

**EXHIBIT AA
ELECTRIC AND MAGNETIC FIELDS
OAR 345-021-0010(1)(AA)**

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1.0 INTRODUCTION

OAR 345-021-0010(1)(aa). *If the proposed energy facility is a transmission line or has, as a related or supporting facility, a transmission line of any size, provide information about the line and potential EMF:*

This exhibit addresses estimates of the maximum possible electric and magnetic field (EMF) strengths that would be produced by transmitting electrical energy from the South Dunes Power Plant (SDPP) to the Liquefied Natural Gas (LNG) Plant by a new double-circuit 115-kilovolt (kV) transmission line and to the new Pacific Power substation by a new single-circuit 115-kV transmission line. Oscillating EMFs at power frequency are generated by all electrical devices. The estimates of EMF in this exhibit are computed for a height of 1 meter (m) (3.28 feet) above the ground at 200 feet from center line of the transmission line. The corridor for the transmission line to the LNG Plant is located entirely on Jordan Cove Energy Project (JCEP) property, except when crossing Jordan Cove Road overhead. There is no direct public access to the corridor; only the transmission line is EFSC jurisdictional within the utility corridor. In addition to the transmission line, the 1-mile corridor between the LNG Plant and SDPP will include the boil-off gas (BOG) natural gas line, conditioned gas line, a maintenance road, and telecommunication lines. The transmission line will be located along one side of the maintenance road and the pipelines and telecommunications lines will be along the opposite side of the road. As shown on Figure AA-1, Sheets 1-3, the route will include 13 transmission line structures between the SDPP switchyard and the LNG Plant termination point. The minimum width of the JCEP property is approximately 245 feet, and the minimum width of the utility corridor between the LNG facility and the power plant is 150 feet. Adjacent property owners include the Roseburg Forest Products parcel to the south and the Bureau of Land Management property to the north (see Figure F-1 in Exhibit F).

The new line to the Pacific Power Substation is also located entirely on JCEP property, and there is no direct public access to the line. As shown on Figure AA-9, the route will include four transmission line structures between the SDPP switchyard and the Pacific Power substation.

When a conductor is energized, an electric field is formed around the conductor proportionate to the given voltage. The strength of the electric field is independent of the current flowing in the conductor. When alternating current (AC) flows through a conductor, an alternating magnetic field is created around the conductor. Areas of equal magnetic field intensity can be envisioned as concentric cylinders with the conductor at the center. The magnetic field intensity decreases with distance from the conductor. In AC power systems, voltage swings positive to negative and back to positive, a 360-degree cycle, 60 times every second. Current follows the voltage, flowing forward, reversing direction, and returning to the forward direction, again a 360-degree cycle, 60 times every second. Each AC transmission circuit carries power over three conductors. One phase of the circuit is carried by each of the three conductors. The AC voltage and current in each phase conductor is out of sync with the other two phases by 120 degrees, or one-third of the 360-degree cycle. The fields from these conductors tend to cancel out because of the phase difference, which is referred to as phase cancellation. However, a person standing on the right-

of-way (ROW) under a transmission line will not be equidistant from all conductors, which results in a net field at the person's location. The strength of the magnetic field depends on the current in the conductor, the geometry of the structures, the degree of cancellation from other conductors, and the distance from the conductors. The conductor arrangements for the proposed SDPP 115-kV transmission line are provided on Figures AA-2 through AA-7 at the end of this Exhibit AA. These figures provide the single- and double-pole arrangements with either one or both circuits live (see Note 2 on each figure). The conductor arrangement for the proposed Pacific Power tie line is shown on Figure AA-8 at the end of this Exhibit AA.

2.0 INFORMATION ABOUT THE EXPECTED ELECTRIC AND MAGNETIC FIELDS

OAR 345-021-0010(1)(aa)(A). *Information about the expected electric and magnetic fields, including:*

- (i) *The distance in feet from the proposed center line of each proposed transmission line to the edge of the right-of-way.*

As described above, the JCEP utility corridor is located within JCEP property between the Roseburg Forest Products property and BLM land. The utility corridor is entirely on JCEP property except when crossing Jordan Cove Road, and as such, there is no requirement for a defined ROW in the traditional utility sense. The minimum width of the JCEP property is approximately 245 feet. The utility corridor will contain several facilities in addition to the transmission line, and the minimum width of the transmission corridor between the LNG Plant and power plant is 150 feet. The transmission structures will generally be located in the central portion of the corridor rather than along the edge of the corridor. EMF levels have been calculated at 200 feet from center line of the transmission line.

The route for the 115-kV tie line to the Pacific Power substation is also located entirely on the JCEP property and as such, there is no requirement for a defined ROW in the traditional utility sense. The transmission structures will generally be located in the center portion of the route and the route does not contain any occupied facilities within 200 feet of the center of the line. A railroad ROW is immediately east of the Pacific Power tie line.

- (ii) *The type of each occupied structure, including but not limited to residences, commercial establishments, industrial facilities, schools, daycare centers and hospitals, within 200 feet on each side of the proposed center line of each proposed transmission line.*
- (iii) *The approximate distance in feet from the proposed center line to each structure identified in (A).*

An existing structure on the Roseburg Forest Products parcel and seven potential JCEP structures have been identified within 200 feet of the transmission line center line. These structures are shown on Figure AA-1; distance from the center line to each structure is provided below. Only the building on the Roseburg property is not a JCEP-related structure.

<u>Structure</u>	<u>Distance from Center Line (feet)</u>
Roseburg Facility Building	180
LNG Plant Control Building	80
LNG Plant Warehouse/Maintenance Building	80
Southwest Oregon Resource Security Center	150
SDPP Guard House	10
SDPP Operations Building	50
SDPP Administration Building	90
SDPP Control Building	90

(iv) At representative locations along each proposed transmission line, a graph of the predicted electric and magnetic fields levels from the proposed center line to 200 feet on each side of the proposed center line.

Graphs of the predicted EMF levels at representative locations are provided on Figures AA-2 through AA-7. As noted, the field-strengths at the edges of the corridor are within the requirements of OAR 345-024-0090, and do not exceed 1 kilovolt per meter (kV/m). As shown in Table AA-1, induced currents resulting from the transmission line will be well below regulatory requirements.

EMF conditions at 200 feet and at 10-foot intervals from the transmission line center line have been calculated for representative transmission line Structures 2, 5, and 9 as shown on the graphs of Figures AA-2 through AA-7. The maximum EMFs within the corridor, approximate edge of corridor, and 200 feet from the transmission center line are summarized in Table AA-1. The ground-level magnetic field intensity across the corridor is determined by the currents and geometry of these facilities.

**Table AA-1. Magnetic and Electric Fields
 (SDPP to LNG Facility Transmission Line)**

Case Designation	200 Feet South of Center Line	South Edge of Corridor	Maximum within Corridor	North Edge of Corridor	200 Feet North of Center line
Electric Field (kV/m)					
Structure 2 Two circuits	0.03	0.03	0.06	0.03	0.03
Structure 2 One circuit	0.03	0.03	0.06	0.03	0.03
Structure 5 Two circuits	0.03	0.03	0.87	0.06	0.03
Structure 5 One Circuit	0.03	0.03	0.87	0.06	0.03
Structure 9 Two circuits	0.03	0.03	0.31	0.09	0.02
Structure 9 One circuit	0.03	0.03	0.31	0.09	0.02
Magnetic Field (milliGauss)					
Structure 2 Two circuits	3.92	20.27	163.22	2.50	2.50
Structure 2 One circuit	7.07	42.17	233.30	8.45	8.45
Structure 5 Two circuits	2.32	2.32	104.46	2.81	0.85
Structure 5 One circuit	6.97	6.97	194.74	17.69	7.31
Structure 9 Two Circuits	3.77	3.77	69.18	46.32	2.54
Structure 9 One circuit	7.15	7.15	109.08	91.60	8.61

Graphs of the predicted electric and magnetic field levels at representative locations along the Pacific Power tie line are provided on Figure AA-8. As noted, the field-strengths at the edges of the corridor are within the requirements of OAR 345-024-0090, and do not exceed 1 kV/m. As shown in Table AA-2, induced currents resulting from the transmission line will be well below regulatory requirements.

EMF conditions at 200 feet and at 10-foot intervals from the Pacific Power transmission line center line have been calculated for representative Structure PC-3 as shown on the graphs of Figures AA-8. The maximum EMFs within the route and 200 feet from the transmission center line are summarized in Table AA-2. The ground-level magnetic field intensity across the corridor is determined by the currents and geometry of these facilities.

**Table AA-2. Magnetic and Electric Fields
 (SDPP to Pacific Power Substation Transmission Line)**

Case Designation	200 Feet West of Center Line	Maximum within Corridor	200 Feet East of Center Line
Electric Field (kV/m)			
Structure PC-3	0.02	1.53	0.02
Magnetic Field (milliGauss)			
Structure PC-3	1.4175	49.381	1.1589

(v) Any measures the applicant proposes to reduce electric or magnetic field levels.

The transmission lines will be designed so that the conductors are attached to the structures in a consistent and intuitive manner so that line workers are less apt to make mistakes in operations. For the double-circuit (DC) structures proposed for the transmission line between the SDPP and the LNG facility, the most common conductor arrangement would place the phase conductor positions as A-phase, B-phase, and C-phase top-to-bottom on the left side of the DC structure; and C-phase, B-phase, and A-phase top-to-bottom on the right side of the DC structure. As discussed in the introductory paragraph for this exhibit, arrangement of the conductors in this manner reduces the magnetic field levels as the conductors tend to cancel out because of the phase difference.

(vi) The assumptions and methods used in the electric and magnetic field analysis, including the current amperes on each proposed transmission line.

To estimate the maximum EMF, calculations are performed at mid-span where the conductor is positioned at its lowest point between structures (the estimated maximum sag point). The magnetic fields are computed at 1 meter (m) (3.28 feet) above the ground using EMF Workstation: ENVIRO (Version 3.52), an industry program from the Electric Power Research Institute (EPRI). This program has been used to predict EMF levels for many years and has been confirmed by field measurements by numerous utilities. Calculations use 1.00 per unit of nominal voltage for the 115-kV circuits. All loads on both circuits are assumed to be maximum

and coincident. Electric fields are voltage-dependent and will remain the same when a transmission line is operated at a given voltage, regardless of load. Magnetic fields vary proportionally with current and are higher when the current is higher and produce higher ground-level magnetic fields.

The dimensions of the proposed power line between the SDPP and the LNG Plant are estimates from preliminary SDPP and LNG designs and site observations. In this EMF analysis, the maximum loading of the 115-kV line is assumed to be 928 amperes (345 megavolt ampere [MVA]) in both circuits when both circuits are in operation and 1,856 amperes (345 MVA) when only one circuit is in operation. The power factor is assumed to be 100 percent for all circuit loads. Table AA-3 indicates the circuit loading assumed for this study.

**Table AA-3. Circuit Loading
(SDPP-to-LNG Plant Transmission Line)**

Case Designation	Amperes	MVA
Case 1 – two circuits in operation	928	345
Case 2 – one circuit in operation	1856	345

The dimensions of the proposed single-circuit Pacific Power substation power line are estimates from preliminary Pacific Power tie line design and site observations. In this EMF analysis, the maximum loading of the 115-kV line is assumed to be 335 amperes (60 MVA). The power factor is assumed to be 98 percent for all circuit loads. Table AA-4 indicates the circuit loading assumed for this study.

**Table AA-4. Circuit Loading
(SDPP-to-Pacific Power Substation Transmission Line)**

Case Designation	Amperes	MVA
Case 1	335	60

(vii) The applicant's proposed monitoring program, if any, for actual electric and magnetic field levels.

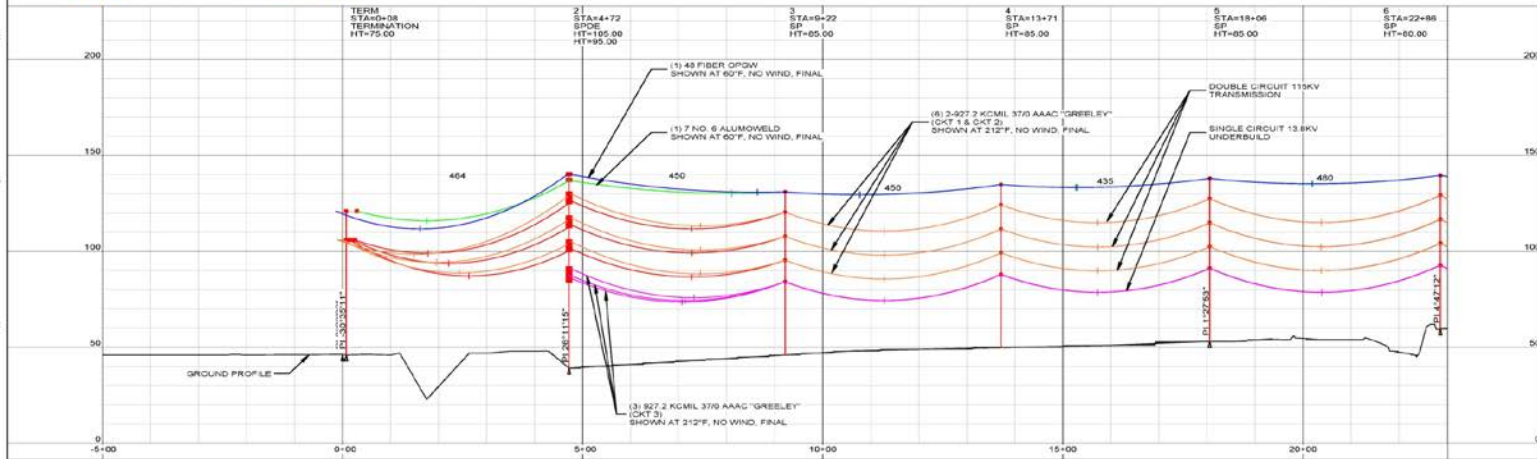
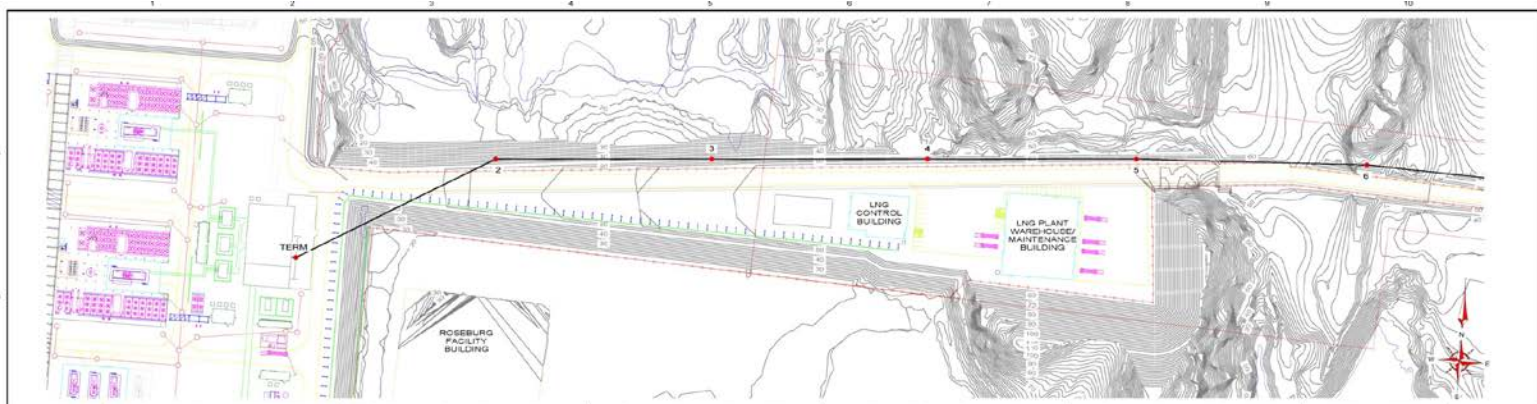
No monitoring programs are proposed to measure the actual EMF levels generated by the proposed transmission line. All predicted levels are well within regulatory guidelines.

3.0 ALTERNATIVE METHODS TO REDUCE RADIO INTERFERENCE

OAR 345-021-0010(1)(aa)(B). *An evaluation of alternate methods and costs of reducing radio interference likely to be caused by the transmission line in the primary reception area near interstate, U.S. and state highways.*

Based on the analysis provided, no alternative methods to reduce radio and television interference are considered necessary or proposed.

Figure AA-1 Transmission Line Route Plan and Profile



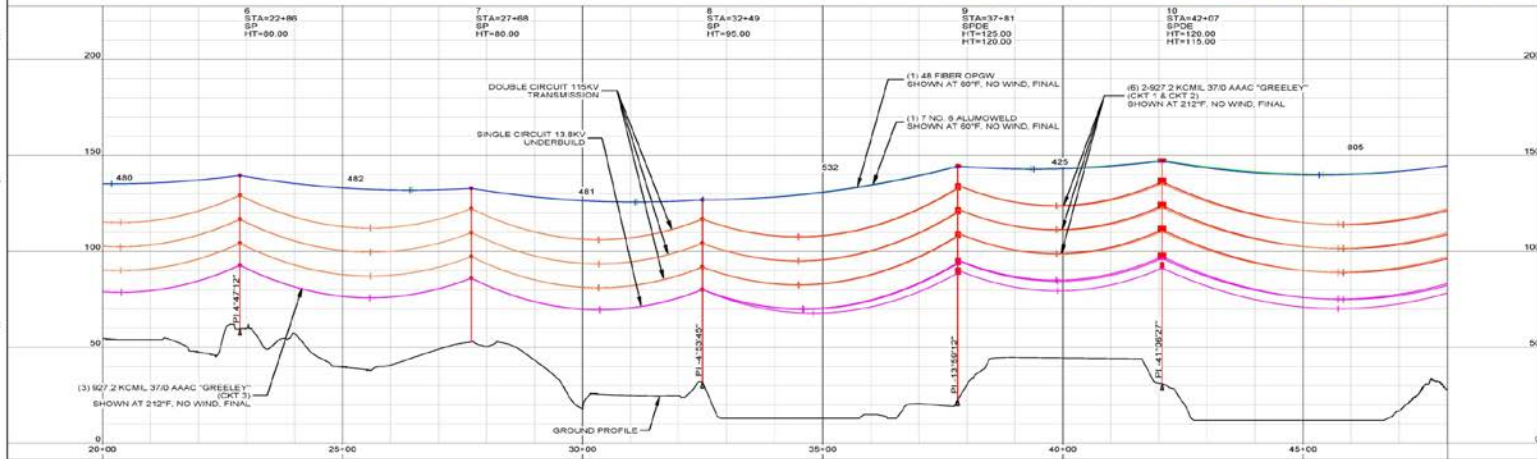
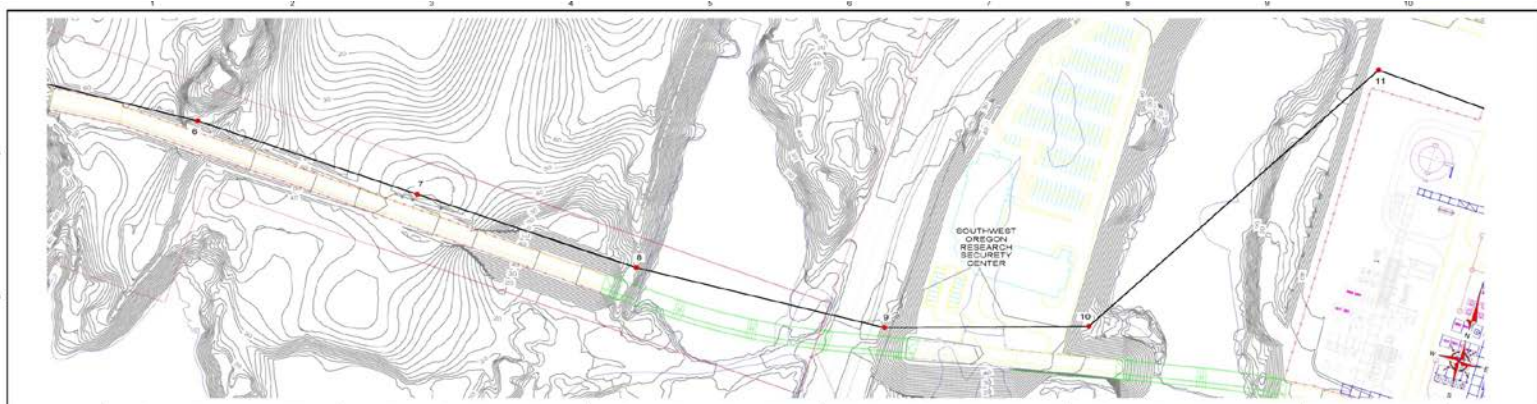
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25.0 FT. VERT. SCALE

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REVISIONS

NO.	DATE	REVISIONS AND RECORD OF ISSUE
A	07/19/13	ISSUED FOR FEED

	JORDAN COVE ENERGY PROJECT, L.P. COOS BAY, OREGON		PROJECT NUMBER 142488-CPPB-S8001
	DRAWN BY CHECKED BY DATE 07/19/13	115KV - DOUBLE CIRCUIT W/ 13.8KV UNDERBUILD PLAN AND PROFILE	SHEET NUMBER 142488-CPPB-S8001



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NO.	DATE	REVISIONS AND RECORD OF ISSUE
A	07/19/13	ISSUED FOR FEED

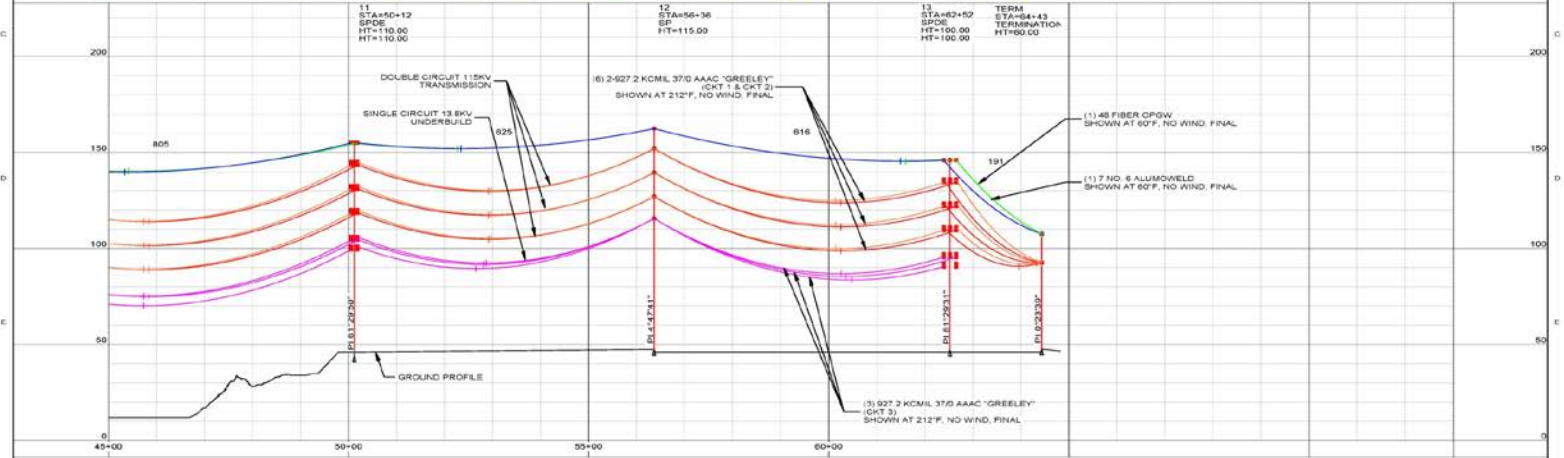
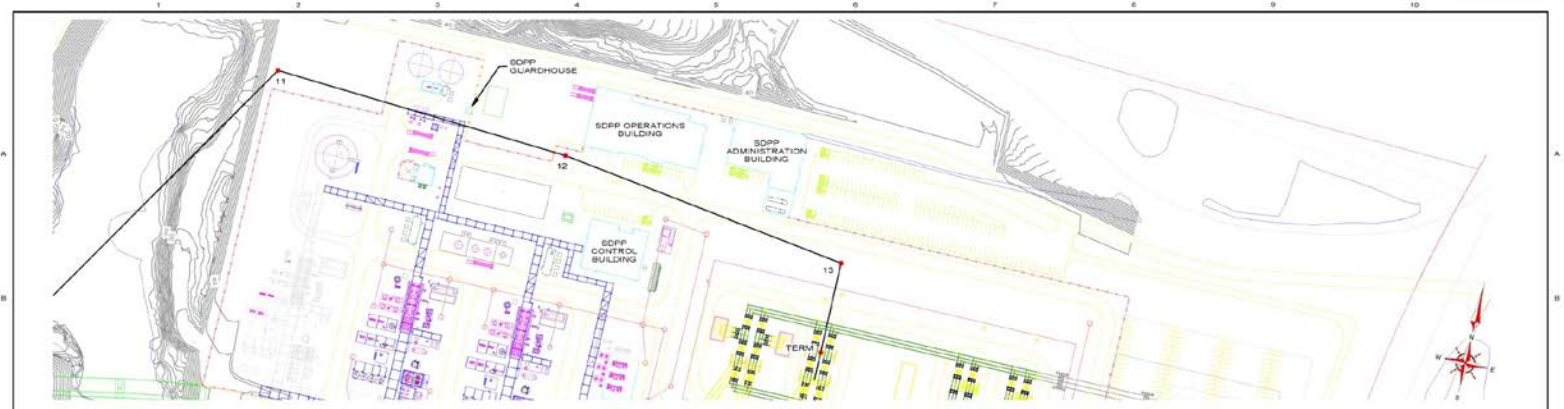
DATE	BY	CHKD	APPD
07/19/13	BY		



JORDAN COVE ENERGY PROJECT, L.P.
COOS BAY, OREGON

PROJECT NUMBER
142488 - CPPB-S8002

115KV - DOUBLE CIRCUIT W/ 13.8KV UNDERBUILD
PLAN AND PROFILE



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REVISIONS NO. DATE REVISIONS AND RECORD OF ISSUE	A 07/19/13 ISSUED FOR FEED	PROJECT JORDAN COVE ENERGY PROJECT, L.P. COOS BAY, OREGON	DRAWING NUMBER 142488 -CPPB-S8003	SHEET A
	PREPARED BY DATE 07/19/13			

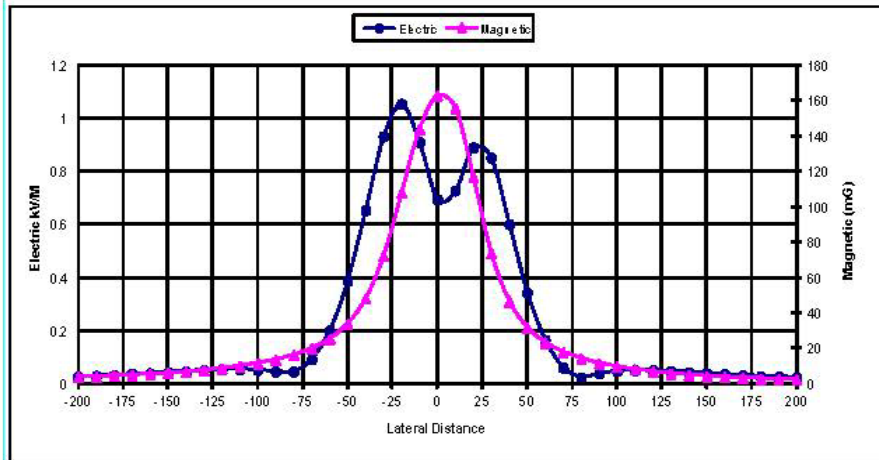


JORDAN COVE ENERGY PROJECT, L.P.
COOS BAY, OREGON

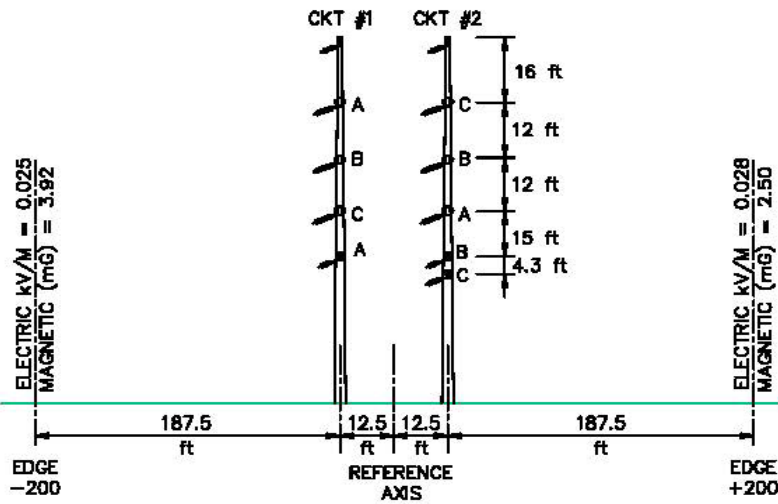
PROJECT
142488 -CPPB-S8003
DRAWING NUMBER
A

EXHIBIT AA
Electric and Magnetic Fields
OAR 345-021-0010(1)(aa)
Figures

Figure AA-2 Structure #2 Double Circuit—Two Circuits in Operation



STRUCTURE #2



LOOKING WEST

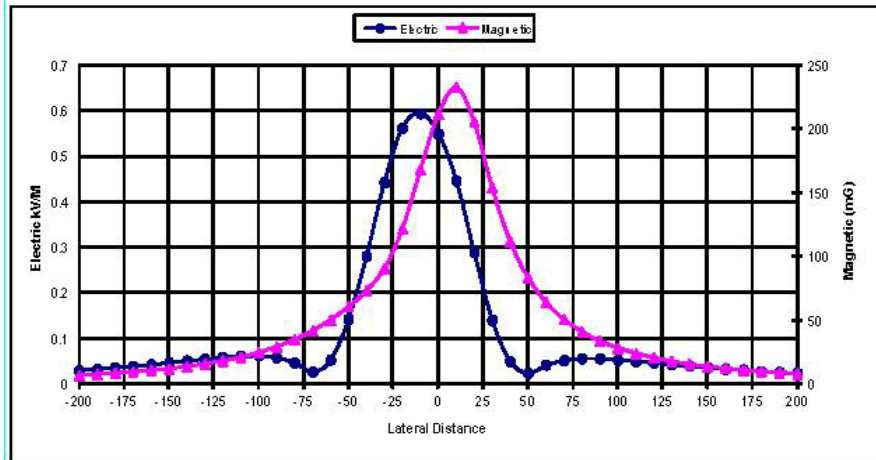
NOTES:

1. MAXIMUM MAGNETIC FIELD BASED ON MINIMUM CONDUCTOR CLEARANCES TO GROUND:
 - * CKT #1 - 21 FEET
 - * CKT #2 - 27 FEET
2. LINE CURRENTS:
 - * CKT #1 - 928 AMPS
 - * CKT #2 - 928 AMPS

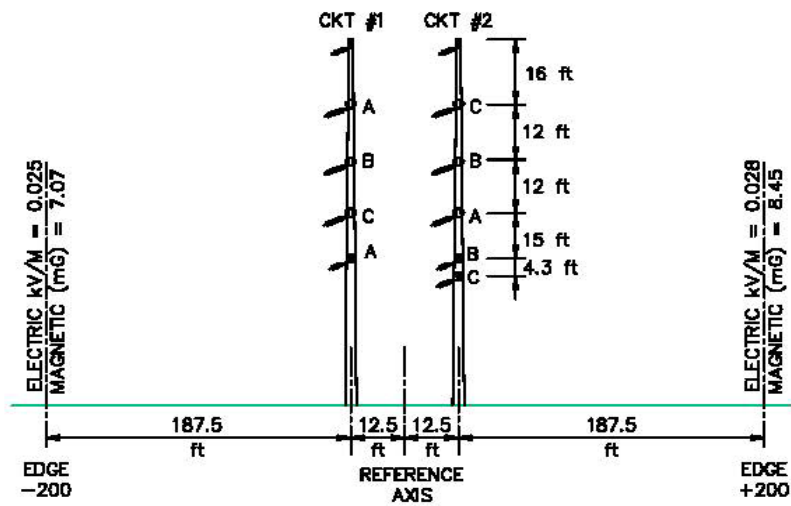
JORDAN COVE ENERGY PROJECT
 115KV -DOUBLE CIRCUIT
 W/ 13.8KV UNDERBUILD
 FIGURE AA-2

EXHIBIT AA
Electric and Magnetic Fields
OAR 345-021-0010(1)(aa)
Figures

Figure AA-3 Structure #2 Double Circuit—One Circuit in Operation



STRUCTURE #2



LOOKING WEST

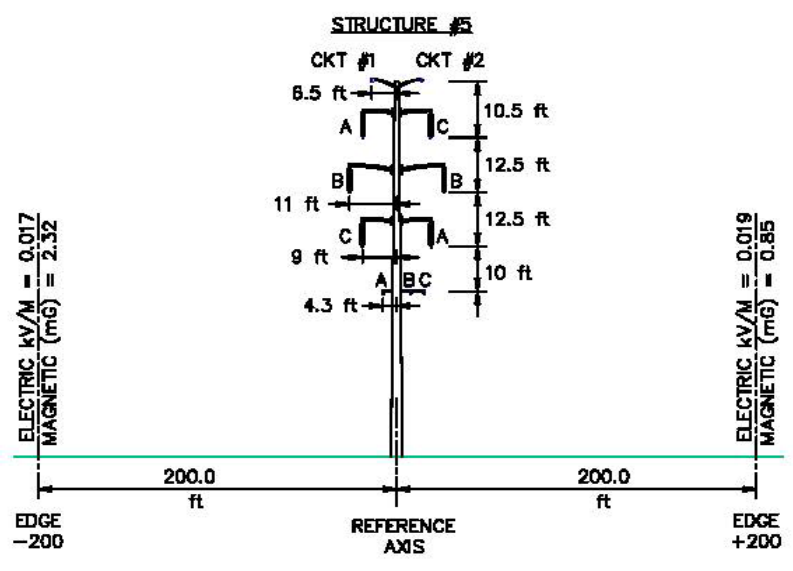
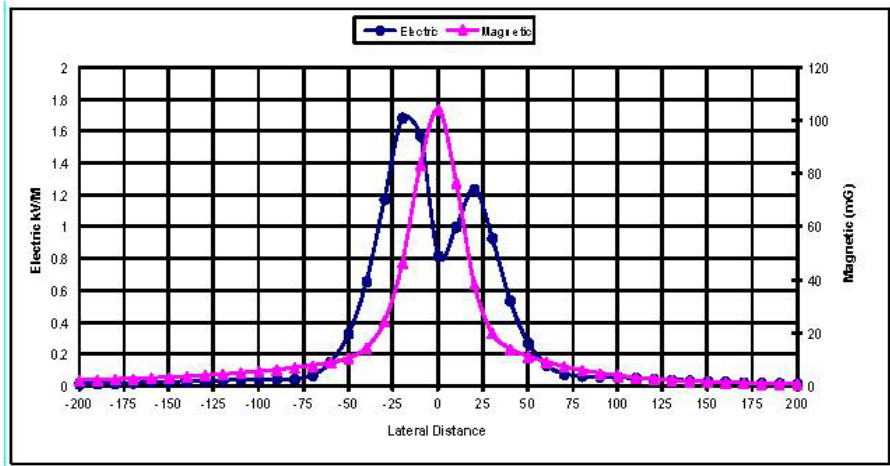
NOTES:

- MAXIMUM MAGNETIC FIELD BASED ON MINIMUM CONDUCTOR CLEARANCES TO GROUND:
 - * CKT #1 - 21 FEET
 - * CKT #2 - 27 FEET
- LINE CURRENTS:
 - * CKT #1 - 1856 AMPS
 - * CKT #2 - 0 AMPS

JORDAN COVE ENERGY PROJECT
 115KV -DOUBLE CIRCUIT
 W/ 13.8KV UNDERBUILD
 FIGURE AA-3

EXHIBIT AA
Electric and Magnetic Fields
OAR 345-021-0010(1)(aa)
Figures

Figure AA-4 Structure #5 Double Circuit—Two Circuits in Operation



LOOKING WEST

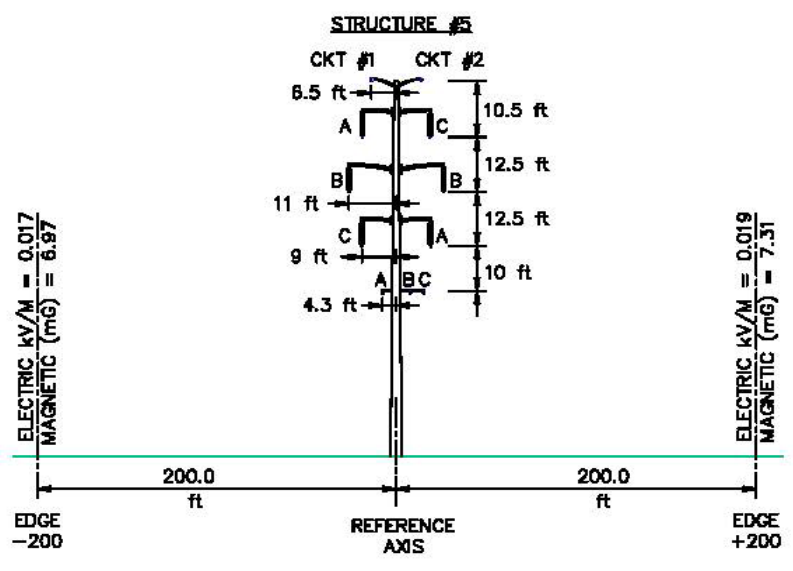
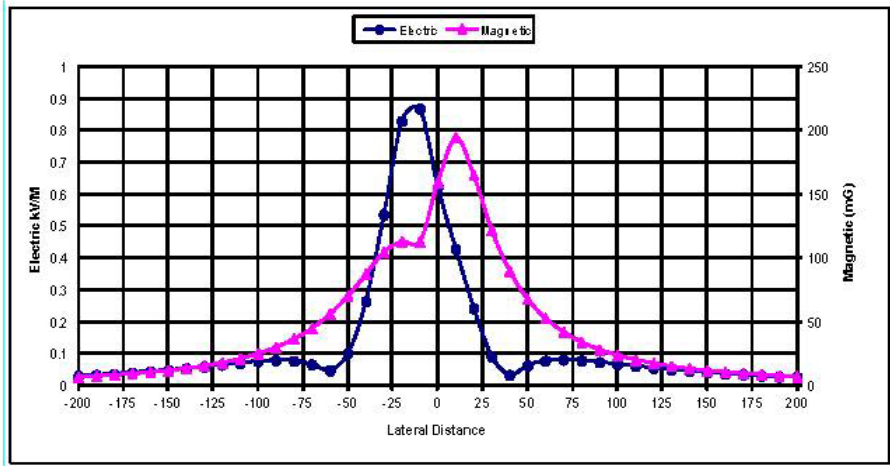
NOTES:

1. MAXIMUM MAGNETIC FIELD BASED ON MINIMUM CONDUCTOR CLEARANCES TO GROUND:
 - * CKT #1 - 21 FEET
 - * CKT #2 - 27 FEET
2. LINE CURRENTS:
 - * CKT #1 - 928 AMPS
 - * CKT #2 - 928 AMPS

JORDAN COVE ENERGY PROJECT
 115KV -DOUBLE CIRCUIT
 W/ 13.8KV UNDERBUILD
 FIGURE AA-4

EXHIBIT AA
Electric and Magnetic Fields
OAR 345-021-0010(1)(aa)
Figures

Figure AA-5 Structure #5 Double Circuit—One Circuit in Operation



LOOKING WEST

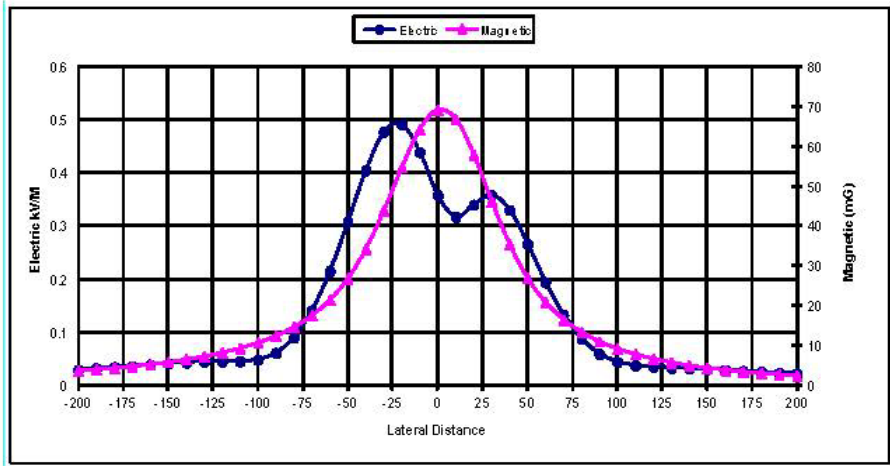
NOTES:

1. MAXIMUM MAGNETIC FIELD BASED ON MINIMUM CONDUCTOR CLEARANCES TO GROUND:
 - * CKT #1 - 21 FEET
 - * CKT #2 - 27 FEET
2. LINE CURRENTS:
 - * CKT #1 - 1856 AMPS
 - * CKT #2 - 0 AMPS

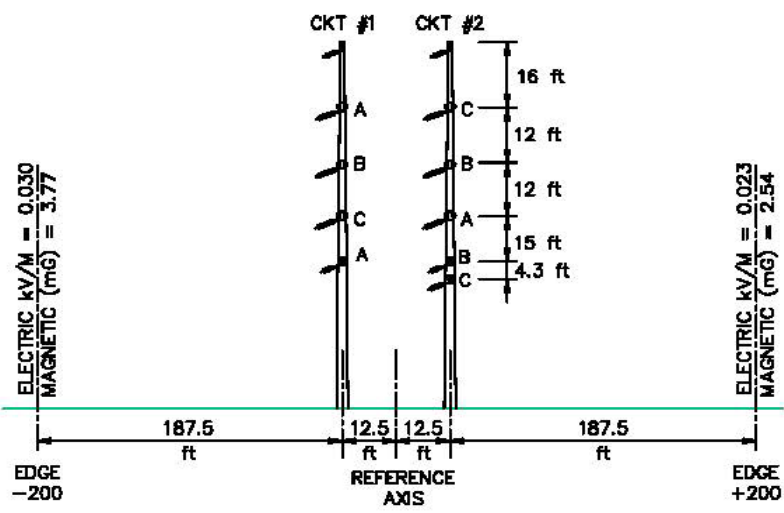
JORDAN COVE ENERGY PROJECT
115KV -DOUBLE CIRCUIT
W/ 13.8KV UNDERBUILD
FIGURE AA-5

EXHIBIT AA
Electric and Magnetic Fields
OAR 345-021-0010(1)(aa)
Figures

Figure AA-6 Structure #9 Double Circuit—Two Circuits in Operation



STRUCTURE #9



ELECTRIC kV/M = 0.030
MAGNETIC (mG) = 3.77

ELECTRIC kV/M = 0.023
MAGNETIC (mG) = 2.54

LOOKING WEST

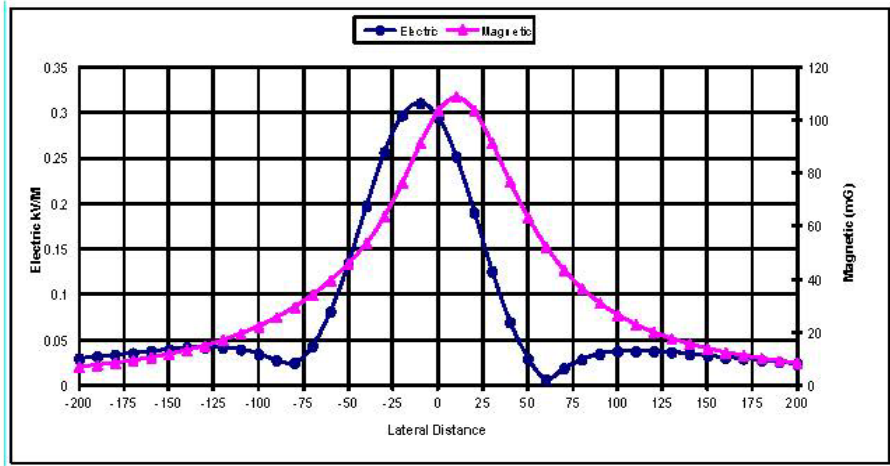
NOTES:

1. MAXIMUM MAGNETIC FIELD BASED ON MINIMUM CONDUCTOR CLEARANCES TO GROUND:
 - * CKT #1 - 37 FEET
 - * CKT #2 - 43 FEET
2. LINE CURRENTS:
 - * CKT #1 - 928 AMPS
 - * CKT #2 - 928 AMPS

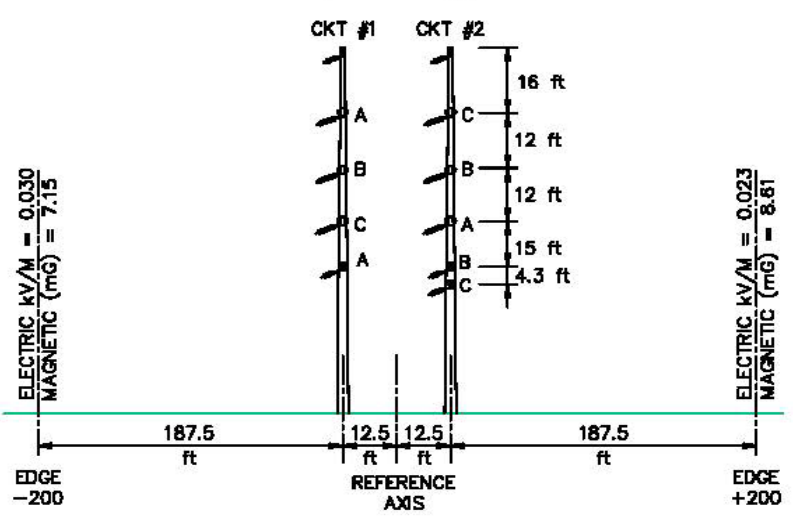
JORDAN COVE ENERGY PROJECT
115KV -DOUBLE CIRCUIT
W/ 13.8KV UNDERBUILD
FIGURE AA-6

EXHIBIT AA
Electric and Magnetic Fields
OAR 345-021-0010(1)(aa)
Figures

Figure AA-7 Structure #9 Double Circuit—One Circuit in Operation



STRUCTURE #9



LOOKING WEST

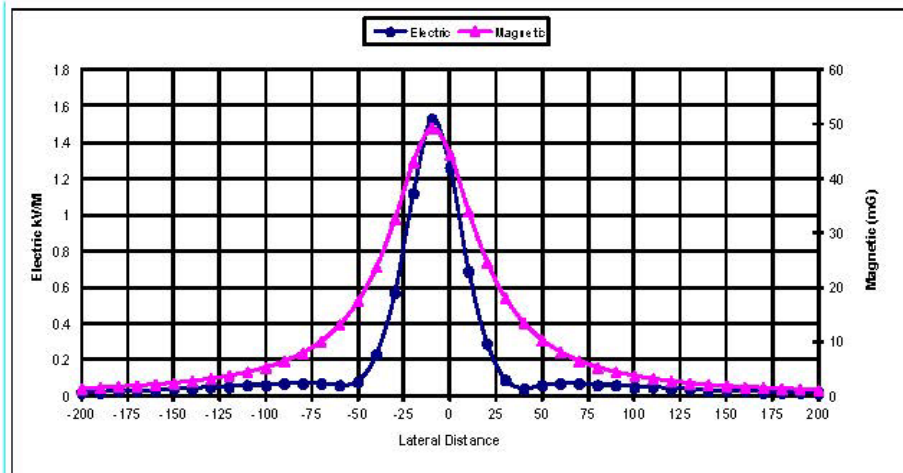
NOTES:

1. MAXIMUM MAGNETIC FIELD BASED ON MINIMUM CONDUCTOR CLEARANCES TO GROUND:
 - * CKT #1 - 37 FEET
 - * CKT #2 - 43 FEET
2. LINE CURRENTS:
 - * CKT #1 - 1856 AMPS
 - * CKT #2 - 0 AMPS

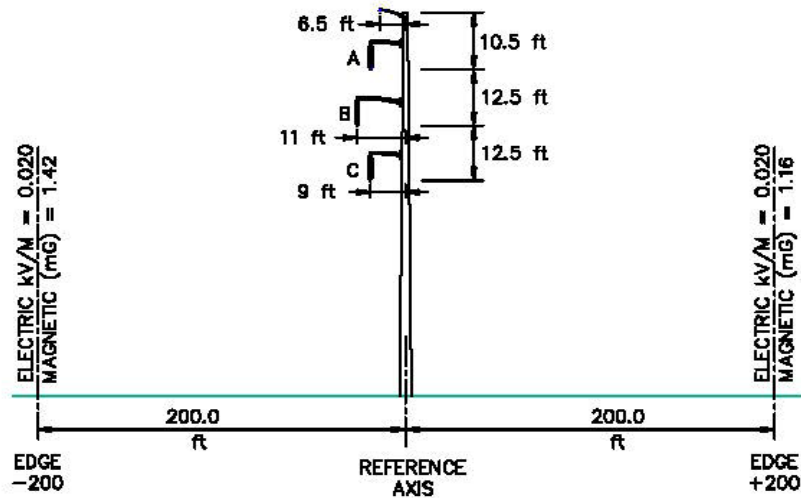
JORDAN COVE ENERGY PROJECT
 115KV -DOUBLE CIRCUIT
 W/ 13.8KV UNDERBUILD
 FIGURE AA-7

EXHIBIT AA
Electric and Magnetic Fields
OAR 345-021-0010(1)(aa)
Figures

Figure AA-8 Pacific Power Tie Line



STRUCTURE PG3



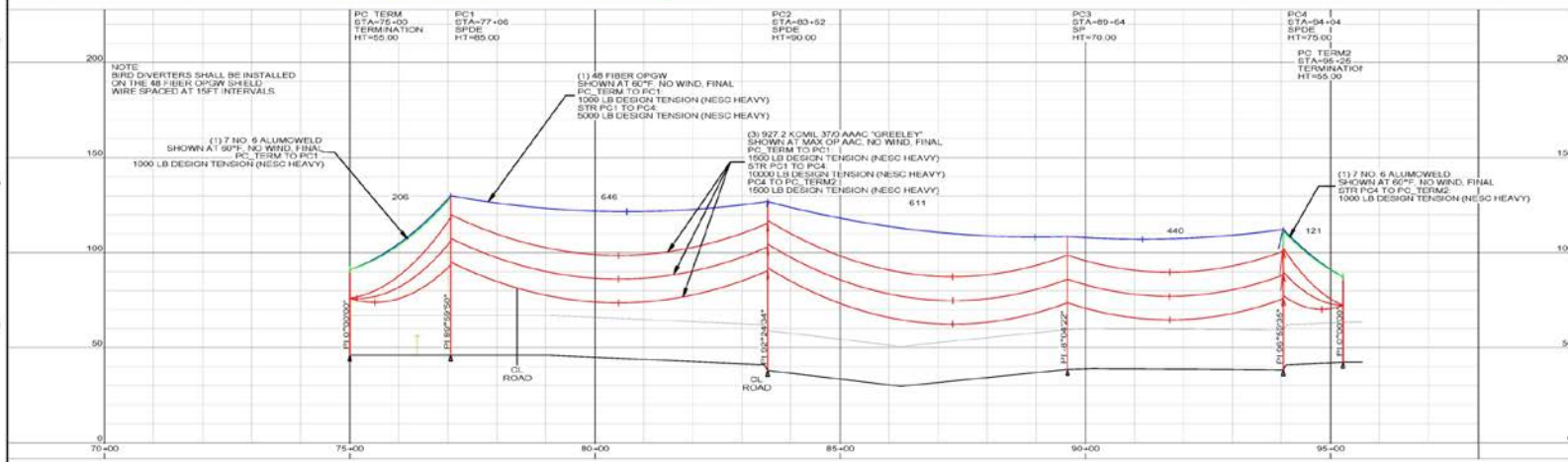
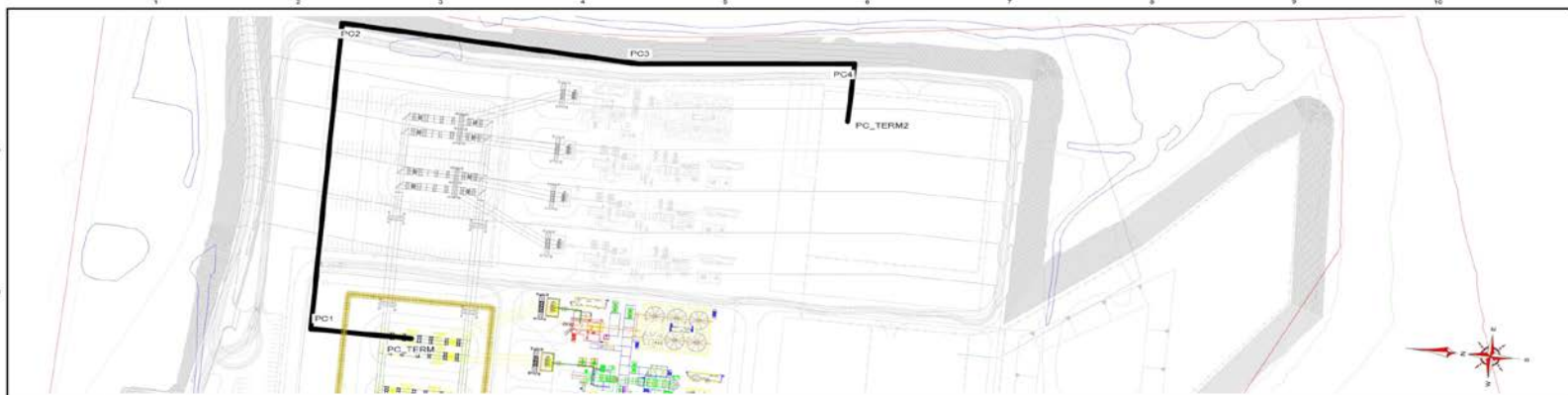
LOOKING NORTH

NOTES:

1. MAXIMUM MAGNETIC FIELD BASED ON MINIMUM CONDUCTOR CLEARANCES TO GROUND:
 * PROPOSED - 25 FEET
2. LINE CURRENTS:
 * PROPOSED - 335 AMPS

JORDAN COVE ENERGY PROJECT
 115KV - SINGLE CIRCUIT
 PACIFICORP TIE
 FIGURE AA-8

Figure AA-9 Pacific Power Tie Line Route Plan and Profile



NOTE: BIRD DIVERTERS SHALL BE INSTALLED ON THE 48 FIBER OPSW (SHELL) WIRE SPACED AT 15FT INTERVALS.

(1) 7 NO. 6 ALUMINUM WELD SHOWN AT 80% NO WIND, FINAL PC TERM TO PC1 1000 LB DESIGN TENSION (NESC HEAVY)

(1) 48 FIBER OPSW SHOWN AT 60% NO WIND, FINAL PC TERM TO PC1 1000 LB DESIGN TENSION (NESC HEAVY) STR PC1 TO PC4 5000 LB DESIGN TENSION (NESC HEAVY)

(3) 927 2 KVMIL 370/AMAC "GRIELEY" SHOWN AT MAX OP AAC, NO WIND, FINAL PC TERM TO PC1 1600 LB DESIGN TENSION (NESC HEAVY) STR PC1 TO PC4 10000 LB DESIGN TENSION (NESC HEAVY) PC4 TO PC TERM2 1600 LB DESIGN TENSION (NESC HEAVY)

(1) 7 NO. 6 ALUMINUM WELD SHOWN AT 80% NO WIND, FINAL STR PC4 TO PC TERM2 1000 LB DESIGN TENSION (NESC HEAVY)

100.0 FT HORIZ. SCALE
25.0 FT VERT. SCALE

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ANNOTATED BY: DATE:	PROJECT: JORDAN COVE ENERGY PROJECT, L.P. COOS BAY, OREGON		DRAWING NUMBER: FIGURE AA-9	SHEET: A
	PROJECT: 115KV - SINGLE CIRCUIT PACIFICORP-TIE PLAN AND PROFILE			
A 10/15/13 ISSUED FOR FEED	DATE:	REVISIONS AND RECORD OF ISSUE:	BLACK & VEATCH CORPORATION	PROJECT: JORDAN COVE ENERGY PROJECT, L.P. COOS BAY, OREGON
10/15/13	10/15/13	10/15/13	PROJECT: 115KV - SINGLE CIRCUIT PACIFICORP-TIE PLAN AND PROFILE	USER: AREA:

**EXHIBIT BB
OTHER INFORMATION
OAR 345-021-0010(1)(BB)**

The Department requested no additional information.

**EXHIBIT CC
OTHER LAW
OAR 345-021-0010(1)(CC)**

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1.0 INTRODUCTION

OAR 345-021-0010(1)(cc). *Identification, by legal citation, of all state statutes and administrative rules and local government ordinances containing standards or criteria that the proposed facility must meet for the Council to issue a site certificate, other than statutes, rules and ordinances identified in Exhibit E, and identification of the agencies administering those statutes, administrative rules and ordinances. The applicant shall identify all statutes, administrative rules and ordinances that the applicant knows to be applicable to the proposed facility, whether or not identified in the project order. To the extent not addressed by other materials in the application, the applicant shall include a discussion of how the proposed facility meets the requirements of the applicable statutes, administrative rules and ordinances.*

Table CC-1 identifies by legal citation and relevant administering agency the state statutes and administrative rules and local government ordinances referenced in other Exhibits, with the exception of those presented in **Exhibit E**. The identified statutes, rules, and local government ordinances contain standards or criteria that the proposed SDPP must meet for the Council to issue a site certificate.

Table CC-1. List of Programs and Referenced Exhibits

Administering Agency & Agency Address	Program Description – Legal Citation	Associated Exhibit & Compliance Issue
Oregon Department of Geology and Mineral Industries 800 NE Oregon Street #28, Suite 965, Portland, OR 97232 (971) 673-1555	ORS 455.446 & 455.447; OAR Chapter 632, Division 5	Exhibit K Development in Oregon’s Tsunami Inundation Zone.
Coos County Planning Department Coos County Courthouse Annex Coquille, OR 97423 (541) 396-3121 Ext. 21	Coos County Zoning and Land Development Ordinance (CCZLDO)	Exhibit K County zoning rules.
Department of Land Conservation and Development 635 Capitol Street NE, Suite 150, Salem, OR 97301 (503) 373-0050	OAR 660-015-0010	Exhibit K Oregon Coastal Management Program.

Administering Agency & Agency Address	Program Description – Legal Citation	Associated Exhibit & Compliance Issue
Oregon Department of Environmental Quality – Noise 811 SW Sixth Avenue Portland, OR 97204 (503) 229-5696	ORS 467.020 & 467.030; OAR 340-035-0035	Exhibit X Noise impacts and thresholds.
Oregon Department of Fish and Wildlife 4034 Fairview Industrial Drive SE Salem, OR 97302 (503) 947-6000	ORS Chapter 496; OAR Chapter 635, Divisions 100 & 415	Exhibit P Habitat conservation and mitigation requirements.
Oregon Department of Agriculture 635 Capitol Street, NE Salem, OR 97301 (503) 986- 4550	ORS Chapter 564; OAR Chapter 603, Division 73	Exhibit Q Threatened or endangered plant species.
Oregon Health Authority 500 Summer Street, NE, E-20 Salem, OR 97301 (505) 947-2340	ORS Chapter 448; OAR Chapter 333, Division 61	Exhibit O Water use.
Oregon Heritage (a division of) Oregon Parks and Recreation Department 725 Summer Street NE, Suite C Salem, OR 97301 (503) 986-0690	ORS 97.740 - 97.760; ORS Chapter 358, OAR Chapter 736, Division 51	Exhibit S Historic and cultural resources.
Oregon Department of Environmental Quality - Water Quality 811 SW Sixth Avenue Portland, OR 97204 (503) 229-5696	ORS Chapter 468; OAR Chapter 340, Division 41	Exhibit O Water quality standards.

Administering Agency & Agency Address	Program Description – Legal Citation	Associated Exhibit & Compliance Issue
Oregon Department of Environmental Quality - Hazardous Waste Management 811 SW Sixth Avenue Portland, OR 97204 (503) 229-5696	ORS Chapters 465 & 466; OAR Chapter 340, Division 100	Exhibit G Hazardous waste management.
Oregon Department of Environmental Quality - Solid Waste 811 SW Sixth Avenue Portland, OR 97204 (503) 229-5696	ORS Chapter 459; OAR Chapter 340, Division 93	Exhibit V Solid waste management.
Oregon Office of State Fire Marshal - Emergency Planning and Community Right-to-Know Act (EPCRA) 4760 Portland Road NE Salem, OR 97305-1760 (503) 378-3473	ORS Chapter 453 - Hazardous Substances; Radiation Sources and OAR Chapter 837, Division 85	Exhibit G Hazardous waste management.

1.1 SPILL RESPONSE STATUTES

State and federal provisions include requirements for responding to or reporting spills or releases of various hazardous materials under a variety of circumstances or conditions. These statutes and rules include the following: ORS 466.635; OAR Chapter 340 Divisions 45, 47, 108, 122, 150, and 160; 33 CFR Part 153; and 40 CFR Parts 110, 122, 262, 265, 280, 302, 355, and 761. In the event of a release, the Applicant will inform the Oregon Emergency Management Division, the Oregon Department of Environmental Quality, and/or the Oregon Department of State Police, depending on the nature of the release.

**EXHIBIT DD
SPECIFIC STANDARDS
OAR 345-021-0010(1)(DD)**

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1.0 INTRODUCTION

OAR 345-021-0010(1)(dd)(A)(B)(C). *If the proposed facility is a facility for which the Council has adopted specific standards, information about the facility providing evidence to support findings by the Council as required.*

2.0 SPECIFIC STANDARDS

Paragraph C of OAR 345-024-0090 applies.

2.1 SITING STANDARDS FOR TRANSMISSION LINES

To issue a site certificate for a facility that includes any transmission line under Council jurisdiction, the Council must find that the applicant:

- (1) Can design, construct and operate the proposed transmission line so that alternating current electric fields do not exceed 9 kV per meter at one meter above the ground surface in areas accessible to the public;*
- (2) Can design, construct and operate the proposed transmission line so that induced currents resulting from the transmission line and related or supporting facilities will be as low as reasonably achievable.*

Please refer to the body of Exhibit AA for the analysis and evidence regarding the design, construction and operation of the related transmission line facility. The results of the electromagnetic modeling are noted in Table AA-1 of Exhibit AA, the field-strengths at the edges of the corridor do not exceed 1 kilovolt per meter (kV/m), which is far less than the 9kV limit.

The 115-kV transmission line will be designed, constructed, and operated in a safe manner within industry standards and practices to protect the public and on-site personnel as described in Exhibit AA. The lowest possible Electromagnetic Fields (EMF) will be at the edges of the corridor and the lowest induced currents will be achieved by proper phase positioning of conductors. This will be verified by EMF calculations.