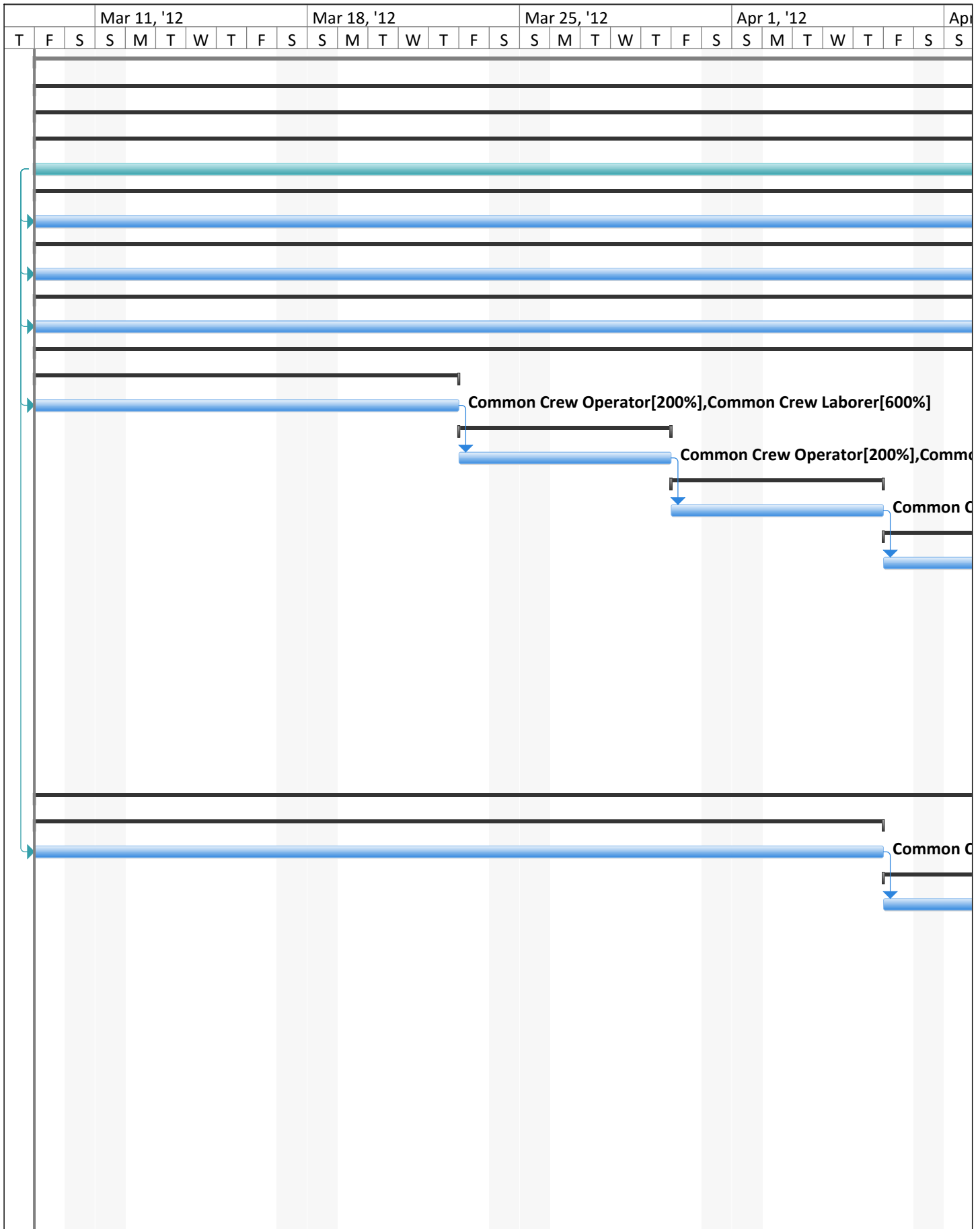
Owner Internal Costs: 5.00% \$432,809

Owner Contingency: 25.00% \$2,272,247




Montrose Common Dismantlement Opinion of Probable Cost: \$11,361,236

ID	Task Name	Remaining	
0	Montrose Common Dismantlement	\$6,680,320.19	
1	Montrose Common Dismantlement	\$6,680,320.19	
2	Overheads	\$770,583.36	
3	Common Removal Overheads	\$46,650.24	
4	Added Overhead Staff for Common Removals	\$46,650.24	
5	Common Removal Equipment Rental	\$169,427.52	
6	Common Removal Equipment Rental	\$169,427.52	
7	Scrap Crew	\$329,385.44	
8	Crew(s) to Handle Scrap Material	\$329,385.44	
9	Demolition Contractor Consummables	\$225,120.16	
10	Consummables	\$225,120.16	
11	Dismantlement Activities	\$5,909,736.83	
12	Administration Building	\$37,009.60	
13	Remove Administration Building	\$37,009.60	
14	Fuel Yard Office Building	\$18,504.80	
15	Remove Fuel Yard Office Building	\$18,504.80	
16	Training Building	\$18,504.80	
17	Remove Training Building	\$18,504.80	
18	Parking Lots and Plant Roads	\$85,122.08	
19	Plant Roads and Parking Areas	\$74,019.20	
20	Guard Shack	\$11,102.88	
21	Warehouse(s)	\$18,504.80	
22	Remove Warehouse	\$18,504.80	
23	Maintenance Shop	\$23,984.80	
24	Remove Maintenance Shop	\$23,984.80	
25	Water Treatment	\$40,710.56	
26	Remove Water Treatment Equipment	\$18,504.80	
27	Remove Water Treatment Building	\$22,205.76	
28	Fuel Yard	\$403,404.64	
29	Crusher Tower	\$148,038.40	
30	Remove Crusher Building and Equipment	\$74,019.20	
31	Conveyors	\$92,524.00	
32	Remove Conveyor 10, 42, 43, 44, and 51	\$92,524.00	
33	Car Dumper	\$96,224.96	
34	Remove Underground Equipment	\$14,803.84	
35	Remove Above Ground Equipment	\$37,009.60	
36	Remove Building	\$25,906.72	
37	Backfill Dumper Structure	\$18,504.80	
38	Reclaim	\$66,617.28	
39	Remove Underground Equipment	\$18,504.80	
40	Remove Above Ground Equipment	\$18,504.80	
41	Remove Building	\$14,803.84	
42	Backfill Structure	\$14,803.84	
43	Yard Fire Water Systems	\$37,009.60	
44	Remove Hydrants and Fire Water System Piping Down to 3' Below Grade	\$37,009.60	

ID	Task Name	Remaining	
45	Stacks	\$4,731,233.84	
46	Remove Unit 1 and Unit 2 Stack to Grade	\$2,814,765.08	
47	Remove Unit 3 Stack to Grade	\$1,916,468.76	
48	Final Site Grading and Drainage	\$495,747.31	
49	Final Site Grading and Drainage	\$495,747.31	



			Mar 11, '12							Mar 18, '12							Mar 25, '12							Apr 1, '12							Apr
T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S

-  Remove Unit 1 & 2 Stack to Grade[1]
-  Remove Unit 3 Stack to Grade[1]
-  Final Site Grading and Drainage[1]

Apr 8, '12							Apr 15, '12							Apr 22, '12							Apr 29, '12							May 6, '12				
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	

Common Crew Laborer[600%]

Common Crew Operator[200%],Common Crew Laborer[600%]

Common Crew Operator

Common Crew Operator[200%],Common Crew Laborer[600%]

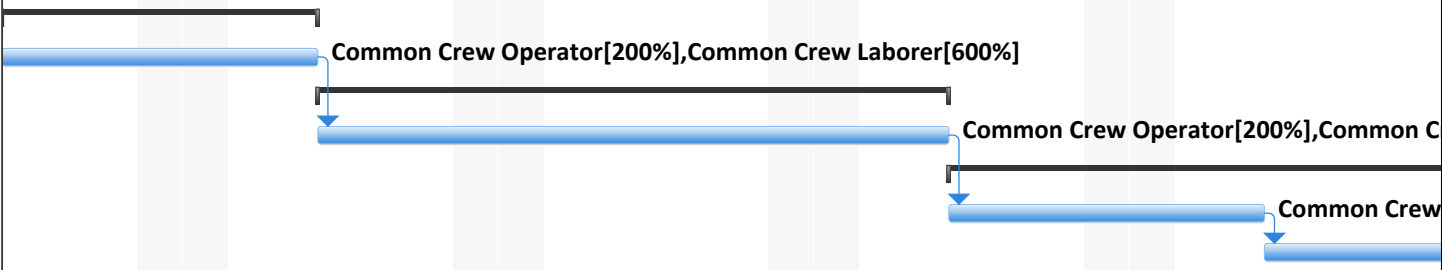
Apr 8, '12							Apr 15, '12							Apr 22, '12							Apr 29, '12							May 6, '12					
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W		

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May 13, '12					May 20, '12					May 27, '12					Jun 3, '12																	
W	T	F	S	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S

erator[200%],Common Crew Laborer[600%]

Common Crew Operator[200%],Common Crew Laborer[600%]



Common Crew Operator[200%],Common Crew Laborer[600%]

Common Crew Operator[200%],Common Crew Laborer[600%]

Common Crew Operator[200%],Common Crew Laborer[600%]

Common Crew Operator[200%],Common Crew Laborer[600%]

				May 13, '12							May 20, '12							May 27, '12							Jun 3, '12						
W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S

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Jun 10, '12								Jun 17, '12								Jun 24, '12								Jul 1, '12								Jul 8, '12							
S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T								

Common Crew Laborer[300%]

Common Crew Operator[200%], Common Crew Laborer[600%]

Common Crew Operator[200%], Common Crew Laborer[600%]

Common Crew Laborer[600%]

Common Crew Operator[200%], Common Crew Laborer[600%]

Common Crew Operator[200%], Common Crew Laborer[600%]

Common Crew Operator[200%], Common Crew Laborer[600%]

Common Crew Operator[200%], Common Crew Laborer[600%]

Common Crew Operator[200%], Common Crew Laborer[600%]

Common Crew Operator[200%], Common Crew Laborer[600%]

Jun 10, '12								Jun 17, '12							Jun 24, '12							Jul 1, '12							Jul 8, '12		
S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T

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2		Jul 15, '12					Jul 22, '12					Jul 29, '12					Aug 5, '12															
T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	

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ID	Task Name	Duration	2nd Quarter					3rd Quarter
			Mar	Apr	May	Jun	Jul	
0	Montrose Common Dismantlement	89 days	[Timeline bar from Mar to Jul]					
1	Montrose Common Dismantlement	89 days	[Timeline bar from Mar to Jul]					
2	Overheads	89 days	[Timeline bar from Mar to Jul]					
3	Common Removal Overheads	89 days	[Timeline bar from Mar to Jul]					
4	Added Overhead Staff for Common Removals	89 days	[Timeline bar from Mar to Jul]					
5	Common Removal Equipment Rental	89 days	[Timeline bar from Mar to Jul]					
6	Common Removal Equipment Rental	89 days	[Timeline bar from Mar to Jul]					
7	Scrap Crew	89 days	[Timeline bar from Mar to Jul]					
8	Crew(s) to Handle Scrap Material	89 days	[Timeline bar from Mar to Jul]					
9	Demolition Contractor Consummables	89 days	[Timeline bar from Mar to Jul]					
10	Consummables	89 days	[Timeline bar from Mar to Jul]					
11	Dismantlement Activities	89 days	[Timeline bar from Mar to Jul]					
12	Administration Building	10 days	[Timeline bar from Mar to Jul]					
13	Remove Administration Building	10 days	[Timeline bar from Mar to Jul]					
14	Fuel Yard Office Building	5 days	[Timeline bar from Mar to Jul]					
15	Remove Fuel Yard Office Building	5 days	[Timeline bar from Mar to Jul]					
16	Training Building	5 days	[Timeline bar from Mar to Jul]					
17	Remove Training Building	5 days	[Timeline bar from Mar to Jul]					
18	Parking Lots and Plant Roads	23 days	[Timeline bar from Mar to Jul]					
19	Plant Roads and Parking Areas	20 days	[Timeline bar from Mar to Jul]					
20	Guard Shack	3 days	[Timeline bar from Mar to Jul]					
21	Warehouse(s)	5 days	[Timeline bar from Mar to Jul]					
22	Remove Warehouse	5 days	[Timeline bar from Mar to Jul]					
23	Maintenance Shop	10 days	[Timeline bar from Mar to Jul]					
24	Remove Maintenance Shop	10 days	[Timeline bar from Mar to Jul]					
25	Water Treatment	11 days	[Timeline bar from Mar to Jul]					
26	Remove Water Treatment Equipment	5 days	[Timeline bar from Mar to Jul]					
27	Remove Water Treatment Building	6 days	[Timeline bar from Mar to Jul]					
28	Fuel Yard	89 days	[Timeline bar from Mar to Jul]					
29	Crusher Tower	20 days	[Timeline bar from Mar to Jul]					
30	Remove Crusher Building and Equipment	20 days	[Timeline bar from Mar to Jul]					
31	Conveyors	25 days	[Timeline bar from Mar to Jul]					
32	Remove Conveyor 10, 42, 43, 44, and 51	25 days	[Timeline bar from Mar to Jul]					

ID	Task Name	Duration	2nd Quarter				3rd Quarter
			Mar	Apr	May	Jun	Jul
33	Car Dumper	26 days					
34	Remove Underground Equipment	4 days					
35	Remove Above Ground Equipment	10 days					
36	Remove Building	7 days					
37	Backfill Dumper Structure	5 days					
38	Reclaim	18 days					
39	Remove Underground Equipment	5 days					
40	Remove Above Ground Equipment	5 days					
41	Remove Building	4 days					
42	Backfill Structure	4 days					
43	Yard Fire Water Systems	10 days					
44	Remove Hydrants and Fire Water System Piping Down to 3' Below Grade	10 days					
45	Stacks	1 day					
46	Remove Unit 1 and Unit 2 Stack to Grade	1 day					
47	Remove Unit 3 Stack to Grade	1 day					
48	Final Site Grading and Drainage	1 day					
49	Final Site Grading and Drainage	1 day					

**HAWTHORN GENERATING STATION
UNIT 5 AND COMMON**

HAWTHORN GENERATING STATION UNIT 5 AND COMMON

The Hawthorn Generating Station consists of one coal-fired power plant (Hawthorn Unit 5), two simple-cycle combustion turbines (Hawthorn Units 7 and 8), and a one-on-one combined-cycle plant (Hawthorn Units 6 and 9).

Note: This section of the report covers Hawthorn Unit 5 and the Hawthorn Common facilities.

Hawthorn Unit 5 has an SPP-accredited unit rating of 564 MW and was placed in service in 2001. Unit 5 has a sub-critical Babcock & Wilcox boiler and a General Electric turbine. Unit 5 has an SCR, dry scrubber with a dedicated reagent preparation system, and baghouse. River water is used for condenser cooling.

The Hawthorn fuel yard has a rotary car dumper to unload unit trains of coal. The coal is unloaded to the ground. Coal is transferred to Hawthorn Unit 5 via a reclaim pit and a series of conveyors.

Hawthorn Unit 5 has a fuel gas igniter system. The gas is supplied by a regional natural gas supplier via underground pipelines.

Hawthorn Unit 5 beneficially uses the majority of their coal combustion products off site. Coal combustion products that are not beneficially used off site are disposed in an off-site landfill.

The following are the major systems and equipment that were included in the retirement and dismantlement of each unit and the major systems and equipment that were considered common (additional details are listed in the attached retirement and dismantlement schedules included in this Appendix).

HAWTHORN UNIT 5

1. Boiler, SCR, and boiler auxiliaries.
2. Turbine, heat balance equipment, and turbine auxiliaries.
3. Baghouse, dry scrubber, and dry scrubber auxiliaries.
4. Fuel handling equipment.

COMMON

1. Administration building.
2. Fuel yard office building.
3. Training building.
4. Warehouses.
5. Maintenance shops.
6. Water treatment.
7. Fire water systems.
8. Hawthorn Units 1 and 2 intake structure and circulating water piping.
9. Hawthorn Unit 5 intake structure and circulating water piping.
10. Hawthorn Unit 5 stack.

UNIT 5

Hawthorn 5 Retirement

Owner Costs

Pre-Retirement Activities	\$106,968
Retirement Activities	\$642,874
Post-Retirement Activities	\$28,182

Owner Direct Total \$778,024

Owner Internal Costs 5.00% \$38,901

Owner Contingency: 25.00% \$204,231

Hawthorn 5 Retirement Opinion of Probable Cost: \$1,021,157

Activities Required by Permit or Regulation

Hawthorn Asbestos Removal \$11,173,839

Hawthorn 5 Intake Equip, Intake Structures, Levee piping Removal \$1,271,750

Activities Required by Permit or Regulation \$12,445,589

ID	Task Name	Cost
1	Hawthorn 5 Retirement	\$778,024.32
2	Pre-Engineering	\$106,967.52
3	Permit review and engineering analysis, establish isolation points, and confirm fuel yard inventory has been reduced to zero tons.	\$106,967.52
4	KCL&L Overhead Costs	\$111,080.32
5	KCP&L Retirement Manager	\$111,080.32
6	Equipment Rentals	\$37,234.08
7	Vacuum truck	\$37,234.08
8	Retirement	\$494,560.00
9	Electrical	\$16,718.56
10	Medium and Low Voltage Draw out Switchgear	\$2,903.52
11	De-energize all buses at the source.	\$483.92
12	Open all circuit breakers.	\$483.92
13	Rack all circuit breakers into the fully withdrawn, disconnected position.	\$483.92
14	Verify that the closing/tripping springs are discharged.	\$483.92
15	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	\$967.84
16	Motor Control Centers	\$1,935.68
17	De-energize all buses at the source.	\$483.92
18	Open all circuit breakers and disconnect switches.	\$483.92
19	Remove all fuses in control circuits.	\$967.84
20	Low-voltage Switchboards and Panelboards	\$967.84
21	De-energize all buses at the source.	\$483.92
22	Open all circuit breakers and disconnect switches.	\$483.92
23	Oil-Filled Power Transformers	\$4,638.56
24	De-energize all transformer primaries and verify that the secondary is de-energized	\$967.84
25	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	\$967.84
26	Drain and dispose of oil.	\$1,433.76
27	Clean up and dispose of oil on surface areas around transformers and in containment pits.	\$1,269.12
28	Dry-type Power Transformers	\$1,935.68

ID	Task Name	Cost
29	De-energize all transformer primaries and verify that the secondary is de-energized	\$967.84
30	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	\$967.84
31	Motors	\$4,337.28
32	De-energize all primary power at the source.	\$967.84
33	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	\$1,935.68
34	Drain lube oil system (if applicable) and dispose of oil.	\$1,433.76
35	Coal Handling	\$30,905.36
36	Empty all transfer hoppers.	\$1,853.84
37	Burn out coal silos.	\$1,834.56
38	Confirm all fuel lines, conveyors and trippers are clear of fuel.	\$1,834.56
39	Perform cleaning of the coal handling equipment to assure that all coal and coal dust has been removed from site.	\$25,382.40
40	Gas and Igniter System	\$1,911.68
41	Isolate fuel gas system in gas yard and vent gas piping	\$1,911.68
42	Waste Oil System	\$1,834.56
43	Drain all waste oil systems	\$1,834.56
44	Boiler Chemical Feed	\$1,834.56
45	Drain all chemical feed tanks.	\$1,834.56
46	Boiler	\$30,927.60
47	Open boiler doors.	\$955.84
48	Gas side - perform cleaning of the boiler and bottom ash system.	\$25,382.40
49	Drain boiler, drum, downcomers and headers.	\$917.28
50	Open drum doors.	\$955.84
51	Drain and clean the submerged flight conveyor system.	\$2,716.24
52	Stack and Ductwork	\$328,527.12
53	Open ductwork doors.	\$955.84
54	Perform extensive cleaning of the ductwork.	\$12,691.20
55	Place cap over stack opening to keep moisture out.	\$314,880.08
56	Condensate and Feedwater Piping	\$1,834.56
57	Drain water from the system.	\$917.28
58	Leave open vents and drains.	\$917.28

ID	Task Name	Cost
59	Feedwater heaters	\$2,751.84
60	Drain feedwater heaters	\$917.28
61	Leave open vents and drains.	\$1,834.56
62	Deaerator and Deaerator Storage Tank	\$1,834.56
63	Drain Deaerator and Storage	\$917.28
64	Leave open vents and drains.	\$917.28
65	Baghouse	\$18,919.84
66	Multiple cleaning cycles for filter bags.	\$2,751.84
67	Open all vent and drain lines on bag cleaning air and control air lines. Leave in open position or remove vent valves.	\$917.28
68	Remove all filter bags and cages.	\$955.84
69	Clear hoppers of all ash	\$3,103.68
70	Mechanically secure all compartment dampers and hopper outlet valves in open position.	\$955.84
71	Disconnect ash transport piping and washdown baghouse hoppers and interior of casing.	\$1,571.12
72	Install bird screens across hopper ash outlet and ash line flanges.	\$955.84
73	Padlock or tack weld all hopper doors shut. (note: if ash hopper doors are indoors, they could be removed and the opening covered with bird screens.)	\$955.84
74	If walk-in plenum, padlock or tack weld all outlet plenum doors and compartment ventilation dampers shut.	\$955.84
75	If top-door plenum, close and secure top doors and remove/disable door lift hoist.	\$1,873.12
76	If top-door plenum, establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in penthouse enclosure.	\$1,020.08
77	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	\$2,903.52
78	Spray Dryer Absorber FGD	\$5,328.64
79	Clear SDA of all accumulated solids	\$4,372.80
80	Padlock or tack weld SDA module access doors closed.	\$955.84
81	Lime Slurry Preparation System	\$11,783.20
82	Remove lime from day bins.	\$2,186.40
83	Removed cartridges/bags from bin vent filters	\$775.92
84	Padlock or tack weld all bin access doors shut. (note: if doors are indoors, they could be removed and the opening covered with bird screens.)	\$955.84



















ID	Task Name	Cost
85	Remove bin discharge isolation valve and install bird screen.	\$955.84
86	Thoroughly wash and drain slakers.	\$1,234.56
87	Remove balls from any ball mills from ball mill slakers.	\$795.20
88	Padlock or tack weld slaker access doors closed.	\$955.84
89	Establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in building.	\$1,020.08
90	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	\$2,903.52
91	SCR	\$11,098.96
92	Vacuum fly ash from catalyst.	\$2,538.24
93	Remove catalyst of salvage or disposal.	\$3,180.80
94	Padlock or tack weld access doors shut.	\$955.84
95	Remove ammonia from storage tank for resale.	\$775.92
96	Wash out and drain storage tank and supply piping.	\$775.92
97	Vent storage tank and all piping. Leave vent and drain valves open or remove. Install bird screens.	\$936.56
98	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	\$1,935.68
99	Turbine(s) and Condenser	\$5,715.76
100	Drain hotwell and leave doors open.	\$936.56
101	Open main turbine doors.	\$955.84
102	Open bfp turbine doors.	\$955.84
103	Remove lube oil.	\$2,867.52
104	Generator	\$6,618.48
105	Verify that generator circuit breaker is open and racked out or that high-voltage disconnect switch on substation side of GSU transformer is locked in the open position.	\$483.92
106	Verify that generator field breaker or contactor (if applicable) is open.	\$483.92
107	De-energize power supplies to generator excitation system at the source.	\$483.92
108	De-energize AC and DC power supplies to generator and exciter space heaters, cooling equipment, controls, lighting, etc. at the source and open circuit breakers or remove fuses at the generator and exciter.	\$483.92
109	Drain generator and exciter cooling water systems (if applicable).	\$936.56
110	Disconnect and remove hydrogen gas tanks and purge generator hydrogen system.	\$1,834.56

ID	Task Name	Cost
111	Disconnect and remove fire protection system gas/foam tanks and purge fire protection system.	\$1,911.68
112	Circulation Water and Turbine Cooling Water System	\$3,707.68
113	Drain.	\$1,834.56
114	Open water box doors.	\$955.84
115	Drain any circulating water chemical feed tanks.	\$917.28
116	Compressed Air System	\$2,945.44
117	Open vents and drains.	\$917.28
118	Remove desiccant from desiccant dryers.	\$2,028.16
119	Auxiliary Steam System	\$1,834.56
120	Drain water from system.	\$917.28
121	Remove aux boiler chemicals.	\$917.28
122	Auxiliary Cooling Water System	\$917.28
123	Drain water from system.	\$917.28
124	Condenser Air Extraction and Waterbox Priming System	\$917.28
125	Drain water from system.	\$917.28
126	Building Heating System	\$917.28
127	Drain water from system.	\$917.28
128	Battery System	\$4,775.20
129	De-energize all battery chargers from the source.	\$483.92
130	Open all AC and DC circuit breakers and/or fused switches on battery chargers and disconnect cables from batteries.	\$483.92
131	Remove and dispose of battery electrolyte.	\$1,903.68
132	Remove and dispose of battery cells.	\$1,269.12
133	Clean up and dispose of electrolyte on surface areas around batteries.	\$634.56
134	Post Retirement Activities	\$28,182.40
135	Post Retirement Activities	\$28,182.40

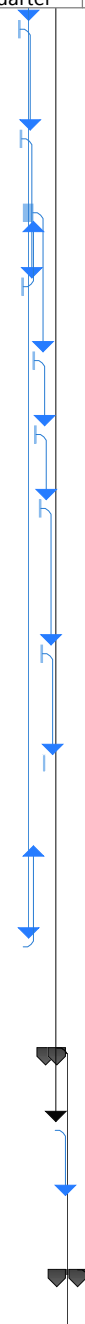
ID	Task Name	Duration	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	
0	Hawthorne 5	275 days							
1	Hawthorn 5 Retirement	275 days							
2	Pre-Engineering	66 days							
3	Permit review and engineering analysis, establish isolation points, and confirm fuel yard inventory has been reduced to zero tons.	66 days							
4	KCL&L Overhead Costs	169 days							
5	KCP&L Retirement Manager	169 days							
6	Equipment Rentals	169 days							
7	Vacuum truck	169 days							
8	Retirement	169 days							
9	Electrical	18 days							
10	Medium and Low Voltage Draw out Switchgear	3 days							
11	De-energize all buses at the source.	0.5 days							
12	Open all circuit breakers.	0.5 days							
13	Rack all circuit breakers into the fully withdrawn, disconnected position.	0.5 days							
14	Verify that the closing/tripping springs are discharged.	0.5 days							
15	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	1 day							

ID	Task Name	Duration	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter
16	Motor Control Centers	2 days			▼			
17	De-energize all buses at the source.	0.5 days			↓			
18	Open all circuit breakers and disconnect switches.	0.5 days			↓			
19	Remove all fuses in control circuits.	1 day			↓			
20	Low-voltage Switchboards and Panelboards	1 day			▼			
21	De-energize all buses at the source.	0.5 days			↓			
22	Open all circuit breakers and disconnect switches.	0.5 days			↓			
23	Oil-Filled Power Transformers	5.5 days			▼			
24	De-energize all transformer primaries and verify that the secondary is de-energized.	1 day			↓			
25	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	1 day			↓			
26	Drain and dispose of oil.	1.5 days			↓			
27	Clean up and dispose of oil on surface areas around transformers and in containment pits.	2 days			↓			
28	Dry-type Power Transformers	2 days			▼			
29	De-energize all transformer primaries and verify that the secondary is de-energized.	1 day			↓			
30	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	1 day			↓			
31	Motors	4.5 days			▼			

ID	Task Name	Duration	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter
32	De-energize all primary power at the source.	1 day						
33	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	2 days						
34	Drain lube oil system (if applicable) and dispose of oil.	1.5 days						
35	Coal Handling	25 days						
36	Empty all transfer hoppers.	1 day						
37	Burn out coal silos.	2 days						
38	Confirm all fuel lines, conveyors and trippers are clear of fuel.	2 days						
39	Perform cleaning of the coal handling equipment to assure that all coal and coal dust has been removed from site.	20 days						
40	Gas and Igniter System	4 days						
41	Isolate fuel gas system in gas yard and vent gas piping	3 days						
42	Waste Oil System	2 days						
43	Drain all waste oil systems	2 days						
44	Boiler Chemical Feed	2 days						
45	Drain all chemical feed tanks.	2 days						
46	Boiler	27 days						
47	Open boiler doors.	1 day						
48	Gas side - perform cleaning of the boiler and bottom ash system.	20 days						

ID	Task Name	Duration	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter
49	Drain boiler, drum, downcomers and headers.	1 day						
50	Open drum doors.	1 day						
51	Drain and clean the submerged flight conveyor system.	5 days						
52	Stack and Ductwork	12 days						
53	Open ductwork doors.	1 day						
54	Perform extensive cleaning of the ductwork.	10 days						
55	Place cap over stack opening to keep moisture out.	1 day						
56	Condensate and Feedwater Piping	2 days						
57	Drain water from the system.	1 day						
58	Leave open vents and drains.	1 day						
59	Feedwater heaters	3 days						
60	Drain feedwater heaters	1 day						
61	Leave open vents and drains.	2 days						
62	Deaerator and Deaerator Storage Tank	2 days						
63	Drain Deaerator and Storage	1 day						
64	Leave open vents and drains.	1 day						
65	Baghouse	16 days						
66	Multiple cleaning cycles for filter bags.	3 days						

ID	Task Name	Duration	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter
67	Open all vent and drain lines on bag cleaning air and control air lines. Leave in open position or remove vent valves.	1 day						
68	Remove all filter bags and cages.	1 day						
69	Clear hoppers of all ash	4 days						
70	Mechanically secure all compartment dampers and hopper outlet valves in open position.	1 day						
71	Disconnect ash transport piping and washdown baghouse hoppers and interior of casing.	1 day						
72	Install bird screens across hopper ash outlet and ash line flanges.	1 day						
73	Padlock or tack weld all hopper doors shut. (note: if ash hopper doors are indoors, they could be removed and the opening covered with bird screens.)	1 day						
74	If walk-in plenum, padlock or tack weld all outlet plenum doors and compartment ventilation dampers shut.	1 day						
75	If top-door plenum, close and secure top doors and remove/disable door lift hoist.	2 days						
76	If top-door plenum, establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in penthouse enclosure.	1 day						
77	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	3 days						
78	Spray Dryer Absorber FGD	5 days						
79	Clear SDA of all accumulated solids	4 days						
80	Padlock or tack weld SDA module access doors closed.	1 day						
81	Lime Slurry Preparation System	9 days						



ID	Task Name	Duration	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter
82	Remove lime from day bins.	2 days						
83	Removed cartridges/bags from bin vent filters	1 day						
84	Padlock or tack weld all bin access doors shut. (note: if doors are indoors, they could be removed and the opening covered with bird screens.)	1 day						
85	Remove bin discharge isolation valve and install bird screen.	1 day						
86	Thoroughly wash and drain slakers.	2 days						
87	Remove balls from any ball mills from ball mill slakers.	1 day						
88	Padlock or tack weld slaker access doors closed.	1 day						
89	Establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in building.	1 day						
90	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	3 days						
91	SCR	11 days						
92	Vacuum fly ash from catalyst.	4 days						
93	Remove catalyst of salvage or disposal.	4 days						
94	Padlock or tack weld access doors shut.	1 day						
95	Remove ammonia from storage tank for resale.	1 day						
96	Wash out and drain storage tank and supply piping.	1 day						
97	Vent storage tank and all piping. Leave vent and drain valves open or remove. Install bird screens.	1 day						

ID	Task Name	Duration	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter
98	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	2 days						
99	Turbine(s) and Condenser	6 days						
100	Drain hotwell and leave doors open.	1 day						
101	Open main turbine doors.	1 day						
102	Open bfp turbine doors.	1 day						
103	Remove lube oil.	3 days						
104	Generator	7 days						
105	Verify that generator circuit breaker is open and racked out or that high-voltage disconnect switch on substation side of GSU transformer is locked in the open position.	0.5 days						
106	Verify that generator field breaker or contactor (if applicable) is open.	0.5 days						
107	De-energize power supplies to generator excitation system at the source.	0.5 days						
108	De-energize AC and DC power supplies to generator and exciter space heaters, cooling equipment, controls, lighting, etc. at the source and open circuit breakers or remove fuses at the generator and exciter.	0.5 days						
109	Drain generator and exciter cooling water systems (if applicable).	1 day						
110	Disconnect and remove hydrogen gas tanks and purge generator hydrogen system.	2 days						
111	Disconnect and remove fire protection system gas/foam tanks and purge fire protection system.	2 days						
112	Circulation Water and Turbine Cooling Water System	3 days						

ID	Task Name	Duration	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter
113	Drain.	2 days						
114	Open water box doors.	1 day						
115	Drain any circulating water chemical feed tanks.	1 day						
116	Compressed Air System	3 days						
117	Open vents and drains.	1 day						
118	Remove desiccant from desiccant dryers.	2 days						
119	Auxiliary Steam System	2 days						
120	Drain water from system.	1 day						
121	Remove aux boiler chemicals.	1 day						
122	Auxiliary Cooling Water System	1 day						
123	Drain water from system.	1 day						
124	Condenser Air Extraction and Waterbox Priming System	1 day						
125	Drain water from system.	1 day						
126	Building Heating System	1 day						
127	Drain water from system.	1 day						
128	Battery System	7 days						
129	De-energize all battery chargers from the source.	0.5 days						

ID	Task Name	Duration	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter
130	Open all AC and DC circuit breakers and/or fused switches on battery chargers and disconnect cables from batteries.	0.5 days						
131	Remove and dispose of battery electrolyte.	3 days						
132	Remove and dispose of battery cells.	2 days						
133	Clean up and dispose of electrolyte on surface areas around batteries.	1 day						
134	Post Retirement Activities	40 days						
135	Post Retirement Activities	40 days						

Hawthorn 5 Dismantlement

Owner Additional Costs

Pre-Dismantlement Activities	\$966,146	
Overhead During Dismantlement	\$1,753,636	
Post-Dismantlement Activities	\$60,800	
Owner Costs Total		\$2,780,582

Demolition General Contractor (DGC) Costs

Additional Site Management	\$1,164,253	
Equipment Rental	\$1,994,845	
Consumables	\$2,177,603	
Scrap Crew(s)	\$1,942,315	
Dismantlement*	\$4,770,500	

DGC Insurance	2.00%	\$240,990
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Contingency/Profit	15.00%	\$1,843,576
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Performance Bond	2.00%	\$282,681.65
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Contractor Costs Total:		\$14,416,764
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Total:		\$17,197,346
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Owner Internal Costs:	5.00%	\$859,867
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Owner Contingency:	25.00%	\$4,514,303
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Hawthorn Unit 5 Dismantlement Opinion of Probable Cost:		\$22,571,517
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COMMON

Hawthorn Common Retirement

Owner Costs

Pre-Retirement Activities	\$27,822
Retirement Activities	\$213,081
Post-Retirement Activities	\$34,035

Owner Direct Total \$274,938

Owner Internal Costs 5.00% \$13,747

Owner Contingency: 25.00% \$72,171

Hawthorn Common Retirement Opinion of Probable Cost: \$360,857

Activities Required by Permit or Regulation

Hawthorn Ash Pond(s) \$7,840,251

Activities Required by Permit or Regulation: \$7,840,251

Hawthorn Common Retirement

ID	Task Name	Cost
0	Hawthorn Common Retirement	\$274,938.32
1	Hawthorn Common Retirement	\$274,938.32
2	Pre-Retirement Activities	\$27,822.40
3	Permitting Review	\$13,911.20
4	Develop Detailed Retirement Plan	\$13,911.20
5	Overheads	\$110,652.64
6	Common Retirement Overheads	\$96,992.80
7	Added Overhead Staff for Common Retirement	\$96,992.80
8	Common Retirement Equipment Rental	\$13,659.84
9	Common Removal Equipment Rental	\$13,659.84
10	Retirement Activities	\$102,428.08
11	Administration Building	\$25,700.80
12	Secure Administration Building	\$25,700.80
13	Training Building	\$9,815.68
14	Secure Training Building	\$9,815.68
15	Warehouse(s)	\$11,688.80
16	Secure Unit Warehouse(s)	\$11,688.80
17	Maintenance Shops	\$46,755.20
18	Secure Maintenance Shops	\$46,755.20
19	Sewage Treatment	\$5,696.48
20	Isolate and Cap Sewage Lines	\$5,696.48
21	City Water	\$0.00
22	Isolate and Cap City Water Lines	\$0.00
23	Yard Fire Water Systems	\$2,771.12
24	Drain Yard Fire Water System	\$2,771.12
25	Post Retirement Closure Activities	\$34,035.20
26	Post Retirement Closure Activities	\$34,035.20

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter		
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	
0	Hawthorn Common Retirement	122 days									
1	Hawthorn Common Retirement	122 days									
2	Pre-Retirement Activities	20 days									
3	Permitting Review	10 days									
4	Develop Detailed Retirement Plan	10 days									
5	Overheads	62 days									
6	Common Retirement Overheads	62 days									
7	Added Overhead Staff for Common Retirement	62 days									
8	Common Retirement Equipment Rental	62 days									
9	Common Removal Equipment Rental	62 days									
10	Retirement Activities	62 days									
11	Administration Building	15 days									
12	Secure Administration Building	15 days									
13	Training Building	5 days									
14	Secure Training Building	5 days									
15	Warehouse(s)	5 days									
16	Secure Unit Warehouse(s)	5 days									

ID	Task Name	Duration	Dec	1st Quarter			2nd Quarter				3rd Quarter
				Jan	Feb	Mar	Apr	May	Jun	Jul	
17	Maintenance Shops	20 days				▶	▶				
18	Secure Maintenance Shops	20 days				▶	▶				
19	Sewage Treatment	7 days				▶	▶				
20	Isolate and Cap Sewage Lines	5 days				▶	▶				
21	City Water	4 days				▶	▶				
22	Isolate and Cap City Water Lines	4 days				▶	▶				
23	Yard Fire Water Systems	2 days				▶	▶				
24	Drain Yard Fire Water System	2 days				▶	▶				
25	Post Retirement Closure Activities	40 days				▶	▶	▶	▶	▶	▶
26	Post Retirement Closure Activities	40 days				▶	▶	▶	▶	▶	▶

Hawthorn Common Dismantlement

Owner Additional Costs

Pre-Dismantlement Activities	\$0
Overhead During Dismantlement	\$0

Owner Costs Total \$0

Demolition General Contractor (DGC) Costs

Additional Site Management	\$46,650
Equipment Rental	\$169,428
Consumables	\$225,120
Scrap Crew(s)	\$329,385
Dismantlement	\$5,859,193

DGC Insurance 2.00% \$132,596

Contingency/Profit 15.00% \$1,014,356

Performance Bond 2.00% \$155,535

Contractor Costs Total: \$7,932,262

Total: \$7,932,262

Owner Internal Costs: 5.00% \$396,613

Owner Contingency: 25.00% \$2,082,219

Hawthorn Common Dismantlement Opinion of Probable Cost: \$10,411,094

Hawthorn Common Dismantlement

ID	Task Name	Cost
0	Hawthorn Common Dismantlement	\$6,629,775.99
1	Hawthorn Common Dismantlement	\$6,629,775.99
2	Overheads	\$770,583.36
3	Common Removal Overheads	\$46,650.24
4	Added Overhead Staff for Common Removals	\$46,650.24
5	Common Removal Equipment Rental	\$169,427.52
6	Common Removal Equipment Rental	\$169,427.52
7	Scrap Crew	\$329,385.44
8	Crew(s) to Handle Scrap Material	\$329,385.44
9	Demolition Contractor Consumables	\$225,120.16
10	Consumables	\$225,120.16
11	Dismantlement Activities	\$5,859,192.63
12	Administration Building	\$37,009.60
13	Remove Administration Building	\$37,009.60
14	Fuel Yard Office Building	\$18,504.80
15	Remove Fuel Yard Office Building	\$18,504.80
16	Training Building	\$18,504.80
17	Remove Training Building	\$18,504.80
18	Parking Lots and Plant Roads	\$85,122.08
19	Plant Roads and Parking Areas	\$74,019.20
20	Guard Shack	\$11,102.88
21	Warehouse(s)	\$18,504.80
22	Remove Warehouse	\$18,504.80
23	Maintenance Shop	\$23,984.80
24	Remove Maintenance Shop	\$23,984.80
25	Water Treatment	\$40,710.56
26	Remove Water Treatment Equipment	\$18,504.80
27	Remove Water Treatment Building	\$22,205.76
28	Fuel Yard	\$403,404.64
29	Crusher Tower	\$148,038.40
30	Remove Crusher Building and Equipment	\$74,019.20
31	Conveyors	\$92,524.00
32	Remove Conveyor 10, 42, 43, 44, and 51	\$92,524.00
33	Car Dumper	\$96,224.96
34	Remove Underground Equipment	\$14,803.84
35	Remove Above Ground Equipment	\$37,009.60
36	Remove Building	\$25,906.72
37	Backfill Dumper Structure	\$18,504.80
38	Reclaim	\$66,617.28
39	Remove Underground Equipment	\$18,504.80
40	Remove Above Ground Equipment	\$18,504.80
41	Remove Building	\$14,803.84
42	Backfill Structure	\$14,803.84
43	Yard Fire Water Systems	\$37,009.60
44	Remove Hydrants and Fire Water System Piping Down to 3' Below Grade	\$37,009.60
45	Stacks	\$3,854,444.13
46	Remove Hawthorn 5 Stack to Grade	\$3,854,444.13
47	Final Site Grading and Drainage	\$1,321,992.82
48	Final Site Grading and Drainage	\$1,321,992.82

ID	Task Name	Duration	Timeline						
			Dec	1st Quarter			2nd Quarter		
				Jan	Feb	Mar	Apr	May	Jun
0	Hawthorn Common Dismantlement	89 days		[Task bar from Dec to May]					
1	Hawthorn Common Dismantlement	89 days		[Task bar from Dec to May]					
2	Overheads	89 days		[Task bar from Dec to May]					
3	Common Removal Overheads	89 days		[Task bar from Dec to May]					
4	Added Overhead Staff for Common Removals	89 days		[Task bar from Dec to May]					
5	Common Removal Equipment Rental	89 days		[Task bar from Dec to May]					
6	Common Removal Equipment Rental	89 days		[Task bar from Dec to May]					
7	Scrap Crew	89 days		[Task bar from Dec to May]					
8	Crew(s) to Handle Scrap Material	89 days		[Task bar from Dec to May]					
9	Demolition Contractor Consummables	89 days		[Task bar from Dec to May]					
10	Consummables	89 days		[Task bar from Dec to May]					
11	Dismantlement Activities	89 days		[Task bar from Dec to May]					
12	Administration Building	10 days		[Task bar in Jan]					
13	Remove Administration Building	10 days		[Task bar in Jan]					
14	Fuel Yard Office Building	5 days		[Task bar in Jan]					
15	Remove Fuel Yard Office Building	5 days		[Task bar in Jan]					
16	Training Building	5 days		[Task bar in Jan]					

ID	Task Name	Duration	Dec	1st Quarter			2nd Quarter		
				Jan	Feb	Mar	Apr	May	Jun
17	Remove Training Building	5 days		■					
18	Parking Lots and Plant Roads	23 days		■	■				
19	Plant Roads and Parking Areas	20 days		■	■				
20	Guard Shack	3 days			■				
21	Warehouse(s)	5 days				■			
22	Remove Warehouse	5 days				■			
23	Maintenance Shop	10 days				■			
24	Remove Maintenance Shop	10 days				■			
25	Water Treatment	11 days				■			
26	Remove Water Treatment Equipment	5 days				■			
27	Remove Water Treatment Building	6 days				■			
28	Fuel Yard	89 days	■	■	■	■	■	■	■
29	Crusher Tower	20 days	■	■					
30	Remove Crusher Building and Equipment	20 days	■	■					
31	Conveyors	25 days		■	■				
32	Remove Conveyor 10, 42, 43, 44, and 51	25 days		■	■				
33	Car Dumper	26 days				■	■		

ID	Task Name	Duration	Dec	1st Quarter			2nd Quarter			
				Jan	Feb	Mar	Apr	May	Jun	
34	Remove Underground Equipment	4 days								
35	Remove Above Ground Equipment	10 days								
36	Remove Building	7 days								
37	Backfill Dumper Structure	5 days								
38	Reclaim	18 days								
39	Remove Underground Equipment	5 days								
40	Remove Above Ground Equipment	5 days								
41	Remove Building	4 days								
42	Backfill Structure	4 days								
43	Yard Fire Water Systems	10 days								
44	Remove Hydrants and Fire Water System Piping Down to 3' Below Grade	10 days								
45	Stacks	1 day								
46	Remove Hawthorn 5 Stack to Grade	1 day								
47	Final Site Grading and Drainage	1 day								
48	Final Site Grading and Drainage	1 day								

LA CYGNE GENERATING STATION

LA CYGNE GENERATING STATION

The La Cygne Generating Station consists of two coal-fired power plants.

La Cygne Unit 1 has an SPP-accredited rating of 735 MW and was placed in service in 1973. Unit 1 has a super-critical Babcock & Wilcox boiler and a Westinghouse turbine. Lake water is used for condenser cooling. La Cygne Unit 1 was originally commissioned with an eight-module wet scrubber with a dedicated limestone slurry preparation facility and a dedicated stack. In 2006, La Cygne Unit 1 was retrofitted with an SCR. In 2015, a baghouse, wet scrubber, and new dual flue chimney will be commissioned. The retirement and dismantlement of this new equipment is included in this study. The original stack and limestone slurry equipment, ID fans, and outlet flues are currently being removed. These costs are included in this study. The original scrubber building and equipment inside the building will be removed. The retirement and dismantlement of this equipment is included in this study.

La Cygne Unit 2 has an SPP-accredited unit rating of 686 MW and was placed in service in 1977. Unit 2 has a sub-critical Babcock & Wilcox boiler and a General Electric turbine. Lake water is used for condenser cooling. La Cygne Unit 2 was originally commissioned with a dedicated chimney and an electrostatic precipitator for flue gas particulate removal. In 2014, La Cygne Unit 2 was retrofitted with an SCR, baghouse, wet scrubber, and a new dual flue chimney. Current plans are to abandon the electrostatic precipitator in place. The dismantlement of the electrostatic precipitator is included in this study. The original chimney will be dismantled in 2015. This cost is not included in this study.

Both La Cygne Units 1 and 2 have a fuel oil igniter system. Both units are supplied with fuel oil from a common fuel oil unloading and storage facility.

Both Units 1 and 2 have a wet scrubber that utilizes a common reagent preparation and gypsum handling facility. This facility includes a limestone unloading and storage area, a limestone slurry preparation system, a gypsum preparation system, and a gypsum stack-out storage system.

Both Units 1 and 2 beneficially use coal combustion products off site. Coal combustion products that are not beneficially used off site are disposed of in the on-site landfill.

The following are the major systems and equipment that were included in the retirement and dismantlement of each unit and the major systems and equipment that were considered common (additional details are listed in the attached retirement and dismantlement schedules included in this Appendix).

LA CYGNE UNIT 1

1. Boiler, SCR, and boiler auxiliaries.
2. Turbine, heat balance equipment, and turbine auxiliaries.
3. Wet scrubber and baghouse.
4. Dedicated Unit 1 fuel handling equipment.
5. Dedicated Unit 1 fuel oil equipment.
6. Original eight-module wet scrubber building.

LA CYGNE UNIT 2

1. Boiler and boiler auxiliaries.
2. Turbine, heat balance equipment, and turbine auxiliaries.
3. Wet scrubber and baghouse original precipitator.
4. Dedicated Unit 2 fuel handling equipment.
5. Dedicated Unit 2 fuel oil equipment.

COMMON

1. Administration building.
2. Fuel yard office building.
3. Training building.
4. Warehouses.
5. Maintenance shops.
6. Welding shop.
7. Insulators shop.
8. Auxiliary boilers.
9. Circulating water intake structure and circulating water piping.
10. Common fuel handling equipment.
11. Sewage treatment and wastewater lagoon.
12. Fuel oil storage and unloading.
13. Fire water systems.
14. Dual fuel stack.
15. Reagent preparation and gypsum handling facility.
16. Landfill.

UNIT 1

La Cygne 1 Retirement

Owner Costs

Pre-Retirement Activities	\$106,968
Retirement Activities	\$716,272
Post-Retirement Activities	\$28,182

Owner Direct Total \$851,422

Owner Internal Costs 5.00% \$42,571

Owner Contingency: 25.00% \$223,498

La Cygne 1 Retirement Opinion of Probable Cost: \$1,117,492

Activities Required by Permit or Regulation

La Cygne Station Asbestos Removal \$2,674,758

Activities Required by Permit or Regulation: \$2,674,758

La Cygne 1

ID	Task Name	Cost
0	La Cygne 1	\$851,422.21
1	La Cygne 1 Retirement	\$851,422.21
2	Pre-Engineering	\$106,967.52
3	Permit review and engineering analysis, establish isolation points, and confirm fi	\$0.00
4	KCL&L Overhead Costs	\$130,798.72
5	KCP&L Retirement Manager	\$130,798.72
6	Equipment Rentals	\$43,843.68
7	Vacuum truck	\$43,843.68
8	Retirement	\$541,629.89
9	Electrical	\$20,553.92
10	Medium and Low Voltage Draw out Switchgear	\$2,903.52
11	De-energize all buses at the source.	\$483.92
12	Open all circuit breakers.	\$483.92
13	Rack all circuit breakers into the fully withdrawn, disconnected position.	\$483.92
14	Verify that the closing/tripping springs are discharged.	\$483.92
15	De-energize control power and auxiliary power circuits of each circuit break	\$967.84
16	Motor Control Centers	\$1,935.68
17	De-energize all buses at the source.	\$483.92
18	Open all circuit breakers and disconnect switches.	\$483.92
19	Remove all fuses in control circuits.	\$967.84
20	Low-voltage Switchboards and Panelboards	\$967.84
21	De-energize all buses at the source.	\$483.92
22	Open all circuit breakers and disconnect switches.	\$483.92
23	Oil-Filled Power Transformers	\$6,072.32
24	De-energize all transformer primaries and verify that the secondary is de-er	\$967.84
25	De-energize all low-voltage AC or DC power sources for space heaters, cool	\$967.84
26	Drain and dispose of oil.	\$2,867.52
27	Clean up and dispose of oil on surface areas around the transformers on in	\$1,269.12
28	Dry-type Power Transformers	\$1,935.68
29	De-energize all transformer primaries and verify that the secondary is de-er	\$967.84
30	De-energize all low-voltage AC or DC power sources for space heaters, cool	\$967.84
31	Motors	\$6,738.88
32	De-energize all primary power at the source.	\$1,935.68
33	De-energize all low-voltage power sources for space heaters or other auxili	\$1,935.68
34	Drain lube oil system (if applicable) and dispose of oil.	\$2,867.52
35	Coal Handling	\$29,070.80
36	Empty all transfer hoppers.	\$1,853.84
37	Confirm all fuel lines and conveyors.	\$1,834.56
38	Perform cleaning of the coal handling equipment to assure that all coal and c	\$25,382.40
39	Fuel Oil and Igniter System	\$2,751.84
40	Drain fuel oil system	\$2,751.84
41	Boiler Chemical Feed	\$1,834.56
42	Drain all chemical feed tanks.	\$1,834.56
43	Condensate Polisher	\$4,976.80
44	Drain water from system.	\$917.28
45	Drain acid and caustic tanks.	\$1,834.56
46	Open tanks and vessels.	\$955.84
47	Remove resin.	\$1,269.12
48	Boiler	\$30,927.60

La Cygne 1

ID	Task Name	Cost
49	Open boiler doors.	\$955.84
50	Gas side - perform cleaning of the boiler and bottom ash system.	\$25,382.40
51	Drain boiler, drum, downcomers and headers.	\$917.28
52	Open drum doors.	\$955.84
53	Drain and clean the submerged flight conveyor system.	\$2,716.24
54	Ductwork	\$344,145.25
55	Open ductwork doors.	\$955.84
56	Perform extensive cleaning of the ductwork.	\$12,691.20
57	Install Flue Cap on L1 Stack Flue	\$330,498.21
58	Condensate and Feedwater Piping	\$1,834.56
59	Drain water from the system.	\$917.28
60	Leave open vents and drains.	\$917.28
61	Feedwater heaters	\$2,751.84
62	Drain feedwater heaters	\$917.28
63	Leave open vents and drains.	\$1,834.56
64	Deaerator and Deaerator Storage Tank	\$1,834.56
65	Drain Deaerator and Storage	\$917.28
66	Leave open vents and drains.	\$917.28
67	Baghouse	\$18,919.84
68	Multiple cleaning cycles for filter bags.	\$2,751.84
69	Open all vent and drain lines on bag cleaning air and control air lines. Leave in	\$917.28
70	Remove all filter bags and cages.	\$955.84
71	Clear hoppers of all ash	\$3,103.68
72	Mechanically secure all compartment dampers and hopper outlet valves in op	\$955.84
73	Disconnect ash transport piping and washdown baghouse hoppers and interic	\$1,571.12
74	Install bird screens across hopper ash outlet and ash line flanges.	\$955.84
75	Padlock or tack weld all hopper doors shut. (note: if ash hopper doors are ind	\$955.84
76	If walk-in plenum, padlock or tack weld all outlet plenum doors and compartn	\$955.84
77	If top-door plenum, close and secure top doors and remove/disable door lift h	\$1,873.12
78	If top-door plenum, establish natural ventilation or maintain HVAC fan to prov	\$1,020.08
79	Pull electrical supply breakers on all electrical equipment except lighting and t	\$2,903.52
80	Wet FGD system	\$26,222.88
81	Multiple mist eliminator wash cycles. Remove ME's from absorber.	\$2,331.76
82	Drain and flush all slurry and reclaim water pumps and piping. Leave vent and	\$1,873.12
83	Drain and wash out the reaction tank, reagent storage tank, recycle water tan	\$5,183.28
84	Leave all tank drain valves open or remove. Install bird screens across opening	\$1,911.68
85	Drain all makeup and mist eliminator water pumps and piping. Leave vent and	\$2,828.96
86	Mechanically secure all flue gas isolation dampers in open position or remove	\$1,911.68
87	Remove solids from all inlet and outlet ductwork as necessary	\$2,538.24
88	Open all vent station air and control air lines. Leave in open position or remo	\$1,873.12
89	Padlock or tack weld all access doors to modules and ductwork shut.	\$1,911.68
90	Remove access doors to open-top tanks.	\$955.84
91	Pull electrical supply breakers on all electrical equipment except lighting and t	\$2,903.52
92	FGD Reagent Preparation-Limestone wet Scrubber	\$11,270.00
93	Remove limestone from day bins.	\$1,551.84
94	Removed cartridges/bags from bin vent filters	\$1,551.84
95	Padlock or tack weld all bin access doors shut. (note: if doors are indoors, the	\$955.84
96	Remove bin discharge isolation valve and install bird screen.	\$477.92
97	Thoroughly wash and drain mills	\$1,551.84

La Cygne 1

ID	Task Name	Cost
98	Remove balls from any ball mills	\$1,269.12
99	Padlock or tack weld mill access doors closed.	\$955.84
100	Establish natural ventilation or maintain HVAC fan to provide minimum air ch	\$1,020.08
101	Pull electrical supply breakers on all electrical equipment except lighting and t	\$1,935.68
102	FGD Byproduct Dewatering - Hydrocyclones and Vacuum Filters	\$8,032.96
103	Wash vacuum filter belt and remove all accumulated solids	\$2,538.24
104	Wash out vacuum receiver, remove pressure relief valve and access door. Inst	\$1,571.12
105	Establish natural ventilation or maintain HVAC fan to provide minimum air ch	\$1,020.08
106	Pull electrical supply breakers on all electrical equipment except lighting and t	\$2,903.52
107	SCR	\$11,098.96
108	Vacuum fly ash from catalyst.	\$2,538.24
109	Remove catalyst of salvage or disposal.	\$3,180.80
110	Padlock or tack weld access doors shut.	\$955.84
111	Remove ammonia from storage tank for resale.	\$775.92
112	Wash out and drain storage tank and supply piping.	\$775.92
113	Vent storage tank and all piping. Leave vent and drain valves open or remove.	\$936.56
114	Pull electrical supply breakers on all electrical equipment except lighting and t	\$1,935.68
115	Turbine(s) and Condenser	\$5,715.76
116	Drain hotwell and leave doors open.	\$936.56
117	Open main turbine doors.	\$955.84
118	Open bfp turbine doors.	\$955.84
119	Remove lube oil.	\$2,867.52
120	Generator	\$6,618.48
121	Verify that generator circuit breaker is open and racked out or that high-volta	\$483.92
122	Verify that generator field breaker or contactor (if applicable) is open.	\$483.92
123	De-energize power supplies to generator excitation system at the source.	\$483.92
124	De-energize AC and DC power supplies to generator and exciter space heaters	\$483.92
125	Drain generator and exciter cooling water systems (if applicable).	\$936.56
126	Disconnect and remove hydrogen gas tanks and purge generator hydrogen sy	\$1,834.56
127	Disconnect and remove fire protection system gas/foam tanks and purge fire	\$1,911.68
128	Circulation Water and Turbine Cooling Water System	\$3,707.68
129	Drain.	\$1,834.56
130	Open water box doors.	\$955.84
131	Drain any circulating water chemical feed tanks.	\$917.28
132	Compressed Air System	\$917.28
133	Open vents and drains.	\$917.28
134	Auxiliary Steam System	\$917.28
135	Drain water from system.	\$917.28
136	Auxiliary Cooling Water System	\$917.28
137	Drain water from system.	\$917.28
138	Condenser Air Extraction and Waterbox Priming System	\$917.28
139	Drain water from system.	\$917.28
140	Building Heating System	\$917.28
141	Drain water from system.	\$917.28
142	Battery System	\$4,775.20
143	De-energize all battery chargers from the source.	\$483.92
144	Open all AC and DC circuit breakers and/or fused switches on battery charger:	\$483.92
145	Remove and dispose of battery electrolyte.	\$1,903.68
146	Remove and dispose of battery cells.	\$1,269.12

La Cygne 1

ID	Task Name	Cost
147	Clean up and dispose of electrolyte on surface areas around batteries.	\$634.56
148	Post Retirement Activities	\$28,182.40
149	Post Retirement Activities	\$28,182.40

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
0	La Cygne 1	265 days							
1	La Cygne 1 Retirement	265 days							
2	Pre-Engineering	66 days							
3	Permit review and engineering analysis, establish isolation points, and confirm fuel yard inventory has been reduced to zero tons.	66 days							
4	KCL&L Overhead Costs	199 days							
5	KCP&L Retirement Manager	199 days							
6	Equipment Rentals	199 days							
7	Vacuum truck	199 days							
8	Retirement	199 days							
9	Electrical	22 days							
10	Medium and Low Voltage Draw out Switchgear	3 days							
11	De-energize all buses at the source.	0.5 days							
12	Open all circuit breakers.	0.5 days							
13	Rack all circuit breakers into the fully withdrawn, disconnected position.	0.5 days							
14	Verify that the closing/tripping springs are discharged.	0.5 days							
15	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	1 day							

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
16	Motor Control Centers	2 days							
17	De-energize all buses at the source.	0.5 days							
18	Open all circuit breakers and disconnect switches.	0.5 days							
19	Remove all fuses in control circuits.	1 day							
20	Low-voltage Switchboards and Panelboards	1 day							
21	De-energize all buses at the source.	0.5 days							
22	Open all circuit breakers and disconnect switches.	0.5 days							
23	Oil-Filled Power Transformers	7 days							
24	De-energize all transformer primaries and verify that the secondary is de-energized.	1 day							
25	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	1 day							
26	Drain and dispose of oil.	3 days							
27	Clean up and dispose of oil on surface areas around the transformers on in containment pits.	2 days							
28	Dry-type Power Transformers	2 days							
29	De-energize all transformer primaries and verify that the secondary is de-energized.	1 day							
30	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	1 day							
31	Motors	7 days							

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
32	De-energize all primary power at the source.	2 days				↓			
33	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	2 days				↓			
34	Drain lube oil system (if applicable) and dispose of oil.	3 days				↓			
35	Coal Handling	23 days				↓			
36	Empty all transfer hoppers.	1 day				↓			
37	Confirm all fuel lines and conveyors.	2 days				↓			
38	Perform cleaning of the coal handling equipment to assure that all coal and coal dust has been removed from site.	20 days				↓			
39	Fuel Oil and Igniter System	3 days				↓			
40	Drain fuel oil system	3 days				↓			
41	Boiler Chemical Feed	2 days				↓			
42	Drain all chemical feed tanks.	2 days				↓			
43	Condensate Polisher	6 days				↓			
44	Drain water from system.	1 day				↓			
45	Drain acid and caustic tanks.	2 days				↓			
46	Open tanks and vessels.	1 day				↓			
47	Remove resin.	2 days				↓			
48	Boiler	27 days				↓			
49	Open boiler doors.	1 day				↓			

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
50	Gas side - perform cleaning of the boiler and bottom ash system.	20 days							
51	Drain boiler, drum, downcomers and headers.	1 day							
52	Open drum doors.	1 day							
53	Drain and clean the submerged flight conveyor system.	5 days							
54	Ductwork	12 days							
55	Open ductwork doors.	1 day							
56	Perform extensive cleaning of the ductwork.	10 days							
57	Install Flue Cap on L1 Stack Flue	1 day							
58	Condensate and Feedwater Piping	2 days							
59	Drain water from the system.	1 day							
60	Leave open vents and drains.	1 day							
61	Feedwater heaters	3 days							
62	Drain feedwater heaters	1 day							
63	Leave open vents and drains.	2 days							
64	Deaerator and Deaerator Storage Tank	2 days							
65	Drain Deaerator and Storage	1 day							
66	Leave open vents and drains.	1 day							
67	Baghouse	16 days							

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
68	Multiple cleaning cycles for filter bags.	3 days							
69	Open all vent and drain lines on bag cleaning air and control air lines. Leave in open position or remove vent valves.	1 day							
70	Remove all filter bags and cages.	1 day							
71	Clear hoppers of all ash	4 days							
72	Mechanically secure all compartment dampers and hopper outlet valves in open position.	1 day							
73	Disconnect ash transport piping and washdown baghouse hoppers and interior of casing.	1 day							
74	Install bird screens across hopper ash outlet and ash line flanges.	1 day							
75	Padlock or tack weld all hopper doors shut. (note: if ash hopper doors are indoors, they could be removed and the opening covered with bird screens.)	1 day							
76	If walk-in plenum, padlock or tack weld all outlet plenum doors and compartment ventilation dampers shut.	1 day							
77	If top-door plenum, close and secure top doors and remove/disable door lift hoist.	2 days							
78	If top-door plenum, establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in penthouse enclosure.	1 day							
79	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	3 days							
80	Wet FGD system	19 days							
81	Multiple mist eliminator wash cycles. Remove ME's from absorber.	3 days							
82	Drain and flush all slurry and reclaim water pumps and piping. Leave vent and drain valves open or remove. Install bird screens across drain openings.	2 days							
83	Drain and wash out the reaction tank, reagent storage tank, recycle water tank, absorber blowdown tank, etc.	3 days							

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
84	Leave all tank drain valves open or remove. Install bird screens across openings.	2 days					↑		
85	Drain all makeup and mist eliminator water pumps and piping. Leave vent and drain valves open or remove. Install bird screens across drain openings.	2 days					↑		
86	Mechanically secure all flue gas isolation dampers in open position or remove damper blades.	2 days					↑		
87	Remove solids from all inlet and outlet ductwork as necessary	2 days					↑		
88	Open all vent station air and control air lines. Leave in open position or remove vent valves	2 days					↑		
89	Padlock or tack weld all access doors to modules and ductwork shut.	2 days					↑		
90	Remove access doors to open-top tanks.	1 day					↑		
91	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	3 days					↑		
92	FGD Reagent Preparation-Limestone wet Scrubber	14 days					↓		
93	Remove limestone from day bins.	2 days					↑		
94	Removed cartridges/bags from bin vent filters	2 days					↑		
95	Padlock or tack weld all bin access doors shut. (note: if doors are indoors, they could be removed and the opening covered with bird screens.)	1 day					↑		
96	Remove bin discharge isolation valve and install bird screen.	1 day					↑		
97	Thoroughly wash and drain mills	2 days					↑		
98	Remove balls from any ball mills	2 days					↑		
99	Padlock or tack weld mill access doors closed.	1 day					↑		

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
100	Establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in building.	1 day							
101	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	2 days							
102	FGD Byproduct Dewatering - Hydrocyclones and Vacuum Filters	5 days							
103	Wash vacuum filter belt and remove all accumulated solids	2 days							
104	Wash out vacuum receiver, remove pressure relief valve and access door. Install bird screens.	1 day							
105	Establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in building.	1 day							
106	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	3 days							
107	SCR	6 days							
108	Vacuum fly ash from catalyst.	4 days							
109	Remove catalyst of salvage or disposal.	4 days							
110	Padlock or tack weld access doors shut.	1 day							
111	Remove ammonia from storage tank for resale.	1 day							
112	Wash out and drain storage tank and supply piping.	1 day							
113	Vent storage tank and all piping. Leave vent and drain valves open or remove. Install bird screens.	1 day							
114	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	2 days							
115	Turbine(s) and Condenser	6 days							

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
116	Drain hotwell and leave doors open.	1 day			▼				
117	Open main turbine doors.	1 day			▼				
118	Open bfp turbine doors.	1 day			▼				
119	Remove lube oil.	3 days			▼				
120	Generator	7 days			▼				
121	Verify that generator circuit breaker is open and racked out or that high-voltage disconnect switch on substation side of GSU transformer is locked in the open position.	0.5 days			▼				
122	Verify that generator field breaker or contactor (if applicable) is open.	0.5 days			▼				
123	De-energize power supplies to generator excitation system at the source.	0.5 days			▼				
124	De-energize AC and DC power supplies to generator and exciter space heaters, cooling equipment, controls, lighting, etc. at the source and open circuit breakers or remove fuses at the generator and exciter.	0.5 days			▼				
125	Drain generator and exciter cooling water systems (if applicable).	1 day			▼				
126	Disconnect and remove hydrogen gas tanks and purge generator hydrogen system.	2 days			▼				
127	Disconnect and remove fire protection system gas/foam tanks and purge fire protection system.	2 days			▼				
128	Circulation Water and Turbine Cooling Water System	3 days			▼				
129	Drain.	2 days			▼				
130	Open water box doors.	1 day			▼				
131	Drain any circulating water chemical feed tanks.	1 day			▼				

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
132	Compressed Air System	1 day			▼				
133	Open vents and drains.	1 day			▼				
134	Auxiliary Steam System	1 day			▼				
135	Drain water from system.	1 day			▼				
136	Auxiliary Cooling Water System	1 day			▼				
137	Drain water from system.	1 day			▼				
138	Condenser Air Extraction and Waterbox Priming System	1 day			▼				
139	Drain water from system.	1 day			▼				
140	Building Heating System	1 day			▼				
141	Drain water from system.	1 day			▼				
142	Battery System	7 days			▼				
143	De-energize all battery chargers from the source.	0.5 days			▼				
144	Open all AC and DC circuit breakers and/or fused switches on battery chargers and disconnect cables from batteries.	0.5 days			▼				
145	Remove and dispose of battery electrolyte.	3 days			▼				
146	Remove and dispose of battery cells.	2 days			▼				
147	Clean up and dispose of electrolyte on surface areas around batteries.	1 day			▼				
148	Post Retirement Activities	40 days			▼				
149	Post Retirement Activities	40 days			▼				

La Cygne 1 Dismantlement

Owner Additional Costs

Pre-Dismantlement Activities	\$1,132,525	
Overhead During Dismantlement	\$2,055,627	
Post-Dismantlement Activities	\$71,270	
Owner Costs Total		\$3,259,423

Demolition General Contractor (DGC) Costs

Site Management	\$1,370,880
Equipment Rental	\$2,349,343
Consumables	\$2,567,178
Scrap Crew(s)	\$2,287,460
Dismantlement*	\$12,280,391

DGC Insurance 2.00% \$417,105

Contingency/Profit 15.00% \$3,190,854

Performance Bond 2.00% \$489,264.23

Contractor Costs Total: \$24,952,476

Total: \$28,211,898

Owner Internal Costs: 5.00% \$1,410,595

Owner Contingency: 25.00% \$7,405,623

La Cygne Unit 1 Dismantlement Opinion of Probable Cost: \$37,028,117

UNIT 2

La Cygne 2 Retirement

Owner Costs

Pre-Retirement Activities	\$106,968
Retirement Activities	\$675,822
Post-Retirement Activities	\$28,182

Owner Direct Total \$810,972

Owner Internal Costs 5.00% \$40,549

Owner Contingency: 25.00% \$212,880

La Cygne 2 Retirement Opinion of Probable Cost: \$1,064,401

Activities Required by Permit or Regulation

La Cygne Station Asbestos Removal \$2,674,758

Activities Required by Permit or Regulation: \$2,674,758

La Cygne 2 Retirement

ID	Task Name	Cost
0	La Cygne 2 Retirement	\$810,972.05
1	LaCygne 2 Retirement	\$810,972.05
2	Pre-Engineering	\$106,967.52
3	Permit review and engineering analysis, establish isolation points, and confirm fuel yard inventory has been reduced to zero tons.	\$0.00
4	KCL&L Overhead Costs	\$109,108.48
5	KCP&L Retirement Manager	\$109,108.48
6	Equipment Rentals	\$36,573.12
7	Vacuum truck	\$36,573.12
8	Retirement	\$530,140.53
9	Electrical	\$20,553.92
10	Medium and Low Voltage Draw out Switchgear	\$2,903.52
11	De-energize all buses at the source.	\$483.92
12	Open all circuit breakers.	\$483.92
13	Rack all circuit breakers into the fully withdrawn, disconnected position.	\$483.92
14	Verify that the closing/tripping springs are discharged.	\$483.92
15	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	\$967.84
16	Motor Control Centers	\$1,935.68
17	De-energize all buses at the source.	\$483.92
18	Open all circuit breakers and disconnect switches.	\$483.92
19	Remove all fuses in control circuits.	\$967.84
20	Low-voltage Switchboards and Panelboards	\$967.84
21	De-energize all buses at the source.	\$483.92
22	Open all circuit breakers and disconnect switches.	\$483.92
23	Oil-Filled Power Transformers	\$6,072.32
24	De-energize all transformer primaries and verify that the secondary is de-energized.	\$967.84
25	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	\$967.84
26	Drain and dispose of oil.	\$2,867.52
27	Clean up and dispose of oil on surface areas around the transformers on in containment pits.	\$1,269.12
28	Dry-type Power Transformers	\$1,935.68
29	De-energize all transformer primaries and verify that the secondary is de-energized.	\$967.84
30	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	\$967.84
31	Motors	\$6,738.88
32	De-energize all primary power at the source.	\$1,935.68

La Cygne 2 Retirement

ID	Task Name	Cost
33	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	\$1,935.68
34	Drain lube oil system (if applicable) and dispose of oil.	\$2,867.52
35	Coal Handling	\$30,905.36
36	Empty all transfer hoppers.	\$1,853.84
37	Burn out coal silos.	\$1,834.56
38	Confirm all fuel lines, conveyors and trippers are clear of fuel.	\$1,834.56
39	Perform cleaning of the coal handling equipment to assure that all coal and coal dust has been removed from site.	\$25,382.40
40	Fuel Oil and Igniter System	\$2,751.84
41	Drain fuel oil system	\$2,751.84
42	Waste Oil System	\$1,834.56
43	Drain all waste oil systems	\$1,834.56
44	Boiler Chemical Feed	\$1,834.56
45	Drain all chemical feed tanks.	\$1,834.56
46	Boiler	\$30,927.60
47	Open boiler doors.	\$955.84
48	Gas side - perform cleaning of the boiler and bottom ash system.	\$25,382.40
49	Drain boiler, drum, downcomers and headers.	\$917.28
50	Open drum doors.	\$955.84
51	Drain and clean the submerged flight conveyor system.	\$2,716.24
52	Stack and Ductwork	\$344,145.25
53	Open ductwork doors.	\$955.84
54	Perform extensive cleaning of the ductwork.	\$12,691.20
55	Install Flue Cap on L2 Flue	\$330,498.21
56	Condensate and Feedwater Piping	\$1,834.56
57	Drain water from the system.	\$917.28
58	Leave open vents and drains.	\$917.28
59	Feedwater heaters	\$2,751.84
60	Drain feedwater heaters	\$917.28
61	Leave open vents and drains.	\$1,834.56
62	Deaerator and Deaerator Storage Tank	\$1,834.56
63	Drain Deaerator and Storage	\$917.28
64	Leave open vents and drains.	\$917.28
65	Baghouse	\$18,919.84
66	Multiple cleaning cycles for filter bags.	\$2,751.84
67	Open all vent and drain lines on bag cleaning air and control air lines. Leave in open position or remove vent valves.	\$917.28
68	Remove all filter bags and cages.	\$955.84
69	Clear hoppers of all ash	\$3,103.68
70	Mechanically secure all compartment dampers and hopper outlet valves in open position.	\$955.84
71	Disconnect ash transport piping and washdown baghouse hoppers and interior of casing.	\$1,571.12

La Cygne 2 Retirement

ID	Task Name	Cost
72	Install bird screens across hopper ash outlet and ash line flanges.	\$955.84
73	Padlock or tack weld all hopper doors shut. (note: if ash hopper doors are indoors, they could be removed and the opening covered with bird screens.)	\$955.84
74	If walk-in plenum, padlock or tack weld all outlet plenum doors and compartment ventilation dampers shut.	\$955.84
75	If top-door plenum, close and secure top doors and remove/disable door lift hoist.	\$1,873.12
76	If top-door plenum, establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in penthouse enclosure.	\$1,020.08
77	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	\$2,903.52
78	Wet FGD system	\$26,222.88
79	Multiple mist eliminator wash cycles. Remove ME's from absorber.	\$2,331.76
80	Drain and flush all slurry and reclaim water pumps and piping. Leave vent and drain valves open or remove. Install bird screens across drain openings.	\$1,873.12
81	Drain and wash out the reaction tank, reagent storage tank, recycle water tank, absorber blowdown tank, etc.	\$5,183.28
82	Leave all tank drain valves open or remove. Install bird screens across openings.	\$1,911.68
83	Drain all makeup and mist eliminator water pumps and piping. Leave vent and drain valves open or remove. Install bird screens across drain openings.	\$2,828.96
84	Mechanically secure all flue gas isolation dampers in open position or remove damper blades.	\$1,911.68
85	Remove solids from all inlet and outlet ductwork as necessary	\$2,538.24
86	Open all vent station air and control air lines. Leave in open position or remove vent valves	\$1,873.12
87	Padlock or tack weld all access doors to modules and ductwork shut.	\$1,911.68
88	Remove access doors to open-top tanks.	\$955.84
89	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	\$2,903.52
90	FGD Reagent Preparation-Limestone wet Scrubber	\$11,270.00
91	Remove limestone from day bins.	\$1,551.84
92	Removed cartridges/bags from bin vent filters	\$1,551.84
93	Padlock or tack weld all bin access doors shut. (note: if doors are indoors, they could be removed and the opening covered with bird screens.)	\$955.84
94	Remove bin discharge isolation valve and install bird screen.	\$477.92

La Cygne 2 Retirement

ID	Task Name	Cost
95	Thoroughly wash and drain mills	\$1,551.84
96	Remove balls from any ball mills	\$1,269.12
97	Padlock or tack weld mill access doors closed.	\$955.84
98	Establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in building.	\$1,020.08
99	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	\$1,935.68
100	FGD Byproduct Dewatering - Hydrocyclones and Vacuum Filters	\$8,032.96
101	Wash vacuum filter belt and remove all accumulated solids	\$2,538.24
102	Wash out vacuum receiver, remove pressure relief valve and access door. Install bird screens.	\$1,571.12
103	Establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in building.	\$1,020.08
104	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	\$2,903.52
105	Turbine(s) and Condenser	\$5,715.76
106	Drain hotwell and leave doors open.	\$936.56
107	Open main turbine doors.	\$955.84
108	Open bfp turbine doors.	\$955.84
109	Remove lube oil.	\$2,867.52
110	Generator	\$6,618.48
111	Verify that generator circuit breaker is open and racked out or that high-voltage disconnect switch on substation side of GSU transformer is locked in the open position.	\$483.92
112	Verify that generator field breaker or contactor (if applicable) is open.	\$483.92
113	De-energize power supplies to generator excitation system at the source.	\$483.92
114	De-energize AC and DC power supplies to generator and exciter space heaters, cooling equipment, controls, lighting, etc. at the source and open circuit breakers or remove fuses at the generator and exciter.	\$483.92
115	Drain generator and exciter cooling water systems (if applicable).	\$936.56
116	Disconnect and remove hydrogen gas tanks and purge generator hydrogen system.	\$1,834.56
117	Disconnect and remove fire protection system gas/foam tanks and purge fire protection system.	\$1,911.68
118	Circulation Water and Turbine Cooling Water System	\$3,707.68
119	Drain.	\$1,834.56
120	Open water box doors.	\$955.84
121	Drain any circulating water chemical feed tanks.	\$917.28
122	Compressed Air System	\$917.28
123	Open vents and drains.	\$917.28

La Cygne 2 Retirement

ID	Task Name	Cost
124	Auxiliary Steam System	\$1,834.56
125	Drain water from system.	\$917.28
126	Remove aux boiler chemicals.	\$917.28
127	Auxiliary Cooling Water System	\$917.28
128	Drain water from system.	\$917.28
129	Condenser Air Extraction and Waterbox Priming System	\$917.28
130	Drain water from system.	\$917.28
131	Building Heating System	\$917.28
132	Drain water from system.	\$917.28
133	Battery System	\$4,775.20
134	De-energize all battery chargers from the source.	\$483.92
135	Open all AC and DC circuit breakers and/or fused switches on battery chargers and disconnect cables from batteries.	\$483.92
136	Remove and dispose of battery electrolyte.	\$1,903.68
137	Remove and dispose of battery cells.	\$1,269.12
138	Clean up and dispose of electrolyte on surface areas around batteries.	\$634.56
139	Post Retirement Activities	\$28,182.40
140	Post Retirement Activities	\$28,182.40

ID	Task Name	Duration	4th Quar	1st Quar	2nd Qua	3rd Qual	4th Qual	1st Quai	2nd Qua
0	La Cygne 2 Retirement	232 days							
1	LaCygne 2 Retirement	232 days							
2	Pre-Engineering	66 days							
3	Permit review and engineering analysis, establish isolation points, and confirm fuel yard inventory has been reduced to zero tons.	66 days							
4	KCL&L Overhead Costs	166 days							
5	KCP&L Retirement Manager	166 days							
6	Equipment Rentals	166 days							
7	Vacuum truck	166 days							
8	Retirement	166 days							
9	Electrical	22 days							
10	Medium and Low Voltage Draw out Switchgear	3 days							
11	De-energize all buses at the source.	0.5 days							
12	Open all circuit breakers.	0.5 days							
13	Rack all circuit breakers into the fully withdrawn, disconnected position.	0.5 days							
14	Verify that the closing/tripping springs are discharged.	0.5 days							
15	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	1 day							
16	Motor Control Centers	2 days							

ID	Task Name	Duration	4th Quar	1st Quar	2nd Qua	3rd Qua	4th Qua	1st Quai	2nd Qua
17	De-energize all buses at the source.	0.5 days							
18	Open all circuit breakers and disconnect switches.	0.5 days							
19	Remove all fuses in control circuits.	1 day							
20	Low-voltage Switchboards and Panelboards	1 day							
21	De-energize all buses at the source.	0.5 days							
22	Open all circuit breakers and disconnect switches.	0.5 days							
23	Oil-Filled Power Transformers	7 days							
24	De-energize all transformer primaries and verify that the secondary is de-energized.	1 day							
25	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	1 day							
26	Drain and dispose of oil.	3 days							
27	Clean up and dispose of oil on surface areas around the transformers on in containment pits.	2 days							
28	Dry-type Power Transformers	2 days							
29	De-energize all transformer primaries and verify that the secondary is de-energized.	1 day							
30	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	1 day							
31	Motors	7 days							
32	De-energize all primary power at the source.	2 days							
33	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	2 days							

ID	Task Name	Duration	4th Quar	1st Quar	2nd Qua	3rd Qua	4th Qua	1st Quai	2nd Qua
34	Drain lube oil system (if applicable) and dispose of oil.	3 days							
35	Coal Handling	25 days							
36	Empty all transfer hoppers.	1 day							
37	Burn out coal silos.	2 days							
38	Confirm all fuel lines, conveyors and trippers are clear of fuel.	2 days							
39	Perform cleaning of the coal handling equipment to assure that all coal and coal dust has been removed from site.	20 days							
40	Fuel Oil and Igniter System	3 days							
41	Drain fuel oil system	3 days							
42	Waste Oil System	2 days							
43	Drain all waste oil systems	2 days							
44	Boiler Chemical Feed	2 days							
45	Drain all chemical feed tanks.	2 days							
46	Boiler	27 days							
47	Open boiler doors.	1 day							
48	Gas side - perform cleaning of the boiler and bottom ash system.	20 days							
49	Drain boiler, drum, downcomers and headers.	1 day							
50	Open drum doors.	1 day							
51	Drain and clean the submerged flight conveyor system.	5 days							

ID	Task Name	Duration	4th Quar	1st Quar	2nd Qua	3rd Qua	4th Qua	1st Quai	2nd Qua
52	Stack and Ductwork	12 days					▼▼		
53	Open ductwork doors.	1 day					▼		
54	Perform extensive cleaning of the ductwork.	10 days					▼		
55	Install Flue Cap on L2 Flue	1 day					▼		
56	Condensate and Feedwater Piping	2 days					▼		
57	Drain water from the system.	1 day					▼		
58	Leave open vents and drains.	1 day					▼		
59	Feedwater heaters	3 days					▼		
60	Drain feedwater heaters	1 day					▼		
61	Leave open vents and drains.	2 days					▼		
62	Deaerator and Deaerator Storage Tank	2 days					▼		
63	Drain Deaerator and Storage	1 day					▼		
64	Leave open vents and drains.	1 day					▼		
65	Baghouse	16 days							▼▼
66	Multiple cleaning cycles for filter bags.	3 days							▼
67	Open all vent and drain lines on bag cleaning air and control air lines. Leave in open position or remove vent valves.	1 day							▼
68	Remove all filter bags and cages.	1 day							▼
69	Clear hoppers of all ash	4 days							▼

ID	Task Name	Duration	4th Quar	1st Quar	2nd Qua	3rd Qual	4th Qual	1st Quai	2nd Qua
70	Mechanically secure all compartment dampers and hopper outlet valves in open position.	1 day							
71	Disconnect ash transport piping and washdown baghouse hoppers and interior of casing.	1 day							
72	Install bird screens across hopper ash outlet and ash line flanges.	1 day							
73	Padlock or tack weld all hopper doors shut. (note: if ash hopper doors are indoors, they could be removed and the opening covered with bird screens.)	1 day							
74	If walk-in plenum, padlock or tack weld all outlet plenum doors and compartment ventilation dampers shut.	1 day							
75	If top-door plenum, close and secure top doors and remove/disable door lift hoist.	2 days							
76	If top-door plenum, establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in penthouse enclosure.	1 day							
77	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	3 days							
78	Wet FGD system	19 days							
79	Multiple mist eliminator wash cycles. Remove ME's from absorber.	3 days							
80	Drain and flush all slurry and reclaim water pumps and piping. Leave vent and drain valves open or remove. Install bird screens across drain openings.	2 days							
81	Drain and wash out the reaction tank, reagent storage tank, recycle water tank, absorber blowdown tank, etc.	3 days							
82	Leave all tank drain valves open or remove. Install bird screens across openings.	2 days							
83	Drain all makeup and mist eliminator water pumps and piping. Leave vent and drain valves open or remove. Install bird screens across drain openings.	2 days							
84	Mechanically secure all flue gas isolation dampers in open position or remove damper blades.	2 days							
85	Remove solids from all inlet and outlet ductwork as necessary	2 days							

ID	Task Name	Duration	4th Quar	1st Quar	2nd Qua	3rd Qual	4th Qual	1st Quai	2nd Qua
86	Open all vent station air and control air lines. Leave in open position or remove vent valves	2 days			↓				
87	Padlock or tack weld all access doors to modules and ductwork shut.	2 days			↓				
88	Remove access doors to open-top tanks.	1 day			↓				
89	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	3 days			↓				
90	FGD Reagent Preparation-Limestone wet Scrubber	14 days			↓				
91	Remove limestone from day bins.	2 days			↓				
92	Removed cartridges/bags from bin vent filters	2 days			↓				
93	Padlock or tack weld all bin access doors shut. (note: if doors are indoors, they could be removed and the opening covered with bird screens.)	1 day			↓				
94	Remove bin discharge isolation valve and install bird screen.	1 day			↓				
95	Thoroughly wash and drain mills	2 days			↓				
96	Remove balls from any ball mills	2 days			↓				
97	Padlock or tack weld mill access doors closed.	1 day			↓				
98	Establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in building.	1 day			↓				
99	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	2 days			↓				
100	FGD Byproduct Dewatering - Hydrocyclones and Vacuum Filters	11 days			↓				
101	Wash vacuum filter belt and remove all accumulated solids	2 days			↓				
102	Wash out vacuum receiver, remove pressure relief valve and access door. Install bird screens.	1 day			↓				

ID	Task Name	Duration	4th Quar	1st Quar	2nd Qua	3rd Qual	4th Qual	1st Quai	2nd Qua
103	Establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in building.	1 day			↓				
104	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	3 days			↓				
105	Turbine(s) and Condenser	6 days			↓				
106	Drain hotwell and leave doors open.	1 day			↓				
107	Open main turbine doors.	1 day			↓				
108	Open bfp turbine doors.	1 day			↓				
109	Remove lube oil.	3 days			↓				
110	Generator	7 days			↓				
111	Verify that generator circuit breaker is open and racked out or that high-voltage disconnect switch on substation side of GSU transformer is locked in the open position.	0.5 days			↓				
112	Verify that generator field breaker or contactor (if applicable) is open.	0.5 days			↓				
113	De-energize power supplies to generator excitation system at the source.	0.5 days			↓				
114	De-energize AC and DC power supplies to generator and exciter space heaters, cooling equipment, controls, lighting, etc. at the source and open circuit breakers or remove fuses at the generator and exciter.	0.5 days			↓				
115	Drain generator and exciter cooling water systems (if applicable).	1 day			↓				
116	Disconnect and remove hydrogen gas tanks and purge generator hydrogen system.	2 days			↓				
117	Disconnect and remove fire protection system gas/foam tanks and purge fire protection system.	2 days			↓				
118	Circulation Water and Turbine Cooling Water System	3 days			↓				
119	Drain.	2 days			↓				

ID	Task Name	Duration	4th Quar	1st Quar	2nd Qua	3rd Quar	4th Quar	1st Quai	2nd Qua
120	Open water box doors.	1 day			↓				
121	Drain any circulating water chemical feed tanks.	1 day			↓				
122	Compressed Air System	1 day			↓				
123	Open vents and drains.	1 day			↓				
124	Auxiliary Steam System	2 days			↓				
125	Drain water from system.	1 day			↓				
126	Remove aux boiler chemicals.	1 day			↓				
127	Auxiliary Cooling Water System	1 day			↓				
128	Drain water from system.	1 day			↓				
129	Condenser Air Extraction and Waterbox Priming System	1 day			↓				
130	Drain water from system.	1 day			↓				
131	Building Heating System	1 day			↓				
132	Drain water from system.	1 day			↓				
133	Battery System	7 days			↓				
134	De-energize all battery chargers from the source.	0.5 days			↓				
135	Open all AC and DC circuit breakers and/or fused switches on battery chargers and disconnect cables from batteries.	0.5 days			↓				
136	Remove and dispose of battery electrolyte.	3 days			↓				
137	Remove and dispose of battery cells.	2 days			↓				

ID	Task Name	Duration	4th Qua	1st Quar	2nd Qua	3rd Qua	4th Qua	1st Quai	2nd Qua
138	Clean up and dispose of electrolyte on surface areas around batteries.	1 day							
139	Post Retirement Activities	40 days							
140	Post Retirement Activities	40 days							

La Cygne 2 Dismantlement

Owner Costs

Pre-Dismantlement Activities	\$1,104,559
Overhead During Dismantlement	\$2,004,866
Post-Dismantlement Activities	\$69,510

Owner Costs Total \$3,178,936

Demolition General Contractor (DGC) Costs

Site Management	\$1,336,369
Equipment Rental	\$2,943,884
Consumables	\$2,937,002
Scrap Crew(s)	\$2,229,828
Dismantlement	\$12,970,149

DGC Insurance 2.00% \$448,345

Contingency/Profit 15.00% \$3,429,837

Performance Bond 2.00% \$525,908

Contractor Costs Total: \$26,821,322

Total: \$30,000,257

Owner Internal Costs: 5.00% \$1,500,013

Owner Contingency: 25.00% \$7,875,068

La Cygne Unit 2 Dismantlement Opinion of Probable Cost: \$39,375,338

La Cygne Unit 2 Dismantlement

ID	Task Name	Cost
0	La Cygne Unit 2 Dismantlement	\$20,835,940.37
1	La Cygne Unit 2 Dismantlement	\$20,766,429.97
2	Pre-Dismantlement Activities	\$1,104,558.96
3	Detailed Planning & Hire Owner's Engineer	\$110,802.72
4	Detailed Site Characterization Study	\$783,536.00
5	Hire Demolition General Contractor	\$198,647.04
6	KCP&L Prepares Unit for Dismantlement	\$11,573.20
7	Demolition Contractor Mobilizes on Site	\$0.00
8	KCP&L Overhead during Dismantlement	\$2,004,866.33
9	KCP&L Project Manager	\$282,630.38
10	KCP&L Administrative Support	\$104,541.59
11	KCP&L Engineer	\$464,606.36
12	Owners Engineer Project Manager	\$141,728.00
13	Owners Engineer - Engineer	\$1,011,360.00
14	Demolition Contractor Overhead during Dismantlement	\$969,151.12
15	Demolition Contractor Project Manager	\$274,202.38
16	Demolition Contractor Safety Manager	\$244,171.18
17	Demolition Contractor Superintendent	\$450,777.57
18	Demolition Contractor Equipment Rental Costs	\$1,633,380.67
19	Equipment Rental	\$1,633,380.67
20	Demolition Contractor Consumables	\$1,629,562.40
21	Consumables	\$1,629,562.40
22	Scrap Crew(s)	\$1,591,412.80
23	Crew to Handle Scrap Material(s)	\$1,591,412.80
24	Dismantlement Directs	\$11,833,497.68
25	Phase 1 Demolition	\$1,065,881.92
26	Phase 1 Electrical Demolition	\$439,040.24
27	Electrical Demolition of Phase 1 Equipment	\$439,040.24
28	Condensate System	\$109,178.32
29	Condensate Pumps	\$3,700.96
30	Condensate Transfer Pumps	\$1,850.48
31	Cycle Make-Up Pump	\$1,850.48
32	Steam Packing Exhauster and Blower	\$3,700.96
33	Low Pressure Heaters (except the condenser neck heat exchangers)	\$55,514.40
34	Deaerator	\$14,803.84
35	Deaerator Storage Tank	\$9,252.40
36	Condensate Piping	\$18,504.80
37	Boiler Feed System	\$70,061.52
38	Boiler Feed Pump Turbine and Exhaust	\$14,547.12
39	Boiler Feed Pump	\$18,504.80
40	High Pressure Heaters	\$37,009.60
41	Critical Piping	\$83,271.60
42	Main Steam Piping	\$27,757.20
43	Cold Reheat Piping	\$27,757.20
44	Hot Reheat Piping	\$27,757.20
45	Extraction Steam System	\$18,504.80
46	Piping	\$18,504.80
47	Heater Drips	\$14,803.84
48	Piping	\$14,803.84

La Cygne Unit 2 Dismantlement

ID	Task Name	Cost
49	Auxiliary Steam	\$16,654.32
50	Auxiliary Steam Piping	\$16,654.32
51	Circulating Water (plant side)	\$9,252.40
52	Waterboxes	\$9,252.40
53	Bearing Cooling Water	\$31,458.16
54	Bearing Cooling Water Pumps	\$3,700.96
55	Bearing Cooling Water Heat Exchanger	\$9,252.40
56	Bearing Cooling Water Piping	\$18,504.80
57	Auxiliary Cooling Water	\$29,607.68
58	Auxiliary Cooling Water Heat Exchanger	\$5,551.44
59	Auxiliary Cooling Water Pumps	\$5,551.44
60	Auxiliary Cooling Water Piping	\$18,504.80
61	Service Water	\$9,252.40
62	Service Water Piping	\$9,252.40
63	Fuel Oil System (plant side)	\$42,561.04
64	Igniter Fuel Oil Pumps	\$5,551.44
65	Igniter Fuel Oil and Atomizing Air Piping	\$9,252.40
66	Igniters	\$27,757.20
67	Waste Oil System	\$12,953.36
68	Waste Oil Tank	\$3,700.96
69	Waste Oil Transfer Pump	\$3,700.96
70	Waste Oil Piping	\$5,551.44
71	Air Preheat System	\$10,576.08
72	Air Preheat Pumps	\$3,700.96
73	Air Preheat Piping	\$6,875.12
74	Condenser Air Extraction System	\$11,102.88
75	Vacuum Pumps	\$7,401.92
76	Extraction Piping	\$3,700.96
77	Turbine Seals and Drains	\$12,953.36
78	Piping	\$12,953.36
79	Turbine Lube Oil System	\$21,038.32
80	Turbine Lube Oil Tank	\$11,785.92
81	Turbine Lube Oil Pumps	\$7,401.92
82	Turbine Oil Mist Eliminator	\$1,850.48
83	Generator Auxiliary Systems	\$33,308.64
84	Hydrogen Cooler Skid and Piping	\$9,252.40
85	Stator Cooling Water Skid and Piping	\$9,252.40
86	Isophase Bus Duct	\$7,401.92
87	Exciter Heat Exchanger	\$3,700.96
88	EHC Coolers	\$3,700.96
89	Chemical Feed Systems	\$19,942.32
90	Tanks	\$8,839.44
91	Pumps	\$5,551.44
92	Piping	\$5,551.44
93	Sampling Systems	\$6,647.44
94	Field Mounted Heat Exchangers	\$3,700.96
95	Piping	\$2,946.48
96	Building Heating Systems	\$13,750.24
97	Steam Unit Heaters	\$9,821.60

La Cygne Unit 2 Dismantlement

ID	Task Name	Cost
98	Steam Piping	\$3,928.64
99	Compressed Air System	\$27,757.20
100	Air Compressors	\$7,401.92
101	Air Drying Equipment	\$5,551.44
102	Air Receiver Tanks	\$5,551.44
103	Compressed Air Piping	\$9,252.40
104	Miscellaneous Equipment	\$22,205.76
105	Miscellaneous Equipment (including Fire Protection)	\$22,205.76
106	Phase 2 Demolition	\$6,531,394.96
107	Precipitator	\$3,638,750.00
108	Remove Precipitator	\$3,638,750.00
109	Boiler Equipment	\$734,495.36
110	Fans	\$65,336.00
111	Pulverizers	\$74,019.20
112	Bottom Ash	\$16,995.84
113	Air Heater	\$207,253.76
114	Steam Drum	\$92,524.00
115	Coal Bunkers	\$74,019.20
116	Coal Feeders	\$48,112.48
117	Soot Blowers	\$52,608.00
118	Ductwork	\$103,626.88
119	Boiler Removal	\$414,507.52
120	Furnace	\$236,861.44
121	Back Pass	\$177,646.08
122	Boiler Steel Framing	\$747,593.92
123	Hanger Girders at Top	\$111,028.80
124	All Other Framing	\$347,890.24
125	Bracing and Girts	\$170,244.16
126	Columns	\$118,430.72
127	Boiler Foundations	\$133,234.56
128	Equipment Foundation Demolition to Grade	\$133,234.56
129	Remove Turbine	\$862,813.60
130	Remove HP Turbine	\$27,188.00
131	Remove IP Turbine	\$27,188.00
132	Remove LP Turbine	\$27,188.00
133	Remove Generator	\$54,376.00
134	Remove Condenser Neck Heat Exchanger	\$27,188.00
135	Remove Condenser	\$27,188.00
136	Remove Misc. Auxiliary Turbine Equipment	\$40,782.00
137	Turbine Pedestal Demolition to Grade	\$277,317.60
138	Top Slab and Beams	\$108,752.00
139	Columns	\$168,565.60
140	Remove Turbine Building	\$354,398.00
141	Siding and Roofing	\$112,340.00
142	All Framing Elevations	\$163,128.00
143	Bracing and Girts	\$54,376.00
144	Columns	\$24,554.00
145	Phase 3 Demolition	\$236,220.80
146	Yard Demolition	\$236,220.80

La Cygne Unit 2 Dismantlement

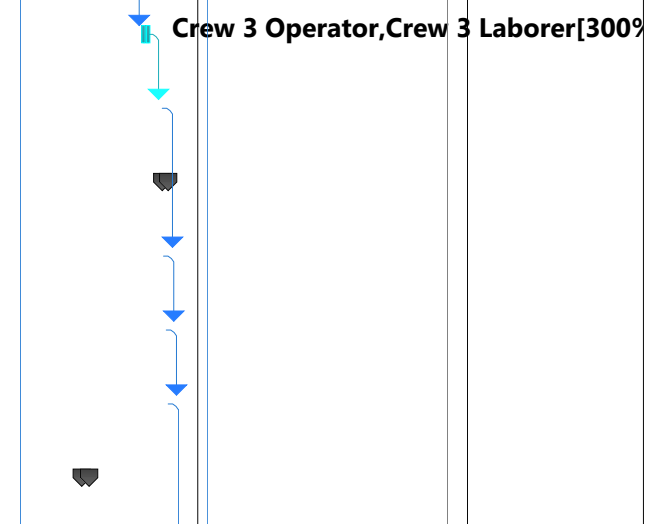
ID	Task Name	Cost
147	Remove Circulating Water Pumps, Screens and Intake Auxiliaries	\$18,504.80
148	Remove Ash Handling Equipment and Piping	\$46,262.00
149	Remove Fly Ash Storage Silo 2A	\$18,504.80
150	Remove Dewatering Bin 2A and 2B	\$9,252.40
151	Remove Piping and Misc. Equipment	\$18,504.80
152	Remove Fuel Yard Equipment	\$83,271.60
153	Remove Crushers 2A, 2B and Surge Bin	\$27,757.20
154	Remove Conveyor 206	\$18,504.80
155	Remove Conveyor 207	\$18,504.80
156	Remove Conveyor 2A	\$18,504.80
157	Remove Laydown Equipment and Warehoused Equipment	\$18,504.80
158	Remove Unit 2 Condensate Storage Tank and Pump	\$4,910.80
159	Remove Unit 2 Make-Up Water Storage Tank	\$9,252.40
160	Remove Unit 2 Water Pre-Treatment Equipment and Building	\$55,514.40
161	Stack Demolition	\$4,000,000.00
162	Stack Demolition	\$4,000,000.00
163	Project Close-Out	\$69,510.40
164	Project Close-Out Activities	\$69,510.40

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3
0	La Cygne Unit 2 Dismantlement	735 days																
1	La Cygne Unit 2 Dismantlement	735 days																
2	Pre-Dismantlement Activities	265 days																
3	Detailed Planning & Hire Owner's Engineer	3 mons																
4	Detailed Site Characterization Study	130 days																
5	Hire Demolition General Contractor	3 mons																
6	KCP&L Prepares Unit for Dismantlement	2 wks																
7	Demolition Contractor Mobilizes on Site	5 days																
8	KCP&L Overhead during Dismantlement	430 days																
9	KCP&L Project Manager	430 days																
10	KCP&L Administrative Support	430 days																
11	KCP&L Engineer	430 days																
12	Owners Engineer Project Manager	430 days																
13	Owners Engineer - Engineer	430 days																
14	Demoliton Contractor Overhead during Dismantlement	430 days																
15	Demolition Contractor Project Manager	430 days																
16	Demolition Contractor Safety Manager	430 days																
17	Demolition Contractor Superintendent	430 days																

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3
18	Demolition Contractor Equipment Rental Costs	430 days							▼	▶	▶	▶	▶	▶	▶	▶	▶	▶
19	Equipment Rental	430 days							▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
20	Demolition Contractor Consummables	430 days							▼	▶	▶	▶	▶	▶	▶	▶	▶	▶
21	Consummables	430 days							▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
22	Scrap Crew(s)	430 days							▼	▶	▶	▶	▶	▶	▶	▶	▶	▶
23	Crew to Handle Scrap Material(s)	430 days							▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
24	Dismantlement Directs	430 days							▼	▶	▶	▶	▶	▶	▶	▶	▶	▶
25	Phase 1 Demolition	191 days							▼	▶	▶	▶	▶	▶	▶	▶	▶	▶
26	Phase 1 Electrical Demolition	191 days							▼	▶	▶	▶	▶	▶	▶	▶	▶	▶
27	Electrical Demolition of Phase 1 Equipment	191 days							▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
28	Condensate System	30 days							▼	▶	▶	▶	▶	▶	▶	▶	▶	▶
29	Condensate Pumps	2 days							▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
30	Condensate Transfer Pumps	1 day							▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
31	Cycle Make-Up Pump	1 day							▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
32	Steam Packing Exhauster and Blower	2 days							▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
33	Low Pressure Heaters (except the condenser neck heat exchangers)	30 days							▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
34	Deaerator	8 days							▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
35	Deaerator Storage Tank	5 days							▶	▶	▶	▶	▶	▶	▶	▶	▶	▶

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3
36	Condensate Piping	10 days																
37	Boiler Feed System	37 days																
38	Boiler Feed Pump Turbine and Exhaust	7 days																
39	Boiler Feed Pump	10 days																
40	High Pressure Heaters	20 days																
41	Critical Piping	45 days																
42	Main Steam Piping	15 days																
43	Cold Reheat Piping	15 days																
44	Hot Reheat Piping	15 days																
45	Extraction Steam System	10 days																
46	Piping	10 days																
47	Heater Drips	8 days																
48	Piping	8 days																
49	Auxiliary Steam	9 days																
50	Auxiliary Steam Piping	9 days																
51	Circulating Water (plant side)	5 days																
52	Waterboxes	5 days																
53	Bearing Cooling Water	17 days																

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3
54	Bearing Cooling Water Pumps	2 days																
55	Bearing Cooling Water Heat Exchanger	5 days																
56	Bearing Cooling Water Piping	10 days																
57	Auxiliary Cooling Water	16 days																
58	Auxiliary Cooling Water Heat Exchanger	3 days																
59	Auxiliary Cooling Water Pumps	3 days																
60	Auxiliary Cooling Water Piping	10 days																
61	Service Water	5 days																
62	Service Water Piping	5 days																
63	Fuel Oil System (plant side)	120 days																
64	Igniter Fuel Oil Pumps	3 days																
65	Igniter Fuel Oil and Atomizing Air Piping	5 days																
66	Igniters	15 days																
67	Waste Oil System	7 days																
68	Waste Oil Tank	2 days																
69	Waste Oil Transfer Pump	2 days																
70	Waste Oil Piping	3 days																
71	Air Preheat System	9 days																



ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3
72	Air Preheat Pumps	2 days																
73	Air Preheat Piping	7 days																
74	Condenser Air Extraction System	6 days																
75	Vacuum Pumps	4 days																
76	Extraction Piping	2 days																
77	Turbine Seals and Drains	7 days																
78	Piping	7 days																
79	Turbine Lube Oil System	17 days																
80	Turbine Lube Oil Tank	12 days																
81	Turbine Lube Oil Pumps	4 days																
82	Turbine Oil Mist Eliminator	1 day																
83	Generator Auxiliary Systems	18 days																
84	Hydrogen Cooler Skid and Piping	5 days																
85	Stator Cooling Water Skid and Piping	5 days																
86	Isophase Bus Duct	4 days																
87	Exciter Heat Exchanger	2 days																
88	EHC Coolers	2 days																
89	Chemical Feed Systems	15 days																

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3
90	Tanks	9 days																
91	Pumps	3 days																
92	Piping	3 days																
93	Sampling Systems	5 days																
94	Field Mounted Heat Exchangers	2 days																
95	Piping	3 days																
96	Building Heating Systems	14 days																
97	Steam Unit Heaters	10 days																
98	Steam Piping	4 days																
99	Compressed Air System	15 days																
100	Air Compressors	4 days																
101	Air Drying Equipment	3 days																
102	Air Reciever Tanks	3 days																
103	Compressed Air Piping	5 days																
104	Miscellaneous Equipment	12 days																
105	Miscellaneous Equipment (including Fire Protection)	12 days																
106	Phase 2 Demolition	333 days																
107	Precipitator	30 days																

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3
108	Remove Precipitator	30 days																
109	Boiler Equipment	134 days																
110	Fans	20 days																
111	Pulverizers	20 days																
112	Bottom Ash	6 days																
113	Air Heater	56 days																
114	Steam Drum	25 days																
115	Coal Bunkers	20 days																
116	Coal Feeders	13 days																
117	Soot Blowers	16 days																
118	Ductwork	28 days																
119	Boiler Removal	56 days																
120	Furnace	32 days																
121	Back Pass	24 days																
122	Boiler Steel Framing	101 days																
123	Hanger Girders at Top	15 days																
124	All Other Framing	47 days																
125	Bracing and Girts	23 days																

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3
126	Columns	16 days																
127	Boiler Foundations	18 days																
128	Equipment Foundation Demolition to Grade	18 days																
129	Remove Turbine	333 days																
130	Remove HP Turbine	10 days																
131	Remove IP Turbine	10 days																
132	Remove LP Turbine	10 days																
133	Remove Generator	20 days																
134	Remove Condenser Neck Heat Exchanger	10 days																
135	Remove Condenser	10 days																
136	Remove Misc. Auxiliary Turbine Equipment	15 days																
137	Turbine Pedestal Demolition to Grade	102 days																
138	Top Slab and Beams	40 days																
139	Columns	62 days																
140	Remove Turbine Building	146 days																
141	Siding and Roofing	41 days																
142	All Framing Elevations	60 days																
143	Bracing and Girts	20 days																

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	
144	Columns	25 days																	
145	Phase 3 Demolition	130 days																	
146	Yard Demolition	130 days																	
147	Remove Circulating Water Pumps, Screens and Intake Auxiliaries	10 days																	
148	Remove Ash Handling Equipment and Piping	25 days																	
149	Remove Fly Ash Storage Silo 2A	10 days																	
150	Remove Dewatering Bin 2A and 2B	5 days																	
151	Remove Piping and Misc. Equipment	10 days																	
152	Remove Fuel Yard Equipment	45 days																	
153	Remove Crushers 2A, 2B and Surge Bin	15 days																	
154	Remove Conveyor 206	10 days																	
155	Remove Conveyor 207	10 days																	
156	Remove Conveyor 2A	10 days																	
157	Remove Laydown Equipment and Warehoused Equipment	10 days																	
158	Remove Unit 2 Condensate Storage Tank and Pump	5 days																	
159	Remove Unit 2 Make-Up Water Storage Tank	5 days																	
160	Remove Unit 2 Water Pre-Treatment Equipment and Building	30 days																	
161	Stack Demolition	1 day																	

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3
162	Stack Demolition	1 day																
163	Project Close-Out	40 days																
164	Project Close-Out Activities	40 days																

La Cygne Unit 2 AQCS Dismantlement

ID	Task Name	Cost
0	La Cygne Unit 2 AQCS Dismantlement	\$4,760,227.56
1	La Cygne Unit 2 AQCS Dismantlement	\$4,760,227.56
2	Common Removal Overheads	\$367,218.00
3	Added Overhead Staff for Common Removals	\$367,218.00
4	Scrap Crew	\$638,415.60
5	Crew(s) to Handle Scrap Material	\$638,415.60
6	Demolition Contractor Consummables	\$1,307,439.60
7	Consummables	\$1,307,439.60
8	Demolition Contractor Equipment Rental Costs	\$1,310,503.20
9	Equipment Rental	\$1,310,503.20
10	Dismantlement	\$1,136,651.16
11	Initial Structural	\$134,621.84
12	Remove SCR box & ductwork lagging & insulation	\$18,504.80
13	Remove SCR expansion joints	\$11,102.88
14	Remove ductwork lagging & insulation	\$8,220.00
15	Remove ductwork expansion joints	\$18,504.80
16	Remove ductwork access platforms & ladders	\$18,504.80
17	Remove FF lagging, insulation, wall panel, & roof panels	\$37,009.60
18	Remove ID fan lagging & insulation	\$7,401.92
19	Removal all HVAC equipment located on FGD Bldg roof	\$5,551.44
20	Remove FGD Bldg lagging, insulation, wall panel, & roof	\$9,821.60
21	General Electric	\$239,058.56
22	Remove Unit 2 Air Quality Control Equipment Transformer	\$6,895.92
23	Remove breakers serving all FF equipment	\$1,149.32
24	Remove breakers serving all FGD equipment	\$2,298.64
25	Remove breakers serving all ID fan equipment	\$1,149.32
26	Remove breakers serving all SCR equipment	\$1,149.32
27	Remove breakers serving all comp air equipment	\$1,149.32
28	Remove all ductwork primary instrumentation, controls & assoc'd cables, and	\$11,493.20
29	Remove all FGD primary instrumentation, controls & assoc'd cables, and cond	\$34,479.60
30	Remove all FF primary instrumentation, controls & assoc'd cables, and condui	\$22,986.40
31	Remove SCR primary instrumentation, controls, & assoc'd cable & conduit	\$11,493.20
32	Remove NH3 supply primary instrumentation, controls, & assoc'd cable & con	\$11,493.20
33	Remove wiring and conduit serving FGD equipment, HVAC, lighting and conve	\$45,972.80
34	Remove wiring and conduit serving FF equipment, HVAC, lighting and conveni	\$22,986.40
35	Remove wiring and conduit serving the ID fans and assoc'd equipment	\$27,583.68
36	Remove wiring & conduit serving SCR vaporization & injection equipment	\$6,895.92
37	Remove wiring & conduit serving compressed air equipment	\$6,895.92
38	Remove electrical control cabinets & switchgear	\$22,986.40
39	FGD System	\$281,065.32
40	Remove ductwork between FGD module and chimney	\$8,220.00
41	Remove support steel and access platforms between FGD and chimney	\$5,551.44
42	Remove all mechanical equipment, pumps, and motors and tanks in FGD Bldg	\$37,009.60
43	Remove oxi air blowers	\$925.24
44	Remove all FGD piping & valves other than recirc piping	\$27,757.20
45	Remove ox air lines	\$5,551.44
46	Remove FGD MEs panels	\$9,864.00
47	Remove FGD outlet duct and top cone	\$5,551.44
48	Remove FGD internal wash ME piping and ME supports	\$5,551.44

La Cygne Unit 2 AQCS Dismantlement

ID	Task Name	Cost
49	Remove FGD internal spray header piping	\$9,252.40
50	Remove FGD support steel, access provisions, stair tower, and recirc piping fr	\$37,009.60
51	Remove FGD module walls	\$74,019.20
52	Remove FGD inlet duct	\$5,551.44
53	Remove FGD reaction tank walls and floor	\$18,504.80
54	Remove FGD Bldg trench floor grating	\$3,700.96
55	Remove Unit 2 Sorbent Injection System Silo	\$7,401.92
56	Remove Unit 2 Sorbent Injection Equipment and Injection Blower Building	\$9,252.40
57	Remove Unit 2 Mercury Reduction System Silo	\$10,390.80
58	ID Fans	\$81,421.12
59	Remove ductwork between ID fan outlets and FGD module	\$12,953.36
60	Remove support steel and access platforms between ID fan outlets and FGD n	\$5,551.44
61	Remove ductwork between FF outlet and ID fan inlets	\$12,953.36
62	Remove support steel between FF outlet and ID fan inlets	\$5,551.44
63	Removed ID fan isolation dampers	\$14,803.84
64	Removed ID fan drive motor	\$7,401.92
65	Remove ID fan seal air system	\$7,401.92
66	Remove fan casing & rotor	\$14,803.84
67	Fabric Filters	\$324,614.64
68	Remove ductwork between air heater and FF	\$9,252.40
69	Remove ductwork structural steel between AH and FF	\$5,551.44
70	Remove FF penthouse hoists and trolleys	\$7,401.92
71	Remove FF hopper heaters, HVAC, lighting and convenience outlets	\$22,986.40
72	Remove FF ash handling piping	\$27,757.20
73	Remove compress air blower, dryers, and receivers, piping & valves	\$18,504.80
74	Remove FF penthouse roof panels supporting steel	\$18,504.80
75	Remove FF compartment roof hatches	\$5,551.44
76	Remove FF compartment pulse air piping	\$5,551.44
77	Remove FF compartment pulse air and compressed air supply piping	\$11,102.88
78	Remove FF outlet poppet damper operators	\$12,953.36
79	Remove FF bags & cages	\$25,906.72
80	Remove FF bag support sheets	\$25,906.72
81	Remove remaining FF roof	\$7,401.92
82	Remove FF outlet dampers	\$7,401.92
83	Remove ductwork between air heater and FF	\$9,252.40
84	Remove FF wall panels to hopper level	\$51,813.44
85	Remove ductwork structural steel between AH and FF	\$5,551.44
86	Remove FF stair tower(s)	\$18,504.80
87	Remove FF inlet dampers	\$7,401.92
88	Remove FF hoppers	\$12,953.36
89	Remove FF support steel	\$7,401.92
90	SCR and Ammonia Supply	\$75,869.68
91	Vacuum SCR catalyst	\$3,700.96
92	Remove SCR catalyst	\$16,654.32
93	Remove ammonia injection grid	\$3,700.96
94	Remove NH3 piping between storage & injection	\$3,700.96
95	Remove air horn air receiver & supply piping	\$3,700.96
96	Remove SCR guillotine dampers	\$7,401.92
97	Remove SCR muliti-louver dampers	\$3,700.96

La Cygne Unit 2 AQCS Dismantlement

ID	Task Name	Cost
98	Remove SCR box, internal supports, & assoc'd ductwork	\$27,757.20
99	Remove NH3 piping between storage & vaporizers	\$5,551.44

ID	Task Name	Duration	4th Quart	1st Quart	2nd Quar	3rd Quart	4th Quart	1st Quart	2nd Quar	3rd Quart	4th Quart
0	La Cygne Unit 2 AQCS Dismantlement	350.5 days									
1	La Cygne Unit 2 AQCS Dismantlement	350.5 days									
2	Common Removal Overheads	345 days									
3	Added Overhead Staff for Common Removals	345 days									
4	Scrap Crew	345 days									
5	Crew(s) to Handle Scrap Material	345 days									
6	Demolition Contractor Consummables	345 days									
7	Consummables	345 days									
8	Demolition Contractor Equipment Rental Costs	345 days									
9	Equipment Rental	345 days									
10	Dismantlement	350.5 days									
11	Initial Structural	212.5 days									
12	Remove SCR box & ductwork lagging & insulation	10 days									
13	Remove SCR expansion joints	6 days									
14	Remove ductwork lagging & insulation	5 days									
15	Remove ductwork expansion joints	10 days									
16	Remove ductwork access platforms & ladders	10 days									
17	Remove FF lagging, insulation, wall panel, & roof panels	20 days									

ID	Task Name	Duration	4th Quart	1st Quart	2nd Quar	3rd Quart	4th Quart	1st Quart	2nd Quar	3rd Quart	4th Quart
18	Remove ID fan lagging & insulation	4 days									
19	Removal all HVAC equipment located on FGD Bldg roof	3 days									
20	Remove FGD Bldg lagging, insulation, wall panel, & roof	10 days									
21	General Electric	73 days									
22	Remove Unit 2 Air Quality Control Equipment Transformer	3 days									
23	Remove breakers serving all FF equipment	0.5 days									
24	Remove breakers serving all FGD equipment	1 day									
25	Remove breakers serving all ID fan equipment	0.5 days									
26	Remove breakers serving all SCR equipment	0.5 days									
27	Remove breakers serving all comp air equipment	0.5 days									
28	Remove all ductwork primary instrumentation, controls & assoc'd cables, and conduit	5 days									
29	Remove all FGD primary instrumentation, controls & assoc'd cables, and conduit	15 days									
30	Remove all FF primary instrumentation, controls & assoc'd cables, and conduit	10 days									
31	Remove SCR primary instrumentation, controls, & assoc'd cable & conduit	5 days									
32	Remove NH3 supply primary instrumentation, controls, & assoc'd cable & conduit	5 days									
33	Remove wiring and conduit serving FGD equipment, HVAC, lighting and convenience outlets	20 days									
34	Remove wiring and conduit serving FF equipment, HVAC, lighting and convenience outlets	10 days									

ID	Task Name	Duration	4th Quart	1st Quart	2nd Quar	3rd Quart	4th Quart	1st Quart	2nd Quar	3rd Quart	4th Quart
35	Remove wiring and conduit serving the ID fans and assoc'd equipment	12 days									
36	Remove wiring & conduit serving SCR vaporization & injection equipment	3 days									
37	Remove wiring & conduit serving compressed air equipment	3 days									
38	Remove electrical control cabinets & switchgear	10 days									
39	FGD System	108.5 days									
40	Remove ductwork between FGD module and chimney	5 days									
41	Remove support steel and access platforms between FGD and chimney	3 days									
42	Remove all mechanical equipment, pumps, and motors and tanks in FGD Bldg	20 days									
43	Remove oxi air blowers	0.5 days									
44	Remove all FGD piping & valves other than recirc piping	15 days									
45	Remove ox air lines	3 days									
46	Remove FGD MEs panels	6 days									
47	Remove FGD outlet duct and top cone	3 days									
48	Remove FGD internal wash ME piping and ME supports	3 days									
49	Remove FGD internal spray header piping	5 days									
50	Remove FGD support steel, access provisions, stair tower, and recirc piping from top down	20 days									
51	Remove FGD module walls	20 days									
52	Remove FGD inlet duct	3 days									

ID	Task Name	Duration	4th Quart	1st Quart	2nd Quar	3rd Quart	4th Quart	1st Quart	2nd Quar	3rd Quart	4th Quart
53	Remove FGD reaction tank walls and floor	10 days									
54	Remove FGD Bldg trench floor grating	2 days									
55	Remove Unit 2 Sorbent Injection System Silo	4 days									
56	Remove Unit 2 Sorbent Injection Equipment and Injection Blower Building	5 days									
57	Remove Unit 2 Mercury Reduction System Silo	5 days									
58	ID Fans	75 days									
59	Remove ductwork between ID fan outlets and FGD module	7 days									
60	Remove support steel and access platforms between ID fan outlets and FGD module	3 days									
61	Remove ductwork between FF outlet and ID fan inlets	7 days									
62	Remove support steel between FF outlet and ID fan inlets	3 days									
63	Removed ID fan isolation dampers	8 days									
64	Removed ID fan drive motor	4 days									
65	Remove ID fan seal air system	4 days									
66	Remove fan casing & rotor	8 days									
67	Fabric Filters	350.5 days									
68	Remove ductwork between air heater and FF	5 days									
69	Remove ductwork structural steel between AH and FF	3 days									
70	Remove FF penthouse hoists and trolleys	4 days									

ID	Task Name	Duration	4th Quart	1st Quart	2nd Quar	3rd Quart	4th Quart	1st Quart	2nd Quar	3rd Quart	4th Quart
71	Remove FF hopper heaters, HVAC, lighting and convenience outlets	10 days									
72	Remove FF ash handling piping	15 days									
73	Remove compress air blower, dryers, and receivers, piping & valves	10 days									
74	Remove FF penthouse roof panels supporting steel	10 days									
75	Remove FF compartment roof hatches	3 days									
76	Remove FF compartment pulse air piping	3 days									
77	Remove FF compartment pulse air and compressed air supply piping	6 days									
78	Remove FF outlet poppet damper operators	7 days									
79	Remove FF bags & cages	14 days									
80	Remove FF bag support sheets	14 days									
81	Remove remaining FF roof	4 days									
82	Remove FF outlet dampers	4 days									
83	Remove ductwork between air heater and FF	5 days									
84	Remove FF wall panels to hopper level	28 days									
85	Remove ductwork structural steel between AH and FF	3 days									
86	Remove FF stair tower(s)	10 days									
87	Remove FF inlet dampers	4 days									
88	Remove FF hoppers	7 days									

ID	Task Name	Duration	4th Quart	1st Quart	2nd Quar	3rd Quart	4th Quart	1st Quart	2nd Quar	3rd Quart	4th Quart
89	Remove FF support steel	4 days									
90	SCR and Ammonia Supply	38 days									
91	Vacuum SCR catalyst	2 days									
92	Remove SCR catalyst	9 days									
93	Remove ammonia injection grid	2 days									
94	Remove NH3 piping between storage & injection	2 days									
95	Remove air horn air receiver & supply piping	2 days									
96	Remove SCR guillotine dampers	4 days									
97	Remove SCR multi-louver dampers	2 days									
98	Remove SCR box, internal supports, & assoc'd ductwork	15 days									
99	Remove NH3 piping between storage & vaporizers	3 days									

COMMON

La Cygne Common Retirement

Owner Costs

Pre-Retirement Activities	\$55,645
Retirement Activities	\$647,555
Post-Retirement Activities	\$27,822

Owner Direct Total \$731,022

Owner Internal Costs 5.00% \$36,551

Owner Contingency: 25.00% \$191,893

La Cygne Common Retirement Opinion of Probable Cost: \$959,466

Activities Required by Permit or Regulation

La Cygne Landfill - Closure	\$9,954,062
La Cygne Landfill - Post Closure	\$6,162,607
La Cygne Ash Pond(s)- Closure	\$61,277,411
La Cygne Ash Pond(s) - Post Closure	\$10,300,356
La Cygne Station Asbestos Removal	\$594,391

Activities Required by Permit or Regulation: \$88,288,826

ID	Task Name	Remaining
0	La Cygne Common Retirement	\$731,022.03
1	La Cygne Common Retirement	\$731,022.03
2	Pre-Retirement Activities	\$55,644.80
3	Permitting Review	\$27,822.40
4	Develop Detailed Retirement Plan	\$27,822.40
5	Overheads	\$180,256.71
6	Retirement Overheads	\$158,004.39
7	Added Overhead Staff for Common Retirement	\$158,004.39
8	Common Removal Equipment Rental	\$22,252.32
9	Common Removal Equipment Rental	\$22,252.32
10	Retirement Activities	\$467,298.12
11	Administration Building	\$10,275.20
12	Secure Administration Building	\$10,275.20
13	Fuel Yard Office Building	\$6,165.12
14	Secure Fuel Yard Office Building	\$6,165.12
15	Training Building	\$6,165.12
16	Secure Training Building	\$6,165.12
17	Warehouse(s)	\$8,220.16
18	Secure Unit 1 Warehouse	\$4,110.08
19	Secure Unit 2 Warehouse	\$4,110.08
20	Welding Shop	\$12,694.80
21	Secure Welding Shop	\$12,694.80
22	Maintenance Shop	\$6,165.12
23	Secure Maintenance Shop	\$6,165.12
24	Insulators Shop	\$6,165.12
25	Secure Insulators Shop	\$6,165.12
26	Auxiliary Boilers and Building	\$4,586.40
27	Remove Aux. Boiler Chemicals	\$917.28
28	Drain Auxiliary Boilers	\$2,751.84
29	Open and Vent Auxiliary Boilers	\$917.28
30	Fuel Yard	\$122,579.04
31	Empty and Clean Silo 2a	\$3,314.16
32	Empty and Clean Silo E	\$3,314.16
33	Empty and Clean Silo F	\$3,314.16
34	Empty Transfer Hoppers and Clean Transfer Tower 201	\$4,231.44
35	Clean Truck Reclaim	\$4,231.44
36	Car Dumper	\$9,873.36
37	Empty Car Dumper Hoppers	\$1,410.48
38	Clean Car Dumper	\$4,231.44
39	Secure Dumper Building	\$4,231.44
40	Stacker/Reclaimer	\$21,410.00
41	Clean and Secure the Stacker/Reclaimer	\$7,052.40
42	Unit 1 Reclaim	\$5,641.92
43	Clean Unit 1 Reclaim	\$2,820.96
44	Secure the Unit 1 Reclaim Building	\$2,820.96

ID	Task Name	Remaining
45	Unit 2 Reclaim	\$5,641.92
46	Clean Unit 2 Reclaim	\$2,820.96
47	Secure the Unit 2 Reclaim Building	\$2,820.96
48	Clean and Secure Transfer Tower 201	\$7,052.40
49	Clean and Secure Transfer Tower 3	\$7,052.40
50	Clean and Secure Primary Crusher Building	\$7,052.40
51	Clean and Secure Old Truck Unloader	\$4,231.44
52	Clean Conveyors - 300, 302, 301, 203, 202, 201, 3, 204	\$22,567.68
53	Remove Bags and Clean Dust Collectors	\$6,597.76
54	Clean and Secure Miscellaneous Fuel Yard Equipment	\$7,052.40
55	Reagent Prep and Gypsum Handling	\$32,794.96
56	Clean and Secure Limestone Unloading Facility	\$4,231.44
57	Clean and Secure Limestone Storage Facility	\$4,231.44
58	Clean Limestone Conveyor	\$4,307.28
59	Clean and Secure Limestone Prep Building	\$7,178.80
60	Clean Gypsum Stackout Conveyor	\$2,871.52
61	Clean and Secure PCM-1	\$2,871.52
62	Clean and Secure PCM-2	\$2,871.52
63	Clean and Secure the Vacuum Pump and Air Compressor Building	\$4,231.44
64	Lake Intake Structure and Intake Chemical Feed System	\$917.28
65	Remove Chemicals	\$917.28
66	Underground Circulating Water Piping	\$4,185.60
67	Drain the Underground Circulating Water Piping	\$4,185.60
68	Sewage Treatment	\$4,724.64
69	Clean the Sewage Treatment Tanks and Transfer Points	\$4,724.64
70	Fuel Oil Storage and Unloading	\$1,834.56
71	Remove Fuel from the Fuel Oil Storage Tank(s) and Vent	\$917.28
72	Drain Fuel Oil Pipe and Vent	\$917.28
73	Wastewater Lagoon	\$239,825.00
74	Wastewater Lagoon Removal	\$239,825.00
75	Post Retirement Closure Activities	\$27,822.40
76	Post Retirement Closure Activities	\$27,822.40

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter		
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
0	La Cygne Common Retirement	161 days									
1	La Cygne Common Retirement	161 days									
2	Pre-Retirement Activities	40 days									
3	Permitting Review	20 days									
4	Develop Detailed Retirement Plan	20 days									
5	Overheads	101 days									
6	Retirement Overheads	101 days									
7	Added Overhead Staff for Common Retirement	101 days									
8	Common Removal Equipment Rental	101 days									
9	Common Removal Equipment Rental	101 days									
10	Retirement Activities	101 days									
11	Administration Building	5 days									
12	Secure Administration Building	5 days									
13	Fuel Yard Office Building	3 days									
14	Secure Fuel Yard Office Building	3 days									
15	Training Building	3 days									
16	Secure Training Building	3 days									
17	Warehouse(s)	4 days									
18	Secure Unit 1 Warehouse	2 days									
19	Secure Unit 2 Warehouse	2 days									
20	Welding Shop	5 days									
21	Secure Welding Shop	5 days									
22	Maintenance Shop	3 days									
23	Secure Maintenance Shop	3 days									
24	Insulators Shop	3 days									
25	Secure Insulators Shop	3 days									
26	Auxiliary Boilers and Building	5 days									
27	Remove Aux. Boiler Chemicals	1 day									
28	Drain Auxiliary Boilers	3 days									
29	Open and Vent Auxiliary Boilers	1 day									
30	Fuel Yard	78 days									
31	Empty and Clean Silo 2a	3 days									
32	Empty and Clean Silo E	3 days									

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
33	Empty and Clean Silo F	3 days										
34	Empty Transfer Hoppers and Clean Transfer Tower 201	3 days										
35	Clean Truck Reclaim	3 days										
36	Car Dumper	7 days										
37	Empty Car Dumper Hoppers	1 day										
38	Clean Car Dumper	3 days										
39	Secure Dumper Building	3 days										
40	Stacker/Reclaimer	5 days										
41	Clean and Secure the Stacker/Reclaimer	5 days										
42	Unit 1 Reclaim	4 days										
43	Clean Unit 1 Reclaim	2 days										
44	Secure the Unit 1 Reclaim Building	2 days										
45	Unit 2 Reclaim	4 days										
46	Clean Unit 2 Reclaim	2 days										
47	Secure the Unit 2 Reclaim Building	2 days										
48	Clean and Secure Transfer Tower 201	5 days										
49	Clean and Secure Transfer Tower 3	5 days										
50	Clean and Secure Primary Crusher Building	5 days										
51	Clean and Secure Old Truck Unloader	3 days										
52	Clean Conveyors - 300, 302, 301, 203, 202, 201, 3, 204	16 days										
53	Remove Bags and Clean Dust Collectors	4 days										
54	Clean and Secure Miscellaneous Fuel Yard Equipment	5 days										
55	Reagent Prep and Gypsum Handling	23 days										
56	Clean and Secure Limestone Unloading Facility	3 days										
57	Clean and Secure Limestone Storage Facility	3 days										
58	Clean Limestone Conveyor	3 days										
59	Clean and Secure Limestone Prep Building	5 days										
60	Clean Gypsum Stackout Conveyor	2 days										
61	Clean and Secure PCM-1	2 days										
62	Clean and Secure PCM-2	2 days										
63	Clean and Secure the Vacuum Pump and Air Compressor Building	3 days										
64	Lake Intake Structure and Intake Chemical Feed System	1 day										

ID	Task Name	Duration	1st Quarter				2nd Quarter			3rd Quarter	
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
65	Remove Chemicals	1 day									
66	Underground Circulating Water Piping	3 days									
67	Drain the Underground Circulating Water Piping	3 days									
68	Sewage Treatment	4 days									
69	Clean the Sewage Treatment Tanks and Transfer Points	4 days									
70	Fuel Oil Storage and Unloading	2 days									
71	Remove Fuel from the Fuel Oil Storage Tank(s) and Vent	1 day									
72	Drain Fuel Oil Pipe and Vent	1 day									
73	Wastewater Lagoon	1 day									
74	Wastewater Lagoon Removal	1 day									
75	Post Retirement Closure Activities	20 days									
76	Post Retirement Closure Activities	20 days									

La Cygne Common Dismantlement

Owner Additional Costs

Pre-Dismantlement Activities	\$0
Overhead During Dismantlement	\$0

Owner Costs Total \$0

Demolition General Contractor (DGC) Costs

Additional Site Management	\$112,170
Equipment Rental	\$541,300
Consumables	\$810,992
Scrap Crew(s)	\$792,005
Dismantlement	\$8,986,012
	\$11,242,480
DGC Insurance 2.00%	\$224,850
Contingency/Profit 15.00%	\$1,720,099
Performance Bond 2.00%	\$263,749

Contractor Costs Total: \$13,451,177

Total: \$13,451,177

Owner Internal Costs: 5.00% \$672,559

Owner Contingency: 25.00% \$3,530,934

La Cygne Common Dismantlement Opinion of Probable Cost: \$17,654,670

ID	Task Name	Remaining	
			W
1	La Cygne Common Dismantlement	\$12,513,245.27	
2	Overheads	\$2,256,467.36	
3	Common Removal Overheads	\$112,170.24	
4	Added Overhead Staff for Common Removals	\$112,170.24	
5	Common Removal Equipment Rental	\$541,300.16	
6	Common Removal Equipment Rental	\$541,300.16	
7	Demolition Contractor Consummables	\$810,991.52	
8	Consummables	\$810,991.52	
9	Scrap Crew	\$792,005.44	
10	Crew(s) to Handle Scrap Material	\$792,005.44	
11	Dismantlement Activities	\$8,986,012.31	
12	Administration Building	\$37,009.60	
13	Remove Administration Building	\$37,009.60	
14	Fuel Yard Office Building	\$18,504.80	
15	Remove Fuel Yard Office Building	\$18,504.80	
16	Training Building	\$18,504.80	
17	Remove Training Building	\$18,504.80	
18	Parking Lots and Plant Roads	\$85,122.08	
19	Plant Roads and Parking Areas	\$74,019.20	
20	Guard Shack	\$11,102.88	
21	Warehouse(s)	\$55,514.40	
22	Remove Unit 1 Warehouse	\$18,504.80	
23	Remove Unit 2 Warehouse	\$18,504.80	
24	Remove 20,000 S.F. Warehouse	\$18,504.80	
25	Welding Shop	\$29,607.68	
26	Remove Welding Shop	\$29,607.68	
27	Maintenance Shop	\$23,984.80	
28	Remove Maintenance Shop	\$23,984.80	
29	Insulators Shop	\$18,504.80	
30	Remove Insulators Shop	\$18,504.80	
31	Auxiliary Boilers and Building	\$92,524.00	
32	Remove Auxiliary Boilers	\$55,514.40	
33	Remove Building	\$18,504.80	
34	Remove Piping and Tressell	\$18,504.80	
35	Fuel Yard	\$792,005.44	
36	Remove Silo 2A	\$3,700.96	
37	Remove Silo E	\$3,700.96	
38	Remove Silo F	\$3,700.96	
39	Remove Transfer Tower 201	\$37,009.60	
40	Remove Truck Reclaim	\$18,504.80	
41	Remove Car Dumper	\$92,524.00	
42	Remove Underground Equipment	\$18,504.80	
43	Remove Above Ground Equipment	\$37,009.60	
44	Remove Building	\$18,504.80	
45	Backfill Dumper Structure	\$18,504.80	
46	Remove Stacker/Reclaimer	\$37,009.60	

ID	Task Name	Remaining	
			W
47	Remove Unit 1 Reclaim	\$66,617.28	
48	Remove Underground Equipment	\$18,504.80	
49	Remove Above Ground Equipment	\$18,504.80	
50	Remove Building	\$14,803.84	
51	Backfill Structure	\$14,803.84	
52	Remove Unit 2 Reclaim	\$66,617.28	
53	Remove Underground Equipment	\$18,504.80	
54	Remove Above Ground Equipment	\$18,504.80	
55	Remove Building	\$14,803.84	
56	Backfill Structure	\$14,803.84	
57	Remove Transfer Tower 201	\$55,514.40	
58	Remove Transfer Tower 3	\$55,514.40	
59	Remove Primary Crusher Building	\$74,019.20	
60	Remove Old Truck Unloader	\$74,019.20	
61	Remove Conveyors - 300, 302, 301, 203, 202, 201, 3, 204	\$148,038.40	
62	Remove Dust Collectors	\$18,504.80	
63	Remove Miscellaneous Fuel Yard Equipment	\$37,009.60	
64	AQCS Common	\$413,928.16	
65	Remove Limestone Unloading Facility	\$37,009.60	
66	Remove Limestone Storage Facility	\$18,504.80	
67	Remove Limestone Conveyor	\$18,504.80	
68	Remove Limestone Prep Building	\$148,038.40	
69	Remove Gypsum Stackout Conveyor	\$18,504.80	
70	Remove PCM-1	\$7,401.92	
71	Remove PCM-2	\$7,401.92	
72	Remove the Vacuum Pump and Air Compressor Building	\$74,019.20	
73	Remove Gypsum Dewatering Building	\$10,298.16	
74	Remove Service Water Tanks	\$5,914.16	
75	Remove Emergency Limestone Conveyor Tunnel	\$3,722.16	
76	Remove Limestone Slurry Tanks	\$9,202.16	
77	Remove AQCS Electrical Enclosure	\$2,284.64	
78	Remove FlyAsh Equipment Building	\$10,298.16	
79	Remove Limestone and Gypsum Handling Conveyors	\$11,394.16	
80	Remove Reclaim Water Tanks	\$5,914.16	
81	Remove Remaining Absorber Equipment Building	\$7,010.16	
82	Remove Miscellaneous Equipment	\$18,504.80	
83	Lake Intake Structure and Intake Chemical Feed System	\$118,430.72	
84	Remove Chemical Feed System and Misc. Equipment	\$7,401.92	
85	Remove Concrete Intake Structure	\$74,019.20	
86	Complete Intake Grading and Drainage	\$37,009.60	
87	Underground Circulating Water Piping	\$55,514.40	
88	Excavate Underground Circulating Water Piping	\$18,504.80	
89	Collapse Underground Circulating Water Piping	\$11,102.88	
90	Backfill and Compact Over Circulating Water Piping	\$25,906.72	
91	Sewage Treatment	\$22,205.76	
92	Remove Sewage Treatment Pumps and Miscellaneous Equipment	\$7,401.92	

ID	Task Name	Remaining	
93	Remove Sewage Treatment Concrete Structures	\$14,803.84	
94	Yard Fire Water Systems	\$37,009.60	
95	Remove Hydrants and Fire Water System Piping Down to 3' Below Grade	\$37,009.60	
96	Common Stack	\$7,167,641.27	
97	Remove Common Stack to Grade	\$7,167,641.27	
98	Final Site Grading and Drainage	\$1,270,765.60	
99	Final Site Grading and Drainage	\$1,270,765.60	

ID	Task Name	Duration	1st Quarter		2nd Quarter			3rd Quarter			4th Quarter			1st Quarter	
			Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1	La Cygne Common Dismantlement	214 days													
2	Overheads	214 days													
3	Common Removal Overheads	214 days													
4	Added Overhead Staff for Common Removals	214 days													
5	Common Removal Equipment Rental	214 days													
6	Common Removal Equipment Rental	214 days													
7	Demolition Contractor Consummables	214 days													
8	Consummables	214 days													
9	Scrap Crew	214 days													
10	Crew(s) to Handle Scrap Material	214 days													
11	Dismantlement Activities	214 days													
12	Administration Building	10 days													
13	Remove Administration Building	10 days													
14	Fuel Yard Office Building	5 days													
15	Remove Fuel Yard Office Building	5 days													
16	Training Building	5 days													
17	Remove Training Building	5 days													
18	Parking Lots and Plant Roads	23 days													
19	Plant Roads and Parking Areas	20 days													
20	Guard Shack	3 days													
21	Warehouse(s)	15 days													
22	Remove Unit 1 Warehouse	5 days													
23	Remove Unit 2 Warehouse	5 days													
24	Remove 20,000 S.F. Warehouse	5 days													
25	Welding Shop	8 days													
26	Remove Welding Shop	8 days													
27	Maintenance Shop	10 days													
28	Remove Maintenance Shop	10 days													
29	Insulators Shop	5 days													
30	Remove Insulators Shop	5 days													
31	Auxiliary Boilers and Building	25 days													
32	Remove Auxiliary Boilers	15 days													
33	Remove Building	5 days													

ID	Task Name	Duration	1st Quarter		2nd Quarter			3rd Quarter			4th Quarter			1st Quarter	
			Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
34	Remove Piping and Tressell	5 days													
35	Fuel Yard	214 days													
36	Remove Silo 2A	1 day													
37	Remove Silo E	1 day													
38	Remove Silo F	1 day													
39	Remove Transfer Tower 201	10 days													
40	Remove Truck Reclaim	5 days													
41	Remove Car Dumper	25 days													
42	Remove Underground Equipment	5 days													
43	Remove Above Ground Equipment	10 days													
44	Remove Building	5 days													
45	Backfill Dumper Structure	5 days													
46	Remove Stacker/Reclaimer	10 days													
47	Remove Unit 1 Reclaim	18 days													
48	Remove Underground Equipment	5 days													
49	Remove Above Ground Equipment	5 days													
50	Remove Building	4 days													
51	Backfill Structure	4 days													
52	Remove Unit 2 Reclaim	18 days													
53	Remove Underground Equipment	5 days													
54	Remove Above Ground Equipment	5 days													
55	Remove Building	4 days													
56	Backfill Structure	4 days													
57	Remove Transfer Tower 201	15 days													
58	Remove Transfer Tower 3	15 days													
59	Remove Primary Crusher Building	20 days													
60	Remove Old Truck Unloader	20 days													
61	Remove Conveyors - 300, 302, 301, 203, 202, 201, 3, 204	40 days													
62	Remove Dust Collectors	5 days													
63	Remove Miscellaneous Fuel Yard Equipment	10 days													
64	AQCS Common	151 days													
65	Remove Limestone Unloading Facility	10 days													

ID	Task Name	Duration	1st Quarter		2nd Quarter			3rd Quarter			4th Quarter			1st Quarter	
			Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
66	Remove Limestone Storage Facility	5 days													
67	Remove Limestone Conveyor	5 days													
68	Remove Limestone Prep Building	40 days													
69	Remove Gypsum Stackout Conveyor	5 days													
70	Remove PCM-1	2 days													
71	Remove PCM-2	2 days													
72	Remove the Vacuum Pump and Air Compressor Building	20 days													
73	Remove Gypsum Dewatering Building	9 days													
74	Remove Service Water Tanks	5 days													
75	Remove Emergency Limestone Conveyor Tunnel	3 days													
76	Remove Limestone Slurry Tanks	8 days													
77	Remove AQCS Electrical Enclosure	2 days													
78	Remove FlyAsh Equipment Building	9 days													
79	Remove Limestone and Gypsum Handling Conveyors	10 days													
80	Remove Reclaim Water Tanks	5 days													
81	Remove Remaining Absorber Equipment Building	6 days													
82	Remove Miscellaneous Equipment	5 days													
83	Lake Intake Structure and Intake Chemical Feed System	32 days													
84	Remove Chemical Feed System and Misc. Equipment	2 days													
85	Remove Concrete Intake Structure	20 days													
86	Complete Intake Grading and Drainage	10 days													
87	Underground Circulating Water Piping	15 days													
88	Excavate Underground Circulating Water Piping	5 days													
89	Collapse Underground Circulating Water Piping	3 days													
90	Backfill and Compact Over Circulating Water Piping	7 days													
91	Sewage Treatment	6 days													
92	Remove Sewage Treatment Pumps and Miscellaneous Equipment	2 days													
93	Remove Sewage Treatment Concrete Structures	4 days													
94	Yard Fire Water Systems	10 days													

ID	Task Name	Duration	1st Quarter		2nd Quarter			3rd Quarter			4th Quarter			1st Quarter		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
95	Remove Hydrants and Fire Water System Piping Down to 3' Below Grade	10 days														
96	Common Stack	1 day														
97	Remove Common Stack to Grade	1 day														
98	Final Site Grading and Drainage	1 day														
99	Final Site Grading and Drainage	1 day														

IATAN GENERATING STATION

IATAN GENERATING STATION

The Iatan Generating Station consists of two coal-fired power plants.

Iatan Unit 1 has an SPP-accredited unit rating of 705 MW and was placed in service in 1980. Unit 1 has a sub-critical Babcock & Wilcox boiler and a General Electric turbine. Missouri River water is used for condenser cooling. Iatan Unit 1 was originally commissioned with a dedicated chimney and an electrostatic precipitator for flue gas particulate removal. In 2009, Iatan Unit 1 was retrofitted with an SCR, baghouse, and wet scrubber. The original electrostatic precipitator and stack were abandoned in place and the flue gas was redirected to a common Iatan Units 1 and 2 chimney with a dedicated Unit 1 flue.

Iatan Unit 2 has an SPP-accredited unit rated of 881 MW and was placed in service in 2010. Unit 2 has a super-critical Alstom boiler and a Toshiba turbine. A cooling tower is used for condenser cooling with well water for cooling tower makeup. Iatan Unit 2 has an SCR, baghouse, and wet scrubber. The flue gas is discharged through a common Iatan Units 1 and 2 chimney with a dedicated Unit 2 flue.

The Iatan fuel yard has a rotary car dumper to unload unit trains of coal. The coal is stored in a common fuel yard. Fuel is reclaimed from the common fuel yard via a stacker reclaimer or a series of reclaim pits and transferred to Units 1 and 2 through a common conveyor system. Coal is transferred from the common conveyor system to dedicated unit conveyors (located near the final coal transfer points for each unit).

Both Iatan Units 1 and 2 have a fuel oil igniter system. Both units are supplied with fuel oil from a common fuel oil unloading and storage facility.

Both Units 1 and 2 have a wet scrubber that utilizes a common reagent preparation and gypsum handling facility. This facility includes a limestone unloading and storage area, a limestone slurry preparation system, a gypsum preparation system, and a gypsum stack-out and storage system.

Both Units 1 and 2 beneficially use coal combustion products off site. Coal combustion products that are not beneficially used off site are disposed of in the on-site landfill.

The following are the major systems and equipment that were included in the retirement and dismantlement of each unit and the major systems and equipment that were considered common (additional details are listed in the attached retirement and dismantlement schedules included in this Appendix).

IATAN UNIT 1

1. Boiler, SCR, and boiler auxiliaries.
2. Turbine, heat balance equipment, and turbine auxiliaries.
3. Precipitator (currently retired in place).
4. Baghouse and wet scrubber.
5. Waste oil system.
6. Dedicated Unit 1 fuel handling equipment.
7. Dedicated Unit 1 fuel oil equipment.
8. Circulating water intake structure, circulating water piping, and circulating water equipment.

IATAN UNIT 2

1. Boiler, SCR, and boiler auxiliaries.
2. Turbine, heat balance equipment, and turbine auxiliaries.
3. Baghouse and wet scrubber.
4. Dedicated Unit 2 fuel handling equipment.
5. Dedicated Unit 2 fuel oil equipment.
6. Cooling tower and wells.

COMMON

1. Administration building.
2. Fuel yard office building.
3. Training building.
4. Warehouses.
5. Maintenance shops.
6. Common fuel handling equipment.
7. Sewage treatment.
8. Fuel oil storage and unloading.
9. Fire water systems.
10. Reagent preparation and gypsum handling.
11. Unit 1 stack (currently retired in place).
12. Units 1 and 2 common stack.
13. Landfill.
14. Clarifiers, clarifier storage tanks, and zero-liquid discharge equipment and auxiliaries.

UNIT 1

Iatan 1 Retirement

Owner Costs

Pre-Retirement Activities	\$106,968
Retirement Activities	\$706,527
Post-Retirement Activities	\$28,182

Owner Direct Total \$841,677

Owner Internal Costs 5.00% \$42,084

Owner Contingency: 25.00% \$220,940

Iatan 1 Retirement Opinion of Probable Cost: \$1,104,700

Activities Required by Permit or Regulation

Iatan 1 Intake Removal \$395,036

Activities Required by Permit or Regulation: \$395,036

Iatan 1 Retirement		
ID	Task Name	Cost
0	Iatan 1 Retirement	\$841,676.55
1	Iatan 1 Retirement	\$841,676.55
2	Pre-Engineering	\$106,967.52
3	Permit review and engineering analysis, establish isolation points, and confirm fuel yard inventory has been reduced to zero tons.	\$0.00
4	KCL&L Overhead Costs	\$122,254.08
5	KCP&L Retirement Manager	\$122,254.08
6	Equipment Rentals	\$41,004.90
7	Vacuum truck	\$41,004.90
8	Retirement	\$543,267.65
9	Electrical	\$20,553.92
10	Medium and Low Voltage Draw out Switchgear	\$2,903.52
11	De-energize all buses at the source.	\$483.92
12	Open all circuit breakers.	\$483.92
13	Rack all circuit breakers into the fully withdrawn, disconnected position.	\$483.92
14	Verify that the closing/tripping springs are discharged.	\$483.92
15	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	\$967.84
16	Motor Control Centers	\$1,935.68
17	De-energize all buses at the source.	\$483.92
18	Open all circuit breakers and disconnect switches.	\$483.92
19	Remove all fuses in control circuits.	\$967.84
20	Low-voltage Switchboards and Panelboards	\$967.84
21	De-energize all buses at the source.	\$483.92
22	Open all circuit breakers and disconnect switches.	\$483.92
23	Oil-Filled Power Transformers	\$6,072.32
24	De-energize all transformer primaries and verify that the secondary is de-energized.	\$967.84
25	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	\$967.84
26	Drain and dispose of oil.	\$2,867.52
27	Clean up and dispose of oil on surface areas around the transformers on in containment pits.	\$1,269.12
28	Dry-type Power Transformers	\$1,935.68
29	De-energize all transformer primaries and verify that the secondary is de-energized.	\$967.84
30	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	\$967.84
31	Motors	\$6,738.88
32	De-energize all primary power at the source.	\$1,935.68

Iatan 1 Retirement

ID	Task Name	Cost
33	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	\$1,935.68
34	Drian lube oil system (if applicable) and dispoe of oil.	\$2,867.52
35	Coal Handling	\$30,905.36
36	Empty all transfer hoppers.	\$1,853.84
37	Burn out coal silos.	\$1,834.56
38	Confirm all fuel lines, conveyors and trippers are clear of fuel.	\$1,834.56
39	Perform cleaning of the coal handling equipment to assure that all coal and coal dust has been removed from site.	\$25,382.40
40	Fuel Oil and Igniter System	\$2,751.84
41	Drain fuel oil system	\$2,751.84
42	Waste Oil System	\$1,834.56
43	Drain all waste oil systems	\$1,834.56
44	Boiler Chemical Feed	\$1,834.56
45	Drain all chemical feed tanks.	\$1,834.56
46	Boiler	\$30,927.60
47	Open boiler doors.	\$955.84
48	Gas side - perform cleaning of the boiler and bottom ash system.	\$25,382.40
49	Drain boiler, drum, downcomers and headers.	\$917.28
50	Open drum doors.	\$955.84
51	Drain and clean the submerged flight conveyor system.	\$2,716.24
52	Stack and Ductwork	\$344,145.25
53	Open ductwork doors.	\$955.84
54	Perform extensive cleaning of the ductwork.	\$12,691.20
55	Place cap over stack opening to keep moisture out.	\$330,498.21
56	Condensate and Feedwater Piping	\$1,834.56
57	Drain water from the system.	\$917.28
58	Leave open vents and drains.	\$917.28
59	Feedwater heaters	\$2,751.84
60	Drain feedwater heaters	\$917.28
61	Leave open vents and drains.	\$1,834.56
62	Deaerator and Deaerator Storage Tank	\$1,834.56
63	Drain Deaerator and Storage	\$917.28
64	Leave open vents and drains.	\$917.28
65	Baghouse	\$18,919.84
66	Multiple cleaning cycles for filter bags.	\$2,751.84
67	Open all vent and drain lines on bag cleaning air and control air lines. Leave in open position or remove vent valves.	\$917.28
68	Remove all filter bags and cages.	\$955.84
69	Clear hoppers of all ash	\$3,103.68
70	Mechanically secure all compartment dampers and hopper outlet valves in open position.	\$955.84
71	Disconnect ash transport piping and washdown baghouse hoppers and interior of casing.	\$1,571.12

Iatan 1 Retirement		
ID	Task Name	Cost
72	Install bird screens across hopper ash outlet and ash line flanges.	\$955.84
73	Padlock or tack weld all hopper doors shut. (note: if ash hopper doors are indoors, they could be removed and the opening covered with bird screens.)	\$955.84
74	If walk-in plenum, padlock or tack weld all outlet plenum doors and compartment ventilation dampers shut.	\$955.84
75	If top-door plenum, close and secure top doors and remove/disable door lift hoist.	\$1,873.12
76	If top-door plenum, establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in penthouse enclosure.	\$1,020.08
77	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	\$2,903.52
78	Wet FGD system	\$26,222.88
79	Multiple mist eliminator wash cycles. Remove ME's from absorber.	\$2,331.76
80	Drain and flush all slurry and reclaim water pumps and piping. Leave vent and drain valves open or remove. Install bird screens across drain openings.	\$1,873.12
81	Drain and wash out the reaction tank, reagent storage tank, recycle water tank, absorber blowdown tank, etc.	\$5,183.28
82	Leave all tank drain valves open or remove. Install bird screens across openings.	\$1,911.68
83	Drain all makeup and mist eliminator water pumps and piping. Leave vent and drain valves open or remove. Install bird screens across drain openings.	\$2,828.96
84	Mechanically secure all flue gas isolation dampers in open position or remove damper blades.	\$1,911.68
85	Remove solids from all inlet and outlet ductwork as necessary	\$2,538.24
86	Open all vent station air and control air lines. Leave in open position or remove vent valves	\$1,873.12
87	Padlock or tack weld all access doors to modules and ductwork shut.	\$1,911.68
88	Remove access doors to open-top tanks.	\$955.84
89	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	\$2,903.52
90	FGD Reagent Preparation-Limestone wet Scrubber	\$11,270.00
91	Remove limestone from day bins.	\$1,551.84
92	Removed cartridges/bags from bin vent filters	\$1,551.84
93	Padlock or tack weld all bin access doors shut. (note: if doors are indoors, they could be removed and the opening covered with bird screens.)	\$955.84
94	Remove bin discharge isolation valve and install bird screen.	\$477.92
95	Thoroughly wash and drain mills	\$1,551.84

Iatan 1 Retirement

ID	Task Name	Cost
96	Remove balls from any ball mills	\$1,269.12
97	Padlock or tack weld mill access doors closed.	\$955.84
98	Establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in building.	\$1,020.08
99	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	\$1,935.68
100	FGD Byproduct Dewatering - Hydrocyclones and Vacuum Filters	\$8,032.96
101	Wash vacuum filter belt and remove all accumulated solids	\$2,538.24
102	Wash out vacuum receiver, remove pressure relief valve and access door. Install bird screens.	\$1,571.12
103	Establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in building.	\$1,020.08
104	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	\$2,903.52
105	SCR	\$11,098.96
106	Vacuum fly ash from catalyst.	\$2,538.24
107	Remove catalyst of salvage or disposal.	\$3,180.80
108	Padlock or tack weld access doors shut.	\$955.84
109	Remove ammonia from storage tank for resale.	\$775.92
110	Wash out and drain storage tank and supply piping.	\$775.92
111	Vent storage tank and all piping. Leave vent and drain valves open or remove. Install bird screens.	\$936.56
112	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	\$1,935.68
113	Turbine(s) and Condenser	\$5,715.76
114	Drain hotwell and leave doors open.	\$936.56
115	Open main turbine doors.	\$955.84
116	Open bfp turbine doors.	\$955.84
117	Remove lube oil.	\$2,867.52
118	Generator	\$6,618.48
119	Verify that generator circuit breaker is open and racked out or that high-voltage disconnect switch on substation side of GSU transformer is locked in the open position.	\$483.92
120	Verify that generator field breaker or contactor (if applicable) is open.	\$483.92
121	De-energize power supplies to generator excitation system at the source.	\$483.92
122	De-energize AC and DC power supplies to generator and exciter space heaters, cooling equipment, controls, lighting, etc. at the source and open circuit breakers or remove fuses at the generator and exciter.	\$483.92
123	Drain generator and exciter cooling water systems (if applicable).	\$936.56

Iatan 1 Retirement















ID	Task Name	Cost
124	Disconnect and remove hydrogen gas tanks and purge generator hydrogen system.	\$1,834.56
125	Disconnect and remove fire protection system gas/foam tanks and purge fire protection system.	\$1,911.68
126	Circulation Water and Turbine Cooling Water System	\$3,707.68
127	Drain.	\$1,834.56
128	Open water box doors.	\$955.84
129	Drain any circulating water chemical feed tanks.	\$917.28
130	Compressed Air System	\$2,945.44
131	Open vents and drains.	\$917.28
132	Remove desiccant from desiccant dryers.	\$2,028.16
133	Auxiliary Steam System	\$1,834.56
134	Drain water from system.	\$917.28
135	Remove aux boiler chemicals.	\$917.28
136	Auxiliary Cooling Water System	\$917.28
137	Drain water from system.	\$917.28
138	Condenser Air Extraction and Waterbox Priming System	\$917.28
139	Drain water from system.	\$917.28
140	Building Heating System	\$917.28
141	Drain water from system.	\$917.28
142	Battery System	\$4,775.20
143	De-energize all battery chargers from the source.	\$483.92
144	Open all AC and DC circuit breakers and/or fused switches on battery chargers and disconnect cables from batteries.	\$483.92
145	Remove and dispose of battery electrolyte.	\$1,903.68
146	Remove and dispose of battery cells.	\$1,269.12
147	Clean up and dispose of electrolyte on surface areas around batteries.	\$634.56
148	Post Retirement Activities	\$28,182.40
149	Post Retirement Activities	\$28,182.40

ID	Task Name	Duration	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
0	Iatan 1 Retirement	292 days						
1	Iatan 1 Retirement	292 days						
2	Pre-Engineering	66 days						
3	Permit review and engineering analysis, establish isolation points, and confirm fuel yard inventory has been reduced to zero tons.	66 days						
4	KCL&L Overhead Costs	186 days						
5	KCP&L Retirement Manager	186 days						
6	Equipment Rentals	186 days						
7	Vacuum truck	186 days						
8	Retirement	186 days						
9	Electrical	22 days						
10	Medium and Low Voltage Draw out Switchgear	3 days						
11	De-energize all buses at the source.	0.5 days						
12	Open all circuit breakers.	0.5 days						
13	Rack all circuit breakers into the fully withdrawn, disconnected position.	0.5 days						
14	Verify that the closing/tripping springs are discharged.	0.5 days						
15	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	1 day						

ID	Task Name	Duration	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
16	Motor Control Centers	2 days						
17	De-energize all buses at the source.	0.5 days						
18	Open all circuit breakers and disconnect switches.	0.5 days						
19	Remove all fuses in control circuits.	1 day						
20	Low-voltage Switchboards and Panelboards	1 day						
21	De-energize all buses at the source.	0.5 days						
22	Open all circuit breakers and disconnect switches.	0.5 days						
23	Oil-Filled Power Transformers	7 days						
24	De-energize all transformer primaries and verify that the secondary is de-energized.	1 day						
25	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	1 day						
26	Drain and dispose of oil.	3 days						
27	Clean up and dispose of oil on surface areas around the transformers on in containment pits.	2 days						
28	Dry-type Power Transformers	2 days						
29	De-energize all transformer primaries and verify that the secondary is de-energized.	1 day						
30	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	1 day						
31	Motors	7 days						

ID	Task Name	Duration	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
32	De-energize all primary power at the source.	2 days						
33	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	2 days						
34	Drian lube oil system (if applicable) and dispoe of oil.	3 days						
35	Coal Handling	25 days						
36	Empty all transfer hoppers.	1 day						
37	Burn out coal silos.	2 days						
38	Confirm all fuel lines, conveyors and trippers are clear of fuel.	2 days						
39	Perform cleaning of the coal handling equipment to assure that all coal and coal dust has been removed from site.	20 days						
40	Fuel Oil and Igniter System	3 days						
41	Drain fuel oil system	3 days						
42	Waste Oil System	2 days						
43	Drain all waste oil systems	2 days						
44	Boiler Chemical Feed	2 days						
45	Drain all chemical feed tanks.	2 days						
46	Boiler	27 days						
47	Open boiler doors.	1 day						
48	Gas side - perform cleaning of the boiler and bottom ash system.	20 days						

ID	Task Name	Duration	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
49	Drain boiler, drum, downcomers and headers.	1 day						
50	Open drum doors.	1 day						
51	Drain and clean the submerged flight conveyor system.	5 days						
52	Stack and Ductwork	12 days						
53	Open ductwork doors.	1 day						
54	Perform extensive cleaning of the ductwork.	10 days						
55	Place cap over stack opening to keep moisture out.	1 day						
56	Condensate and Feedwater Piping	2 days						
57	Drain water from the system.	1 day						
58	Leave open vents and drains.	1 day						
59	Feedwater heaters	3 days						
60	Drain feedwater heaters	1 day						
61	Leave open vents and drains.	2 days						
62	Deaerator and Deaerator Storage Tank	2 days						
63	Drain Deaerator and Storage	1 day						
64	Leave open vents and drains.	1 day						
65	Baghouse	16 days						
66	Multiple cleaning cycles for filter bags.	3 days						

ID	Task Name	Duration	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
67	Open all vent and drain lines on bag cleaning air and control air lines. Leave in open position or remove vent valves.	1 day						
68	Remove all filter bags and cages.	1 day						
69	Clear hoppers of all ash	4 days						
70	Mechanically secure all compartment dampers and hopper outlet valves in open position.	1 day						
71	Disconnect ash transport piping and washdown baghouse hoppers and interior of casing.	1 day						
72	Install bird screens across hopper ash outlet and ash line flanges.	1 day						
73	Padlock or tack weld all hopper doors shut. (note: if ash hopper doors are indoors, they could be removed and the opening covered with bird screens.)	1 day						
74	If walk-in plenum, padlock or tack weld all outlet plenum doors and compartment ventilation dampers shut.	1 day						
75	If top-door plenum, close and secure top doors and remove/disable door lift hoist.	2 days						
76	If top-door plenum, establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in penthouse enclosure.	1 day						
77	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	3 days						
78	Wet FGD system	19 days						
79	Multiple mist eliminator wash cycles. Remove ME's from absorber.	3 days						
80	Drain and flush all slurry and reclaim water pumps and piping. Leave vent and drain valves open or remove. Install bird screens across drain openings.	2 days						

ID	Task Name	Duration	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
81	Drain and wash out the reaction tank, reagent storage tank, recycle water tank, absorber blowdown tank, etc.	3 days						
82	Leave all tank drain valves open or remove. Install bird screens across openings.	2 days						
83	Drain all makeup and mist eliminator water pumps and piping. Leave vent and drain valves open or remove. Install bird screens across drain openings.	2 days						
84	Mechanically secure all flue gas isolation dampers in open position or remove damper blades.	2 days						
85	Remove solids from all inlet and outlet ductwork as necessary	2 days						
86	Open all vent station air and control air lines. Leave in open position or remove vent valves	2 days						
87	Padlock or tack weld all access doors to modules and ductwork shut.	2 days						
88	Remove access doors to open-top tanks.	1 day						
89	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	3 days						
90	FGD Reagent Preparation-Limestone wet Scrubber	9 days						
91	Remove limestone from day bins.	2 days						
92	Removed cartridges/bags from bin vent filters	2 days						
93	Padlock or tack weld all bin access doors shut. (note: if doors are indoors, they could be removed and the opening covered with bird screens.)	1 day						
94	Remove bin discharge isolation valve and install bird screen.	1 day						
95	Thoroughly wash and drain mills	2 days						
96	Remove balls from any ball mills	2 days						

ID	Task Name	Duration	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
97	Padlock or tack weld mill access doors closed.	1 day						
98	Establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in building.	1 day						
99	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	2 days						
100	FGD Byproduct Dewatering - Hydrocyclones and Vacuum Filters	5 days						
101	Wash vacuum filter belt and remove all accumulated solids	2 days						
102	Wash out vacuum receiver, remove pressure relief valve and access door. Install bird screens.	1 day						
103	Establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in building.	1 day						
104	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	3 days						
105	SCR	6 days						
106	Vacuum fly ash from catalyst.	4 days						
107	Remove catalyst of salvage or disposal.	4 days						
108	Padlock or tack weld access doors shut.	1 day						
109	Remove ammonia from storage tank for resale.	1 day						
110	Wash out and drain storage tank and supply piping.	1 day						
111	Vent storage tank and all piping. Leave vent and drain valves open or remove. Install bird screens.	1 day						
112	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	2 days						

ID	Task Name	Duration	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
113	Turbine(s) and Condenser	6 days					▼	
114	Drain hotwell and leave doors open.	1 day					▼	
115	Open main turbine doors.	1 day					▼	
116	Open bfp turbine doors.	1 day					▼	
117	Remove lube oil.	3 days					▼	
118	Generator	7 days					▼	
119	Verify that generator circuit breaker is open and racked out or that high-voltage disconnect switch on substation side of GSU transformer is locked in the open position.	0.5 days					▼	
120	Verify that generator field breaker or contactor (if applicable) is open.	0.5 days					▼	
121	De-energize power supplies to generator excitation system at the source.	0.5 days					▼	
122	De-energize AC and DC power supplies to generator and exciter space heaters, cooling equipment, controls, lighting, etc. at the source and open circuit breakers or remove fuses at the generator and exciter.	0.5 days					▼	
123	Drain generator and exciter cooling water systems (if applicable).	1 day					▼	
124	Disconnect and remove hydrogen gas tanks and purge generator hydrogen system.	2 days					▼	
125	Disconnect and remove fire protection system gas/foam tanks and purge fire protection system.	2 days					▼	
126	Circulation Water and Turbine Cooling Water System	3 days					▼	
127	Drain.	2 days					▼	

ID	Task Name	Duration	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
128	Open water box doors.	1 day						
129	Drain any circulating water chemical feed tanks.	1 day						
130	Compressed Air System	3 days						
131	Open vents and drains.	1 day						
132	Remove desiccant from desiccant dryers.	2 days						
133	Auxiliary Steam System	2 days						
134	Drain water from system.	1 day						
135	Remove aux boiler chemicals.	1 day						
136	Auxiliary Cooling Water System	1 day						
137	Drain water from system.	1 day						
138	Condenser Air Extraction and Waterbox Priming System	1 day						
139	Drain water from system.	1 day						
140	Building Heating System	1 day						
141	Drain water from system.	1 day						
142	Battery System	7 days						
143	De-energize all battery chargers from the source.	0.5 days						
144	Open all AC and DC circuit breakers and/or fused switches on battery chargers and disconnect cables from batteries.	0.5 days						

ID	Task Name	Duration	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
145	Remove and dispose of battery electrolyte.	3 days						
146	Remove and dispose of battery cells.	2 days						
147	Clean up and dispose of electrolyte on surface areas around batteries.	1 day						
148	Post Retirement Activities	40 days						
149	Post Retirement Activities	40 days						

Iatan 1 Dismantlement

Owner Costs

Pre-Dismantlement Activities		\$1,104,559	
Overhead During Dismantlement		\$2,004,866	
Post-Dismantlement Activities		\$69,510	
Owner Costs Total			\$3,178,936

Demolition General Contractor (DGC) Costs

Site Management		\$1,331,047	
Equipment Rental		\$2,280,632	
Consumables		\$2,489,572	
Scrap Crew(s)		\$2,220,576	
Dismantlement		\$5,453,934	

DGC Insurance 2.00% \$275,515

Contingency/Profit 15.00% \$2,107,691

Performance Bond 2.00% \$323,179.36

Contractor Costs Total: \$16,482,148

Total: \$19,661,083

Owner Internal Costs: 5.00% \$983,054

Owner Contingency: 25.00% \$5,161,034

Iatan Unit 1 Dismantlement Opinion of Probable Cost: \$25,805,172

12-0027 Iatan Demolition

ID	Task Name	Cost
1	Iatan Unit 1 Dismantlement	\$13,372,345.33
2	Pre-Demolition Activities	\$1,104,558.96
3	Detailed Planning & Hire Owner's Engineer	\$110,802.72
4	Detailed Site Characterization Study	\$783,536.00
5	Hire Demolition General Contractor	\$198,647.04
6	KCP&L Prepares Unit for Dismantlement	\$11,573.20
7	Demolition Contractor Mobilizes on Site	\$0.00
8	KCP&L Overhead during Dismantlement	\$2,004,866.33
9	KCP&L Project Manager	\$282,630.38
10	KCP&L Administrative Support	\$104,541.59
11	KCP&L Engineer	\$464,606.36
12	Owners Engineer Project Manager	\$141,728.00
13	Owners Engineer - Engineer	\$1,011,360.00
14	Demolition Contractor Overhead during Dismantlement	\$969,151.12
15	Demolition Contractor Project Manager	\$274,202.38
16	Demolition Contractor Safety Manager	\$244,171.18
17	Demolition Contractor Superintendent	\$450,777.57
18	Demolition Contractor Equipment Rental Costs	\$1,633,380.67
19	Equipment Rental	\$1,633,380.67
20	Demolition Contractor Consumables	\$1,629,562.40
21	Consumables	\$1,629,562.40
22	Scrap Crew	\$1,591,412.80
23	Crew to Handle Scrap Material(s)	\$1,591,412.80
24	Dismantlement	\$4,369,902.64
25	Phase 1 Demolition	\$1,075,134.32
26	Phase 1 Electrical Demolition	\$439,040.24
27	Electrical Demolition of Phase 1 Equipment	\$439,040.24
28	Condensate System	\$109,178.32
29	Condensate Pumps	\$3,700.96
30	Condensate Transfer Pumps	\$1,850.48
31	Cycle Make-Up Pump	\$1,850.48
32	Steam Packing Exhauster and Blower	\$3,700.96
33	Low Pressure Heaters (except the condenser neck heat exchangers)	\$55,514.40
34	Deaerator	\$14,803.84
35	Deaerator Storage Tank	\$9,252.40
36	Condensate Piping	\$18,504.80
37	Boiler Feed System	\$70,061.52
38	Boiler Feed Pump Turbine and Exhaust	\$14,547.12
39	Boiler Feed Pump	\$18,504.80
40	High Pressure Heaters	\$37,009.60
41	Critical Piping	\$83,271.60
42	Main Steam Piping	\$27,757.20
43	Cold Reheat Piping	\$27,757.20
44	Hot Reheat Piping	\$27,757.20
45	Extraction Steam System	\$18,504.80
46	Piping	\$18,504.80
47	Heater Drips	\$14,803.84
48	Piping	\$14,803.84
49	Auxiliary Steam	\$25,906.72

12-0027 Iatan Demolition

ID	Task Name	Cost
50	Auxiliary Boilers and Auxiliary Skids	\$9,252.40
51	Auxiliary Steam Piping	\$16,654.32
52	Circulating Water (plant side)	\$9,252.40
53	Waterboxes	\$9,252.40
54	Bearing Cooling Water	\$31,458.16
55	Bearing Cooling Water Pumps	\$3,700.96
56	Bearing Cooling Water Heat Exchanger	\$9,252.40
57	Bearing Cooling Water Piping	\$18,504.80
58	Auxiliary Cooling Water	\$29,607.68
59	Auxiliary Cooling Water Heat Exchanger	\$5,551.44
60	Auxiliary Cooling Water Pumps	\$5,551.44
61	Auxiliary Cooling Water Piping	\$18,504.80
62	Service Water	\$9,252.40
63	Service Water Piping	\$9,252.40
64	Fuel Oil System (plant side)	\$42,561.04
65	Igniter Fuel Oil Pumps	\$5,551.44
66	Igniter Fuel Oil and Atomizing Air Piping	\$9,252.40
67	Igniters	\$27,757.20
68	Waste Oil System	\$12,953.36
69	Waste Oil Tank	\$3,700.96
70	Waste Oil Transfer Pump	\$3,700.96
71	Waste Oil Piping	\$5,551.44
72	Air Preheat System	\$10,576.08
73	Air Preheat Pumps	\$3,700.96
74	Air Preheat Piping	\$6,875.12
75	Condenser Air Extraction System	\$11,102.88
76	Vacuum Pumps	\$7,401.92
77	Extraction Piping	\$3,700.96
78	Turbine Seals and Drains	\$12,953.36
79	Piping	\$12,953.36
80	Turbine Lube Oil System	\$21,038.32
81	Turbine Lube Oil Tank	\$11,785.92
82	Turbine Lube Oil Pumps	\$7,401.92
83	Turbine Oil Mist Eliminator	\$1,850.48
84	Generator Auxiliary Systems	\$33,308.64
85	Hydrogen Cooler Skid and Piping	\$9,252.40
86	Stator Cooling Water Skid and Piping	\$9,252.40
87	Isophase Bus Duct	\$7,401.92
88	Exciter Heat Exchanger	\$3,700.96
89	EHC Coolers	\$3,700.96
90	Chemical Feed Systems	\$19,942.32
91	Tanks	\$8,839.44
92	Pumps	\$5,551.44
93	Piping	\$5,551.44
94	Sampling Systems	\$6,647.44
95	Field Mounted Heat Exchangers	\$3,700.96
96	Piping	\$2,946.48
97	Building Heating Systems	\$13,750.24
98	Steam Unit Heaters	\$9,821.60

12-0027 Iatan Demolition

ID	Task Name	Cost
99	Steam Piping	\$3,928.64
100	Compressed Air System	\$27,757.20
101	Air Compressors	\$7,401.92
102	Air Drying Equipment	\$5,551.44
103	Air Reciever Tanks	\$5,551.44
104	Compressed Air Piping	\$9,252.40
105	Miscellaneous Equipment	\$22,205.76
106	Miscellaneous Equipment (including Fire Protection)	\$22,205.76
107	Phase 2 Demolition	\$3,025,879.52
108	Precipitator	\$111,028.80
109	Remove Precipitator	\$111,028.80
110	Boiler Equipment	\$756,701.12
111	Fans	\$65,336.00
112	Pulverizers	\$74,019.20
113	Bottom Ash	\$16,995.84
114	Air Heater	\$207,253.76
115	Steam Drum	\$92,524.00
116	Coal Bunkers	\$74,019.20
117	Coal Feeders	\$48,112.48
118	Soot Blowers	\$52,608.00
119	Ductwork	\$103,626.88
120	Miscellaneous Other	\$22,205.76
121	Boiler Removal	\$414,507.52
122	Furnace	\$236,861.44
123	Back Pass	\$177,646.08
124	Boiler Steel Framing	\$747,593.92
125	Hanger Girders at Top	\$111,028.80
126	All Other Framing	\$347,890.24
127	Bracing and Girts	\$170,244.16
128	Columns	\$118,430.72
129	Boiler Foundations	\$133,234.56
130	Equipment Foundation Demolition to Grade	\$133,234.56
131	Remove Turbine	\$862,813.60
132	Remove HP Turbine	\$27,188.00
133	Remove IP Turbine	\$27,188.00
134	Remove LP Turbine	\$27,188.00
135	Remove Generator	\$54,376.00
136	Remove Condenser Neck Heat Exchanger	\$27,188.00
137	Remove Condenser	\$27,188.00
138	Remove Misc. Auxiliary Turbine Equipment	\$40,782.00
139	Turbine Pedestal Demolition to Grade	\$277,317.60
140	Top Slab and Beams	\$108,752.00
141	Columns	\$168,565.60
142	Remove Turbine Building	\$354,398.00
143	Siding and Rooding	\$112,340.00
144	All Framing Elevations	\$163,128.00
145	Bracing and Girts	\$54,376.00
146	Columns	\$24,554.00
147	Phase 3 Yard Demolition	\$268,888.80

12-0027 Iatan Demolition

ID	Task Name	Cost
148	Circulating Water Pipe (yard)	\$74,019.20
149	Excavate Circulating Water Pipe	\$18,504.80
150	Collapse Circulating Water Pipe	\$37,009.60
151	Backfill Circulating Water Pipe	\$18,504.80
152	Remove Ash Handling Equipment and Piping	\$37,009.60
153	Remove Fly-Ash Silo and Scale	\$27,757.20
154	Remove Ash Piping and Misc. Equipment	\$9,252.40
155	Remove Laydown Equipment and Warehoused Equipment	\$74,019.20
156	Remove Unit 1 Condensate Storage Tank and Pump	\$9,821.60
157	Remove Unit 1 Make-Up Water Storage Tank	\$18,504.80
158	Remove Unit 1 Water Treatment Equipment and Building	\$55,514.40
159	Post Dismantlement Activities	\$69,510.40
160	Post Dismantlement Activities	\$69,510.40

ID	Task Name	Duration	1st Quarter			3rd Quarter			1st Quarter			3rd Quarter			1st Quarter			3rd Quarter		
			Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov
1	Iatan Unit 1 Dismantlement																			
2	Pre-Demolition Activities	265 days																		
3	Detailed Planning & Hire Owner's Engineer	3 mons																		
4	Detailed Site Characterization Study	130 days																		
5	Hire Demolition General Contractor	3 mons																		
6	KCP&L Prepares Unit for Dismantlement	2 wks																		
7	Demolition Contractor Mobilizes on Site	5 days																		
8	KCP&L Overhead during Dismantlement	430 days																		
9	KCP&L Project Manager	430 days																		
10	KCP&L Administrative Support	430 days																		
11	KCP&L Engineer	430 days																		
12	Owners Engineer Project Manager	430 days																		
13	Owners Engineer - Engineer	430 days																		
14	Demoliton Contractor Overhead during Dismantlement	430 days																		
15	Demolition Contractor Project Manager	430 days																		
16	Demolition Contractor Safety Manager	430 days																		
17	Demolition Contractor Superintendent	430 days																		

ID	Task Name	Duration	1st Quarter			3rd Quarter			1st Quarter			3rd Quarter			1st Quarter			3rd Quarter		
			Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov
18	Demolition Contractor Equipment Rental Costs	430 days																		
19	Equipment Rental	430 days																		
20	Demolition Contractor Consummables	430 days																		
21	Consummables	430 days																		
22	Scrap Crew	430 days																		
23	Crew to Handle Scrap Material(s)	430 days																		
24	Dismantlement	430 days?																		
25	Phase 1 Demolition	191 days?																		
26	Phase 1 Electrical Demolition	191 days																		
27	Electrical Demolition of Phase 1 Equipment	191 days																		
28	Condensate System	30 days																		
29	Condensate Pumps	2 days																		
30	Condensate Transfer Pumps	1 day																		
31	Cycle Make-Up Pump	1 day																		
32	Steam Packing Exhauster and Blower	2 days																		
33	Low Pressure Heaters (except the condenser neck heat exchangers)	30 days																		
34	Deaerator	8 days																		

ID	Task Name	Duration	1st Quarter			3rd Quarter			1st Quarter			3rd Quarter			1st Quarter			3rd Quarter		
			Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov
35	Deaerator Storage Tank	5 days																		
36	Condensate Piping	10 days																		
37	Boiler Feed System	37 days																		
38	Boiler Feed Pump Turbine and Exhaust	7 days																		
39	Boiler Feed Pump	10 days																		
40	High Pressure Heaters	20 days																		
41	Critical Piping	45 days																		
42	Main Steam Piping	15 days																		
43	Cold Reheat Piping	15 days																		
44	Hot Reheat Piping	15 days																		
45	Extraction Steam System	10 days																		
46	Piping	10 days																		
47	Heater Drips	8 days																		
48	Piping	8 days																		
49	Auxiliary Steam	14 days																		
50	Auxiliary Boilers and Auxiliary Skids	5 days																		
51	Auxiliary Steam Piping	9 days																		

ID	Task Name	Duration	1st Quarter			3rd Quarter			1st Quarter			3rd Quarter			1st Quarter			3rd Quarter		
			Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov
52	Circulating Water (plant side)	5 days																		
53	Waterboxes	5 days																		
54	Bearing Cooling Water	17 days																		
55	Bearing Cooling Water Pumps	2 days																		
56	Bearing Cooling Water Heat Exchanger	5 days																		
57	Bearing Cooling Water Piping	10 days																		
58	Auxiliary Cooling Water	16 days																		
59	Auxiliary Cooling Water Heat Exchanger	3 days																		
60	Auxiliary Cooling Water Pumps	3 days																		
61	Auxiliary Cooling Water Piping	10 days																		
62	Service Water	5 days																		
63	Service Water Piping	5 days																		
64	Fuel Oil System (plant side)	120 days																		
65	Igniter Fuel Oil Pumps	3 days																		
66	Igniter Fuel Oil and Atomizing Air Piping	5 days																		
67	Igniters	15 days																		
68	Waste Oil System	7 days																		

Crew 3 Operator, Crew 3 Laborer

ID	Task Name	Duration	1st Quarter			3rd Quarter			1st Quarter			3rd Quarter			1st Quarter			3rd Quarter		
			Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov
69	Waste Oil Tank	2 days																		
70	Waste Oil Transfer Pump	2 days																		
71	Waste Oil Piping	3 days																		
72	Air Preheat System	9 days																		
73	Air Preheat Pumps	2 days																		
74	Air Preheat Piping	7 days																		
75	Condenser Air Extraction System	6 days																		
76	Vacuum Pumps	4 days																		
77	Extraction Piping	2 days																		
78	Turbine Seals and Drains	7 days																		
79	Piping	7 days																		
80	Turbine Lube Oil System	17 days?																		
81	Turbine Lube Oil Tank	12 days																		
82	Turbine Lube Oil Pumps	4 days																		
83	Turbine Oil Mist Eliminator	1 day?																		
84	Generator Auxiliary Systems	18 days																		
85	Hydrogen Cooler Skid and Piping	5 days																		

ID	Task Name	Duration	1st Quarter			3rd Quarter			1st Quarter			3rd Quarter			1st Quarter			3rd Quarter		
			Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov
86	Stator Cooling Water Skid and Piping	5 days																		
87	Isophase Bus Duct	4 days																		
88	Exciter Heat Exchanger	2 days																		
89	EHC Coolers	2 days																		
90	Chemical Feed Systems	15 days																		
91	Tanks	9 days																		
92	Pumps	3 days																		
93	Piping	3 days																		
94	Sampling Systems	5 days																		
95	Field Mounted Heat Exchangers	2 days																		
96	Piping	3 days																		
97	Building Heating Systems	14 days																		
98	Steam Unit Heaters	10 days																		
99	Steam Piping	4 days																		
100	Compressed Air System	15 days																		
101	Air Compressors	4 days																		
102	Air Drying Equipment	3 days																		

ID	Task Name	Duration	1st Quarter			3rd Quarter			1st Quarter			3rd Quarter			1st Quarter			3rd Quarter		
			Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov
103	Air Receiver Tanks	3 days																		
104	Compressed Air Piping	5 days																		
105	Miscellaneous Equipment	12 days																		
106	Miscellaneous Equipment (including Fire Protection)	12 days																		
107	Phase 2 Demolition	333 days																		
108	Precipitator	30 days																		
109	Remove Precipitator	30 days																		
110	Boiler Equipment	134 days																		
111	Fans	20 days																		
112	Pulverizers	20 days																		
113	Bottom Ash	6 days																		
114	Air Heater	56 days																		
115	Steam Drum	25 days																		
116	Coal Bunkers	20 days																		
117	Coal Feeders	13 days																		
118	Soot Blowers	16 days																		
119	Ductwork	28 days																		

ID	Task Name	Duration	1st Quarter			3rd Quarter			1st Quarter			3rd Quarter			1st Quarter			3rd Quarter		
			Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov
120	Miscellaneous Other	6 days																		
121	Boiler Removal	56 days																		
122	Furnace	32 days																		
123	Back Pass	24 days																		
124	Boiler Steel Framing	101 days																		
125	Hanger Girders at Top	15 days																		
126	All Other Framing	47 days																		
127	Bracing and Girts	23 days																		
128	Columns	16 days																		
129	Boiler Foundations	18 days																		
130	Equipment Foundation Demolition to Grade	18 days																		
131	Remove Turbine	333 days																		
132	Remove HP Turbine	10 days																		
133	Remove IP Turbine	10 days																		
134	Remove LP Turbine	10 days																		
135	Remove Generator	20 days																		
136	Remove Condenser Neck Heat Exchanger	10 days																		

ID	Task Name	Duration	1st Quarter			3rd Quarter			1st Quarter			3rd Quarter			1st Quarter			3rd Quarter		
			Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov
137	Remove Condenser	10 days																		
138	Remove Misc. Auxiliary Turbine Equipment	15 days																		
139	Turbine Pedestal Demolition to Grade	102 days																		
140	Top Slab and Beams	40 days																		
141	Columns	62 days																		
142	Remove Turbine Building	146 days																		
143	Siding and Roofing	41 days																		
144	All Framing Elevations	60 days																		
145	Bracing and Girts	20 days																		
146	Columns	25 days																		
147	Phase 3 Yard Demolition	150 days																		
148	Circulating Water Pipe (yard)	40 days																		
149	Excavate Circulating Water Pipe	10 days																		
150	Collapse Circulating Water Pipe	20 days																		
151	Backfill Circulating Water Pipe	10 days																		
152	Remove Ash Handling Equipment and Piping	20 days																		
153	Remove Fly-Ash Silo and Scale	15 days																		

ID	Task Name	Duration	1st Quarter			3rd Quarter			1st Quarter			3rd Quarter			1st Quarter			3rd Quarter		
			Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov
154	Remove Ash Piping and Misc. Equipment	5 days																		
155	Remove Laydown Equipment and Warehoused Equipment	40 days																		
156	Remove Unit 1 Condensate Storage Tank and Pump	10 days																		
157	Remove Unit 1 Make-Up Water Storage Tank	10 days																		
158	Remove Unit 1 Water Treatment Equipment and Building	30 days																		
159	Post Dismantlement Activities	40 days																		
160	Post Dismantlement Activities	40 days																		

Iatan AQCS

ID	Task Name	Cost
1	Iatan Unit 1 AQCS Dismantlement	\$3,582,351.80
2	Common Removal Overheads	\$361,896.00
3	Added Overhead Staff for Common Removals	\$361,896.00
4	Scrap Crew	\$629,163.20
5	Crew(s) to Handle Scrap Material	\$629,163.20
6	Demolition Contractor Consummables	\$860,009.60
7	Consummables	\$860,009.60
8	Demolition Contractor Equipment Rental Costs	\$647,251.20
9	Equipment Rental	\$647,251.20
10	Dismantlement	\$1,084,031.80
11	Initial Structural	\$134,621.84
12	Remove SCR box & ductwork lagging & insulation	\$18,504.80
13	Remove SCR expansion joints	\$11,102.88
14	Remove ductwork lagging & insulation	\$8,220.00
15	Remove ductwork expansion joints	\$18,504.80
16	Remove ductwork access platforms & ladders	\$18,504.80
17	Remove FF lagging, insulation, wall panel, & roof panels	\$37,009.60
18	Remove ID fan lagging & insulation	\$7,401.92
19	Removal all HVAC equipment located on FGD Bldg roof	\$5,551.44
20	Remove FGD Bldg lagging, insulation, wall panel, & roof	\$9,821.60
21	General Electric	\$259,746.32
22	Remove breakers serving all FF equipment	\$1,149.32
23	Remove breakers serving all FGD equipment	\$2,298.64
24	Remove breakers serving all ID fan equipment	\$1,149.32
25	Remove breakers serving all SCR equipment	\$1,149.32
26	Remove breakers serving all comp air equipment	\$1,149.32
27	Remove all ductwork primary instrumentation, controls & assoc'd cables, and cc	\$11,493.20
28	Remove all FGD primary instrumentation, controls & assoc'd cables, and conduit	\$34,479.60
29	Remove all FF primary instrumentation, controls & assoc'd cables, and conduit	\$22,986.40
30	Remove SCR primary instrumentation, controls, & assoc'd cable & conduit	\$11,493.20
31	Remove NH3 supply primary instrumentation, controls, & assoc'd cable & condu	\$11,493.20
32	Remove wiring and conduit serving FGD equipment, HVAC, lighting and convenie	\$45,972.80
33	Remove wiring and conduit serving FF equipment, HVAC, lighting and convenien	\$22,986.40
34	Remove wiring and conduit serving the ID fans and assoc'd equipment	\$27,583.68
35	Remove wiring & conduit serving SCR vaporization & injection equipment	\$6,895.92
36	Remove wiring & conduit serving compressed air equipment	\$6,895.92
37	Remove wiring & conduit serving comp air equipment	\$4,597.28
38	Remove electrical control cabinets & switchgear	\$22,986.40
39	Demolish electrical control room	\$22,986.40
40	FGD System	\$207,758.20
41	Remove ductwork between FGD module and chimney	\$8,220.00
42	Remove support steel and access platforms between FGD and chimney	\$5,551.44
43	Remove FGD elevator	\$9,252.40
44	Remove all mechanical equipment, pumps, and motors and tanks in FGD Bldg	\$37,009.60
45	Remove oxi air blowers	\$925.24
46	Remove all FGD piping & valves other than recirc piping	\$27,757.20
47	Remove ox air lines	\$5,551.44
48	Remove FGD MEs panels	\$9,864.00
49	Remove FGD outlet duct and top cone	\$5,551.44

Iatan AQCS

ID	Task Name	Cost
50	Remove FGD internal wash ME piping and ME supports	\$5,551.44
51	Remove FGD internal spray header piping	\$9,252.40
52	Remove FGD support steel, access provisions, stair tower, and recirc piping from	\$37,009.60
53	Remove FGD module walls	\$18,504.80
54	Remove FGD inlet duct	\$5,551.44
55	Remove FGD reaction tank walls and floor	\$18,504.80
56	Remove FGD Bldg trench floor grating	\$3,700.96
57	ID Fans	\$81,421.12
58	Remove ductwork between ID fan outlets and FGD module	\$12,953.36
59	Remove support steel and access platforms between ID fan outlets and FGD mo	\$5,551.44
60	Remove ductwork between FF outlet and ID fan inlets	\$12,953.36
61	Remove support steel between FF outlet and ID fan inlets	\$5,551.44
62	Removed ID fan isolation dampers	\$14,803.84
63	Removed ID fan drive motor	\$7,401.92
64	Remove ID fan seal air system	\$7,401.92
65	Remove fan casing & rotor	\$14,803.84
66	Fabric Filters	\$324,614.64
67	Remove ductwork between air heater and FF	\$9,252.40
68	Remove ductwork structural steel between AH and FF	\$5,551.44
69	Remove FF penthouse hoists and trolleys	\$7,401.92
70	Remove FF hopper heaters, HVAC, lighting and convenience outlets	\$22,986.40
71	Remove FF ash handling piping	\$27,757.20
72	Remove compress air blower, dryers, and receivers, piping & valves	\$18,504.80
73	Remove FF penthouse roof panels supporting steel	\$18,504.80
74	Remove FF compartment roof hatches	\$5,551.44
75	Remove FF compartment pulse air piping	\$5,551.44
76	Remove FF compartment pulse air and compressed air supply piping	\$11,102.88
77	Remove FF outlet poppet damper operators	\$12,953.36
78	Remove FF bags & cages	\$25,906.72
79	Remove FF bag support sheets	\$25,906.72
80	Remove remaining FF roof	\$7,401.92
81	Remove FF outlet dampers	\$7,401.92
82	Remove ductwork between air heater and FF	\$9,252.40
83	Remove FF wall panels to hopper level	\$51,813.44
84	Remove ductwork structural steel between AH and FF	\$5,551.44
85	Remove FF stair tower(s)	\$18,504.80
86	Remove FF inlet dampers	\$7,401.92
87	Remove FF hoppers	\$12,953.36
88	Remove FF support steel	\$7,401.92
89	SCR and Ammonia Supply	\$75,869.68
90	Vacuum SCR catalyst	\$3,700.96
91	Remove SCR catalyst	\$16,654.32
92	Remove ammonia injection grid	\$3,700.96
93	Remove NH3 piping between storage & injection	\$3,700.96
94	Remove air horn air receiver & supply piping	\$3,700.96
95	Remove SCR guillotine dampers	\$7,401.92
96	Remove SCR muliti-louver dampers	\$3,700.96
97	Remove SCR box, internal supports, & assoc'd ductwork	\$27,757.20
98	Remove NH3 piping between storage & vaporizers	\$5,551.44

Iatan AQCS

ID	Task Name	Cost
99	Site Preperation Work	\$0.00
100	<New Task>	\$0.00












ID	Task Name	Duration	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
1	Iatan Unit 1 AQCS Dismantlement	340.5 days						
2	Common Removal Overheads	340 days						
3	Added Overhead Staff for Common Removals	340 days						
4	Scrap Crew	340 days						
5	Crew(s) to Handle Scrap Material	340 days						
6	Demolition Contractor Consummables	340 days						
7	Consummables	340 days						
8	Demolition Contractor Equipment Rental Costs	340 days						
9	Equipment Rental	340 days						
10	Dismantlement	340.5 days						
11	Initial Structural	202.5 days						
12	Remove SCR box & ductwork lagging & insulation	10 days						
13	Remove SCR expansion joints	6 days						
14	Remove ductwork lagging & insulation	5 days						
15	Remove ductwork expansion joints	10 days						
16	Remove ductwork access platforms & ladders	10 days						
17	Remove FF lagging, insulation, wall panel, & roof panels	20 days						
18	Remove ID fan lagging & insulation	4 days						

ID	Task Name	Duration	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
19	Removal all HVAC equipment located on FGD Bldg roof	3 days						
20	Remove FGD Bldg lagging, insulation, wall panel, & roof	10 days						
21	General Electric	108 days						
22	Remove breakers serving all FF equipment	0.5 days						
23	Remove breakers serving all FGD equipment	1 day						
24	Remove breakers serving all ID fan equipment	0.5 days						
25	Remove breakers serving all SCR equipment	0.5 days						
26	Remove breakers serving all comp air equipment	0.5 days						
27	Remove all ductwork primary instrumentation, controls & assoc'd cables, and conduit	5 days						
28	Remove all FGD primary instrumentation, controls & assoc'd cables, and conduit	15 days						
29	Remove all FF primary instrumentation, controls & assoc'd cables, and conduit	10 days						
30	Remove SCR primary instrumentation, controls, & assoc'd cable & conduit	5 days						
31	Remove NH3 supply primary instrumentation, controls, & assoc'd cable & conduit	5 days						
32	Remove wiring and conduit serving FGD equipment, HVAC, lighting and convenience outlets	20 days						
33	Remove wiring and conduit serving FF equipment, HVAC, lighting and convenience outlets	10 days						
34	Remove wiring and conduit serving the ID fans and assoc'd equipment	12 days						
35	Remove wiring & conduit serving SCR vaporization & injection equipment	3 days						

ID	Task Name	Duration	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
36	Remove wiring & conduit serving compressed air equipment	3 days						
37	Remove wiring & conduit serving comp air equipment	2 days						
38	Remove electrical control cabinets & switchgear	10 days						
39	Demolish electrical control room	10 days						
40	FGD System	98.5 days						
41	Remove ductwork between FGD module and chimney	5 days						
42	Remove support steel and access platforms between FGD and chimney	3 days						
43	Remove FGD elevator	5 days						
44	Remove all mechanical equipment, pumps, and motors and tanks in FGD Bldg	20 days						
45	Remove oxi air blowers	0.5 days						
46	Remove all FGD piping & valves other than recirc piping	15 days						
47	Remove ox air lines	3 days						
48	Remove FGD MEs panels	6 days						
49	Remove FGD outlet duct and top cone	3 days						
50	Remove FGD internal wash ME piping and ME supports	3 days						
51	Remove FGD internal spray header piping	5 days						
52	Remove FGD support steel, access provisions, stair tower, and recirc piping from top down	20 days						
53	Remove FGD module walls	10 days						

ID	Task Name	Duration	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
54	Remove FGD inlet duct	3 days						
55	Remove FGD reaction tank walls and floor	10 days						
56	Remove FGD Bldg trench floor grating	2 days						
57	ID Fans	65 days						
58	Remove ductwork between ID fan outlets and FGD module	7 days						
59	Remove support steel and access platforms between ID fan outlets and FGD module	3 days						
60	Remove ductwork between FF outlet and ID fan inlets	7 days						
61	Remove support steel between FF outlet and ID fan inlets	3 days						
62	Removed ID fan isolation dampers	8 days						
63	Removed ID fan drive motor	4 days						
64	Remove ID fan seal air system	4 days						
65	Remove fan casing & rotor	8 days						
66	Fabric Filters	265.5 days						
67	Remove ductwork between air heater and FF	5 days						
68	Remove ductwork structural steel between AH and FF	3 days						
69	Remove FF penthouse hoists and trolleys	4 days						
70	Remove FF hopper heaters, HVAC, lighting and convenience outlets	10 days						
71	Remove FF ash handling piping	15 days						

ID	Task Name	Duration	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
72	Remove compress air blower, dryers, and receivers, piping & valves	10 days						
73	Remove FF penthouse roof panels supporting steel	10 days						
74	Remove FF compartment roof hatches	3 days						
75	Remove FF compartment pulse air piping	3 days						
76	Remove FF compartment pulse air and compressed air supply piping	6 days						
77	Remove FF outlet poppet damper operators	7 days						
78	Remove FF bags & cages	14 days						
79	Remove FF bag support sheets	14 days						
80	Remove remaining FF roof	4 days						
81	Remove FF outlet dampers	4 days						
82	Remove ductwork between air heater and FF	5 days						
83	Remove FF wall panels to hopper level	28 days						
84	Remove ductwork structural steel between AH and FF	3 days						
85	Remove FF stair tower(s)	10 days						
86	Remove FF inlet dampers	4 days						
87	Remove FF hoppers	7 days						
88	Remove FF support steel	4 days						
89	SCR and Ammonia Supply	38 days						

ID	Task Name	Duration	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
90	Vacuum SCR catalyst	2 days						
91	Remove SCR catalyst	9 days						
92	Remove ammonia injection grid	2 days						
93	Remove NH3 piping between storage & injection	2 days						
94	Remove air horn air receiver & supply piping	2 days						
95	Remove SCR guillotine dampers	4 days						
96	Remove SCR multi-louver dampers	2 days						
97	Remove SCR box, internal supports, & assoc'd ductwork	15 days						
98	Remove NH3 piping between storage & vaporizers	3 days						
99	Site Preperation Work	1 day						
100	<New Task>	1 day						

UNIT 2

Iatan 2 Retirement

Owner Costs

Pre-Retirement Activities	\$106,968
Retirement Activities	\$702,911
Post-Retirement Activities	\$28,182

Owner Direct Total \$838,061

Owner Internal Costs 5.00% \$41,903

Owner Contingency: 25.00% \$219,991

Iatan 2 Retirement Opinion of Probable Cost: \$1,099,956

Iatan 2 Retirement		
ID	Task Name	Cost
0	Iatan 2 Retirement	\$838,061.41
1	Iatan 2 Retirement	\$838,061.41
2	Pre-Engineering	\$106,967.52
3	Permit review and engineering analysis, establish isolation points, and confirm fi	\$0.00
4	KCL&L Overhead Costs	\$120,939.52
5	KCP&L Retirement Manager	\$120,939.52
6	Equipment Rentals	\$40,538.88
7	Vacuum truck	\$40,538.88
8	Retirement	\$541,433.09
9	Electrical	\$20,553.92
10	Medium and Low Voltage Draw out Switchgear	\$2,903.52
11	De-energize all buses at the source.	\$483.92
12	Open all circuit breakers.	\$483.92
13	Rack all circuit breakers into the fully withdrawn, disconnected position.	\$483.92
14	Verify that the closing/tripping springs are discharged.	\$483.92
15	De-energize control power and auxiliary power circuits of each circuit break	\$967.84
16	Motor Control Centers	\$1,935.68
17	De-energize all buses at the source.	\$483.92
18	Open all circuit breakers and disconnect switches.	\$483.92
19	Remove all fuses in control circuits.	\$967.84
20	Low-voltage Switchboards and Panelboards	\$967.84
21	De-energize all buses at the source.	\$483.92
22	Open all circuit breakers and disconnect switches.	\$483.92
23	Oil-Filled Power Transformers	\$6,072.32
24	De-energize all transformer primaries and verify that the secondary is de-er	\$967.84
25	De-energize all low-voltage AC or DC power sources for space heaters, cool	\$967.84
26	Drain and dispose of oil.	\$2,867.52
27	Clean up and dispose of oil on surface areas around the transformers on in	\$1,269.12
28	Dry-type Power Transformers	\$1,935.68
29	De-energize all transformer primaries and verify that the secondary is de-er	\$967.84
30	De-energize all low-voltage AC or DC power sources for space heaters, cool	\$967.84
31	Motors	\$6,738.88
32	De-energize all primary power at the source.	\$1,935.68
33	De-energize all low-voltage power sources for space heaters or other auxili	\$1,935.68
34	Drain lube oil system (if applicable) and dispose of oil.	\$2,867.52
35	Coal Handling	\$30,905.36
36	Empty all transfer hoppers.	\$1,853.84
37	Burn out coal silos.	\$1,834.56
38	Confirm all fuel lines, conveyors and trippers are clear of fuel.	\$1,834.56
39	Perform cleaning of the coal handling equipment to assure that all coal and c	\$25,382.40
40	Fuel Oil and Igniter System	\$2,751.84
41	Drain fuel oil system	\$2,751.84
42	Boiler Chemical Feed	\$1,834.56
43	Drain all chemical feed tanks.	\$1,834.56
44	Boiler	\$30,927.60
45	Open boiler doors.	\$955.84
46	Gas side - perform cleaning of the boiler and bottom ash system.	\$25,382.40
47	Drain boiler, drum, downcomers and headers.	\$917.28
48	Open drum doors.	\$955.84

Iatan 2 Retirement

ID	Task Name	Cost
49	Drain and clean the submerged flight conveyor system.	\$2,716.24
50	Stack and Ductwork	\$344,145.25
51	Open ductwork doors.	\$955.84
52	Perform extensive cleaning of the ductwork.	\$12,691.20
53	Place cap over stack opening to keep moisture out.	\$330,498.21
54	Condensate and Feedwater Piping	\$1,834.56
55	Drain water from the system.	\$917.28
56	Leave open vents and drains.	\$917.28
57	Feedwater heaters	\$2,751.84
58	Drain feedwater heaters	\$917.28
59	Leave open vents and drains.	\$1,834.56
60	Deaerator and Deaerator Storage Tank	\$1,834.56
61	Drain Deaerator and Storage	\$917.28
62	Leave open vents and drains.	\$917.28
63	Baghouse	\$18,919.84
64	Multiple cleaning cycles for filter bags.	\$2,751.84
65	Open all vent and drain lines on bag cleaning air and control air lines. Leave in	\$917.28
66	Remove all filter bags and cages.	\$955.84
67	Clear hoppers of all ash	\$3,103.68
68	Mechanically secure all compartment dampers and hopper outlet valves in op	\$955.84
69	Disconnect ash transport piping and washdown baghouse hoppers and interic	\$1,571.12
70	Install bird screens across hopper ash outlet and ash line flanges.	\$955.84
71	Padlock or tack weld all hopper doors shut. (note: if ash hopper doors are ind	\$955.84
72	If walk-in plenum, padlock or tack weld all outlet plenum doors and compartn	\$955.84
73	If top-door plenum, close and secure top doors and remove/disable door lift f	\$1,873.12
74	If top-door plenum, establish natural ventilation or maintain HVAC fan to prov	\$1,020.08
75	Pull electrical supply breakers on all electrical equipment except lighting and f	\$2,903.52
76	Wet FGD system	\$26,222.88
77	Multiple mist eliminator wash cycles. Remove ME's from absorber.	\$2,331.76
78	Drain and flush all slurry and reclaim water pumps and piping. Leave vent and	\$1,873.12
79	Drain and wash out the reaction tank, reagent storage tank, recycle water tan	\$5,183.28
80	Leave all tank drain valves open or remove. Install bird screens across opening	\$1,911.68
81	Drain all makeup and mist eliminator water pumps and piping. Leave vent anc	\$2,828.96
82	Mechanically secure all flue gas isolation dampers in open position or remove	\$1,911.68
83	Remove solids from all inlet and outlet ductwork as necessary	\$2,538.24
84	Open all vent station air and control air lines. Leave in open position or remo	\$1,873.12
85	Padlock or tack weld all access doors to modules and ductwork shut.	\$1,911.68
86	Remove access doors to open-top tanks.	\$955.84
87	Pull electrical supply breakers on all electrical equipment except lighting and f	\$2,903.52
88	FGD Reagent Preparation-Limestone wet Scrubber	\$11,270.00
89	Remove limestone from day bins.	\$1,551.84
90	Removed cartridges/bags from bin vent filters	\$1,551.84
91	Padlock or tack weld all bin access doors shut. (note: if doors are indoors, the	\$955.84
92	Remove bin discharge isolation valve and install bird screen.	\$477.92
93	Thoroughly wash and drain mills	\$1,551.84
94	Remove balls from any ball mills	\$1,269.12
95	Padlock or tack weld mill access doors closed.	\$955.84
96	Establish natural ventilation or maintain HVAC fan to provide minimum air cha	\$1,020.08
97	Pull electrical supply breakers on all electrical equipment except lighting and f	\$1,935.68

Iatan 2 Retirement


















ID	Task Name	Cost
98	FGD Byproduct Dewatering - Hydrocyclones and Vacuum Filters	\$8,032.96
99	Wash vacuum filter belt and remove all accumulated solids	\$2,538.24
100	Wash out vacuum receiver, remove pressure relief valve and access door. Inst	\$1,571.12
101	Establish natural ventilation or maintain HVAC fan to provide minimum air cha	\$1,020.08
102	Pull electrical supply breakers on all electrical equipment except lighting and f	\$2,903.52
103	SCR	\$11,098.96
104	Vacuum fly ash from catalyst.	\$2,538.24
105	Remove catalyst of salvage or disposal.	\$3,180.80
106	Padlock or tack weld access doors shut.	\$955.84
107	Remove ammonia from storage tank for resale.	\$775.92
108	Wash out and drain storage tank and supply piping.	\$775.92
109	Vent storage tank and all piping. Leave vent and drain valves open or remove.	\$936.56
110	Pull electrical supply breakers on all electrical equipment except lighting and f	\$1,935.68
111	Turbine(s) and Condenser	\$5,715.76
112	Drain hotwell and leave doors open.	\$936.56
113	Open main turbine doors.	\$955.84
114	Open bfp turbine doors.	\$955.84
115	Remove lube oil.	\$2,867.52
116	Generator	\$6,618.48
117	Verify that generator circuit breaker is open and racked out or that high-volta	\$483.92
118	Verify that generator field breaker or contactor (if applicable) is open.	\$483.92
119	De-energize power supplies to generator excitation system at the source.	\$483.92
120	De-energize AC and DC power supplies to generator and exciter space heaters	\$483.92
121	Drain generator and exciter cooling water systems (if applicable).	\$936.56
122	Disconnect and remove hydrogen gas tanks and purge generator hydrogen sy	\$1,834.56
123	Disconnect and remove fire protection system gas/foam tanks and purge fire	\$1,911.68
124	Circulation Water and Turbine Cooling Water System	\$3,707.68
125	Drain.	\$1,834.56
126	Open water box doors.	\$955.84
127	Drain any circulating water chemical feed tanks.	\$917.28
128	Compressed Air System	\$2,945.44
129	Open vents and drains.	\$917.28
130	Remove desiccant from desiccant dryers.	\$2,028.16
131	Auxiliary Steam System	\$1,834.56
132	Drain water from system.	\$917.28
133	Remove aux boiler chemicals.	\$917.28
134	Auxiliary Cooling Water System	\$917.28
135	Drain water from system.	\$917.28
136	Condenser Air Extraction and Waterbox Priming System	\$917.28
137	Drain water from system.	\$917.28
138	Building Heating System	\$917.28
139	Drain water from system.	\$917.28
140	Battery System	\$4,775.20
141	De-energize all battery chargers from the source.	\$483.92
142	Open all AC and DC circuit breakers and/or fused switches on battery charger	\$483.92
143	Remove and dispose of battery electrolyte.	\$1,903.68
144	Remove and dispose of battery cells.	\$1,269.12
145	Clean up and dispose of electrolyte on surface areas around batteries.	\$634.56
146	Post Retirement Activities	\$28,182.40


















Iatan 2 Retirement

ID	Task Name	Cost
147	Post Retirement Activities	\$28,182.40

ID	Task Name	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
0	Iatan 2 Retirement						
1	Iatan 2 Retirement						
2	Pre-Engineering						
3	Permit review and engineering analysis, establish isolation points, and confirm fuel yard inventory has been reduced to zero tons.						
4	KCL&L Overhead Costs						
5	KCP&L Retirement Manager						
6	Equipment Rentals						
7	Vacuum truck						
8	Retirement						
9	Electrical						
10	Medium and Low Voltage Draw out Switchgear						
11	De-energize all buses at the source.						
12	Open all circuit breakers.						
13	Rack all circuit breakers into the fully withdrawn, disconnected position.						
14	Verify that the closing/tripping springs are discharged.						
15	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.						

ID	Task Name	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
16	Motor Control Centers						
17	De-energize all buses at the source.						
18	Open all circuit breakers and disconnect switches.						
19	Remove all fuses in control circuits.						
20	Low-voltage Switchboards and Panelboards						
21	De-energize all buses at the source.						
22	Open all circuit breakers and disconnect switches.						
23	Oil-Filled Power Transformers						
24	De-energize all transformer primaries and verify that the secondary is de-energized.						
25	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.						
26	Drain and dispose of oil.						
27	Clean up and dispose of oil on surface areas around the transformers on in containment pits.						
28	Dry-type Power Transformers						
29	De-energize all transformer primaries and verify that the secondary is de-energized.						
30	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.						
31	Motors						

















ID	Task Name	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
32	De-energize all primary power at the source.						
33	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.						
34	Drain lube oil system (if applicable) and dispose of oil.						
35	Coal Handling						
36	Empty all transfer hoppers.						
37	Burn out coal silos.						
38	Confirm all fuel lines, conveyors and trippers are clear of fuel.						
39	Perform cleaning of the coal handling equipment to assure that all coal and coal dust has been removed from site.						
40	Fuel Oil and Igniter System						
41	Drain fuel oil system						
42	Boiler Chemical Feed						
43	Drain all chemical feed tanks.						
44	Boiler						
45	Open boiler doors.						
46	Gas side - perform cleaning of the boiler and bottom ash system.						
47	Drain boiler, drum, downcomers and headers.						
48	Open drum doors.						


















ID	Task Name	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
49	Drain and clean the submerged flight conveyor system.						
50	Stack and Ductwork						
51	Open ductwork doors.						
52	Perform extensive cleaning of the ductwork.						
53	Place cap over stack opening to keep moisture out.						
54	Condensate and Feedwater Piping						
55	Drain water from the system.						
56	Leave open vents and drains.						
57	Feedwater heaters						
58	Drain feedwater heaters						
59	Leave open vents and drains.						
60	Deaerator and Deaerator Storage Tank						
61	Drain Deaerator and Storage						
62	Leave open vents and drains.						
63	Baghouse						
64	Multiple cleaning cycles for filter bags.						
65	Open all vent and drain lines on bag cleaning air and control air lines. Leave in open position or remove vent valves.						




ID	Task Name	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
66	Remove all filter bags and cages.						
67	Clear hoppers of all ash						
68	Mechanically secure all compartment dampers and hopper outlet valves in open position.						
69	Disconnect ash transport piping and washdown baghouse hoppers and interior of casing.						
70	Install bird screens across hopper ash outlet and ash line flanges.						
71	Padlock or tack weld all hopper doors shut. (note: if ash hopper doors are indoors, they could be removed and the opening covered with bird screens.)						
72	If walk-in plenum, padlock or tack weld all outlet plenum doors and compartment ventilation dampers shut.						
73	If top-door plenum, close and secure top doors and remove/disable door lift hoist.						
74	If top-door plenum, establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in penthouse enclosure.						
75	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.						
76	Wet FGD system						
77	Multiple mist eliminator wash cycles. Remove ME's from absorber.						
78	Drain and flush all slurry and reclaim water pumps and piping. Leave vent and drain valves open or remove. Install bird screens across drain openings.						
79	Drain and wash out the reaction tank, reagent storage tank, recycle water tank, absorber blowdown tank, etc.						
80	Leave all tank drain valves open or remove. Install bird screens across openings.						

ID	Task Name	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	
81	Drain all makeup and mist eliminator water pumps and piping. Leave vent and drain valves open or remove. Install bird screens across drain openings.							
82	Mechanically secure all flue gas isolation dampers in open position or remove damper blades.							
83	Remove solids from all inlet and outlet ductwork as necessary							
84	Open all vent station air and control air lines. Leave in open position or remove vent valves							
85	Padlock or tack weld all access doors to modules and ductwork shut.							
86	Remove access doors to open-top tanks.							
87	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.							
88	FGD Reagent Preparation-Limestone wet Scrubber							
89	Remove limestone from day bins.							
90	Removed cartridges/bags from bin vent filters							
91	Padlock or tack weld all bin access doors shut. (note: if doors are indoors, they could be removed and the opening covered with bird screens.)							
92	Remove bin discharge isolation valve and install bird screen.							
93	Thoroughly wash and drain mills							
94	Remove balls from any ball mills							
95	Padlock or tack weld mill access doors closed.							
96	Establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in building.							

ID	Task Name	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
97	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.						
98	FGD Byproduct Dewatering - Hydrocyclones and Vacuum Filters						
99	Wash vacuum filter belt and remove all accumulated solids						
100	Wash out vacuum receiver, remove pressure relief valve and access door. Install bird screens.						
101	Establish natural ventilation or maintain HVAC fan to provide minimum air changes per hour in building.						
102	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.						
103	SCR						
104	Vacuum fly ash from catalyst.						
105	Remove catalyst of salvage or disposal.						
106	Padlock or tack weld access doors shut.						
107	Remove ammonia from storage tank for resale.						
108	Wash out and drain storage tank and supply piping.						
109	Vent storage tank and all piping. Leave vent and drain valves open or remove. Install bird screens.						
110	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.						
111	Turbine(s) and Condenser						
112	Drain hotwell and leave doors open.						

ID	Task Name	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
113	Open main turbine doors.						
114	Open bfp turbine doors.						
115	Remove lube oil.						
116	Generator						
117	Verify that generator circuit breaker is open and racked out or that high-voltage disconnect switch on substation side of GSU transformer is locked in the open position.						
118	Verify that generator field breaker or contactor (if applicable) is open.						
119	De-energize power supplies to generator excitation system at the source.						
120	De-energize AC and DC power supplies to generator and exciter space heaters, cooling equipment, controls, lighting, etc. at the source and open circuit breakers or remove fuses at the generator and exciter.						
121	Drain generator and exciter cooling water systems (if applicable).						
122	Disconnect and remove hydrogen gas tanks and purge generator hydrogen system.						
123	Disconnect and remove fire protection system gas/foam tanks and purge fire protection system.						
124	Circulation Water and Turbine Cooling Water System						
125	Drain.						
126	Open water box doors.						
127	Drain any circulating water chemical feed tanks.						
128	Compressed Air System						

ID	Task Name	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
129	Open vents and drains.						
130	Remove desiccant from desiccant dryers.						
131	Auxiliary Steam System						
132	Drain water from system.						
133	Remove aux boiler chemicals.						
134	Auxiliary Cooling Water System						
135	Drain water from system.						
136	Condenser Air Extraction and Waterbox Priming System						
137	Drain water from system.						
138	Building Heating System						
139	Drain water from system.						
140	Battery System						
141	De-energize all battery chargers from the source.						
142	Open all AC and DC circuit breakers and/or fused switches on battery chargers and disconnect cables from batteries.						
143	Remove and dispose of battery electrolyte.						
144	Remove and dispose of battery cells.						
145	Clean up and dispose of electrolyte on surface areas around batteries.						

ID	Task Name	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
146	Post Retirement Activities						
147	Post Retirement Activities						

Iatan 2 Dismantlement

Owner Additional Costs

Pre-Dismantlement Activities		\$1,262,586	
Overhead During Dismantlement		\$2,291,699	
Post-Dismantlement Activities		\$79,455	
Owner Costs Total			\$3,633,740

Demolition General Contractor (DGC) Costs

Additional Site Management		\$1,521,477	
Equipment Rental		\$2,606,917	
Consumables		\$2,845,750	
Scrap Crew(s)		\$2,538,269	
Dismantlement*		\$6,234,218	

DGC Insurance	2.00%	\$314,933	
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Contingency/Profit	15.00%	\$2,409,235	
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Performance Bond	2.00%	\$369,416.00	
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Contractor Costs Total:			\$18,840,216
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Total:			\$22,473,955
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Owner Internal Costs:	5.00%		\$1,123,698
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Owner Contingency:	25.00%		\$5,899,413
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Iatan Unit 2 Dismantlement Opinion of Probable Cost:			\$29,497,067
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COMMON

Iatan Common Retirement

Owner Costs

Pre-Retirement Activities	\$55,645
Retirement Activities	\$401,998
Post-Retirement Activities	\$34,035

Owner Direct Total \$491,678

Owner Internal Costs 5.00% \$24,584

Owner Contingency: 25.00% \$129,066

Iatan Common Retirement Opinion of Probable Cost: \$645,328

Activities Required by Permit or Regulation

Iatan Fuel Storage	\$191,130
Iatan Oil Storage	\$53,766
Iatan Landfill Retirement	\$3,415,033
Iatan Ash Pond(s)	\$37,236,839

Activities Required by Permit or Regulation \$40,896,768

Iatan Common Retirement

ID	Task Name	Cost
0	Iatan Common Retirement	\$491,678.16
1	Iatan Common Retirement	\$491,678.16
2	Pre-Retirement Activities	\$55,644.80
3	Permitting Review	\$27,822.40
4	Develop Detailed Retirement Plan	\$27,822.40
5	Overheads	\$108,867.92
6	Common Retirement Overheads	\$95,428.40
7	Added Overhead Staff for Common Retirement	\$95,428.40
8	Common Retirement Equipment Rental	\$13,439.52
9	Common Removal Equipment Rental	\$13,439.52
10	Retirement Activities	\$293,130.24
11	Administration Building	\$19,040.40
12	Secure Administration Building	\$19,040.40
13	Fuel Yard Office Building	\$11,424.24
14	Secure Fuel Yard Office Building	\$11,424.24
15	Training Building	\$11,424.24
16	Secure Training Building	\$11,424.24
17	Warehouse(s)	\$11,726.24
18	Secure Unit 1 Warehouse	\$4,110.08
19	Secure Unit 2 Warehouse	\$7,616.16
20	Maintenance Shop	\$28,562.40
21	Secure Maintenance Shop	\$28,562.40
22	Fuel Yard	\$146,594.00
23	Transfer Towers	\$89,922.00
24	Clean Transfer Tower 1	\$4,231.44
25	Clean Transfer Tower 2	\$4,231.44
26	Clean and Secure Crusher Building	\$7,052.40
27	Clean Stockout Conveyor Reclaim Pit	\$14,104.80
28	Conveyors	\$19,746.72
29	Clean Conveyor 2A, 4, 5B 6A, 6B, 7A and 7B	\$19,746.72
30	Car Dumper	\$9,873.36
31	Empty Car Dumper Hoppers	\$1,410.48
32	Clean Car Dumper	\$4,231.44
33	Secure Dumper Building	\$4,231.44
34	Remove Stacker/Reclaimer	\$21,410.00
35	Clean and Secure Stacker/Reclaimer	\$7,052.40
36	Unit 1 Reclaim	\$5,641.92
37	Clean Unit 1 Reclaim	\$2,820.96
38	Secure Unit 1 Reclaim Building	\$2,820.96
39	Sewage Treatment	\$4,724.64
40	Clean Sewage Treatment and Transfer Points	\$4,724.64
41	Fuel Oil Storage and Unloading	\$917.28
42	Remove Fuel Oil from Fuel Oil Storage and Vent	\$917.28
43	Yard Fire Water Systems	\$917.28
44	Drain Yard Fire Water System	\$917.28
45	Reagent Prep and Gypsum Handling	\$32,794.96
46	Clean and Secure Limestone Unloading Facility	\$4,231.44
47	Clean and Secure Limestone Storage Facility	\$4,231.44
48	Clean Limestone Conveyor	\$4,307.28

Iatan Common Retirement

ID	Task Name	Cost
49	Clean and Secure Limestone Prep Building	\$7,178.80
50	Clean Gypsum Stackout Conveyor	\$2,871.52
51	Clean and Secure PCM-1	\$2,871.52
52	Clean and Secure PCM-2	\$2,871.52
53	Clean and Secure the Vacuum Pump and Air Compressor Building	\$4,231.44
54	Water Pretreatment and ZLD	\$25,004.56
55	Drain and Clean Clarifiers	\$4,231.44
56	Drain and Clean ZLD System	\$8,462.88
57	Clean and Secure ZLD Building	\$9,489.28
58	Drain and Vent Storage Tanks	\$2,820.96
59	Post Retirement Closure Activities	\$34,035.20
60	Post Retirement Closure Activities	\$34,035.20

ID	Task Name	Duration	December 1	January 1	February 1	March 1	April 1	May 1	June 1	July 1			
0	Iatan Common Retirement	131 days		[Task bar from Jan 1 to July 1]									
1	Iatan Common Retirement	131 days		[Task bar from Jan 1 to July 1]									
2	Pre-Retirement Activities	40 days		[Task bar from Jan 1 to Feb 10]									
3	Permitting Review	20 days		[Cyan task bar from Jan 1 to Jan 21]									
4	Develop Detailed Retirement Plan	20 days		[Task bar from Jan 21 to Feb 10]									
5	Overheads	61 days		[Task bar from Feb 10 to April 10]									
6	Common Retirement Overheads	61 days		[Task bar from Feb 10 to April 10]									
7	Added Overhead Staff for Common Retirement	61 days		[Task bar from Feb 10 to April 10]									
8	Common Retirement Equipment Rental	61 days		[Task bar from Feb 10 to April 10]									
9	Common Removal Equipment Rental	61 days		[Task bar from Feb 10 to April 10]									
10	Retirement Activities	61 days		[Task bar from Feb 10 to April 10]									
11	Administration Building	15 days		[Task bar from Feb 10 to Feb 25]									
12	Secure Administration Building	15 days		[Task bar from Feb 25 to March 10]									
13	Fuel Yard Office Building	9 days		[Task bar from March 10 to March 19]									
14	Secure Fuel Yard Office Building	9 days		[Task bar from March 19 to March 28]									
15	Training Building	9 days		[Task bar from March 28 to April 6]									
16	Secure Training Building	9 days		[Task bar from April 6 to April 15]									
17	Warehouse(s)	8 days		[Task bar from April 15 to April 23]									

ID	Task Name	Duration	December 1	January 1	February 1	March 1	April 1	May 1	June 1	July 1
18	Secure Unit 1 Warehouse	2 days								
19	Secure Unit 2 Warehouse	6 days								
20	Maintenance Shop	20 days								
21	Secure Maintenance Shop	20 days								
22	Fuel Yard	51 days								
23	Transfer Towers	21 days								
24	Clean Transfer Tower 1	3 days								
25	Clean Transfer Tower 2	3 days								
26	Clean and Secure Crusher Building	5 days								
27	Clean Stockout Conveyor Reclaim Pit	10 days								
28	Conveyors	14 days								
29	Clean Conveyor 2A, 4, 5B 6A, 6B, 7A and 7B	14 days								
30	Car Dumper	7 days								
31	Empty Car Dumper Hoppers	1 day								
32	Clean Car Dumper	3 days								
33	Secure Dumper Building	3 days								
34	Remove Stacker/Reclaimer	5 days								
35	Clean and Secure Stacker/Reclaimer	5 days								

ID	Task Name	Duration	December 1	January 1	February 1	March 1	April 1	May 1	June 1	July 1
36	Unit 1 Reclaim	4 days								
37	Clean Unit 1 Reclaim	2 days								
38	Secure Unit 1 Reclaim Building	2 days								
39	Sewage Treatment	4 days								
40	Clean Sewage Treatment and Transfer Points	4 days								
41	Fuel Oil Storage and Unloading	1 day								
42	Remove Fuel Oil from Fuel Oil Storage and Vent	1 day								
43	Yard Fire Water Systems	1 day								
44	Drain Yard Fire Water System	1 day								
45	Reagent Prep and Gypsum Handling	23 days								
46	Clean and Secure Limestone Unloading Facility	3 days								
47	Clean and Secure Limestone Storage Facility	3 days								
48	Clean Limestone Conveyor	3 days								
49	Clean and Secure Limestone Prep Building	5 days								
50	Clean Gypsum Stackout Conveyor	2 days								
51	Clean and Secure PCM-1	2 days								
52	Clean and Secure PCM-2	2 days								

ID	Task Name	Duration	December 1	January 1	February 1	March 1	April 1	May 1	June 1	July 1
53	Clean and Secure the Vacuum Pump and Air Compressor Building	3 days								
54	Water Pretreatment and ZLD	15 days								
55	Drain and Clean Clarifiers	3 days								
56	Drain and Clean ZLD System	6 days								
57	Clean and Secure ZLD Building	4 days								
58	Drain and Vent Storage Tanks	2 days								
59	Post Retirement Closure Activities	40 days								
60	Post Retirement Closure Activities	40 days								

Iatan Common Dismantlement

Owner Additional Costs

Pre-Dismantlement Activities		\$0	
Overhead During Dismantlement		\$0	
Post-Dismantlement Activities			
Owner Costs Total			\$0

Demolition General Contractor (DGC) Costs

Additional Site Management		\$91,204	
Equipment Rental		\$440,123	
Consumables		\$659,404	
Scrap Crew(s)		\$643,967	
Dismantlement		\$14,757,051	

DGC Insurance 2.00% \$331,835

Contingency/Profit 15.00% \$2,538,538

Performance Bond 2.00% \$389,242.42

Contractor Costs Total: \$19,851,363

Total: \$19,851,363

Owner Internal Costs: 5.00% \$992,568

Owner Contingency: 25.00% \$5,210,983

Iatan Common Dismantlement Opinion of Probable Cost: \$26,054,914

Iatan Common

ID	Task Name	Cost
0	Iatan Common	\$16,591,748.40
1	Iatan Common Dismantlement	\$16,591,748.40
2	Overheads	\$1,834,697.84
3	Common Removal Overheads	\$91,203.83
4	Added Overhead Staff for Common Removals	\$91,203.83
5	Common Removal Equipment Rental	\$440,122.56
6	Common Removal Equipment Rental	\$440,122.56
7	Scrap Crew	\$643,967.13
8	Crew(s) to Handle Scrap Material	\$643,967.13
9	Demolition Contractor Consummables	\$659,404.32
10	Consummables	\$659,404.32
11	Dismantlement Activities	\$14,757,050.56
12	Administration Building	\$37,009.60
13	Remove Administration Building	\$37,009.60
14	Fuel Yard Office Building	\$18,504.80
15	Remove Fuel Yard Office Building	\$18,504.80
16	Training Building	\$18,504.80
17	Remove Training Building	\$18,504.80
18	Parking Lots and Plant Roads	\$85,122.08
19	Plant Roads and Parking Areas	\$74,019.20
20	Guard Shack	\$11,102.88
21	Warehouse(s)	\$37,009.60
22	Remove Unit 1 Warehouse	\$18,504.80
23	Remove Unit 2 Warehouse	\$18,504.80
24	Maintenance Shop	\$23,984.80
25	Remove Maintenance Shop	\$23,984.80
26	Fuel Yard	\$777,201.60
27	Remove Transfer Towers	\$481,124.80
28	Transfer Tower 1	\$37,009.60
29	Transfer Tower 2	\$37,009.60
30	Crusher Building	\$74,019.20
31	Stockout Conveyor Reclaim Pit	\$92,524.00
32	Remove Conveyors	\$129,533.60
33	Conveyor 2A, 4, 5B 6A, 6B, 7A and 7B	\$129,533.60
34	Remove Car Dumper	\$92,524.00
35	Remove Underground Equipment	\$18,504.80
36	Remove Above Ground Equipment	\$37,009.60
37	Remove Building	\$18,504.80
38	Backfill Dumper Structure	\$18,504.80
39	Remove Stacker/Reclaimer	\$7,401.92
40	Remove Stacker/Reclaimer	\$3,700.96
41	Remove Unit 1 Reclaim	\$66,617.28
42	Remove Underground Equipment	\$18,504.80
43	Remove Above Ground Equipment	\$18,504.80
44	Remove Building	\$14,803.84
45	Backfill Structure	\$14,803.84
46	Sewage Treatment	\$22,205.76
47	Remove Sewage Treatment Pumps and Miscellaneous Equipment	\$7,401.92
48	Remove Sewage Treatment Concrete Structures	\$14,803.84

Iatan Common

ID	Task Name	Cost
49	Yard Fire Water Systems	\$37,009.60
50	Remove Hydrants and Fire Water System Piping Down to 3' Below Grade	\$37,009.60
51	Water Pretreatment Clarifiers and ZLD	\$125,832.64
52	Remove Clarifier Vessels	\$11,102.88
53	Remove Pump House	\$18,504.80
54	Remove Clarifier Water Storage Tanks	\$18,504.80
55	Remove Water Treatment Equipment	\$11,102.88
56	Remove Water Treatment Building	\$18,504.80
57	Remove ZLD Equipment	\$11,102.88
58	Remove ZLD Building	\$18,504.80
59	Remove Condensate Storage Tanks	\$18,504.80
60	Stacks	\$11,574,284.01
61	Remove Unit 1 Stack to Grade	\$4,406,642.74
62	Remove Common Stack to Grade	\$7,167,641.27
63	Reagent Prep and Gypsum Handling	\$347,890.24
64	Remove Limestone Unloading Facility	\$37,009.60
65	Remove Limestone Storage Facility	\$18,504.80
66	Remove Limestone Conveyor	\$18,504.80
67	Remove Limestone Prep Building	\$148,038.40
68	Remove Gypsum Stackout Conveyor	\$18,504.80
69	Remove PCM-1	\$7,401.92
70	Remove PCM-2	\$7,401.92
71	Remove the Vacuum Pump and Air Compressor Building	\$74,019.20
72	Remove Miscellaneous Equipment	\$18,504.80
73	Final Site Grading and Drainage	\$1,652,491.03
74	Final Site Grading and Drainage	\$1,652,491.03

ID	Task Name	Duration	1st Quarter		2nd Quarter			3rd Quarter			4th Quarter			1st Quarter
			Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
0	Iatan Common Dismantlement	208 days												
1	Iatan Common Dismantlement	208 days												
2	Overheads	174 days												
3	Common Removal Overheads	174 days												
4	Added Overhead Staff for Common Removals	174 days												
5	Common Removal Equipment Rental	174 days												
6	Common Removal Equipment Rental	174 days												
7	Scrap Crew	174 days												
8	Crew(s) to Handle Scrap Material	174 days												
9	Demolition Contractor Consummables	174 days												
10	Consummables	174 days												
11	Dismantlement Activities	208 days												
12	Administration Building	10 days												
13	Remove Administration Building	10 days												
14	Fuel Yard Office Building	5 days												
15	Remove Fuel Yard Office Building	5 days												
16	Training Building	5 days												
17	Remove Training Building	5 days												
18	Parking Lots and Plant Roads	23 days												
19	Plant Roads and Parking Areas	20 days												
20	Guard Shack	3 days												
21	Warehouse(s)	10 days												
22	Remove Unit 1 Warehouse	5 days												
23	Remove Unit 2 Warehouse	5 days												
24	Maintenance Shop	10 days												
25	Remove Maintenance Shop	10 days												
26	Fuel Yard	144 days												
27	Remove Transfer Towers	65 days												
28	Transfer Tower 1	10 days												
29	Transfer Tower 2	10 days												
30	Crusher Building	20 days												

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter
			Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	
31	Stockout Conveyor Reclaim Pit	25 days													
32	Remove Conveyors	35 days													
33	Conveyor 2A, 4, 5B 6A, 6B, 7A and 7B	35 days													
34	Remove Car Dumper	25 days													
35	Remove Underground Equipment	5 days													
36	Remove Above Ground Equipment	10 days													
37	Remove Building	5 days													
38	Backfill Dumper Structure	5 days													
39	Remove Stacker/Reclaimer	1 day													
40	Remove Stacker/Reclaimer	1 day													
41	Remove Unit 1 Reclaim	18 days													
42	Remove Underground Equipment	5 days													
43	Remove Above Ground Equipment	5 days													
44	Remove Building	4 days													
45	Backfill Structure	4 days													
46	Sewage Treatment	6 days													
47	Remove Sewage Treatment Pumps and Miscellaneous Equipment	2 days													
48	Remove Sewage Treatment Concrete Structures	4 days													
49	Yard Fire Water Systems	10 days													
50	Remove Hydrants and Fire Water System Piping Down to 3' Below Grade	10 days													
51	Water Pretreatment Clarifiers and ZLD	34 days													
52	Remove Clarifier Vessels	3 days													
53	Remove Pump House	5 days													
54	Remove Clarifier Water Storage Tanks	5 days													
55	Remove Water Treatment Equipment	3 days													

ID	Task Name	Duration	1st Quarter		2nd Quarter			3rd Quarter			4th Quarter			1st Quarter	
			Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	
56	Remove Water Treatment Building	5 days													
57	Remove ZLD Equipment	3 days													
58	Remove ZLD Building	5 days													
59	Remove Condensate Storage Tanks	5 days													
60	Stacks	1 day													
61	Remove Unit 1 Stack to Grade	1 day													
62	Remove Common Stack to Grade	1 day													
63	Reagent Prep and Gypsum Handling	94 days													
64	Remove Limestone Unloading Facility	10 days													
65	Remove Limestone Storage Facility	5 days													
66	Remove Limestone Conveyor	5 days													
67	Remove Limestone Prep Building	40 days													
68	Remove Gypsum Stackout Conveyor	5 days													
69	Remove PCM-1	2 days													
70	Remove PCM-2	2 days													
71	Remove the Vacuum Pump and Air Compressor Building	20 days													
72	Remove Miscellaneous Equipment	5 days													
73	Final Site Grading and Drainage	1 day													
74	Final Site Grading and Drainage	1 day													

NORTHEAST GENERATING STATION

NORTHEAST GENERATING STATION

The Northeast Generating Station consists of eight fuel-oil-fired combustion turbine generator sets.

Together these combustion turbines have a total SPP-accredited unit rating of 408 MW. The units are designated Units 11 through 18, and were added to an existing steam electric generating plant site during the 1970s. Units 11 and 12 began service in 1972; Units 13 and 14 in 1975; Units 15 and 16 in 1976; and Units 17 and 18 in 1977. Each unit is comprised of a General Electric Model 7B combustion turbine and each pair of units is connected to a three-winding generator step-up transformer and is provided with auxiliary power through a common bus. Each combustion turbine employs standard annular combustor technology and burns only distillate or ultra-low sulfur fuel oil. Diesel starting means is provided and Northeast is a designated black-start facility.

The following are the major systems and equipment that were included in the retirement and dismantlement of each unit and the major systems and equipment that were considered common (additional details are listed in the attached retirement and dismantlement schedules included in this Appendix).

NORTHEAST UNITS 11 THROUGH 18

1. Combustion turbine generator sets and auxiliaries (eight).
2. Generator step-up and auxiliary transformers (four).
3. Exhaust stacks (eight).

COMMON

1. Service building.
2. Fuel oil unloading, storage, and forwarding equipment.
3. Service/Instrument air compressors.

Northeast Retirement

Owner Costs

Pre-Retirement Activities	\$46,506
Retirement Activities	\$329,203
Post-Retirement Activities	\$47,901

Owner Direct total \$423,609

Owner Internal Costs: 5.00% \$21,180

Owner Contingency: 25.00% \$111,197

Northeast Dismantlement Opinion of Probable Cost: \$555,987

Activities Required by Permit or Regulation

Northeast Fuel Oil Tank Removal	\$553,553	
Activities Required by Permit or Regulation		\$553,553

Northeast Retirement		
ID	Task Name	Cost
0	Northeast Retirement	\$423,609.36
1	Northeast Retirement	\$423,609.36
2	Pre-Retirement Activities	\$46,505.60
3	Permitting Review	\$24,896.00
4	Develop Detailed Retirement Plan	\$21,609.60
5	Retirement Activities	\$329,202.96
6	Project Management During Retirement	\$144,649.60
7	Project Management During Retirement	\$144,649.60
8	Electrical	\$94,187.52
9	Medium and Low Voltage Drawout Switchgear	\$26,490.24
10	De-energize all buses at the source.	\$5,886.72
11	Open all circuit breakers.	\$5,886.72
12	Rack all circuit breakers into the fully withdrawn, disconnected position.	\$5,886.72
13	Verify that the closing/tripping springs are discharged.	\$5,886.72
14	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	\$2,943.36
15	Motor Control Centers	\$12,754.56
16	De-energize all buses at the source.	\$2,943.36
17	Open all circuit breakers and disconnect switches.	\$4,905.60
18	Remove all fuses in control circuits.	\$4,905.60
19	Low-voltage Switchboards and Panelboards	\$11,773.44
20	De-energize all buses at the source.	\$5,886.72
21	Open all circuit breakers and disconnect switches.	\$5,886.72
22	Oil-Filled Power Transformers	\$19,622.40
23	De-energize all buses at the source.	\$4,905.60
24	Open all circuit breakers and disconnect switches.	\$4,905.60
25	De-energize all buses at the source.	\$4,905.60
26	Open all circuit breakers and disconnect switches.	\$4,905.60
27	Dry-type Power Transformers	\$8,830.08
28	De-energize all transformer primaries and verify that the secondary is de-energized.	\$4,905.60
29	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	\$3,924.48
30	Motors	\$14,716.80
31	De-energize all primary power at the source.	\$4,905.60
32	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	\$4,905.60
33	Drain lube oil system (if applicable) and dispose of oil.	\$4,905.60
34	Fuel Oil System	\$6,151.36
35	Isolate Fuel Oil System	\$4,264.32
36	Drain and Vent Fuel Oil Piping	\$1,887.04
37	Lube Oil Cooling Water System	\$10,378.72

Northeast Retirement

ID	Task Name	Cost
38	Open and Drain the Water Side of the Lube Oil Coolers	\$7,548.16
39	Open and Vent the Coolers and Expansion Tank	\$2,830.56
40	Oily Drain Tank	\$4,266.96
41	Open and Pump Out the Oily Drain Tank	\$4,266.96
42	Compressed Air	\$3,774.08
43	Empty Dessiccant Air Dryers and Vent	\$1,887.04
44	Open and Vent the Air Reciever	\$1,887.04
45	Miscelleaneous Piping	\$16,039.84
46	Open and Vent the Exhaust Frame Cooling Piping	\$2,830.56
47	Open and Vent the Inlet Air Heating Piping	\$2,830.56
48	Open & Vent the CT Air Process Piping	\$7,548.16
49	Open and Vent the CT Air Processing Piping	\$2,830.56
50	Fire Protection Piping	\$7,495.68
51	Empty the CO2 Storage Tank	\$5,608.64
52	Open and Vent the Fire Protection Piping	\$1,887.04
53	Lube Oil System	\$32,354.64
54	Empty and Remove from Site the Lubricating Oil	\$21,032.40
55	Drain Lubricating Oil Piping	\$9,435.20
56	Open and Vent Lubricating Oil Piping	\$1,887.04
57	Potable Water	\$2,888.40
58	Disconnect Potable Water at Property Boundary	\$2,888.40
59	Waste Water	\$4,264.32
60	Disconnect Waste Water at Property Boundary	\$4,264.32
61	Unleaded Gasoline Fueling Station	\$2,751.84
62	Drain the Unleaded Gasoline Fueling Station	\$2,751.84
63	Post Retirement Closure Activity	\$47,900.80
64	Post Retirement Closure Activity	\$47,900.80

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter		
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
0	Northeast Retirement	250 days												
1	Northeast Retirement	250 days												
2	Pre-Retirement Activities	40 days												
3	Permitting Review	20 days												
4	Develop Detailed Retirement Plan	20 days												
5	Retirement Activities	170 days												
6	Project Management During Retirement	170 days												
7	Project Management During Retirement	170 days												
8	Electrical	96 days												
9	Medium and Low Voltage Drawout Switchgear	27 days												
10	De-energize all buses at the source.	6 days												
11	Open all circuit breakers.	6 days												
12	Rack all circuit breakers into the fully withdrawn, disconnected position.	6 days												
13	Verify that the closing/tripping springs are discharged.	6 days												
14	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	3 days												
15	Motor Control Centers	13 days												

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
16	De-energize all buses at the source.	3 days													
17	Open all circuit breakers and disconnect switches.	5 days													
18	Remove all fuses in control circuits.	5 days													
19	Low-voltage Switchboards and Panelboards	12 days													
20	De-energize all buses at the source.	6 days													
21	Open all circuit breakers and disconnect switches.	6 days													
22	Oil-Filled Power Transformers	20 days													
23	De-energize all buses at the source.	5 days													
24	Open all circuit breakers and disconnect switches.	5 days													
25	De-energize all buses at the source.	5 days													
26	Open all circuit breakers and disconnect switches.	5 days													
27	Dry-type Power Transformers	9 days													
28	De-energize all transformer primaries and verify that the secondary is de-energized.	5 days													
29	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	4 days													
30	Motors	15 days													
31	De-energize all primary power at the source.	5 days													

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter				
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
32	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	5 days														
33	Drain lube oil system (if applicable) and dispose of oil.	5 days														
34	Fuel Oil System	5 days														
35	Isolate Fuel Oil System	3 days														
36	Drain and Vent Fuel Oil Piping	2 days														
37	Lube Oil Cooling Water System	11 days														
38	Open and Drain the Water Side of the Lube Oil Coolers	8 days														
39	Open and Vent the Coolers and Expansion Tank	3 days														
40	Oily Drain Tank	3 days														
41	Open and Pump Out the Oily Drain Tank	3 days														
42	Compressed Air	4 days														
43	Empty Dessiccant Air Dryers and Vent	2 days														
44	Open and Vent the Air Receiver	2 days														
45	Miscellaneous Piping	14 days														
46	Open and Vent the Exhaust Frame Cooling Piping	3 days														
47	Open and Vent the Inlet Air Heating Piping	3 days														
48	Open & Vent the CT Air Process Piping	8 days														

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
49	Open and Vent the CT Air Processing Piping	3 days													
50	Fire Protection Piping	6 days													
51	Empty the CO2 Storage Tank	4 days													
52	Open and Vent the Fire Protection Piping	2 days													
53	Lube Oil System	27 days													
54	Empty and Remove from Site the Lubricating Oil	15 days													
55	Drain Lubricating Oil Piping	10 days													
56	Open and Vent Lubricating Oil Piping	2 days													
57	Potable Water	3 days													
58	Disconnect Potable Water at Property Boundary	3 days													
59	Waste Water	3 days													
60	Disconnect Waste Water at Property Boundary	3 days													
61	Unleaded Gasoline Fueling Station	3 days													
62	Drain the Unleaded Gasoline Fueling Station	3 days													
63	Post Retirement Closure Activity	40 days													
64	Post Retirement Closure Activity	40 days													

Northeast Dismantlement

Owner Costs

Pre-Dismantlement Activities	\$1,104,559
Overhead During Dismantlement	\$1,538,618
Post-Dismantlement Activities	\$69,510

Owner Costs Total \$2,712,688

Demolition General Contractor (DGC) Costs

Site Management	\$743,767
Equipment Rental	\$1,253,525
Consumables	\$1,250,594
Scrap Crew(s)	\$324,113
Dismantlement	\$1,192,391

DGC Insurance 2.00% \$95,288

Contingency/Profit 15.00% \$728,952

Performance Bond 2.00% \$111,773

Contractor Costs Total: \$5,700,402

Total: \$8,413,090

Owner Internal Costs: 5.00% \$420,654

Owner Contingency: 25.00% \$2,208,436

Northeast Dismantlement Opinion of Probable Cost: \$11,042,180

Northeast CT Dismantlement

ID	Task Name	Cost
0	Northeast CT Dismantlement	\$7,477,077.60
1	Northeast CT Dismantlement	\$7,477,077.60
2	Pre-Demolition Activities	\$1,104,558.96
3	Detailed Planning & Hire Owner's Engineer	\$110,802.72
4	Detailed Site Characterization Study	\$783,536.00
5	Hire Demolition general Contractor	\$198,647.04
6	KCP&L Prepares Unit for Dismantlement	\$11,573.20
7	Demolition Contractor Mobilizes on Sit	\$0.00
8	KCP&L Overhead during Dismantlement	\$1,538,618.40
9	KCP&L Project Manager	\$216,902.40
10	KCP&L Administrative Support	\$80,229.60
11	KCP&L Engineer	\$356,558.40
12	Owners Engineer Project Manager	\$108,768.00
13	Owners Engineer - Engineer	\$776,160.00
14	Demolition Contractor Overhead during Dismantlement	\$743,767.20
15	Demolition Contractor Project Manager	\$210,434.40
16	Demolition Contractor Safety Manager	\$187,387.20
17	Demolition Contractor Superintendent	\$345,945.60
18	Demolition Contractor Equipment Rental Cost	\$1,253,524.80
19	Equipment Rental	\$1,253,524.80
20	Demolition Contractor Consumables	\$1,250,594.40
21	Consumables	\$1,250,594.40
22	Scrap Crews	\$324,112.80
23	Crew to Handle Scrap Material(s)	\$324,112.80
24	Dismantlement	\$1,192,390.64
25	Electrical	\$298,823.20
26	Electrical Demolition of Equipment	\$298,823.20
27	Fuel Oil System	\$27,158.96
28	Remove Above Ground Fuel Oil Piping	\$8,654.16
29	Fuel Skids	\$18,504.80
30	Lube Oil System	\$64,766.80
31	Lube Oil Piping	\$27,757.20
32	Lube Oil Pumps	\$18,504.80
33	Lube Oil Tanks	\$18,504.80
34	Fire Protection	\$61,065.84
35	Fire Protection Piping	\$29,607.68
36	Firewater Tank	\$16,654.32
37	CO2 Storage Tank	\$14,803.84
38	Miscellaneous Piping	\$86,972.56
39	Exhaust Frame Cooling Piping	\$27,757.20
40	CT Air Processing Piping	\$31,458.16
41	Inlet Air Heating Piping	\$27,757.20
42	Generator	\$92,524.00
43	Generator	\$92,524.00
44	Combustion Turbine	\$262,768.16
45	Inlet Heater	\$18,504.80
46	Inlet duct	\$31,458.16
47	Exhaust duct	\$37,009.60
48	Combustion Turbine	\$111,028.80

Northeast CT Dismantlement

ID	Task Name	Cost
49	Combustion Turbine Foundation	\$27,757.20
50	Enclosure	\$37,009.60
51	CEMS	\$18,504.80
52	CEMS Building	\$9,252.40
53	CEMS Building Foundation	\$9,252.40
54	Stack	\$74,019.20
55	Stacks	\$74,019.20
56	Site Buildings	\$18,504.80
57	Remove Site Buildings	\$18,504.80
58	Site Prep	\$187,282.32
59	Final Grading and Drainage	\$187,282.32
60	Post Dismantlement Activities	\$69,510.40
61	Post Dismantlement Activities	\$69,510.40

ID	Task Name	Duration	Quarter	2nd Quarter			3rd Quarter			4th Quarter			1st Quarter			2nd Quarter			3rd Q		
			Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	
0	Northeast CT Dismantlement	330 days	[Gantt bar from Feb to Jul]																		
1	Northeast CT Dismantlement	330 days	[Gantt bar from Feb to Jul]																		
2	Pre-Demolition Activities	130 days	[Gantt bar from Feb to May]																		
3	Detailed Planning & Hire Owner's Engineer	3 mons	[Blue bar from Feb to Apr]																		
4	Detailed Site Characterization Study	130 days	[Blue bar from Feb to May]																		
5	Hire Demolition general Contractor	3 mons	[Blue bar from Feb to Apr]																		
6	KCP&L Prepares Unit for Dismantlement	2 wks	[Blue bar in Feb]																		
7	Demolition Contractor Mobilizes on Site	5 days	[Blue bar in Feb]																		
8	KCP&L Overhead during Dismantlement	330 days	[Gantt bar from Feb to Jul]																		
9	KCP&L Project Manager	330 days	[Blue bar from Feb to Jul]																		
10	KCP&L Administrative Support	330 days	[Blue bar from Feb to Jul]																		
11	KCP&L Engineer	330 days	[Blue bar from Feb to Jul]																		
12	Owners Engineer Project Manager	330 days	[Blue bar from Feb to Jul]																		
13	Owners Engineer - Engineer	330 days	[Blue bar from Feb to Jul]																		
14	Demolition Contractor Overhead during Dismantlement	330 days	[Gantt bar from Feb to Jul]																		
15	Demolition Contractor Project Manager	330 days	[Blue bar from Feb to Jul]																		
16	Demolition Contractor Safety Manager	330 days	[Blue bar from Feb to Jul]																		
17	Demolition Contractor Superintendent	330 days	[Blue bar from Feb to Jul]																		
18	Demolition Contractor Equipment Rental Cost	330 days	[Gantt bar from Feb to Jul]																		
19	Equipment Rental	330 days	[Blue bar from Feb to Jul]																		
20	Demolition Contractor Consumables	330 days	[Gantt bar from Feb to Jul]																		
21	Consumables	330 days	[Blue bar from Feb to Jul]																		
22	Scrap Crews	330 days	[Gantt bar from Feb to Jul]																		
23	Crew to Handle Scrap Material(s)	330 days	[Blue bar from Feb to Jul]																		
24	Dismantlement	330 days	[Gantt bar from Feb to Jul]																		
25	Electrical	130 days	[Gantt bar from Sep to Dec]																		
26	Electrical Demolition of Equipment	130 days	[Blue bar from Sep to Dec]																		
27	Fuel Oil System	25 days	[Gantt bar from Oct to Nov]																		
28	Remove Above Ground Fuel Oil Piping	15 days	[Blue bar in Oct]																		
29	Fuel Skids	10 days	[Blue bar in Oct]																		
30	Lube Oil System	35 days	[Gantt bar from Nov to Jan]																		

ID	Task Name	Duration	Quarter	2nd Quarter			3rd Quarter			4th Quarter			1st Quarter			2nd Quarter			3rd Q	
			Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
31	Lube Oil Piping	15 days																		
32	Lube Oil Pumps	10 days																		
33	Lube Oil Tanks	10 days																		
34	Fire Protection	33 days																		
35	Fire Protection Piping	16 days																		
36	Firewater Tank	9 days																		
37	CO2 Storage Tank	8 days																		
38	Miscellaneous Piping	47 days																		
39	Exhaust Frame Cooling Piping	15 days																		
40	CT Air Processing Piping	17 days																		
41	Inlet Air Heating Piping	15 days																		
42	Generator	50 days																		
43	Generator	50 days																		
44	Combustion Turbine	142 days																		
45	Inlet Heater	10 days																		
46	Inlet duct	17 days																		
47	Exhaust duct	20 days																		
48	Combustion Turbine	60 days																		
49	Combustion Turbine Foundation	15 days																		
50	Enclosure	20 days																		
51	CEMS	10 days																		
52	CEMS Building	5 days																		
53	CEMS Building Foundation	5 days																		
54	Stack	40 days																		
55	Stacks	40 days																		
56	Site Buildings	10 days																		
57	Remove Site Buildings	10 days																		
58	Site Prep	65 days																		
59	Final Grading and Drainage	65 days																		
60	Post Dismantlement Activities	40 days																		
61	Post Dismantlement Activities	40 days																		

**HAWTHORN GENERATING STATION
UNITS 7 AND 8**

HAWTHORN GENERATING STATION UNITS 7 AND 8

Hawthorn Generating Station Units 7 and 8 are twin natural gas-fired combustion turbine generator sets that were added to the existing plant in 2000.

Each of these combustion turbines has an SPP-accredited unit rating of 77 MW and is comprised of a General Electric Model 7EA combustion turbine. The pair is interconnected to the grid through a single, three-winding generator step-up transformer arrangement. Each combustion turbine employs dry low NO_x burner technology and burns only natural gas fuel.

The following are the major systems and equipment that were included in the retirement and dismantlement of each unit and the major systems and equipment that were considered common (additional details are listed in the attached retirement and dismantlement schedules included in this Appendix).

HAWTHORN UNITS 7 AND 8

1. Combustion turbine generator sets and auxiliaries (two).
2. Generator step-up and auxiliary transformers (one).
3. Freestanding outdoor switchgear.
4. Exhaust stacks.

COMMON

1. Natural gas filtering skid.
2. Service/Instrument air compressors.

Hawthorn 7 & 8 Retirement

Owner Costs

Pre-Retirement Activities	\$46,506
Retirement Activities	\$186,567
Post-Retirement Activities	\$47,901

Owner Direct Total \$280,973

Owner Internal Costs 5.00% \$14,049

Owner Contingency: 25.00% \$73,755

Hawthorn 7 & 8 Retirement Opinion of Probable Cost: \$368,777

Hawthorn 7 & 8

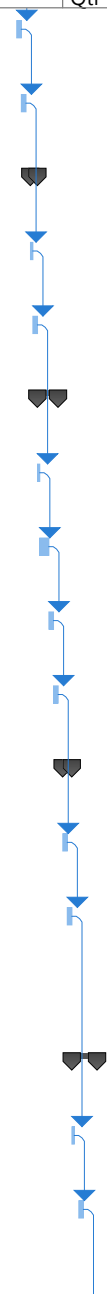
ID	Task Name	Cost
0	Hawthorn 7 & 8	\$280,973.12
1	Hawthorn 7&8 Retirement	\$280,973.12
2	Pre-Retirement Activities	\$46,505.60
3	Permitting Review	\$24,896.00
4	Develop Detailed Retirement Plan	\$21,609.60
5	Retirement Activities	\$186,566.72
6	Project Management During Retirement	\$104,658.24
7	Project Management During Retirement	\$104,658.24
8	Electrical	\$81,908.48
9	Medium and Low Voltage Drawout Switchgear	\$8,830.08
10	De-energize all buses at the source.	\$981.12
11	Open all circuit breakers.	\$1,962.24
12	Rack all circuit breakers into the fully withdrawn, disconnected position.	\$1,962.24
13	Verify that the closing/tripping springs are discharged.	\$1,962.24
14	De-energize control power and auxiliary power circuits of each circuit brea	\$1,962.24
15	Motor Control Centers	\$4,905.60
16	De-energize all buses at the source.	\$981.12
17	Open all circuit breakers and disconnect switches.	\$1,962.24
18	Remove all fuses in control circuits.	\$1,962.24
19	Low-voltage Switchboards and Panelboards	\$2,943.36
20	De-energize all buses at the source.	\$981.12
21	Open all circuit breakers and disconnect switches.	\$1,962.24
22	Oil-Filled Power Transformers	\$6,867.84
23	De-energize all buses at the source.	\$981.12
24	Open all circuit breakers and disconnect switches.	\$1,962.24
25	De-energize all buses at the source.	\$1,962.24
26	Open all circuit breakers and disconnect switches.	\$1,962.24
27	Dry-type Power Transformers	\$3,924.48
28	De-energize all transformer primaries and verify that the secondary is de-e	\$1,962.24
29	De-energize all low-voltage AC or DC power sources for space heaters, coo	\$1,962.24
30	Motors	\$6,867.84
31	De-energize all primary power at the source.	\$981.12
32	De-energize all low-voltage power sources for space heaters or other auxil	\$1,962.24
33	Drain lube oil system (if applicable) and dispose of oil.	\$3,924.48
34	Fuel Gas System	\$11,786.24
35	Isolate Fuel Gas System	\$4,264.32
36	Vent Fuel Gas Piping and Equipment	\$2,751.84
37	Open and Vent Knock-Out Drum	\$943.52
38	Drain, Open and Vent the Drain Tank	\$943.52
39	Empty the Coalescing Filter	\$1,939.52
40	Open and Vent Equipment on the CT Gas Valve Module	\$943.52
41	Lube Oil Cooling Water System	\$3,774.08
42	Open and Drain the Water Side of the Lube Oil Coolers	\$2,830.56
43	Open and Vent the Coolers and Expansion Tank	\$943.52
44	Oily Drain Tank	\$4,266.96
45	Open and Pump Out the Oily Drain Tank	\$4,266.96
46	Wash Water Skid	\$5,661.12
47	Open and Drain the Detergent Tank	\$1,887.04
48	Open and Drain the Demineralized Water Tank	\$1,887.04

Hawthorn 7 & 8

ID	Task Name	Cost
49	Empty the Demineralized Water Tank	\$1,887.04
50	Compressed Air	\$1,887.04
51	Empty Dessiccant Air Dryers and Vent	\$943.52
52	Open and Vent the Air Reciever	\$943.52
53	Miscelleaneous Piping	\$5,661.12
54	Open and Vent the Exhaust Frame Cooling Piping	\$943.52
55	Open and Vent the CT Air Processing Piping	\$1,887.04
56	Open and Vent the Inlet Air Heating Piping	\$943.52
57	Open and Vent the CT Air Processing Piping	\$1,887.04
58	Fire Protection Piping	\$3,747.84
59	Empty the CO2 Storage Tank	\$2,804.32
60	Open and Vent the Fire Protection Piping	\$943.52
61	Lube Oil System	\$10,784.88
62	Empty and Remove from Site the Lubricating Oil	\$7,010.80
63	Drain Lubricating Oil Piping	\$2,830.56
64	Open and Vent Lubricating Oil Piping	\$943.52
65	Post Retirement Closure Activity	\$47,900.80
66	Post Retirement Closure Activity	\$47,900.80

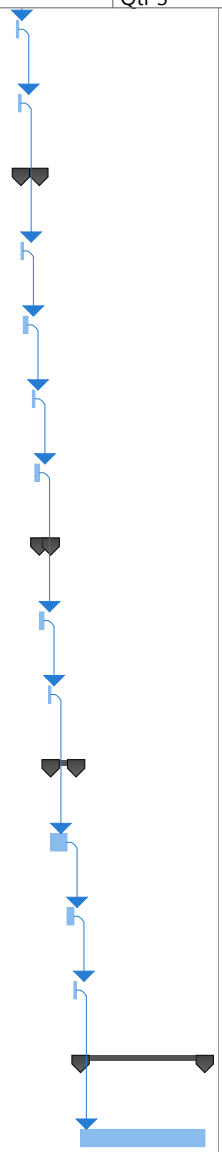
ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3
0	Hawthorn 7 & 8	163 days				
1	Hawthorn 7&8 Retirement	163 days				
2	Pre-Retirement Activities	40 days				
3	Permitting Review	20 days				
4	Develop Detailed Retirement Plan	20 days				
5	Retirement Activities	123 days				
6	Project Management During Retirement	123 days				
7	Project Management During Retirement	123 days				
8	Electrical	79 days				
9	Medium and Low Voltage Drawout Switchgear	9 days				
10	De-energize all buses at the source.	1 day				
11	Open all circuit breakers.	2 days				
12	Rack all circuit breakers into the fully withdrawn, disconnected position.	2 days				
13	Verify that the closing/tripping springs are discharged.	2 days				
14	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	2 days				
15	Motor Control Centers	5 days				
16	De-energize all buses at the source.	1 day				

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3
17	Open all circuit breakers and disconnect switches.	2 days				
18	Remove all fuses in control circuits.	2 days				
19	Low-voltage Switchboards and Panelboards	3 days				
20	De-energize all buses at the source.	1 day				
21	Open all circuit breakers and disconnect switches.	2 days				
22	Oil-Filled Power Transformers	7 days				
23	De-energize all buses at the source.	1 day				
24	Open all circuit breakers and disconnect switches.	2 days				
25	De-energize all buses at the source.	2 days				
26	Open all circuit breakers and disconnect switches.	2 days				
27	Dry-type Power Transformers	4 days				
28	De-energize all transformer primaries and verify that the secondary is de-energized.	2 days				
29	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	2 days				
30	Motors	7 days				
31	De-energize all primary power at the source.	1 day				
32	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	2 days				



ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3
33	Drain lube oil system (if applicable) and dispose of oil.	4 days				
34	Fuel Gas System	11 days				
35	Isolate Fuel Gas System	3 days				
36	Vent Fuel Gas Piping and Equipment	3 days				
37	Open and Vent Knock-Out Drum	1 day				
38	Drain, Open and Vent the Drain Tank	1 day				
39	Empty the Coalescing Filter	2 days				
40	Open and Vent Equipment on the CT Gas Valve Module	1 day				
41	Lube Oil Cooling Water System	4 days				
42	Open and Drain the Water Side of the Lube Oil Coolers	3 days				
43	Open and Vent the Coolers and Expansion Tank	1 day				
44	Oily Drain Tank	3 days				
45	Open and Pump Out the Oily Drain Tank	3 days				
46	Wash Water Skid	6 days				
47	Open and Drain the Detergent Tank	2 days				
48	Open and Drain the Demineralized Water Tank	2 days				
49	Empty the Demineralized Water Tank	2 days				
50	Compressed Air	2 days				

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3
51	Empty Dessiccant Air Dryers and Vent	1 day				
52	Open and Vent the Air Reciever	1 day				
53	Miscelleaneous Piping	6 days				
54	Open and Vent the Exhaust Frame Cooling Piping	1 day				
55	Open and Vent the CT Air Processing Piping	2 days				
56	Open and Vent the Inlet Air Heating Piping	1 day				
57	Open and Vent the CT Air Processing Piping	2 days				
58	Fire Protection Piping	3 days				
59	Empty the CO2 Storage Tank	2 days				
60	Open and Vent the Fire Protection Piping	1 day				
61	Lube Oil System	9 days				
62	Empty and Remove from Site the Lubricating Oil	5 days				
63	Drain Lubricating Oil Piping	3 days				
64	Open and Vent Lubricating Oil Piping	1 day				
65	Post Retirement Closure Activity	40 days				
66	Post Retirement Closure Activity	40 days				



Hawthorn 7 & 8 Dismantlement

Owner Costs

Pre-Dismantlement Activities	\$1,104,559
Overhead During Dismantlement	\$1,095,683
Post-Dismantlement Activities	\$34,755

Owner Costs Total \$2,234,997

Demolition General Contractor (DGC) Costs

Site Management	\$529,652
Equipment Rental	\$892,662
Consumables	\$890,575
Scrap Crew(s)	\$230,808
Dismantlement	\$616,951

DGC Insurance 2.00% \$63,213

Contingency/Profit 15.00% \$483,579

Performance Bond 2.00% \$74,149

Contractor Costs Total: \$3,781,588

Total: \$6,016,585

Owner Internal Costs: 5.00% \$300,829

Owner Contingency: 25.00% \$1,579,354

Hawthorn 7 & 8 Dismantlement Opinion of Probable Cost: \$7,896,768

Hawthorn 7&8 Dismantlement

ID	Task Name	Cost
0	Hawthorn 7&8 Dismantlement	\$5,395,644.53
1	Hawthorn 7&8 Dismantlement	\$5,395,644.53
2	Pre-Demolition Activities	\$1,104,558.96
3	Detailed Planning & Hire Owner's Engineer	\$110,802.72
4	Detailed Site Characterization Study	\$783,536.00
5	Hire Demolition general Contractor	\$198,647.04
6	KCP&L Prepares Unit for Dismantlement	\$11,573.20
7	Demolition Contractor Mobilizes on Sit	\$0.00
8	KCP&L Overhead during Dismantlement	\$1,095,682.85
9	KCP&L Project Manager	\$154,460.82
10	KCP&L Administrative Support	\$57,133.21
11	KCP&L Engineer	\$253,912.82
12	Owners Engineer Project Manager	\$77,456.00
13	Owners Engineer - Engineer	\$552,720.00
14	Demolition Contractor Overhead during Dismantlement	\$529,652.45
15	Demolition Contractor Project Manager	\$149,854.81
16	Demolition Contractor Safety Manager	\$133,442.41
17	Demolition Contractor Superintendent	\$246,355.22
18	Demolition Contractor Equipment Rental Cost	\$892,661.69
19	Equipment Rental	\$892,661.69
20	Demolition Contractor Consumables	\$890,574.89
21	Consumables	\$890,574.89
22	Scrap Crews	\$230,807.62
23	Crew to Handle Scrap Material(s)	\$230,807.62
24	Dismantlement	\$616,950.88
25	Electrical	\$206,877.60
26	Electrical Demolition of Equipment	\$206,877.60
27	Fuel Gas System	\$15,921.04
28	Remove all above grade fuel gas piping.	\$4,818.16
29	Gas Filter Skid	\$11,102.88
30	Lube Oil System	\$37,009.60
31	Lube Oil Piping	\$9,252.40
32	Lube Oil Pumps	\$9,252.40
33	Lube Oil Tanks	\$18,504.80
34	Fire Protection	\$40,710.56
35	Fire Protection Piping	\$18,504.80
36	Firewater Tank	\$14,803.84
37	CO2 Storage Tank	\$7,401.92
38	Wash Water Skid	\$14,803.84
39	Detergent Tank	\$7,401.92
40	Demineralized Water Tank	\$7,401.92
41	Miscellaneous Piping	\$51,813.44
42	Exhaust Frame Cooling Piping	\$14,803.84
43	CT Air Processing Piping	\$18,504.80
44	Inlet Air Heating Piping	\$18,504.80
45	Generator	\$0.00
46	Generator	\$0.00
47	Combustion Turbine	\$175,795.60
48	Inlet Heater	\$14,803.84

Hawthorn 7&8 Dismantlement

ID	Task Name	Cost
49	Inlet duct	\$22,205.76
50	Exhaust duct	\$27,757.20
51	Combustion Turbine	\$57,364.88
52	Combustion Turbine Foundation	\$24,056.24
53	Enclosure	\$29,607.68
54	CEMS	\$25,906.72
55	CEMS Building	\$12,953.36
56	CEMS Building Foundation	\$12,953.36
57	Stack	\$48,112.48
58	Stack	\$48,112.48
59	Post Dismantlement Activities	\$34,755.20
60	Post Dismantlement Activities	\$34,755.20

ID	Task Name	Duration	er																				
			Dec	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter			2nd Quarter				
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun		
0	Hawthorn 7&8 Dismantlement	385 days	▼																				
1	Hawthorn 7&8 Dismantlement	385 days	▼																				
2	Pre-Demolition Activities	130 days	▼																				
3	Detailed Planning & Hire Owner's Engineer	3 mons	▼																				
4	Detailed Site Characterization Study	130 days	▼																				
5	Hire Demolition general Contractor	3 mons	▼																				
6	KCP&L Prepares Unit for Dismantlement	2 wks	▼																				
7	Demolition Contractor Mobilizes on Sit	5 days	▼																				
8	KCP&L Overhead during Dismantlement	235 days	▼																				
9	KCP&L Project Manager	235 days	▼																				
10	KCP&L Administrative Support	235 days	▼																				
11	KCP&L Engineer	235 days	▼																				
12	Owners Engineer Project Manager	235 days	▼																				
13	Owners Engineer - Engineer	235 days	▼																				
14	Demolition Contractor Overhead during Dismantlement	235 days	▼																				
15	Demolition Contractor Project Manager	235 days	▼																				
16	Demolition Contractor Safety Manager	235 days	▼																				

ID	Task Name	Duration	er																	
			Dec	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter			2nd Quarter	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
17	Demolition Contractor Superintendent	235 days																		
18	Demolition Contractor Equipment Rental Cost	235 days																		
19	Equipment Rental	235 days																		
20	Demolition Contractor Consumables	235 days																		
21	Consumables	235 days																		
22	Scrap Crews	235 days																		
23	Crew to Handle Scrap Material(s)	235 days																		
24	Dismantlement	235 days																		
25	Electrical	90 days																		
26	Electrical Demolition of Equipment	90 days																		
27	Fuel Gas System	14 days																		
28	Remove all above grade fuel gas piping.	8 days																		
29	Gas Filter Skid	6 days																		
30	Lube Oil System	20 days																		
31	Lube Oil Piping	5 days																		
32	Lube Oil Pumps	5 days																		
33	Lube Oil Tanks	10 days																		

ID	Task Name	Duration	er																		
			Dec	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter			2nd Quarter		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
34	Fire Protection	22 days																			
35	Fire Protection Piping	10 days																			
36	Firewater Tank	8 days																			
37	CO2 Storage Tank	4 days																			
38	Wash Water Skid	8 days																			
39	Detergent Tank	4 days																			
40	Demineralized Water Tank	4 days																			
41	Miscellaneous Piping	28 days																			
42	Exhaust Frame Cooling Piping	8 days																			
43	CT Air Processing Piping	10 days																			
44	Inlet Air Heating Piping	10 days																			
45	Generator	8 days																			
46	Generator	8 days																			
47	Combustion Turbine	95 days																			
48	Inlet Heater	8 days																			
49	Inlet duct	12 days																			
50	Exhaust duct	15 days																			

ID	Task Name	Duration	er																		
			Dec	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter								
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
51	Combustion Turbine	31 days																			
52	Combustion Turbine Foundation	13 days																			
53	Enclosure	16 days																			
54	CEMS	14 days																			
55	CEMS Building	7 days																			
56	CEMS Building Foundation	7 days																			
57	Stack	26 days																			
58	Stack	26 days																			
59	Post Dismantlement Activities	20 days																			
60	Post Dismantlement Activities	20 days																			

WEST GARDNER GENERATING STATION

WEST GARDNER GENERATING STATION

The West Gardner Generating Station consists of four natural gas-fired combustion turbine generator sets.

These combustion turbines have a combined SPP-accredited unit rating of 310 MW. West Gardner was placed in service in 2003. Each unit is comprised of a General Electric Model 7EA CT, with a generator step-up transformer and auxiliary power transformer. Each combustion turbine employs dry low NO_x burner technology and burns only natural gas fuel.

The following are the major systems and equipment that were included in the retirement and dismantlement of each unit and the major systems and equipment that were considered common (additional details are listed in the attached retirement and dismantlement schedules included in this Appendix).

WEST GARDNER UNITS 1 THROUGH 4

1. Combustion turbine generator sets and auxiliaries.
2. Generator step-up and auxiliary transformers.
3. Freestanding outdoor switchgear.
4. Exhaust stacks.

COMMON

1. Service building.
2. Natural gas filtering skid.
3. Service/Instrument air compressors.

West Gardner Retirement

Owner Costs

Pre-Retirement Activities	\$46,506
Retirement Activities	\$232,587
Post-Retirement Activities	\$47,901

Owner Direct Total \$326,993

Owner Internal Costs: 5.00% \$16,350

Owner Contingency: 25.00% \$85,836

West Gardner Retirement Opinion of Probable Cost: \$429,179

West Gardner Retirement		
ID	Task Name	Cost
0	West Gardner Retirement	\$326,993.36
1	West Gardner Retirement	\$326,993.36
2	Pre-Retirement Activities	\$46,505.60
3	Permitting Review	\$24,896.00
4	Develop Detailed Retirement Plan	\$21,609.60
5	Retirement Activities	\$232,586.96
6	Project Management During Retirement	\$107,210.88
7	Project Management During Retirement	\$107,210.88
8	Electrical	\$59,848.32
9	Medium and Low Voltage Drawout Switchgear	\$17,660.16
10	De-energize all buses at the source.	\$3,924.48
11	Open all circuit breakers.	\$3,924.48
12	Rack all circuit breakers into the fully withdrawn, disconnected position.	\$3,924.48
13	Verify that the closing/tripping springs are discharged.	\$3,924.48
14	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	\$1,962.24
15	Motor Control Centers	\$7,848.96
16	De-energize all buses at the source.	\$1,962.24
17	Open all circuit breakers and disconnect switches.	\$2,943.36
18	Remove all fuses in control circuits.	\$2,943.36
19	Low-voltage Switchboards and Panelboards	\$7,848.96
20	De-energize all buses at the source.	\$3,924.48
21	Open all circuit breakers and disconnect switches.	\$3,924.48
22	Oil-Filled Power Transformers	\$11,773.44
23	De-energize all buses at the source.	\$2,943.36
24	Open all circuit breakers and disconnect switches.	\$2,943.36
25	De-energize all buses at the source.	\$2,943.36
26	Open all circuit breakers and disconnect switches.	\$2,943.36
27	Dry-type Power Transformers	\$4,905.60
28	De-energize all transformer primaries and verify that the secondary is de-energized.	\$2,943.36

West Gardner Retirement		
ID	Task Name	Cost
29	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	\$1,962.24
30	Motors	\$9,811.20
31	De-energize all primary power at the source.	\$2,943.36
32	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	\$2,943.36
33	Drain lube oil system (if applicable) and dispose of oil.	\$3,924.48
34	Fuel Gas System	\$11,786.24
35	Isolate Fuel Gas System	\$4,264.32
36	Vent Fuel Gas Piping and Equipment	\$2,751.84
37	Open and Vent Knock-Out Drum	\$943.52
38	Drain, Open and Vent the Drain Tank	\$943.52
39	Empty the Coalescing Filter	\$1,939.52
40	Open and Vent Equipment on the CT Gas Valve Module	\$943.52
41	Lube Oil Cooling Water System	\$8,491.68
42	Open and Drain the Water Side of the Lube Oil Coolers	\$5,661.12
43	Open and Vent the Coolers and Expansion Tank	\$2,830.56
44	Oily Drain Tank	\$4,266.96
45	Open and Pump Out the Oily Drain Tank	\$4,266.96
46	Wash Water Skid	\$5,661.12
47	Open and Drain the Detergent Tank	\$1,887.04
48	Open and Drain the Demineralized Water Tank	\$1,887.04
49	Empty the Demineralized Water Tank	\$1,887.04
50	Compressed Air	\$3,774.08
51	Empty Dessiccant Air Dryers and Vent	\$1,887.04
52	Open and Vent the Air Reciever	\$1,887.04
53	Miscelleaneous Piping	\$8,491.68
54	Open and Vent the Exhaust Frame Cooling Piping	\$2,830.56
55	Open and Vent the CT Air Processing Piping	\$0.00
56	Open and Vent the Inlet Air Heating Piping	\$2,830.56

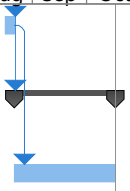
West Gardner Retirement		
ID	Task Name	Cost
57	Open and Vent the CT Air Processing Piping	\$2,830.56
58	Fire Protection Piping	\$7,495.68
59	Empty the CO2 Storage Tank	\$5,608.64
60	Open and Vent the Fire Protection Piping	\$1,887.04
61	Lube Oil System	\$12,671.92
62	Empty and Remove from Site the Lubricating Oil	\$7,010.80
63	Drain Lubricating Oil Piping	\$3,774.08
64	Open and Vent Lubricating Oil Piping	\$1,887.04
65	Potable Water	\$2,888.40
66	Disconnect Potable Water at Property Boundary	\$2,888.40
67	Post Retirement Closure Activity	\$47,900.80
68	Post Retirement Closure Activity	\$47,900.80

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Q		
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
0	West Gardner Retirement	206 days												
1	West Gardner Retirement	206 days												
2	Pre-Retirement Activities	40 days												
3	Permitting Review	20 days												
4	Develop Detailed Retirement Plan	20 days												
5	Retirement Activities	126 days												
6	Project Management During Retirement	126 days												
7	Project Management During Retirement	126 days												
8	Electrical	61 days												
9	Medium and Low Voltage Drawout Switchgear	18 days												
10	De-energize all buses at the source.	4 days												
11	Open all circuit breakers.	4 days												
12	Rack all circuit breakers into the fully withdrawn, disconnected position.	4 days												
13	Verify that the closing/tripping springs are discharged.	4 days												
14	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	2 days												
15	Motor Control Centers	8 days												
16	De-energize all buses at the source.	2 days												
17	Open all circuit breakers and disconnect switches.	3 days												
18	Remove all fuses in control circuits.	3 days												
19	Low-voltage Switchboards and Panelboards	8 days												
20	De-energize all buses at the source.	4 days												

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Q
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
21	Open all circuit breakers and disconnect switches.	4 days										
22	Oil-Filled Power Transformers	12 days										
23	De-energize all buses at the source.	3 days										
24	Open all circuit breakers and disconnect switches.	3 days										
25	De-energize all buses at the source.	3 days										
26	Open all circuit breakers and disconnect switches.	3 days										
27	Dry-type Power Transformers	5 days										
28	De-energize all transformer primaries and verify that the secondary is de-energized.	3 days										
29	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	2 days										
30	Motors	10 days										
31	De-energize all primary power at the source.	3 days										
32	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	3 days										
33	Drain lube oil system (if applicable) and dispose of oil.	4 days										
34	Fuel Gas System	11 days										
35	Isolate Fuel Gas System	3 days										
36	Vent Fuel Gas Piping and Equipment	3 days										
37	Open and Vent Knock-Out Drum	1 day										
38	Drain, Open and Vent the Drain Tank	1 day										
39	Empty the Coalescing Filter	2 days										
40	Open and Vent Equipment on the CT Gas Valve Module	1 day										
41	Lube Oil Cooling Water System	9 days										

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Q								
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct							
42	Open and Drain the Water Side of the Lube Oil Coolers	6 days																		
43	Open and Vent the Coolers and Expansion Tank	3 days																		
44	Oily Drain Tank	3 days																		
45	Open and Pump Out the Oily Drain Tank	3 days																		
46	Wash Water Skid	6 days																		
47	Open and Drain the Detergent Tank	2 days																		
48	Open and Drain the Demineralized Water Tank	2 days																		
49	Empty the Demineralized Water Tank	2 days																		
50	Compressed Air	4 days																		
51	Empty Dessiccant Air Dryers and Vent	2 days																		
52	Open and Vent the Air Receiver	2 days																		
53	Miscellaneous Piping	17 days																		
54	Open and Vent the Exhaust Frame Cooling Piping	3 days																		
55	Open and Vent the CT Air Processing Piping	8 days																		
56	Open and Vent the Inlet Air Heating Piping	3 days																		
57	Open and Vent the CT Air Processing Piping	3 days																		
58	Fire Protection Piping	6 days																		
59	Empty the CO2 Storage Tank	4 days																		
60	Open and Vent the Fire Protection Piping	2 days																		
61	Lube Oil System	9 days																		
62	Empty and Remove from Site the Lubricating Oil	5 days																		
63	Drain Lubricating Oil Piping	4 days																		
64	Open and Vent Lubricating Oil Piping	2 days																		
65	Potable Water	3 days																		

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Q		
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
66	Disconnect Potable Water at Property Boundary	3 days												
67	Post Retirement Closure Activity	40 days												
68	Post Retirement Closure Activity	40 days												



West Gardner Dismantlement

Owner Costs

Pre-Dismantlement Activities	\$1,104,559
Overhead During Dismantlement	\$1,953,579
Post-Dismantlement Activities	\$52,133

Owner Costs Total \$3,110,271

Demolition General Contractor (DGC) Costs

Site Management	\$944,359
Equipment Rental	\$1,591,597
Consumables	\$1,587,876
Scrap Crew(s)	\$411,525
Dismantlement	\$1,012,014

DGC Insurance 2.00% \$110,947

Contingency/Profit 15.00% \$848,748

Performance Bond 2.00% \$130,141

Contractor Costs Total: \$6,637,207

Total: \$9,747,478

Owner Internal Costs: 5.00% \$487,374

Owner Contingency: 25.00% \$2,558,713

West Gardner Dismantlement Opinion of Probable Cost: \$12,793,564

West Gardner CT Dismantlement		
ID	Task Name	Cost
0	West Gardner CT Dismantlement	\$8,657,641.22
1	West Gardner CT Dismantlement	\$8,657,641.22
2	Pre-Demolition Activities	\$1,104,558.96
3	Detailed Planning & Hire Owner's Engineer	\$110,802.72
4	Detailed Site Characterization Study	\$783,536.00
5	Hire Demolition general Contractor	\$198,647.04
6	KCP&L Prepares Unit for Dismantlement	\$11,573.20
7	Demolition Contractor Mobilizes on Site	\$0.00
8	KCP&L Overhead during Dismantlement	\$1,953,579.12
9	KCP&L Project Manager	\$275,400.32
10	KCP&L Administrative Support	\$101,867.28
11	KCP&L Engineer	\$452,721.12
12	Owners Engineer Project Manager	\$138,102.40
13	Owners Engineer - Engineer	\$985,488.00
14	Demolition Contractor Overhead during Dismantlement	\$944,358.96
15	Demolition Contractor Project Manager	\$267,187.92
16	Demolition Contractor Safety Manager	\$237,924.96
17	Demolition Contractor Superintendent	\$439,246.08
18	Demolition Contractor Equipment Rental Cost	\$1,591,596.64
19	Equipment Rental	\$1,591,596.64
20	Demolition Contractor Consumables	\$1,587,875.92
21	Consumables	\$1,587,875.92
22	Scrap Crews	\$411,525.04
23	Crew to Handle Scrap Material(s)	\$411,525.04
24	Dismantlement	\$1,012,013.78
25	Electrical	\$252,850.40
26	Electrical Demolition of Equipment	\$252,850.40
27	Fuel Gas System	\$21,814.00
28	Remove all above grade fuel gas piping.	\$7,010.16
29	Gas Filter Skid	\$14,803.84
30	Lube Oil System	\$55,514.40
31	Lube Oil Piping	\$14,803.84
32	Lube Oil Pumps	\$18,504.80
33	Lube Oil Tanks	\$22,205.76
34	Compressed Air System	\$22,205.76
35	Compressed Air Piping	\$11,102.88
36	Compressors	\$5,551.44
37	Air Receiver	\$3,700.96
38	Dryer	\$1,850.48
39	Fire Protection	\$42,561.04
40	Fire Protection Piping	\$20,355.28
41	Firewater Tank	\$14,803.84
42	CO2 Storage Tank	\$7,401.92
43	Wash Water Skid	\$25,906.72

West Gardner CT Dismantlement		
ID	Task Name	Cost
44	Detergent Tank	\$11,102.88
45	Demineralized Water Tank	\$14,803.84
46	Miscellaneous Piping	\$64,766.80
47	Exhaust Frame Cooling Piping	\$18,504.80
48	CT Air Processing Piping	\$22,205.76
49	Inlet Air Heating Piping	\$24,056.24
50	Generator	\$0.00
51	Generator	\$0.00
52	Combustion Turbine	\$272,020.56
53	Inlet Heater	\$18,504.80
54	Inlet duct	\$27,757.20
55	Exhaust duct	\$37,009.60
56	Combustion Turbine	\$64,766.80
57	Combustion Turbine Foundation	\$68,467.76
58	Enclosure	\$55,514.40
59	CEMS	\$44,411.52
60	CEMS Building	\$22,205.76
61	CEMS Building Foundation	\$22,205.76
62	Stack	\$83,271.60
63	Stack	\$83,271.60
64	Site Prep	\$126,690.98
65	Final Grading and Drainage	\$126,690.98
66	Post Dismantlement Activities	\$52,132.80
67	Post Dismantlement Activities	\$52,132.80

ID	Task Name	Duration	1st Quarter			1st Quarter			1st Quarter		
			Sep	Jan	May	Sep	Jan	May	Sep	Jan	May
0	West Gardner CT Dismantlement	633 days									
1	West Gardner CT Dismantlement	633 days									
2	Pre-Demolition Activities	130 days									
3	Detailed Planning & Hire Owner's Engineer	3 mons									
4	Detailed Site Characterization Study	130 days									
5	Hire Demolition general Contractor	3 mons									
6	KCP&L Prepares Unit for Dismantlement	2 wks									
7	Demolition Contractor Mobilizes on Sit	5 days									
8	KCP&L Overhead during Dismantlement	419 days									
9	KCP&L Project Manager	419 days									
10	KCP&L Administrative Support	419 days									
11	KCP&L Engineer	419 days									
12	Owners Engineer Project Manager	419 days									
13	Owners Engineer - Engineer	419 days									
14	Demolition Contractor Overhead during Dismantlement	419 days									
15	Demolition Contractor Project Manager	419 days									
16	Demolition Contractor Safety Manager	419 days									
17	Demolition Contractor Superintendent	419 days									
18	Demolition Contractor Equipment Rental Cost	419 days									
19	Equipment Rental	419 days									
20	Demolition Contractor Consumables	419 days									
21	Consumables	419 days									
22	Scrap Crews	419 days									
23	Crew to Handle Scrap Material(s)	419 days									

ID	Task Name	Duration	1st Quarter			1st Quarter			1st Quarter		
			Sep	Jan	May	Sep	Jan	May	Sep	Jan	May
24	Dismantlement	419 days									
25	Electrical	110 days									
26	Electrical Demolition of Equipment	110 days									
27	Fuel Gas System	20 days									
28	Remove all above grade fuel gas piping.	12 days									
29	Gas Filter Skid	8 days									
30	Lube Oil System	30 days									
31	Lube Oil Piping	8 days									
32	Lube Oil Pumps	10 days									
33	Lube Oil Tanks	12 days									
34	Compressed Air System	12 days									
35	Compressed Air Piping	6 days									
36	Compressors	3 days									
37	Air Receiver	2 days									
38	Dryer	1 day									
39	Fire Protection	23 days									
40	Fire Protection Piping	11 days									
41	Firewater Tank	8 days									
42	CO2 Storage Tank	4 days									
43	Wash Water Skid	14 days									
44	Detergent Tank	6 days									
45	Demineralized Water Tank	8 days									
46	Miscellaneous Piping	35 days									
47	Exhaust Frame Cooling Piping	10 days									

ID	Task Name	Duration	1st Quarter			1st Quarter			1st Quarter					
			Sep	Jan	May	Sep	Jan	May	Sep	Jan	May			
48	CT Air Processing Piping	12 days												
49	Inlet Air Heating Piping	13 days												
50	Generator	29 days												
51	Generator	29 days												
52	Combustion Turbine	147 days												
53	Inlet Heater	10 days												
54	Inlet duct	15 days												
55	Exhaust duct	20 days												
56	Combustion Turbine	35 days												
57	Combustion Turbine Foundation	37 days												
58	Enclosure	30 days												
59	CEMS	24 days												
60	CEMS Building	12 days												
61	CEMS Building Foundation	12 days												
62	Stack	45 days												
63	Stack	45 days												
64	Site Prep	40 days												
65	Final Grading and Drainage	40 days												
66	Post Dismantlement Activities	30 days												
67	Post Dismantlement Activities	30 days												

OSAWATOMIE GENERATING STATION

OSAWATOMIE GENERATING STATION

The Osawatomie Generating Station is a single natural gas-fired combustion turbine generator set.

This combustion turbine has an SPP-accredited unit rating of 75 MW and was placed in service in 2003. This unit is comprised of a General Electric Model 7EA CT, with a generator step-up transformer and auxiliary power transformer. The combustion turbine employs dry low NO_x burner technology and burns only natural gas fuel.

The following are the major systems and equipment that were included in the retirement and dismantlement of the unit and the major systems and equipment that were considered common (additional details are listed in the attached retirement and dismantlement schedules included in this Appendix).

OSAWATOMIE

1. Combustion turbine generator set with auxiliaries.
2. Generator step-up and auxiliary transformers.
3. Freestanding outdoor switchgear.
4. Exhaust stack.
5. Natural gas filtering skid.
6. Service/Instrument air compressors.

Osawatomie Retirement

Owner Costs

Pre-Retirement Activities	\$46,506
Retirement Activities	\$129,218
Post-Retirement Activities	\$47,901

Owner Direct Total: \$223,624

Owner Internal Costs: 5.00% \$11,181

Owner Contingency: 25.00% \$58,701

Osawatomie Retirement Opinion of Probable Cost: \$293,506

Osawatomie Retirement		
ID	Task Name	Cost
0	Osawatomie Retirement	\$223,623.92
1	Osawatomie Retirement	\$223,623.92
2	Pre-Retirement Activities	\$46,505.60
3	Permitting Review	\$24,896.00
4	Develop Detailed Retirement Plan	\$21,609.60
5	Retirement Activities	\$129,217.52
6	Project Management During Retirement	\$68,070.40
7	Project Management During Retirement	\$68,070.40
8	Electrical	\$21,584.64
9	Medium and Low Voltage Drawout Switchgear	\$5,886.72
10	De-energize all buses at the source.	\$981.12
11	Open all circuit breakers.	\$981.12
12	Rack all circuit breakers into the fully withdrawn, disconnected position.	\$981.12
13	Verify that the closing/tripping springs are discharged.	\$1,962.24
14	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	\$981.12
15	Motor Control Centers	\$2,943.36
16	De-energize all buses at the source.	\$981.12
17	Open all circuit breakers and disconnect switches.	\$981.12
18	Remove all fuses in control circuits.	\$981.12
19	Low-voltage Switchboards and Panelboards	\$1,962.24
20	De-energize all buses at the source.	\$981.12
21	Open all circuit breakers and disconnect switches.	\$981.12
22	Oil-Filled Power Transformers	\$3,924.48
23	De-energize all buses at the source.	\$981.12
24	Open all circuit breakers and disconnect switches.	\$981.12
25	De-energize all buses at the source.	\$981.12
26	Open all circuit breakers and disconnect switches.	\$981.12
27	Dry-type Power Transformers	\$1,962.24
28	De-energize all transformer primaries and verify that the secondary is de-energized.	\$981.12
29	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	\$981.12
30	Motors	\$4,905.60
31	De-energize all primary power at the source.	\$981.12
32	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	\$981.12
33	Drain lube oil system (if applicable) and dispose of oil.	\$2,943.36
34	Fuel Gas System	\$11,786.24
35	Isolate Fuel Gas System	\$4,264.32
36	Vent Fuel Gas Piping and Equipment	\$2,751.84

Osawatomie Retirement

ID	Task Name	Cost
37	Open and Vent Knock-Out Drum	\$943.52
38	Drain, Open and Vent the Drain Tank	\$943.52
39	Empty the Coalescing Filter	\$1,939.52
40	Open and Vent Equipment on the CT Gas Valve Module	\$943.52
41	Lube Oil Cooling Water System	\$2,830.56
42	Open and Drain the Water Side of the Lube Oil Coolers	\$1,887.04
43	Open and Vent the Coolers and Expansion Tank	\$943.52
44	Oily Drain Tank	\$4,266.96
45	Open and Pump Out the Oily Drain Tank	\$4,266.96
46	Wash Water Skid	\$2,830.56
47	Open and Drain the Detergent Tank	\$943.52
48	Open and Drain the Demineralized Water Tank	\$943.52
49	Empty the Demineralized Water Tank	\$943.52
50	Compressed Air	\$1,887.04
51	Empty Dessiccant Air Dryers and Vent	\$943.52
52	Open and Vent the Air Reciever	\$943.52
53	Miscelleaneous Piping	\$3,774.08
54	Open and Vent the Exhaust Frame Cooling Piping	\$943.52
55	Open and Vent the CT Air Processing Piping	\$943.52
56	Open and Vent the Inlet Air Heating Piping	\$943.52
57	Open and Vent the CT Air Processing Piping	\$943.52
58	Fire Protection Piping	\$3,747.84
59	Empty the CO2 Storage Tank	\$2,804.32
60	Open and Vent the Fire Protection Piping	\$943.52
61	Lube Oil System	\$8,439.20
62	Empty and Remove from Site the Lubricating Oil	\$5,608.64
63	Drain Lubricating Oil Piping	\$1,887.04
64	Open and Vent Lubricating Oil Piping	\$943.52
65	Post Retirement Closure Activity	\$47,900.80
66	Post Retirement Closure Activity	\$47,900.80

ID	Task Name	Duration	Quarter	1st Quarter		2nd Quarter		3rd Quarter
			Nov	Jan	Mar	May	Jul	
0	Osawatomie Retirement	134 days		▼		▼		▼
1	Osawatomie Retirement	134 days		▼		▼		▼
2	Pre-Retirement Activities	40 days		▼		▼		
3	Permitting Review	20 days		▼				
4	Develop Detailed Retirement Plan	20 days			▼			
5	Retirement Activities	80 days			▼		▼	
6	Project Management During Retirement	80 days			▼		▼	
7	Project Management During Retirement	80 days			▼		▼	
8	Electrical	22 days			▼		▼	
9	Medium and Low Voltage Drawout Switchgear	6 days			▼		▼	
10	De-energize all buses at the source.	1 day			▼		▼	
11	Open all circuit breakers.	1 day			▼		▼	
12	Rack all circuit breakers into the fully withdrawn, disconnected position.	1 day			▼		▼	
13	Verify that the closing/tripping springs are discharged.	2 days			▼		▼	
14	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	1 day			▼		▼	
15	Motor Control Centers	3 days			▼		▼	
16	De-energize all buses at the source.	1 day			▼		▼	
17	Open all circuit breakers and disconnect switches.	1 day			▼		▼	
18	Remove all fuses in control circuits.	1 day			▼		▼	
19	Low-voltage Switchboards and Panelboards	2 days			▼		▼	
20	De-energize all buses at the source.	1 day			▼		▼	

ID	Task Name	Duration	Quarter	1st Quarter		2nd Quarter		3rd Quarter
			Nov	Jan	Mar	May	Jul	
21	Open all circuit breakers and disconnect switches.	1 day						
22	Oil-Filled Power Transformers	4 days						
23	De-energize all buses at the source.	1 day						
24	Open all circuit breakers and disconnect switches.	1 day						
25	De-energize all buses at the source.	1 day						
26	Open all circuit breakers and disconnect switches.	1 day						
27	Dry-type Power Transformers	2 days						
28	De-energize all transformer primaries and verify that the secondary is de-energized.	1 day						
29	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	1 day						
30	Motors	5 days						
31	De-energize all primary power at the source.	1 day						
32	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	1 day						
33	Drain lube oil system (if applicable) and dispose of oil.	3 days						
34	Fuel Gas System	11 days						
35	Isolate Fuel Gas System	3 days						
36	Vent Fuel Gas Piping and Equipment	3 days						
37	Open and Vent Knock-Out Drum	1 day						
38	Drain, Open and Vent the Drain Tank	1 day						
39	Empty the Coalescing Filter	2 days						
40	Open and Vent Equipment on the CT Gas Valve Module	1 day						
41	Lube Oil Cooling Water System	3 days						

ID	Task Name	Duration	Quarter	1st Quarter	2nd Quarter	3rd Quarter
			Nov	Jan	Mar	May
42	Open and Drain the Water Side of the Lube Oil Coolers	2 days				
43	Open and Vent the Coolers and Expansion Tank	1 day				
44	Oily Drain Tank	3 days				
45	Open and Pump Out the Oily Drain Tank	3 days				
46	Wash Water Skid	3 days				
47	Open and Drain the Detergent Tank	1 day				
48	Open and Drain the Demineralized Water Tank	1 day				
49	Empty the Demineralized Water Tank	1 day				
50	Compressed Air	2 days				
51	Empty Dessiccant Air Dryers and Vent	1 day				
52	Open and Vent the Air Reciever	1 day				
53	Miscelleaneous Piping	4 days				
54	Open and Vent the Exhaust Frame Cooling Piping	1 day				
55	Open and Vent the CT Air Processing Piping	1 day				
56	Open and Vent the Inlet Air Heating Piping	1 day				
57	Open and Vent the CT Air Processing Piping	1 day				
58	Fire Protection Piping	3 days				
59	Empty the CO2 Storage Tank	2 days				
60	Open and Vent the Fire Protection Piping	1 day				
61	Lube Oil System	6 days				
62	Empty and Remove from Site the Lubricating Oil	4 days				
63	Drain Lubricating Oil Piping	2 days				
64	Open and Vent Lubricating Oil Piping	1 day				
65	Post Retirement Closure Activity	40 days				

ID	Task Name	Duration	Quarter	1st Quarter		2nd Quarter		3rd Quarter
			Nov	Jan	Mar	May	Jul	
66	Post Retirement Closure Activity	40 days						

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Osawatomie Dismantlement

Owner Costs

Pre-Dismantlement Activities	\$1,104,559
Overhead During Dismantlement	\$787,959
Post-Dismantlement Activities	\$34,755

Owner Costs Total \$1,927,273

Demolition General Contractor (DGC) Costs

Site Management	\$380,899
Equipment Rental	\$641,957
Consumables	\$640,456
Scrap Crew(s)	\$165,985
Dismantlement	\$468,067

DGC Insurance 2.00% \$45,947

Contingency/Profit 15.00% \$351,497

Performance Bond 2.00% \$53,896

Contractor Costs Total: \$2,748,703

Total: \$4,675,977

Owner Internal Costs: 5.00% \$233,799

Owner Contingency: 25.00% \$1,227,444

Osawatomie Dismantlement Opinion of Probable Cost: \$6,137,219

Osawatomi Dismantlement

ID	Task Name	Cost
0	Osawatomi Dismantlement	\$4,224,636.58
1	Osawatomi Dismantlement	\$4,224,636.58
2	Pre-Demolition Activities	\$1,104,558.96
3	Detailed Planning & Hire Owner's Engineer	\$110,802.72
4	Detailed Site Characterization Study	\$783,536.00
5	Hire Demolition general Contractor	\$198,647.04
6	KCP&L Prepares Unit for Dismantlement	\$11,573.20
7	Demolition Contractor Mobilizes on Sit	\$0.00
8	KCP&L Overhead during Dismantlement	\$787,959.12
9	KCP&L Project Manager	\$111,080.32
10	KCP&L Administrative Support	\$41,087.28
11	KCP&L Engineer	\$182,601.12
12	Owners Engineer Project Manager	\$55,702.40
13	Owners Engineer - Engineer	\$397,488.00
14	Demolition Contractor Overhead during Dismantlement	\$380,898.96
15	Demolition Contractor Project Manager	\$107,767.92
16	Demolition Contractor Safety Manager	\$95,964.96
17	Demolition Contractor Superintendent	\$177,166.08
18	Demolition Contractor Equipment Rental Cost	\$641,956.64
19	Equipment Rental	\$641,956.64
20	Demolition Contractor Consumables	\$640,455.92
21	Consumables	\$640,455.92
22	Scrap Crews	\$165,985.04
23	Crew to Handle Scrap Material(s)	\$165,985.04
24	Dismantlement	\$468,066.74
25	Electrical	\$137,918.40
26	Electrical Demolition of Equipment	\$137,918.40
27	Fuel Gas System	\$8,725.60
28	Remove all above grade fuel gas piping.	\$3,174.16
29	Gas Filter Skid	\$5,551.44
30	Lube Oil System	\$18,504.80
31	Lube Oil Piping	\$5,551.44
32	Lube Oil Pumps	\$5,551.44
33	Lube Oil Tanks	\$7,401.92
34	Compressed Air System	\$24,056.24
35	Compressed Air Piping	\$5,551.44
36	Compressors	\$9,252.40
37	Air Receiver	\$3,700.96
38	Dryer	\$5,551.44
39	Fire Protection	\$27,757.20
40	Fire Protection Piping	\$11,102.88
41	Firewater Tank	\$9,252.40
42	CO2 Storage Tank	\$7,401.92
43	Wash Water Skid	\$14,803.84
44	Detergent Tank	\$7,401.92
45	Demineralized Water Tank	\$7,401.92
46	Miscellaneous Piping	\$25,906.72
47	Exhaust Frame Cooling Piping	\$7,401.92
48	CT Air Processing Piping	\$9,252.40

Osawatomie Dismantlement

ID	Task Name	Cost
49	Inlet Air Heating Piping	\$9,252.40
50	Generator	\$0.00
51	Generator	\$0.00
52	Combustion Turbine	\$96,224.96
53	Inlet Heater	\$5,551.44
54	Inlet duct	\$11,102.88
55	Exhaust duct	\$14,803.84
56	Combustion Turbine	\$29,607.68
57	Combustion Turbine Foundation	\$16,654.32
58	Enclosure	\$18,504.80
59	CEMS	\$14,803.84
60	CEMS Building	\$7,401.92
61	CEMS Building Foundation	\$7,401.92
62	Stack	\$27,757.20
63	Stack	\$27,757.20
64	Site Prep	\$71,607.94
65	Final Grading and Drainage	\$71,607.94
66	Post Dismantlement Activities	\$34,755.20
67	Post Dismantlement Activities	\$34,755.20

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter		
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
0	Osawatomie Dismantlement	319 days															
1	Osawatomie Dismantlement	319 days															
2	Pre-Demolition Activities	130 days															
3	Detailed Planning & Hire Owner's Engineer	3 mons															
4	Detailed Site Characterization Study	130 days															
5	Hire Demolition general Contractor	3 mons															
6	KCP&L Prepares Unit for Dismantlement	12.8 wks															
7	Demolition Contractor Mobilizes on Site	5 days															
8	KCP&L Overhead during Dismantlement	169 days															
9	KCP&L Project Manager	169 days															
10	KCP&L Administrative Support	169 days															
11	KCP&L Engineer	169 days															
12	Owners Engineer Project Manager	169 days															
13	Owners Engineer - Engineer	169 days															
14	Demolition Contractor Overhead during Dismantlement	169 days															
15	Demolition Contractor Project Manager	169 days															
16	Demolition Contractor Safety Manager	169 days															
17	Demolition Contractor Superintendent	169 days															
18	Demolition Contractor Equipment Rental Cost	169 days															
19	Equipment Rental	169 days															
20	Demolition Contractor Consumables	169 days															

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter					
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		
21	Consumables	169 days																		
22	Scrap Crews	169 days																		
23	Crew to Handle Scrap Material(s)	169 days																		
24	Dismantlement	169 days																		
25	Electrical	60 days																		
26	Electrical Demolition of Equipment	60 days																		
27	Fuel Gas System	8 days																		
28	Remove all above grade fuel gas piping.	5 days																		
29	Gas Filter Skid	3 days																		
30	Lube Oil System	10 days																		
31	Lube Oil Piping	3 days																		
32	Lube Oil Pumps	3 days																		
33	Lube Oil Tanks	4 days																		
34	Compressed Air System	13 days																		
35	Compressed Air Piping	3 days																		
36	Compressors	5 days																		
37	Air Receiver	2 days																		
38	Dryer	3 days																		
39	Fire Protection	15 days																		
40	Fire Protection Piping	6 days																		
41	Firewater Tank	5 days																		
42	CO2 Storage Tank	4 days																		
43	Wash Water Skid	8 days																		
44	Detergent Tank	4 days																		
45	Demineralized Water Tank	4 days																		
46	Miscellaneous Piping	14 days																		
47	Exhaust Frame Cooling Piping	4 days																		
48	CT Air Processing Piping	5 days																		

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter			
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
49	Inlet Air Heating Piping	5 days																
50	Generator	6 days																
51	Generator	6 days																
52	Combustion Turbine	52 days																
53	Inlet Heater	3 days																
54	Inlet duct	6 days																
55	Exhaust duct	8 days																
56	Combustion Turbine	16 days																
57	Combustion Turbine Foundation	9 days																
58	Enclosure	10 days																
59	CEMS	8 days																
60	CEMS Building	4 days																
61	CEMS Building Foundation	4 days																
62	Stack	15 days																
63	Stack	15 days																
64	Site Prep	20 days																
65	Final Grading and Drainage	20 days																
66	Post Dismantlement Activities	20 days																
67	Post Dismantlement Activities	20 days																

**HAWTHORN GENERATING STATION
UNITS 6 AND 9**

HAWTHORN GENERATING STATION UNITS 6 AND 9

Hawthorn Units 6 and 9 are a combined-cycle plant that utilizes a combustion turbine generator set equipped with a heat recovery steam generator (HRSG) that utilizes waste heat to produce steam to repower the existing steam turbine generator from the former Unit 4 (re-designated Unit 9) at the Hawthorn Generating Station.

Unit 6 is a Siemens Model V84.3A combustion turbine set that has an SPP-accredited unit rating of 151 MW in simple-cycle configuration when utilizing a bypass damper and stack arrangement. Unit 6 began service in 1997. When Unit 6 is operated in combined-cycle configuration exhausting through the HRSG to produce steam to power the Unit 9 steam turbine generator, the combined SPP-accredited plant rating increases to 232 MW, net. Unit 9 began service in 2000. Each unit is interconnected to the grid through its own generator step-up transformer arrangement. The combustion turbine employs dry low NO_x burner technology and burns only natural gas fuel. The HRSG has an ammonia SCR arrangement to further reduce NO_x emissions.

The following are the major systems and equipment that were included in the retirement and dismantlement of each unit and the major systems and equipment that were considered common (additional details are listed in the attached retirement and dismantlement schedules included in this Appendix).

HAWTHORN UNITS 6 AND 9

1. Combustion turbine generator set and auxiliaries (one)
2. Steam turbine generator set and auxiliaries (one).
2. Generator step-up and auxiliary transformers (two).
3. HRSG and auxiliaries (one).
4. Selective catalytic reduction system, including catalyst and reagent systems (one).

5. Combustion turbine bypass damper and exhaust stack (one).
6. HRSG exhaust stack (one).
7. Circulating water intake structure, circulating water piping, and circulating water equipment (formerly Unit 4).
8. Natural gas filtering skid.
9. Service/Instrument air compressors.

Hawthorn 6 & 9 Retirement

Owner Costs

Pre-Retirement Activities	\$46,506
Retirement Activities	\$232,780
Post-Retirement Activities	\$49,792

Owner Direct Total \$329,078

Owner Internal Costs 5.00% \$16,454

Owner Contingency: 25.00% \$86,383

Hawthorn 6 & 9 Retirement Opinion of Probable Cost: \$431,914

Activities Required by Permit or Regulation

Hawthorn 9 Intake Removal \$679,931

Activities Required by Permit or Regulation: \$679,931

Hawthorn 6&9 Retirement

ID	Task Name	Cost
0	Hawthorn 6&9 Retirement	\$329,077.68
1	Hawthorn 6 & 9 Retirement	\$329,077.68
2	Pre-Retirement Activities	\$46,505.60
3	Permitting Review	\$24,896.00
4	Develop Detailed Retirement Plan	\$21,609.60
5	Retirement Activities	\$232,780.08
6	Project Management During Retirement	\$232,780.08
7	Project Management During Retirement	\$102,105.60
8	CT-6 Retirement Activities	\$54,993.12
9	Electrical	\$21,584.64
10	Medium and Low Voltage Drawout Switchgear	\$5,886.72
11	De-energize all buses at the source.	\$981.12
12	Open all circuit breakers.	\$981.12
13	Rack all circuit breakers into the fully withdrawn, disconnected position.	\$981.12
14	Verify that the closing/tripping springs are discharged.	\$1,962.24
15	De-energize control power and auxiliary power circuits of each circuit.	\$981.12
16	Motor Control Centers	\$2,943.36
17	De-energize all buses at the source.	\$981.12
18	Open all circuit breakers and disconnect switches.	\$981.12
19	Remove all fuses in control circuits.	\$981.12
20	Low-voltage Switchboards and Panelboards	\$1,962.24
21	De-energize all buses at the source.	\$981.12
22	Open all circuit breakers and disconnect switches.	\$981.12
23	Oil-Filled Power Transformers	\$3,924.48
24	De-energize all buses at the source.	\$981.12
25	Open all circuit breakers and disconnect switches.	\$981.12
26	De-energize all buses at the source.	\$981.12
27	Open all circuit breakers and disconnect switches.	\$981.12
28	Dry-type Power Transformers	\$1,962.24
29	De-energize all transformer primaries and verify that the secondary is de-energized.	\$981.12
30	De-energize all low-voltage AC or DC power sources for space heaters.	\$981.12
31	Motors	\$4,905.60
32	De-energize all primary power at the source.	\$981.12
33	De-energize all low-voltage power sources for space heaters or other equipment.	\$981.12
34	Drain lube oil system (if applicable) and dispose of oil.	\$2,943.36
35	Fuel Gas System	\$11,786.24
36	Isolate Fuel Gas System	\$4,264.32
37	Vent Fuel Gas Piping and Equipment	\$2,751.84
38	Open and Vent Knock-Out Drum	\$943.52
39	Drain, Open and Vent the Drain Tank	\$943.52
40	Empty the Coalescing Filter	\$1,939.52
41	Open and Vent Equipment on the CT Gas Valve Module	\$943.52
42	Lube Oil Cooling Water System	\$2,830.56
43	Open and Drain the Water Side of the Lube Oil Coolers	\$1,887.04
44	Open and Vent the Coolers and Expansion Tank	\$943.52
45	Wash Water Skid	\$2,830.56
46	Open and Drain the Detergent Tank	\$943.52
47	Open and Drain the Demineralized Water Tank	\$943.52
48	Empty the Demineralized Water Tank	\$943.52

Hawthorn 6&9 Retirement

ID	Task Name	Cost
49	Miscellaneous Piping	\$3,774.08
50	Open and Vent the Exhaust Frame Cooling Piping	\$943.52
51	Open and Vent the CT Air Processing Piping	\$943.52
52	Open and Vent the Inlet Air Heating Piping	\$943.52
53	Open and Vent the CT Air Processing Piping	\$943.52
54	Fire Protection Piping	\$3,747.84
55	Empty the CO2 Storage Tank	\$2,804.32
56	Open and Vent the Fire Protection Piping	\$943.52
57	Lube Oil System	\$8,439.20
58	Empty and Remove from Site the Lubricating Oil	\$5,608.64
59	Drain Lubricating Oil Piping	\$1,887.04
60	Open and Vent Lubricating Oil Piping	\$943.52
61	Hawthorn 9 Retirement Activities	\$75,681.36
62	Electrical	\$21,584.64
63	Medium and Low Voltage Drawout Switchgear	\$5,886.72
64	De-energize all buses at the source.	\$981.12
65	Open all circuit breakers.	\$981.12
66	Rack all circuit breakers into the fully withdrawn, disconnected position.	\$981.12
67	Verify that the closing/tripping springs are discharged.	\$1,962.24
68	De-energize control power and auxiliary power circuits of each circuit.	\$981.12
69	Motor Control Centers	\$2,943.36
70	De-energize all buses at the source.	\$981.12
71	Open all circuit breakers and disconnect switches.	\$981.12
72	Remove all fuses in control circuits.	\$981.12
73	Low-voltage Switchboards and Panelboards	\$1,962.24
74	De-energize all buses at the source.	\$981.12
75	Open all circuit breakers and disconnect switches.	\$981.12
76	Oil-Filled Power Transformers	\$3,924.48
77	De-energize all buses at the source.	\$981.12
78	Open all circuit breakers and disconnect switches.	\$981.12
79	De-energize all buses at the source.	\$981.12
80	Open all circuit breakers and disconnect switches.	\$981.12
81	Dry-type Power Transformers	\$1,962.24
82	De-energize all transformer primaries and verify that the secondary is de-energized.	\$981.12
83	De-energize all low-voltage AC or DC power sources for space heaters.	\$981.12
84	Motors	\$4,905.60
85	De-energize all primary power at the source.	\$981.12
86	De-energize all low-voltage power sources for space heaters or other equipment.	\$981.12
87	Drain lube oil system (if applicable) and dispose of oil.	\$2,943.36
88	Boiler Chemical Feed	\$1,834.56
89	Drain all chemical feed tanks.	\$1,834.56
90	HRSG	\$2,856.80
91	Open HRSG doors.	\$969.76
92	Drain boiler, drums, downcomers and headers.	\$917.28
93	Open drum doors.	\$969.76
94	Stack and Ductwork	\$969.76
95	Open ductwork doors.	\$969.76
96	Place cap over stack opening to keep moisture out.	\$0.00
97	Condensate and Feedwater Piping	\$1,834.56

Hawthorn 6&9 Retirement

ID	Task Name	Cost
98	Drain water from the system.	\$917.28
99	Leave open vents and drains.	\$917.28
100	SCR	\$8,660.48
101	Remove catalyst of salvage or disposal.	\$3,879.04
102	Padlock or tack weld access doors shut.	\$969.76
103	Remove ammonia from storage tank for resale.	\$943.52
104	Wash out and drain storage tank and supply piping.	\$943.52
105	Vent storage tank and all piping. Leave vent and drain valves open or re	\$943.52
106	Pull electrical supply breakers on all electrical equipment except lighting	\$981.12
107	Turbine(s) and Condenser	\$3,367.92
108	Drain hotwell and leave doors open.	\$943.52
109	Open main turbine doors.	\$484.88
110	Open bfp turbine doors.	\$484.88
111	Remove lube oil.	\$1,454.64
112	Generator	\$13,649.12
113	Verify that generator circuit breaker is open and racked out or that high	\$981.12
114	Verify that generator field breaker or contactor (if applicable) is open.	\$981.12
115	De-energize power supplies to generator excitation system at the source	\$981.12
116	De-energize AC and DC power supplies to generator and exciter space h	\$1,962.24
117	Drain lubricating oil system and dispose of oil.	\$2,943.36
118	Drain generator and exciter cooling water systems (if applicable).	\$2,856.80
119	Disconnect and remove hydrogen gas tanks and purge generator hydrog	\$981.12
120	Disconnect and remove fire protection system gas/foam tanks and purg	\$1,962.24
121	Circulating Water and Turbine Cooling Water System	\$3,669.12
122	Drain.	\$1,834.56
123	Open water box doors.	\$917.28
124	Drain any circulating water chemical feed tanks.	\$917.28
125	Compressed Air System	\$3,774.08
126	Open vents and drains.	\$917.28
127	Remove desiccant from desiccant dryers.	\$2,856.80
128	Auxiliary Steam System	\$1,834.56
129	Drain water from system.	\$917.28
130	Remove aux boiler chemicals.	\$917.28
131	Auxiliary Cooling Water System	\$917.28
132	Drain water from system.	\$917.28
133	Condenser Air Extraction and Waterbox Priming System	\$917.28
134	Drain water from system.	\$917.28
135	Battery System	\$9,811.20
136	Turn off battery charger and disconnect cables from batteries.	\$1,962.24
137	De-energize all battery chargers from the source.	\$981.12
138	Open all AC and DC circuit breakers and/or fused switches on battery ch	\$981.12
139	Remove and dispose of battery electrolyte.	\$2,943.36
140	Remove and dispose of battery cells.	\$1,962.24
141	Clean up and dispose of electrolyte on surface areas around batteries.	\$981.12
142	Post Retirement Activities	\$49,792.00
143	Post Retirement Activities	\$49,792.00

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter		
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
0	Hawthorn 6&9 Retirement	160 days									
1	Hawthorn 6 & 9 Retirement	160 days									
2	Pre-Retirement Activities	40 days									
3	Permitting Review	20 days									
4	Develop Detailed Retirement Plan	20 days									
5	Retirement Activities	120 days									
6	Project Management During Retirement	120 days									
7	Project Management During Retirement	120 days									
8	CT-6 Retirement Activities	53 days									
9	Electrical	22 days									
10	Medium and Low Voltage Drawout Switchgear	6 days									
11	De-energize all buses at the source.	1 day									
12	Open all circuit breakers.	1 day									
13	Rack all circuit breakers into the fully withdrawn, disconnected position.	1 day									
14	Verify that the closing/tripping springs are discharged.	2 days									
15	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	1 day									

ID	Task Name	Duration	1st Quarter				2nd Quarter			3rd Quarter		
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
16	Motor Control Centers	3 days				■						
17	De-energize all buses at the source.	1 day				↓						
18	Open all circuit breakers and disconnect switches.	1 day				↷						
19	Remove all fuses in control circuits.	1 day				↷						
20	Low-voltage Switchboards and Panelboards	2 days				■						
21	De-energize all buses at the source.	1 day				↓						
22	Open all circuit breakers and disconnect switches.	1 day				↷						
23	Oil-Filled Power Transformers	4 days				■						
24	De-energize all buses at the source.	1 day				↓						
25	Open all circuit breakers and disconnect switches.	1 day				↷						
26	De-energize all buses at the source.	1 day				↓						
27	Open all circuit breakers and disconnect switches.	1 day				↷						
28	Dry-type Power Transformers	2 days				■						
29	De-energize all transformer primaries and verify that the secondary is de-energized.	1 day				↓						
30	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	1 day				↓						

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
31	Motors	5 days				▼▼						
32	De-energize all primary power at the source.	1 day				↓						
33	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	1 day				↓						
34	Drain lube oil system (if applicable) and dispose of oil.	3 days				↓						
35	Fuel Gas System	11 days				▼▼						
36	Isolate Fuel Gas System	3 days				↓						
37	Vent Fuel Gas Piping and Equipment	3 days				↓						
38	Open and Vent Knock-Out Drum	1 day				↓						
39	Drain, Open and Vent the Drain Tank	1 day				↓						
40	Empty the Coalescing Filter	2 days				↓						
41	Open and Vent Equipment on the CT Gas Valve Module	1 day				↓						
42	Lube Oil Cooling Water System	3 days				▼▼						
43	Open and Drain the Water Side of the Lube Oil Coolers	2 days				↓						
44	Open and Vent the Coolers and Expansion Tank	1 day				↓						
45	Wash Water Skid	3 days				▼						
46	Open and Drain the Detergent Tank	1 day				↓						
47	Open and Drain the Demineralized Water Tank	1 day				↓						

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
48	Empty the Demineralized Water Tank	1 day										
49	Miscellaneous Piping	4 days										
50	Open and Vent the Exhaust Frame Cooling Piping	1 day										
51	Open and Vent the CT Air Processing Piping	1 day										
52	Open and Vent the Inlet Air Heating Piping	1 day										
53	Open and Vent the CT Air Processing Piping	1 day										
54	Fire Protection Piping	3 days										
55	Empty the CO2 Storage Tank	2 days										
56	Open and Vent the Fire Protection Piping	1 day										
57	Lube Oil System	7 days										
58	Empty and Remove from Site the Lubricating Oil	4 days										
59	Drain Lubricating Oil Piping	2 days										
60	Open and Vent Lubricating Oil Piping	1 day										
61	Hawthorn 9 Retirement Activities	80 days										
62	Electrical	22 days										
63	Medium and Low Voltage Drawout Switchgear	6 days										
64	De-energize all buses at the source.	1 day										

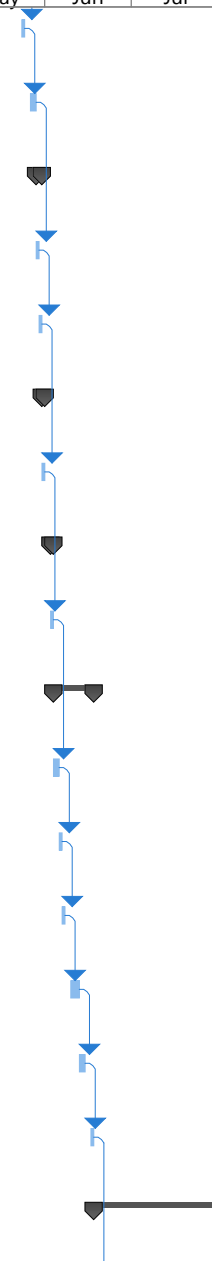
ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
65	Open all circuit breakers.	1 day				↓						
66	Rack all circuit breakers into the fully withdrawn, disconnected position.	1 day				↓						
67	Verify that the closing/tripping springs are discharged.	2 days				↓						
68	De-energize control power and auxiliary power circuits of each circuit breaker at the source and by opening control power circuit breakers or removing fuses in each breaker cubicle.	1 day				↓						
69	Motor Control Centers	3 days				⬇						
70	De-energize all buses at the source.	1 day				↓						
71	Open all circuit breakers and disconnect switches.	1 day				↓						
72	Remove all fuses in control circuits.	1 day				↓						
73	Low-voltage Switchboards and Panelboards	2 days				⬇						
74	De-energize all buses at the source.	1 day				↓						
75	Open all circuit breakers and disconnect switches.	1 day				↓						
76	Oil-Filled Power Transformers	4 days				⬇						
77	De-energize all buses at the source.	1 day				↓						
78	Open all circuit breakers and disconnect switches.	1 day				↓						
79	De-energize all buses at the source.	1 day				↓						
80	Open all circuit breakers and disconnect switches.	1 day				↓						

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
81	Dry-type Power Transformers	2 days				▼						
82	De-energize all transformer primaries and verify that the secondary is de-energized.	1 day				↓						
83	De-energize all low-voltage AC or DC power sources for space heaters, cooling equipment, controls, etc. at the source and open circuit breakers or remove fuses at transformer end.	1 day				↓						
84	Motors	5 days				▼						
85	De-energize all primary power at the source.	1 day				↓						
86	De-energize all low-voltage power sources for space heaters or other auxiliary equipment at the source.	1 day				↓						
87	Drain lube oil system (if applicable) and dispose of oil.	3 days				↓						
88	Boiler Chemical Feed	2 days				▼						
89	Drain all chemical feed tanks.	2 days				↓						
90	HRS	3 days				▼						
91	Open HRS doors.	1 day				↓						
92	Drain boiler, drums, downcomers and headers.	1 day				↓						
93	Open drum doors.	1 day				↓						
94	Stack and Ductwork	2 days				▼						
95	Open ductwork doors.	1 day				↓						

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
96	Place cap over stack opening to keep moisture out.	1 day					↓					
97	Condensate and Feedwater Piping	2 days					↓					
98	Drain water from the system.	1 day					↓					
99	Leave open vents and drains.	1 day					↓					
100	SCR	9 days					↓					
101	Remove catalyst of salvage or disposal.	4 days					↓					
102	Padlock or tack weld access doors shut.	1 day					↓					
103	Remove ammonia from storage tank for resale.	1 day					↓					
104	Wash out and drain storage tank and supply piping.	1 day					↓					
105	Vent storage tank and all piping. Leave vent and drain valves open or remove. Install bird screens.	1 day					↓					
106	Pull electrical supply breakers on all electrical equipment except lighting and HVAC components that are to remain in service.	1 day					↓					
107	Turbine(s) and Condenser	6 days					↓					
108	Drain hotwell and leave doors open.	1 day					↓					
109	Open main turbine doors.	1 day					↓					
110	Open bfp turbine doors.	1 day					↓					
111	Remove lube oil.	3 days					↓					

ID	Task Name	Duration	1st Quarter				2nd Quarter			3rd Quarter		
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
112	Generator	13 days										
113	Verify that generator circuit breaker is open and racked out or that high-voltage disconnect switch on substation side of GSU transformer is locked in the open position.	1 day										
114	Verify that generator field breaker or contactor (if applicable) is open.	1 day										
115	De-energize power supplies to generator excitation system at the source.	1 day										
116	De-energize AC and DC power supplies to generator and exciter space heaters, cooling equipment, controls, lighting, etc. at the source and open circuit breakers or remove fuses at the generator and exciter.	2 days										
117	Drain lubricating oil system and dispose of oil.	3 days										
118	Drain generator and exciter cooling water systems (if applicable).	2 days										
119	Disconnect and remove hydrogen gas tanks and purge generator hydrogen system.	1 day										
120	Disconnect and remove fire protection system gas/foam tanks and purge fire protection system.	2 days										
121	Circulating Water and Turbine Cooling Water System	4 days										
122	Drain.	2 days										
123	Open water box doors.	1 day										
124	Drain any circulating water chemical feed tanks.	1 day										
125	Compressed Air System	3 days										

ID	Task Name	Duration	1st Quarter			2nd Quarter			3rd Quarter			
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
126	Open vents and drains.	1 day										
127	Remove desiccant from desiccant dryers.	2 days										
128	Auxiliary Steam System	2 days										
129	Drain water from system.	1 day										
130	Remove aux boiler chemicals.	1 day										
131	Auxiliary Cooling Water System	1 day										
132	Drain water from system.	1 day										
133	Condenser Air Extraction and Waterbox Priming System	1 day										
134	Drain water from system.	1 day										
135	Battery System	10 days										
136	Turn off battery charger and disconnect cables from batteries.	2 days										
137	De-energize all battery chargers from the source.	1 day										
138	Open all AC and DC circuit breakers and/or fused switches on battery chargers.	1 day										
139	Remove and dispose of battery electrolyte.	3 days										
140	Remove and dispose of battery cells.	2 days										
141	Clean up and dispose of electrolyte on surface areas around batteries.	1 day										
142	Post Retirement Activities	40 days										



ID	Task Name	Duration	Dec	1st Quarter			2nd Quarter			3rd Quarter		
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
143	Post Retirement Activities	40 days										

Hawthorn 6 & 9 Dismantlement

Owner Costs

Pre-Dismantlement Activities	\$1,104,559
Overhead During Dismantlement	\$1,454,694
Post-Dismantlement Activities	\$34,755

Owner Costs Total \$2,594,008

Demolition General Contractor (DGC) Costs

Site Management	\$703,198
Equipment Rental	\$1,185,151
Consumables	\$1,182,380
Scrap Crew(s)	\$306,434
Dismantlement	\$1,025,050

DGC Insurance 2.00% \$88,044

Contingency/Profit 15.00% \$673,539

Performance Bond 2.00% \$103,276

Contractor Costs Total: \$5,267,072

Total: \$7,861,080

Owner Internal Costs: 5.00% \$393,054

Owner Contingency: 25.00% \$2,063,534

Hawthorn 6 & 9 Dismantlement Opinion of Probable Cost: \$10,317,668

Hawthorn 6 & 9 Dismantlement

ID	Task Name	Cost
0	Hawthorn 6 & 9 Dismantlement	\$6,996,221.28
1	Hawthorn 6 & 9 Dismantlement	\$6,996,221.28
2	Pre-Demolition Activities	\$1,104,558.96
3	Detailed Planning & Hire Owner's Engineer	\$110,802.72
4	Detailed Site Characterization Study	\$783,536.00
5	Hire Demolition general Contractor	\$198,647.04
6	KCP&L Prepares Unit for Dismantlement	\$11,573.20
7	Demolition Contractor Mobilizes on Sit	\$0.00
8	KCP&L Overhead during Dismantlement	\$1,454,693.76
9	KCP&L Project Manager	\$205,071.36
10	KCP&L Administrative Support	\$75,853.44
11	KCP&L Engineer	\$337,109.76
12	Owners Engineer Project Manager	\$102,835.20
13	Owners Engineer - Engineer	\$733,824.00
14	Demolition Contractor Overhead during Dismantlement	\$703,198.08
15	Demolition Contractor Project Manager	\$198,956.16
16	Demolition Contractor Safety Manager	\$177,166.08
17	Demolition Contractor Superintendent	\$327,075.84
18	Demolition Contractor Equipment Rental Cost	\$1,185,150.72
19	Equipment Rental	\$1,185,150.72
20	Demolition Contractor Consumables	\$1,182,380.16
21	Consumables	\$1,182,380.16
22	Scrap Crews	\$306,433.92
23	Crew to Handle Scrap Material(s)	\$306,433.92
24	Dismantlement	\$1,025,050.48
25	Electrical	\$137,918.40
26	Electrical Demolition of Equipment	\$137,918.40
27	Fuel Gas System	\$8,725.60
28	Remove all above grade fuel gas piping.	\$3,174.16
29	Gas Filter Skid	\$5,551.44
30	Lube Oil System	\$20,355.28
31	Lube Oil Piping	\$5,551.44
32	Lube Oil Pumps	\$5,551.44
33	Lube Oil Tanks	\$9,252.40
34	Compressed Air System	\$24,056.24
35	Compressed Air Piping	\$5,551.44
36	Compressors	\$9,252.40
37	Air Receiver	\$3,700.96
38	Dryer	\$5,551.44
39	Fire Protection	\$33,308.64
40	Fire Protection Piping	\$11,102.88
41	Firewater Tank	\$14,803.84
42	CO2 Storage Tank	\$7,401.92
43	Wash Water Skid	\$14,803.84
44	Detergent Tank	\$7,401.92
45	Demineralized Water Tank	\$7,401.92
46	Miscellaneous Piping	\$94,374.48
47	Exhaust Frame Cooling Piping	\$7,401.92
48	CT Air Processing Piping	\$9,252.40

Hawthorn 6 & 9 Dismantlement

ID	Task Name	Cost
49	Inlet Air Heating Piping	\$9,252.40
50	Auxiliary Steam Piping	\$9,252.40
51	Auxiliary Cooling Piping	\$9,252.40
52	Feedwater Piping	\$12,953.36
53	Condensate Piping	\$14,803.84
54	High Pressure Steam Piping	\$22,205.76
55	Generators	\$14,803.84
56	CT Generator	\$7,401.92
57	ST Generator	\$7,401.92
58	Steam Turbine and Condenser	\$27,757.20
59	Remove Steam Turbine	\$18,504.80
60	Remove Condenser Internals	\$9,252.40
61	General Service Pumps	\$25,906.72
62	Boiler Feed Pumps	\$9,252.40
63	Condensate Pumps	\$5,551.44
64	Turbine Cooling Water Pumps	\$3,700.96
65	General Service Pumps - Misc.	\$7,401.92
66	Combustion Turbine	\$96,224.96
67	Inlet Heater	\$5,551.44
68	Inlet duct	\$11,102.88
69	Exhaust duct	\$14,803.84
70	Combustion Turbine	\$29,607.68
71	Combustion Turbine Foundation	\$16,654.32
72	Enclosure	\$18,504.80
73	Boiler Chemical Feed	\$7,401.92
74	Chemical Feed tanks	\$7,401.92
75	Condenser	\$31,458.16
76	Condenser Air Extraction and Waterbox Priming System	\$7,401.92
77	Condenser External Parts	\$24,056.24
78	HRS	\$351,591.20
79	Remove Boiler Tubes	\$111,028.80
80	Remove Boiler Ductwork Casing	\$74,019.20
81	Remove Boiler Steel	\$166,543.20
82	Turbine Building	\$62,344.80
83	Remove the Turbine Building	\$62,344.80
84	Circulating Water and Turbine Cooling Water System	\$22,205.76
85	Chemical Feed tanks	\$3,700.96
86	Excavate Collapse and Back Fill Circulation Water Piping	\$18,504.80
87	CEMS	\$14,803.84
88	CEMS Building	\$7,401.92
89	CEMS Building Foundation	\$7,401.92
90	Stack	\$37,009.60
91	Stacks and By-Pass Damper	\$37,009.60
92	Post Dismantlement Activities	\$34,755.20
93	Post Dismantlement Activities	\$34,755.20




ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	
1	Hawthorn 6 & 9 Dismantlement	321 days											
2	Pre-Demolition Activities	130 days											
3	Detailed Planning & Hire Owner's Engineer	3 mons											
4	Detailed Site Characterization Study	130 days											
5	Hire Demolition general Contractor	3 mons											
6	KCP&L Prepares Unit for Dismantlement	2 wks											
7	Demolition Contractor Mobilizes on Sit	5 days											
8	KCP&L Overhead during Dismantlement	312 days											
9	KCP&L Project Manager	312 days											
10	KCP&L Administrative Support	312 days											
11	KCP&L Engineer	312 days											
12	Owners Engineer Project Manager	312 days											
13	Owners Engineer - Engineer	312 days											
14	Demolition Contractor Overhead during Dismantlement	312 days											
15	Demolition Contractor Project Manager	312 days											
16	Demolition Contractor Safety Manager	312 days											
17	Demolition Contractor Superintendent	312 days											
18	Demolition Contractor Equipment Rental Cost	312 days											

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1
19	Equipment Rental	312 days										
20	Demolition Contractor Consumables	312 days										
21	Consumables	312 days										
22	Scrap Crews	312 days										
23	Crew to Handle Scrap Material(s)	312 days										
24	Dismantlement	312 days										
25	Electrical	60 days										
26	Electrical Demolition of Equipment	60 days										
27	Fuel Gas System	8 days										
28	Remove all above grade fuel gas piping.	5 days										
29	Gas Filter Skid	3 days										
30	Lube Oil System	11 days										
31	Lube Oil Piping	3 days										
32	Lube Oil Pumps	3 days										
33	Lube Oil Tanks	5 days										
34	Compressed Air System	13 days										
35	Compressed Air Piping	3 days										
36	Compressors	5 days										

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1
37	Air Receiver	2 days										
38	Dryer	3 days										
39	Fire Protection	18 days										
40	Fire Protection Piping	6 days										
41	Firewater Tank	8 days										
42	CO2 Storage Tank	4 days										
43	Wash Water Skid	8 days										
44	Detergent Tank	4 days										
45	Demineralized Water Tank	4 days										
46	Miscellaneous Piping	51 days										
47	Exhaust Frame Cooling Piping	4 days										
48	CT Air Processing Piping	5 days										
49	Inlet Air Heating Piping	5 days										
50	Auxiliary Steam Piping	5 days										
51	Auxiliary Cooling Piping	5 days										
52	Feedwater Piping	7 days										
53	Condensate Piping	8 days										
54	High Pressure Steam Piping	12 days										

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1
55	Generators	8 days										
56	CT Generator	4 days										
57	ST Generator	4 days										
58	Steam Turbine and Condenser	15 days										
59	Remove Steam Turbine	10 days										
60	Remove Condenser Internals	5 days										
61	General Service Pumps	14 days										
62	Boiler Feed Pumps	5 days										
63	Condensate Pumps	3 days										
64	Turbine Cooling Water Pumps	2 days										
65	General Service Pumps - Misc.	4 days										
66	Combustion Turbine	52 days										
67	Inlet Heater	3 days										
68	Inlet duct	6 days										
69	Exhaust duct	8 days										
70	Combustion Turbine	16 days										
71	Combustion Turbine Foundation	9 days										
72	Enclosure	10 days										

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1
73	Boiler Chemical Feed	4 days										
74	Chemical Feed tanks	4 days										
75	Condenser	17 days										
76	Condenser Air Extraction and Waterbox Priming System	4 days										
77	Condenser External Parts	13 days										
78	HRS	95 days										
79	Remove Boiler Tubes	30 days										
80	Remove Boiler Ductwork Casing	20 days										
81	Remove Boiler Steel	45 days										
82	Turbine Building	15 days										
83	Remove the Turbine Building	15 days										
84	Circulating Water and Turbine Cooling Water System	12 days										
85	Chemical Feed tanks	2 days										
86	Excavate Collapse and Back Fill Circulation Water Piping	10 days										
87	CEMS	8 days										
88	CEMS Building	4 days										
89	CEMS Building Foundation	4 days										
90	Stack	20 days										

ID	Task Name	Duration	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1
91	Stacks and By-Pass Damper	20 days										
92	Post Dismantlement Activities	20 days										
93	Post Dismantlement Activities	20 days										

SPEARVILLE WIND GENERATING STATION

SPEARVILLE WIND GENERATING STATION

The Spearville Wind Generating Station consists of 99 wind turbine generators.

Spearville Unit 1 has 67 wind turbines and an SPP-accredited rating of 100.5 MW. Spearville Unit 1 was placed in service in 2006. Spearville Unit 2 has 32 wind turbines and an SPP-accredited rating of 48 MW. Spearville Unit 2 was placed in service in 2010. The turbines are General Electric SLE rated at 1.5 MW each.

The following are the major systems and equipment that were included in the dismantlement of the units.

SPEARVILLE

1. Wind turbine generators.
2. Concrete foundations.
3. Roads.
4. Tower transformers.
5. Underground collection cables.

UNIT 1

Spearville 1 Retirement/Dismantlement⁽¹⁾

Owner Costs

Pre-Dismantlement Activities		\$378,127
Overhead During Dismantlement		\$173,030
Post-Dismantlement Activities		\$34,755

Owner Costs Total \$585,912

Demolition General Contractor (DGC) Costs
Dismantlement

\$17,854,626

DGC Insurance 2.00% \$357,093

Contingency/Profit 15.00% \$2,731,758

Performance Bond 2.00% \$418,870

Contractor Costs Total: \$21,362,346

Total: \$21,948,258

Owner Internal Costs: 5.00% \$1,097,413

Owner Contingency: 25.00% \$5,761,418

Spearville 1 Retirement/Dismantlement Opinion of Probable Cost: \$28,807,088

Spearville 1 Retirement/Dismantlement Opinion of Probable Cost minus ARO: \$16,274,266

Activities Required by Permit or Regulation

Spearville 1 Wind Farm	\$12,532,822	
Activities Required by Permit or Regulation		\$12,532,822

(1) The Spearville Land Lease requires the wind turbines to be dismantled within 12 months of retirement.

ID	Task Name	Remaining	
			W
1	Spearville 1 Dismantlement	\$18,440,539.32	
2	Pre-Demolition Activities	\$378,127.12	
3	Detailed Planning & Hire Owner's Engineer	\$52,258.88	
4	Detailed Site Characterization Study	\$115,648.00	
5	Hire Demolition general Contractor	\$198,647.04	
6	KCP&L Prepares Unit for Dismantlement	\$11,573.20	
7	Demolition Contractor Mobilizes on Site	\$0.00	
8	KCP&L Overhead during Dismantlement	\$173,030.40	
9	KCP&L Project Manager	\$15,774.72	
10	KCP&L Administrative Support	\$5,834.88	
11	KCP&L Engineer	\$64,828.80	
12	Owners Engineer Project Manager	\$39,552.00	
13	Owners Engineer - Engineer	\$47,040.00	
14	Dismantlement Activities	\$17,854,626.60	
15	Dismantlement Minus Freight	\$5,635,873.00	
16	Dismantlement Freight	\$8,830,920.00	
17	Cut Turbine Blades for Scrap Shipment	\$626,457.60	
18	Blade Landfill Cost	\$2,761,376.00	
19	Post Dismantlement Activities	\$34,755.20	
20	Post Dismantlement Activities	\$34,755.20	

ID	Task Name	Duration	Quarter	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter		
			Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1	Spearville 1 Dismantlement	321 days																
2	Pre-Demolition Activities	165 days																
3	Detailed Planning & Hire Owner's Engineer	2 mons																
4	Detailed Site Characterization Study	2 mons																
5	Hire Demolition general Contractor	3 mons																
6	KCP&L Prepares Unit for Dismantlement	2 wks																
7	Demolition Contractor Mobilizes on Site	5 days																
8	KCP&L Overhead during Dismantlement	120 days																
9	KCP&L Project Manager	120 days																
10	KCP&L Administrative Support	120 days																
11	KCP&L Engineer	120 days																
12	Owners Engineer Project Manager	120 days																
13	Owners Engineer - Engineer	120 days																
14	Dismantlement Activities	120 days																
15	Dismantlement Minus Freight	120 days																
16	Dismantlement Freight	120 days																
17	Cut Turbine Blades for Scrap Shipment	120 days																
18	Blade Landfill Cost	120 days																
19	Post Dismantlement Activities	20 days																
20	Post Dismantlement Activities	20 days																

UNIT 2

Spearville 2 Retirement/Dismantlement⁽¹⁾

Owner Costs

Pre-Dismantlement Activities		\$378,127	
Overhead During Dismantlement		\$86,515	
Post-Dismantlement Activities		\$34,755	
Owner Costs Total			\$499,397

Demolition General Contractor (DGC) Costs
Dismantlement

Dismantlement		\$8,248,518	
DGC Insurance	2.00%	\$164,970	
Contingency/Profit	15.00%	\$1,262,023	
Performance Bond	2.00%	\$193,510	
Contractor Costs Total:			\$9,869,022

Total: \$10,368,419

Owner Internal Costs: 5.00% \$518,421

Owner Contingency: 25.00% \$2,721,710

Spearville 2 Dismantlement Opinion of Probable Cost: \$13,608,549

Spearville 1 Retirement/Dismantlement Opinion of Probable Cost minus ARO: \$8,238,655

Activities Required by Permit or Regulation

Spearville 2 Wind Farm		\$5,369,894	
Activities Required by Permit or Regulation			\$5,369,894

(1) The Spearville Land Lease requires the wind turbines to be dismantled within 12 months of retirement.

ID	Task Name	Remaining	
			W
1	Spearville 2 Dismantlement	\$8,747,915.32	
2	Pre-Demolition Activities	\$378,127.12	
3	Detailed Planning & Hire Owner's Engineer	\$52,258.88	
4	Detailed Site Characterization Study	\$115,648.00	
5	Hire Demolition general Contractor	\$198,647.04	
6	KCP&L Prepares Unit for Dismantlement	\$11,573.20	
7	Demolition Contractor Mobilizes on Sit	\$0.00	
8	KCP&L Overhead during Dismantlement	\$86,515.20	
9	KCP&L Project Manager	\$7,887.36	
10	KCP&L Administrative Support	\$2,917.44	
11	KCP&L Engineer	\$32,414.40	
12	Owners Engineer Project Manager	\$19,776.00	
13	Owners Engineer - Engineer	\$23,520.00	
14	Dismantlement	\$8,248,517.80	
15	Dismantlement Minus Freight	\$4,350,887.00	
16	Dismantlement Freight	\$2,273,222.00	
17	Cut Turbine Blades for Scrap Shipment	\$313,228.80	
18	Blade Landfill Cost	\$1,311,180.00	
19	Post Dismantlement Activities	\$34,755.20	
20	Post Dismantlement Activities	\$34,755.20	

ID	Task Name	Duration	4th Quarter			1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter		
			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Spearville 2 Dismantlement	321 days																		
2	Pre-Demolition Activities	165 days																		
3	Detailed Planning & Hire Owner's Engineer	2 mons																		
4	Detailed Site Characterization Study	2 mons																		
5	Hire Demolition general Contractor	3 mons																		
6	KCP&L Prepares Unit for Dismantlement	2 wks																		
7	Demolition Contractor Mobilizes on Sit	5 days																		
8	KCP&L Overhead during Dismantlement	60 days																		
9	KCP&L Project Manager	60 days																		
10	KCP&L Administrative Support	60 days																		
11	KCP&L Engineer	60 days																		
12	Owners Engineer Project Manager	60 days																		
13	Owners Engineer - Engineer	60 days																		
14	Dismantlement	60 days																		
15	Dismantlement Minus Freight	60 days																		
16	Dismantlement Freight	60 days																		
17	Cut Turbine Blades for Scrap Shipment	60 days																		
18	Blade Landfill Cost	60 days																		
19	Post Dismantlement Activities	20 days																		
20	Post Dismantlement Activities	20 days																		

APPENDIX B

OPINION OF COSTS FOR SCRAP

OPINIONS OF SCRAP VALUES

The opinion of scrap value was based on a scrap value of:

1. Mixed Scrap: \$185.00/MT.
2. Insulated Cables: \$1.57/lb.
3. Motors: \$0.15/lb.

These scrap values were taken from www.scrapmonster.com. This website is an industry-recognized source of scrap information that provides daily scrap pricing for the worldwide scrap market.

Attached is a spreadsheet that was developed from the quantities used to build Iatan Unit 1 to calculate the current scrap value of Iatan Unit 1 value rates. Per the attached spreadsheet:

1. Iatan Unit 1 Scrap Value: \$4,660,000.

The AACE International Capacity Factor Method was used to estimate the scrap value of the other coal-fired units. The capacity factor method is based on the following calculation:

$$\text{UnitA}(\text{scrap value}) = \text{Iatan1}(\text{scrap value}) * (\text{CapacityUnitA} / \text{CapacityIatan1})^e$$

Where:

1. UnitA(scrap value) = Unit A Scrap Value.
2. Iatan1(scrap value) = Iatan Unit 1 Scrap Value: \$4,660,000.
3. CapacityUnitA = Capacity of Unit A.
4. CapacityIatan1 = Capacity of Iatan Unit 1: 705 MW.
5. e = Proration Factor: 0.6 per the AACE guidelines.

Therefore, the scrap value of the other coal-fired power plants are as follows:

MONTROSE UNIT 1

1. Capacity A = 170 MW.
2. Scrap Value = \$1,985,000.

MONTROSE UNIT 2

1. Capacity A = 164 MW.
2. Scrap Value = \$1,943,000.

MONTROSE UNIT 3

1. Capacity A = 176 MW.
2. Scrap Value = \$2,027,000.

HAWTHORN UNIT 5

1. Capacity A = 564 MW.
2. Scrap Value = \$4,076,000.

LA CYGNE UNIT 1

1. Capacity A = 735 MW.
2. Scrap Value = \$4,788,000.

LA CYGNE UNIT 2

1. Capacity A = 686 MW.
2. Scrap Value = \$4,584,000.

IATAN UNIT 2

1. Capacity A = 881 MW.
2. Scrap Value = \$5,327,000.

The value of the common portion of these facilities was estimated at approximately 12-percent of the combined scrap values of the units on site.

Therefore:

1. Montrose Common: Scrap Value = \$714,600.
2. Hawthorn Common: Scrap Value = \$489,000.
3. La Cygne Common: Scrap Value = \$1,123,000.
4. Iatan Common: Scrap Value = \$1,198,000.

The scrap value of the combustion turbines was calculated based on the following scrap weights:

1. Combustion Turbine: 250,000 lbs.
2. Generator: 280,000 lbs.
3. Total: 530,000 lbs.
4. Scrap Value (for One Combustion Turbine):
 $(530,000 \text{ lbs}/2204.6 \text{ lbs/ton}) * \$185/\text{MT} = \$44,500$

Therefore:

NORTHEAST

1. (Eight combustion turbines)*\$44,500/CT: Scrap Value = \$356,000.

HAWTHORN UNITS 7 AND 8

1. (Two combustion turbines)*\$44,500/CT: Scrap Value = \$89,000.

WEST GARDNER

1. (Four combustion turbines)*\$44,500/CT: Scrap Value = \$178,000.

OSAWATOMIE

1. (One combustion turbine)*\$44,500/CT Scrap Value = \$44,500.

The scrap value of Hawthorn Units 6 and 9 was calculated in two parts: the scrap value of the CT (Hawthorn Unit 6) and the scrap value of the steam turbine plant (Hawthorn Unit 9):

HAWTHORN UNIT 6

1. (One combustion turbine)*\$44,500/CT: Scrap Value=\$44,500.

HAWTHORN UNIT 9

1. Capacity A = 62 MW: Scrap Value = 1,105,000.

Total Hawthorn Units 6 and 9 Scrap Value: \$1,150,000.

SPEARVILLE

Scrap Value Per Turbine

Tower - 281,275 lbs. steel

Gearbox - 40,000 lbs. steel

Total Steel - 321,275 lbs.

Scrap Value: $(321,275\text{lb.}/2,204.6\text{ lbs.ton}) * 185/\text{MT} = \$ 27,0000$

Generator - 18,000 lbs.

Scrap Value: $(18,000\text{ lb.})(0.37/\text{lb}) = \$ 2,700$

Total Scrap Value Per Turbine = \$ 29,700

Scrap Value of Units 1 and 2 Collection Cable = \$ 546,000

Spearville 1 Scrap Value

$(67\text{ turbines})(29,700/\text{turbine}) + (546,000)(67/99) = \$ 2,359,000$

Spearville 2 Scrap Value

$(32\text{ turbines})(29,700/\text{turbine}) + (546,000)(32/99) = \$ 1,127,000$

Iatan Unit 1 Materials from the Final Construction Report

Mixed Scrap Steel -						
Structural Steel -				11085 Tons		11085 tons
Handrail -				32647 linear feet	3.65 lbs/ft	60 tons
Grating -				168244 square feet	10 lbs/ft^2	841 tons
Coal Silos				285 Tons		285 tons
Fabricated Pipe 2.5" and Larger						
	Pipe (linear feet)					
Main Steam	911		28"	424 lbs/ft		193.132 tons
Hot Reheat	1412		36"	552 lbs/ft		389.712 tons
Cold Reheat	1173		36"	552 lbs/ft		323.748 tons
High Pressure Extraction	1400	Assume	6"	28.57 lbs/ft		19.999 tons
Boiler Safety Valve Vents	1022	Assume	6"	28.57 lbs/ft		14.59927 tons
Auxiliary Steam	2269	Assume	6"	28.57 lbs/ft		32.412665 tons
Boiler Vents and Drains	1019	Assume	6"	28.57 lbs/ft		14.556415 tons
Soot Blower Piping	1729	Assume	6"	28.57 lbs/ft		24.698765 tons
Temporary Blowout	796	Assume	6"	28.57 lbs/ft		11.37086 tons
Low Pressure Extraction	902	Assume	6"	28.57 lbs/ft		12.88507 tons
Turbine Seal and Drains	1085	Assume	6"	28.57 lbs/ft		15.499225 tons
BFPT Exhaust	25	Assume	6"	28.57 lbs/ft		0.357125 tons
Boiler Feed Discharge	615	Assume	6"	28.57 lbs/ft		8.785275 tons
BFP Recirc and Desuper Heat	2556	Assume	6"	28.57 lbs/ft		36.51246 tons
Boiler Feed Suction	414	Assume	6"	28.57 lbs/ft		5.91399 tons
Condensate	3901	Assume	6"	28.57 lbs/ft		55.725785 tons
Air Preheater Piping	5634	Assume	6"	28.57 lbs/ft		80.48169 tons
Heater Vents and Drains	2013	Assume	6"	28.57 lbs/ft		28.755705 tons
Heater Drips	2717	Assume	6"	28.57 lbs/ft		38.812345 tons
Water Pretreatment Piping	221	Assume	6"	28.57 lbs/ft		3.156985 tons
Chemical Feed	85	Assume	6"	28.57 lbs/ft		1.214225 tons
Make-Up Water	3924	Assume	6"	28.57 lbs/ft		56.05434 tons
Ash Sluice Water	6510	Assume	6"	28.57 lbs/ft		92.99535 tons
Chemical Clean	4892	Assume	6"	28.57 lbs/ft		69.88222 tons
Nitrogen	918	Assume	6"	28.57 lbs/ft		13.11363 tons
Auxiliary Cooling Water	6462	Assume	6"	28.57 lbs/ft		92.30967 tons
Extraction Traps and Drains	1279	Assume	6"	28.57 lbs/ft		18.270515 tons
Condenser Air Extraction	276	Assume	6"	28.57 lbs/ft		3.94266 tons
Fuel Oil System	804	Assume	6"	28.57 lbs/ft		11.48514 tons
Fire Protection System	4017	Assume	6"	28.57 lbs/ft		57.382845 tons
Service Water	5022	Assume	6"	28.57 lbs/ft		71.73927 tons
Generator Auxiliaries	196	Assume	6"	28.57 lbs/ft		2.79986 tons
Turbine Lube Oil	925	Assume	6"	28.57 lbs/ft		13.213625 tons
Waste Water		Assume	6"	28.57 lbs/ft		0 tons
Compressed Air System	12255	Assume	6"	28.57 lbs/ft		175.062675 tons
Building Heating	5438	Assume	6"	28.57 lbs/ft		77.68183 tons
Screen Wash	98	Assume	6"	28.57 lbs/ft		1.39993 tons
Bottom Ash Overflow	1032	Assume	6"	28.57 lbs/ft		14.74212 tons
Fly Ash Disposal	4099	Assume	6"	28.57 lbs/ft		58.554215 tons
Ash Storage	1313	Assume	6"	28.57 lbs/ft		18.756205 tons
BFP Seal		Assume	6"	28.57 lbs/ft		0 tons
Equipment Drains	447	Assume	6"	28.57 lbs/ft		6.385395 tons
Piping Provided With Equipment						
	Linear Feet					
Turbine Generator						
Stator Cooling Water	1072	Assume	8"	43.4 lbs/ft		23.2624 tons
Lube and Seal Oil	1293	Assume	8"	43.4 lbs/ft		28.0561 tons
Steam Seal	1700	Assume	8"	43.4 lbs/ft		36.89 tons
ECH	2000	Assume	8"	43.4 lbs/ft		43.4 tons
Hydrogen	1735	Assume	8"	43.4 lbs/ft		37.6495 tons
Main Steam Leads	322	Assume	8"	43.4 lbs/ft		6.9874 tons
Crossover Pipe	90	Assume	8"	43.4 lbs/ft		1.953 tons

Control Valve Leakoff	237	Assume	8"	43.4	lbs/ft	5.1429	tons
Steam- Generator		Assume	8"	43.4	lbs/ft	0	tons
Coal Bumer	10937	Assume	8"	43.4	lbs/ft	237.3329	tons
Soot Blower	8402	Assume	8"	43.4	lbs/ft	182.3234	tons
Boiler Vents and Drains	4870	Assume	8"	43.4	lbs/ft	105.679	tons
Seal Air	5150	Assume	8"	43.4	lbs/ft	111.755	tons
Start-up Bypass	0	Assume	8"	43.4	lbs/ft	0	tons
Igniter Oil	3702	Assume	8"	43.4	lbs/ft	80.3334	tons
Economizer Connection Pipe	481	Assume	8"	43.4	lbs/ft	10.4377	tons
Ash Handling System		Assume	8"	43.4	lbs/ft	0	tons
Bottom Ash Disposal	3095	Assume	8"	43.4	lbs/ft	67.1615	tons
Pyrites Discharge	939	Assume	8"	43.4	lbs/ft	20.3763	tons
Economizer and Gas Recirc Fly Ash	474	Assume	8"	43.4	lbs/ft	10.2858	tons
Precipitator Fly Ash	4442	Assume	8"	43.4	lbs/ft	96.3914	tons
2' and Under Piping							
	Linear Feet						
High Pressure Extraction	120	Assume	1"	2.17	lbs/ft	0.1302	tons
Boiler Safety Valve Vents	648	Assume	1"	2.17	lbs/ft	0.70308	tons
Auxiliary Steam	1966	Assume	1"	2.17	lbs/ft	2.13311	tons
Boiler Vents and Drains	2616	Assume	1"	2.17	lbs/ft	2.83836	tons
Soot Blower	545	Assume	1"	2.17	lbs/ft	0.591325	tons
Low Pressure Extraction	105	Assume	1"	2.17	lbs/ft	0.113925	tons
Turbine Seals and Drains	1741	Assume	1"	2.17	lbs/ft	1.888985	tons
Condensate	481	Assume	1"	2.17	lbs/ft	0.521885	tons
Air Preheater	1011	Assume	1"	2.17	lbs/ft	1.096935	tons
Heater Vents and Drains	1845	Assume	1"	2.17	lbs/ft	2.001825	tons
Heater Drips	412	Assume	1"	2.17	lbs/ft	0.44702	tons
Water Pretreatment	895	Assume	1"	2.17	lbs/ft	0.971075	tons
Chemical Feed	3518	Assume	1"	2.17	lbs/ft	3.81703	tons
Make-up Water	2410	Assume	1"	2.17	lbs/ft	2.61485	tons
Ash Sluice Water	324	Assume	1"	2.17	lbs/ft	0.35154	tons
Nitrogen	1340	Assume	1"	2.17	lbs/ft	1.4539	tons
Auxiliary Steam	4500	Assume	1"	2.17	lbs/ft	4.8825	tons
Cooling Water	1398	Assume	1"	2.17	lbs/ft	1.51683	tons
Extraction Traps and Drains	309	Assume	1"	2.17	lbs/ft	0.335265	tons
Fuel oil System	200	Assume	1"	2.17	lbs/ft	0.217	tons
Service Water	778	Assume	1"	2.17	lbs/ft	0.84413	tons
Generator Auxiliaries	4595	Assume	1"	2.17	lbs/ft	4.985575	tons
Turbine Lube Oil	765	Assume	1"	2.17	lbs/ft	0.830025	tons
Coal Handling Equipment Hydraulic Oil System	492	Assume	1"	2.17	lbs/ft	0.53382	tons
Compressed Air	400	Assume	1"	2.17	lbs/ft	0.434	tons
Building Heating	24000	Assume	1"	2.17	lbs/ft	26.04	tons
Screen Wash	7149	Assume	1"	2.17	lbs/ft	7.756665	tons
Miscellaneous Boiler Feedwater		Assume	1"	2.17	lbs/ft	0	tons
Sampling System	439	Assume	1"	2.17	lbs/ft	0.476315	tons
Equipment Drains	426	Assume	1"	2.17	lbs/ft	0.46221	tons
Fly Ash Disposal	6125	Assume	1"	2.17	lbs/ft	6.645625	tons
Sump Pump	62	Assume	1"	2.17	lbs/ft	0.06727	tons
Chemical Clean	68	Assume	1"	2.17	lbs/ft	0.07378	tons
Precipitator							
Precipitator	tons	2,635				2,635	tons
Inlet Duct	tons	741				741	tons
Outlet Duct	tons	615				615	tons
Breeching Duct	tons	225				225	tons
Fly Ash Silo Steel Plat	square feet	12,409		10.2	lbs/ft^2	63.2859	tons
Boiler							
Duct	tons	1,750				1750	tons
Casing	square feet	62,000		10.2	lbs/ft^2	316.2	tons
steam drum	tons	400				400	tons
Boiler	tons	9,800				9800	tons

Air preheaters											
Primary	tons	536					536	tons			
Secondary	tons	832					832	tons			
Mixed Scrap Steel Total							33536	tons	@	324 \$/GT	\$10,865,529
Motors											
	lbs						91943	lbs	@	0.41 \$/lb	\$37,696.63
Cable											
6.9 KV	Linear Feet	115,300					795	lb/1000 ft		91663.5	lbs
480V, 120V AC and 125V DC	Linear Feet	333,000					548	lb/1000 ft		182484	lbs
Control	Linear Feet	200,200					141	lb/1000 ft		28228.2	lbs
Thermocouple and Instrument	Linear Feet	557,000					102	lb/1000 ft		56814	lbs
Communication	Linear Feet	40,000					102	lb/1000 ft		4080	lbs
Cable Totals							363270	lbs	@	1.65 \$/lb	\$599,395
Total Opinion of Scrap Value for Iatan 1 and Iatan 1 Common*										\$11,502,620	
* Common at the time that Iatan Unit 1 was built.											
Assume that 25% of the quantities above are "common facilities"; therefore, the scrap value of Iatan Unit 1 is:							\$8,500,000				

APPENDIX C

REFERENCE DOCUMENTS

REFERENCE DOCUMENTS

1. *Decommissioning Handbook for Coal-Fired Power Plants*, EPRI, Palo Alto, CA: 2004. (1011220)
2. *Decommissioning Process for Fossil-Fueled Power Plants*, EPRI, Palo Alto, CA: 2010. (1020652)
3. Association for the Advancement of Cost Estimating (ACE) International, *Skills and Knowledge of Cost Engineering*, 5th Edition, 2004.
4. *Combustion Fossil Power*, Fourth Edition, 1991.
5. *Steam Its Generation and Use*, 40th Edition, 1992.
6. Daniel International Corporation, La Cygne Station - Unit 2, Weekly Progress Report No. 175, October 1, 1976.
7. Black & Veatch, Iatan Steam Generating Station Monthly Progress Report, November 1979.

APPENDIX D

ARO - PERMIT SUMMARY

ARO Permit Summary

				Basis of Requirement
Montrose	Common	\$23,869,916		
	Montrose Fuel Oil Tank Removal		\$264,743	Missouri Regulation 10 CSR 26-5.020 Release Reporting and Initial Release Response Measures
	Montrose Wastewater Lagoon Removal		\$127,520	10 CSR 20-6.010(12) Closure of Treatment Facilities and 10 CSR 20-6.015 No-Discharge Permits (5) Closure of Waste Storage Structures
	Montrose Landfill Closure		\$2,329,000	Disposal of Coal Combustion Residuals from Electric Utilities final rule on December 19, 2014,
	Montrose Landfill Post Closure		\$1,874,330	Disposal of Coal Combustion Residuals from Electric Utilities final rule on December 19, 2014,
	Montrose Ash Pond(s)		\$274,742	Disposal of Coal Combustion Residuals from Electric Utilities final rule on December 19, 2014,
	Montrose Station Asbestos Removal (total plant)		\$18,999,581	EPA – 40 CFR Part 61 Subpart M Missouri – Missouri Air Conservation Law Sections 643.225 – 643.250 of the Revised Statutes of Missouri Kansas – Kansas Statutes Annotated Chapter 65, Article 53
Hawthorn	Unit 5	\$1,271,750		
	Hawthorn 5 Intake Equip, Intake Structures, Levee piping Removal		\$1,271,750	US Army Corps of Engineers Section 10 Permit - Rivers & Harbor Act of March 3, 1899
	Common	\$19,014,090		
	Hawthorn Ash Pond(s)		\$7,840,251	Disposal of Coal Combustion Residuals from Electric Utilities final rule on December 19, 2014,
	Hawthorn Asbestos Removal		\$11,173,839	EPA – 40 CFR Part 61 Subpart M Missouri – Missouri Air Conservation Law Sections 643.225 – 643.250 of the Revised Statutes of Missouri Kansas – Kansas Statutes Annotated Chapter 65, Article 53
La Cygne	Common	\$93,864,399		
	La Cygne Wastewater Lagoon Removal		\$226,058	28-16-173. Municipal, commercial and industrial wastewater lagoons: closure requirements.
	La Cygne Landfill - Closure (total plant)		\$9,954,062	Disposal of Coal Combustion Residuals from Electric Utilities final rule on December 19, 2014,
	La Cygne Landfill - Post Closure (total plant)		\$6,162,607	Disposal of Coal Combustion Residuals from Electric Utilities final rule on December 19, 2014,
	La Cygne Ash Pond(s) - Closure (total plant)		\$61,277,411	Disposal of Coal Combustion Residuals from Electric Utilities final rule on December 19, 2014,
	La Cygne Ash Pond(s) - Post Closure (total plant)		\$10,300,356	Disposal of Coal Combustion Residuals from Electric Utilities final rule on December 19, 2014,
	La Cygne Station Asbestos Removal (total plant)		\$5,943,906	EPA – 40 CFR Part 61 Subpart M Missouri – Missouri Air Conservation Law Sections 643.225 – 643.250 of the Revised Statutes of Missouri Kansas – Kansas Statutes Annotated Chapter 65, Article 53
Iatan	Common	\$41,291,803		
	Iatan Intake Equip and Intake Structures Removal (total plant)		\$395,036	Missouri Regulation 10 CSR 26-5.020 Release Reporting and Initial Release Response Measures
	Iatan Fuel Storage (total plant)		\$191,130	Missouri Regulation 10 CSR 26-5.020 Release Reporting and Initial Release Response Measures
	Iatan Oil Storage (total plant)		\$53,766	Solid Waste Operating Permit No. 0916501
	Iatan Landfill Retirement (total plant)		\$3,415,033	Disposal of Coal Combustion Residuals from Electric Utilities final rule on December 19, 2014,
	Iatan Ash Pond(s) (total plant)		\$37,236,839	Disposal of Coal Combustion Residuals from Electric Utilities final rule on December 19, 2014,
Northeast	Common	\$553,553		
	Northeast Fuel Oil Tank Removal		\$553,553	Missouri Regulation 10 CSR 26-5.020 Release Reporting and Initial Release Response Measures
Hawthorn	6 & 9	\$679,931		
	Hawthorn 9 Intake Removal		\$679,931	US Army Corps of Engineers Section 10 Permit - Rivers & Harbor Act of March 3, 1899
Spearville	Unit 1	\$12,532,822		Spearville Wind Project Decommissioning Agreement dated June 21, 2006
	Unit 2	\$5,396,894		Spearville 2 Wind Project Decommissioning Agreement dated August 24, 2010