

Appendix E

Byron Solar Responses to Data Requests

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Energy Environmental Review and Analysis

Questions for Development of Environmental Review

In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties

PUC Docket No. IP-7041/GS-20-763, CN- Directed To: Scott Wentzell
20-764, TL-20-765

EERA Question No. 1 Please Respond By: June 15, 2022

Note: Energy Environmental Review and Analysis staff intends to use information provided in this response to develop an environmental review document and is a public document. Responses to these questions will be considered to be public information unless otherwise designated by the respondent as “nonpublic information” pursuant to Minnesota Stat. § 13.02, subd. 12.

Question(s):

Project Size

Please provide the results of a glare analysis using the Solar Glare Hazard Analysis Tool developed by Sandia Laboratories <https://share-ng.sandia.gov/glare-tools/> and licensed to Forge Solar.

Department of Commerce Note:

Byron Solar provided a Glare Study as requested. Due to the size of the study, the summary is included as [Appendix F](#) of this document.

Suzanne Steinhauer

May 25, 2022

Environmental Review Manager

Date

MN Department of Commerce

Byron Solar, LLC

Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review

In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the
Byron Solar Project in Dodge and Olmsted Counties

PUC Docket No. IP-7041/GS-20-763,
CN-20-764, TL-20-765 Directed To: Scott Wentzell

EERA Question No. 2 Date of Response June 15, 2022

☒ Public

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Question(s):

Project Schedule

Site changes necessitated by red route

Describe and illustrate anticipated changes to the proposed solar generating facility site layout shown in the Byron Solar’s August 30, 2021, Joint Permit Application that would result if the red route (alternative route) is selected to connect the solar generating facility to the Byron Substation.

Response:

If the red, alternative route is selected, it will necessitate several changes to Byron Solar’s proposed site layout as shown in Maps 3 and 4 of the Joint Permit Application. First, the alternative substation location is currently designed to have a solar panels and trackers through that parcel. To create space for the alternative substation, one block of trackers, representing approximately 4 MWs DC of panels will need to be relocated. Byron Solar would likely move those trackers to the northwest of the alternate substation. These changes are reflected in the map included as Attachment 2.

Second, the collection system would need to be reengineered to bring power from the inverters south to the alternate substation location. The average distance between solar PV blocks, and thus inverters, and the alternate substation location is greater than the distance from inverters to the Applicant’s proposed substation location. Relocating from the proposed to the alternate substation location would result in additional collection line length, previously estimated at approximately 3.5 miles of additional length.

To estimate the additional collection line length and line losses, EDF Renewables utilized two separate modeling software programs. The first, PVsyst, is an industry standard software program used to produce energy production estimates based on set inputs such as location, spacing, and equipment type. The second is EDF’s internal and proprietary Autolayout tool, which arranges solar panels and inverters into a simple site layout given set parameters and land constraints. The software program also estimates the

quantity of key equipment required to construct the project, including the number of modules and length of cabling. The Autolayout software program estimates AC collection line length based on the number of AC circuits and the distance of the solar PV blocks to the collector substation.

EDF Renewable's solar engineering team re-ran PVsyst and the Autolayout tool with the alternate substation location, the relocated 4MW DC block, and calculated the estimated collection line length and line losses. All other inputs and assumptions were held constant from the original modeling work, which informed our August 30, 2021 Joint Permit Application. The Autolayout program calculated the alternate substation location would require 18,707 additional feet of AC collection to connect the project inverters to the alternate substation. PVsyst calculated that the additional length of collection would increase AC line loss by 0.07%.

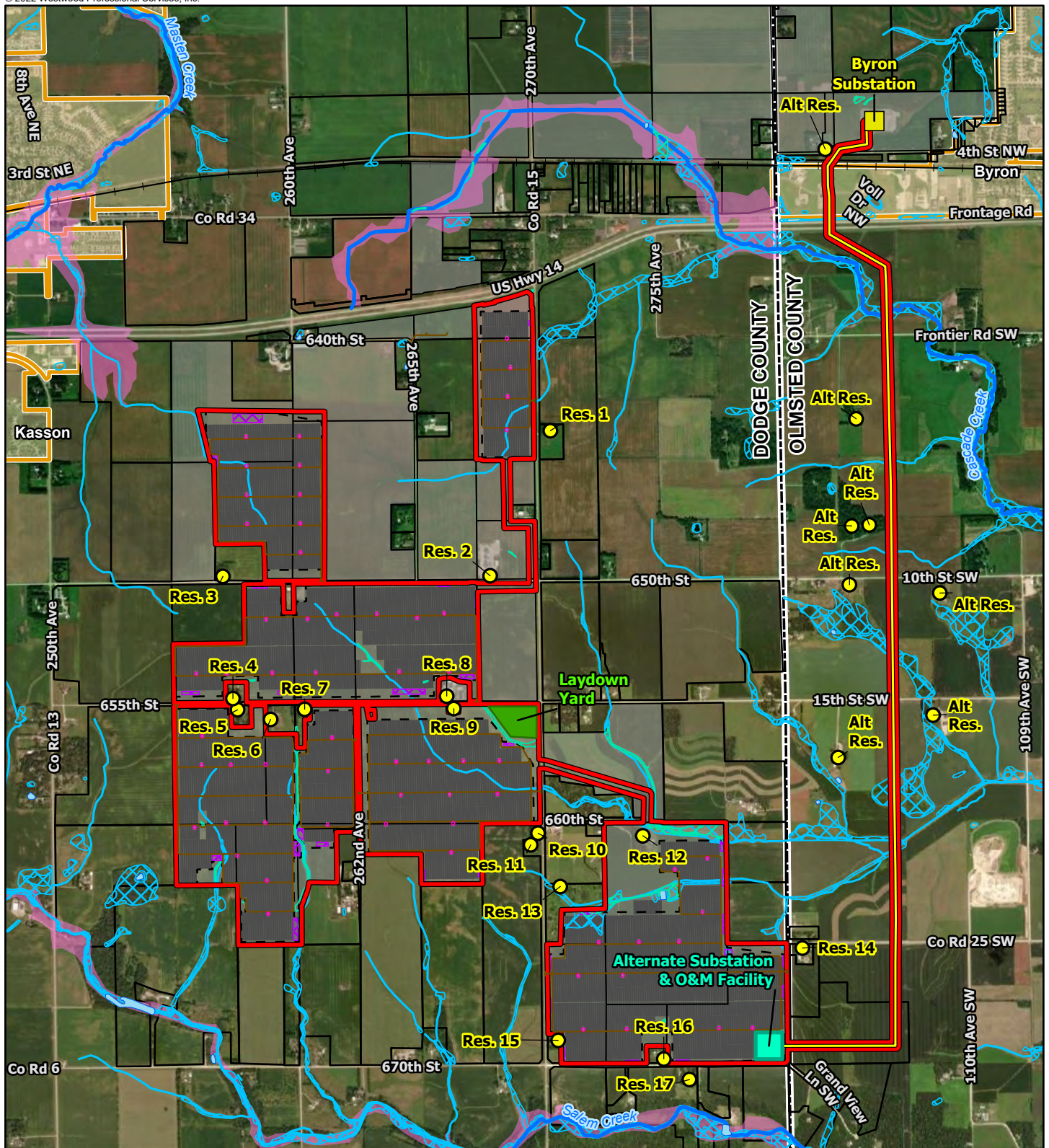
While EDF's proprietary Autolayout program creates simple solar layouts and estimates key equipment quantities needed for construction, it does not produce detailed visual layouts of the collection system. For its Joint Permit Application, Byron Solar engaged a third party consultant to design a visual layout of the collection system. Time did not allow for similar third party design to accompany this response.

Finally, Byron Solar would expect that some modifications to stormwater infrastructure and access roads would be required. Those changes were not incorporated into the map included as Attachment 2, nor have they been reviewed by Byron Solar's engineering consultants at this time.

Name of Responder: Scott Wentzell
Title: Project Development Manager

Date June 15, 2022

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Data Source(s): Westwood (2022); US Census Bureau (2019); Dodge County GIS (2020); Olmsted County GIS (2020); Ventyx (2021); Esri World Imagery Basemap (Accessed 2022).



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Westwood Professional Services, Inc.

Legend

- Project Area Boundary
- Alternate Transmission Line Route
- Adjacent Residence
- Existing Substation
- Alternate Substation & O&M Facility
- Laydown Yard
- ||||| Solar Array
- Proposed Fence
- Power Pole
- Proposed Access Road
- Stormwater Pond
- NHD Waterbody
- NHD Flowline
- FEMA Flood Zone
- NWI Wetland
- Participating Parcel
- Non-Participating Parcel
- Railroad
- Municipal Boundary
- County Boundary

Byron Solar Project

Dodge and Olmsted Counties, Minnesota

Alternative Transmission Route Layout

Byron Solar, LLC

Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review

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PUC Docket No. IP-7041/GS-20-763,
CN-20-764, TL-20-765 Directed To: Scott Wentzell

EERA Question No. 3 Date of Response June 15, 2022

☒ Public ☐ Nonpublic

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Question(s):

Project schedule

Discuss any anticipated changes from the schedule shown in Table 1 of Byron Solar’s August 30, 2021, Joint Permit Application.

Response:

The delays in the permit schedule, with an anticipated final permit decision in March of 2023, creates uncertainty regarding Byron Solar’s ability to maintain the originally proposed project schedule. As stated in the Joint Permit Application, Byron Solar planned to commence construction in late 2023, with operations commencing prior to the end of 2024. However, final design, engineering, and equipment procurement cannot commence until the final permit decision has been issued. If the project is unable to start construction in the fall of 2023, it likely would not do so until fall of 2024. The threat of Anti-Dumping Tariffs/Countervailing Duties or other regulatory actions introduce additional uncertainty.

The schedule shown in Table 1 of Byron Solar’s August 30, 2021, Joint Permit Application has been amended below to show Byron Solar’s anticipated schedule.

Table 1: Project Schedule

Activity	Description	Timeline
Interconnection Request	Approval from the Midcontinent Independent System Operator (MISO) to connect the project to the grid.	Request made in Q2 2018. The Applicant expects to sign Generator Interconnection Agreements (GIA) with MISO between Q4 2021 and Q2 2022.

Table 1: Project Schedule

Activity	Description	Timeline
Land Acquisition	Acquire leases, easements, and purchase agreements necessary for development of the Project.	Began Solar Facility land campaign in Q3 2018 and HVTL land campaign in Q2 2020. The Project currently has executed agreements for the land needed to construct both the Solar Facility and HVTL along the Blue Route. No agreements have been executed along the Red Route.
Field Surveys	Field surveys conducted within the Solar Facility and HVTL route for wetlands, native prairies, and cultural resources.	Field surveys initiated in Q4 2020 and completed in Q2 2021.
Site Permit, Route Permit, and Certificate of Need (CN)	CN, Site Permit and Route Permit issuance for the Project.	Anticipated Q2/Q3 2022 . Q1/Q2 2023
Other Permits	Acquisition of all federal, state, local, and tribal government permits and approvals necessary for construction and operation of the Project.	The Applicant is working with applicable regulatory authorities to obtain the necessary permits/approvals by the end of the Q3 2022 . Q3 2023
Equipment and Contractor Acquisition	Procurement of project equipment including, but not limited to, panels, trackers, inverters, transformers, and steel monopoles. Final contractor selections will be made contingent on the Joint Site and Route Permit Application being approved by the Commission.	Between Q3/Q4 2022. Approximately Q2/Q3 2023
Construction	The Applicant will oversee the primary contractors performing construction of the Project. These construction activities will include access road building, solar array assembly, electrical, transmission, and communications installation work. The Applicant anticipates beginning construction of the Project soon after being granted a CN, Site Permit, and Route Permit by the MPUC and fulfilling necessary	Begin Q1 2023 and end Q4 2024. Begin as early as Q4 2023 but more likely that construction begins Q3/Q4 2024. Construction will last for approximately 12 months.

Table 1: Project Schedule

Activity	Description	Timeline
	pre-construction compliance requirements.	
Testing and Commissioning	Testing and commissioning of project related equipment.	End of construction and prior to the start of commercial operation – Q3/Q4 2024 or Q3/Q4 2025
Operation	Commercial operation of the solar facility and transmission line following construction and testing/commissioning activities are completed.	Q4 2024 or Q4 2025
Project Extension or Decommissioning		2060 or later.

Name of Responder:

Scott Wentzell
Project Development Manager

Date: June 15, 2022

Byron Solar, LLC

Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review

In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the
Byron Solar Project in Dodge and Olmsted Counties

PUC Docket No.	IP-7041/GS-20-763, CN-20-764, TL-20-765	Directed To:	Scott Wentzell
EERA Question No.	4	Date of Response	June 15, 2022
☒ Public		☐ Nonpublic	

Note: Energy Environmental Review and Analysis staff intends to use information provided in this response to develop an environmental review document and is a public document. Responses to these questions will be considered to be public information unless otherwise designated by the respondent as “nonpublic information” pursuant to Minnesota Stat. § 13.02, subd. 12.

Question(s):

Greenhouse Gas and Climate Resilience

Consistent with the [guidance provided by the Minnesota Environmental Quality Board](#), EERA requests information from Byron Solar on greenhouse gas (GHG) emissions and climate resilience. Please provide:

- a. An estimate of GHG emissions due to construction. Please fill in the attached spreadsheet with information about the type of equipment used, how long it would be used, and how much fuel it used when operating (see attached).
- b. Please expand on the discussion of the potential impacts of a warmer, wetter, more energetic climate on the project in Section 6.8 of the *Joint Permit Application*. Could solar panels blow off? Could large rains inundate inverters and cause them to fail? What does Byron Solar consider in its equipment selection and engineering to avoid or minimize impacts to the project from more frequent severe weather events?

Response:

- a. See Attachment 4a.
- b.
 - The system as designed is rated for sustained wind speeds up to 110 miles per hour (with ability to withstand higher gusts) and snow loading up to 50 pounds per square foot.
 - According to MN DNR, the highest recorded 5-second wind speed in Rochester, MN was 64 MPH recorded in May of 1988.¹ Byron Solar is rated for winds nearly twice this speed. While Climate Change will likely increase the frequency and severity of extreme weather events, Byron Solar is designed with this uncertainty in mind.

¹

https://files.dnr.state.mn.us/natural_resources/climate/summaries_and_publications/2005_Annual_LCD_RST_page_3.pdf

- The site will be designed according to local hydrology and topography. The existing drain tile system will be augmented as necessary to provide sufficient drainage, and grading may be used to improve drainage where necessary. The inverters will be installed either on a concrete slab or elevated piers and will be off the ground.
- Hydrology studies show maximum water depth and flow rate based off of 100-year flood events, and care is taken to site inverters in locations that are not at risk of any flooding even in these extreme events.
- Hail – Although the final panel manufacture has not yet been selected, reputable panel manufacturers generally rate panels to withstand the National Weather Service definition of ‘severe’ hail, which corresponds with hailstones up to one inch in diameter and 50 mph winds. Some manufacturers offer panels with even higher hail ratings. Panels can also be stowed in a nearly vertical position during hail events by re-orienting the trackers, which limits direct impacts between hailstones and the panels.
- Tempered, laminated glass prevents even cracked glass from escaping the enclosure and damaged panels can be replaced.
- During the project siting process, EDF screens locations through a risk assessment tool provided by a reinsurance company. This is used to identify favorable locations as well as the probability of certain extreme events such as hailstorms, flash flooding, wildfires or tornadoes occurring. These results inform the design and engineering of the plant, as well as equipment selection decisions. For instance, the size, depth, and strength of the foundation piles are engineered to meet the extreme conditions identified (in this case, extreme winds).

Name of Responder:

Scott Wentzell
Project Development Manager

Date: June 15, 2022

Byron Solar GHG Calc

Equipment Fuel Consumption Estimate	From Joint SPA/RPA - Section 6.2.12.1 Roadways	Traffic during construction of the solar facility is estimated to average 50-100 pickup trucks, cars, and/or other types of employee vehicles onsite for the 12-18 month duration of construction					
Byron Solar		Approximately 10-20 semi-trucks per day will be used for delivery of facility components. Semi-truck delivery will vary per day depending on time of construction and delivery timeline of equipment.					
Dodge and Olmsted counties, MN		After construction is complete, traffic impacts during the operational phase of the Project are expected to be negligible. A small maintenance crew driving through the area in pickup trucks on a regular basis will monitor and maintain the facilities as needed; traffic function in the Project Area will not be impacted as a result					
		Joint SPA/RPA does not estimate construction traffic for HVTL					
26-May-22	From Joint SPA/RPA - Section 5.3.1.1 Construction and Construction Mgmt	Typical onsite construction staff levels will depend on the number of concurrent tasks being performed and the phasing of the Project. The Project will create approximately 293 jobs during the construction and installation phases, and up to 4 full time jobs during the operations phase.					
Construction Phase	Equipment Type	No. of Equip ment	Days	Duration (hours/day)	Fuel Consumption (gal/hour)	Est. Total Gallons	Notes/Assumptions
Diesel							
	Bulldozer	2	40	8	7.6	4,864	Caterpillar D6T Medium Load
	Grader/scrapper	2	240	8	5.6	21,504	Caterpillar 14M Medium Load
	Backhoe	2	200	8	3.1	9,920	Caterpillar 422F2 Low Load
	Vibratory compactor	4	124	8	5	19,840	Caterpillar CS56/CP56 High Load
	Dump Truck	2	60	8	10	9,600	Tandem Axle 10-14 CY
	Excavator	4	160	8	8.1	41,472	Caterpillar 336D Medium Load
	Concrete truck and boom	6	30	8	12	17,280	Primarily Substation
	High-reach bucket truck	0	0	0	0		
	Semi truck/trailer	2	80	8	10	12,800	2 For Construction Support
	Skid steer	4	124	8	3.3	13,094	Caterpillar 299D Medium Load
	Fork lift (all terrain)	8	154	8	2.9	28,582	JLG 1255 Medium Load
	Pile driver	7	124	8	7.1	49,302	Vermeer PD10 Medium/High Load

Diesel							
	Truck-mounted auger/drill	0	0	0	0		
	Medium duty crane	2	30	4	18.8	4,512	120T RT Telescopic Crane
	Watering truck	4	200	9	11	79,200	
	Total Gallons Diesel - Construction	311,971					
Gasoline							
	Generator	10	124	8	1	9,920	Honda EB10000 Half Load Average
	Light-duty pickup truck (on-site)	15	220	8	3.6	95,040	
	ATVs	42	124	8	0.4	16,666	Club Car 4 Seater ATV
	Construction contractor vehicles (commute to/from site)	204	160	0.5	2.5	40,800	Assume bulk of the workforce lives in Rochester. 15 minute one way drive, 30 min round trip. 75% carpool and weighted average for duration
	Total Gallons Gasoline - Construction	162,426					

Operation Phase	Equipment Type	No. of Equipment	Days/Year	Duration (hours/day)	Fuel Consumption (gal/hour)	Est. Total Gallons	Notes/Assumptions
GAS							
	Light-duty pickup truck - 4 full time staff	4	180	0.5	2.5	900	4 Solar Technicians performing operations and maintenance. Commute to/from site and travel within the site
	ATV (on-site) - 4 full time staff	2	48	8	0.4	307	Inverter Checks Twice/Yr. Assume 48 Inverters and maintenance checks at 2/day (48 days) for 1 Crew of 2. 2nd Crew of 2 will perform Tracker Maintenance in the same duration of 48 days at 5 trackers/day.
	O&M contractor vehicles (commute to/from site)	1	12	0.5	2.5	15	2 HV Technicians assumed from Rochester, MN, 30mn round trip.
	O&M contractor vehicles (on-site)	1	12	8			1 HV Contractor performing monthly checks on Substation. 1 full 8hr day for Monthly Maintenance. Vehicle is parked at Substation and not used for maintenance checks.
	TOTAL (per year)					1,222	

Construction Period			Operation (Annual)			Conversion Factors	
	Gallons	Total KG		Gallons	Total KG		
Total Diesel	311,971	3,178,987	Total Diesel	0	0	Diesel – KG CO2/ Gallon	10.19
Total Gas	162,426	1,429,345	Total Gas	1222	10,753.6	Gasoline KG CO2/ Gallon	8.8
					10,753.6	KG to Ton	0.00110
Total- KG CO2		4,608,332	Total- KG CO2				231
Construction - Total – Tons CO2		5,080	Operations Annual Tons CO2		11.85		

Byron Solar, LLC

Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review

In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the
Byron Solar Project in Dodge and Olmsted Counties

PUC Docket No.	IP-7041/GS-20-763, CN-20-764, TL-20-765	Directed To:	Scott Wentzell
EERA Question No.	5	Date of Response	August 1, 2022
☒ Public		☐ Nonpublic	

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Question(s):

EMF Estimates.

Please model electric and magnetic fields at varying distances from the center of the proposed transmission line using the structure types that Byron Solar is considering. For examples of the information requested, please see:

- Route Permit for a 345 kV Transmission Line: Plum Creek Wind Farm, LLC at Section 6.2.2 (Tables 6.2.2-1 and 6.2.2-2; Figures 6.2.2-1 and 6.2.2-2) (eDocket ID: 201911-157483-05 and Appendix G (eDocket ID: 201911-157483-02)); or
- Frazee to Erie 115 kV Route Permit Application (Tables 6-1 and 6-3 , Figures 6-2, 6-3, 6-4, and 6-5) (eDocket ID: 20206-164183-02)

Response:

See Attachment 5, Electromagnetic Field Calculations.

Name of Responder: Scott Wentzell
Title: Project Development Manager

Date: August 1, 2022

	CALCULATIONS	
Title: Byron Solar – EMF Calculations	Issue Date: 07/29/2022 Previous Date: 08/17/2021	

ELECTROMAGNETIC FIELD CALCULATIONS

Byron Solar Project
345 kV Overhead Transmission Line
Dodge and Olmsted Counties, Minnesota

EDF Renewables

Revision B

	CALCULATIONS	
Title: Byron Solar – EMF Calculations		Issue Date: 07/29/2022 Previous Date: 08/17/2021

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Appendix A	3D EMF Calculation Summary
Appendix B	PLS-CADD 3D EMF Calculation Report

QA/QC Review and Sign-Off:

Task	Responsible Individual		Date
Prepared	Kurtis Johnson	<i>Kurtis Johnson</i>	07/29/2022
Reviewed	Darrin Evans	<i>Darrin Evans</i>	07/29/2022
Issued	Darrin Evans	<i>Darrin Evans</i>	07/29/2022

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	CALCULATIONS	
Title: Byron Solar – EMF Calculations	Issue Date: 07/29/2022 Previous Date: 08/17/2021	

1.0 PROJECT SUMMARY

1.1 Project Description

This project consists of a 3-mile 345 kV single circuit transmission line that will serve as a connection between the interconnect substation and the collector substation. The transmission line supports a generation load of 200 MW.

2.0 BACKGROUND

2.1 Methodology

Electricity in overhead transmission lines produce electric fields and magnetic fields, called electromagnetic fields (EMF). These fields can be calculated in PLS-CADD and are based on the EPRI Red Book methodology (EPRI, 1982). The 3D EMF calculation within PLS-CADD was performed at the low point of the span with the electromagnetic fields calculated in 5-ft intervals, starting from the center of the right-of-way and ending at the edge of the right-of-way (75 ft each direction).

2.2 Inputs

The following parameters were used to calculate electromagnetic fields along the transmission line:

- Height above ground at which EMF is calculated = 3.28 ft
- Maximum offset distance at which EMF is calculated = 75 ft
- Increment at which to report EMF = 5 ft
- Overvoltage percentage = 5%
- Location along span to report EMF calculations = Low Point
- Maximum current (for calculating magnetic field) = 372 A
- Wire temperature = 120°F

2.3 Exposure Standards

Minnesota restricts the maximum level for electric fields to 8 kV/m within the right-of-way, as measured one meter above ground level. Minnesota does not have a standard for magnetic fields.

	CALCULATIONS	
Title: Byron Solar – EMF Calculations	Issue Date: 07/29/2022 Previous Date: 08/17/2021	

3.0 RESULTS

3.1 Summary

A summary of the 3D EMF calculation report is provided in Appendix A, and a more detailed output from PLS-CADD is provided in Appendix B. From the report, the largest electric field and magnetic field along the Byron transmission line is 4.8 kV/m (span 17-18) and 56 mG (span 10-11), respectively. Both values are acceptable, as the electric field is below the 8 kV/m limit, and there are no standards in Minnesota that restrict the magnetic field.

Attachment 5

Electric Field Strength (kV/m)																				
Distance from Centerline (ft)																				
Collector to STR 1																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
1.11	1.49	2.01	2.63	3.20	3.36	3.17	2.77	2.21	1.62	1.25	1.43	1.95	2.47	2.86	3.06	2.97	2.50	1.94	1.47	1.10
STR 1 to STR 2																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.96	1.27	1.67	2.15	2.63	2.91	2.90	2.77	2.56	2.33	2.20	2.22	2.35	2.51	2.61	2.60	2.34	1.90	1.46	1.11	0.85
STR 2 to STR 3																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.94	1.22	1.56	1.96	2.34	2.56	2.56	2.48	2.33	2.14	1.99	1.90	1.90	1.92	1.94	1.91	1.71	1.42	1.14	0.91	0.74
STR 3 to STR 4																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.38	0.47	0.61	0.79	1.07	1.46	1.71	1.98	2.27	2.53	2.72	2.82	2.81	2.68	2.46	2.18	1.59	1.09	0.74	0.52	0.39
STR 4 to STR 5																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.10	0.25	0.48	0.85	1.39	2.09	2.48	2.85	3.17	3.38	3.45	3.38	3.17	2.85	2.48	2.10	1.39	0.85	0.49	0.25	0.10
STR 5 to STR 6																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.39	0.47	0.60	0.79	1.08	1.53	1.83	2.19	2.59	2.98	3.31	3.49	3.48	3.29	2.97	2.57	1.77	1.14	0.73	0.48	0.34
STR 6 to STR 7																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.80	1.13	1.62	2.34	3.32	4.29	4.55	4.53	4.21	3.73	3.40	3.44	3.69	3.87	3.82	3.56	2.71	1.91	1.35	0.98	0.74
STR 7 to STR 8																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.85	1.07	1.35	1.65	1.93	2.09	2.09	2.04	1.95	1.86	1.80	1.79	1.81	1.85	1.87	1.84	1.67	1.40	1.13	0.89	0.71
STR 8 to STR 9																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
1.61	1.64	1.67	1.72	1.78	1.84	1.88	1.91	1.94	1.98	2.00	2.03	2.05	2.06	2.07	2.07	2.05	2.01	1.95	1.89	1.83
STR 9 to STR 10																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.87	1.11	1.42	1.77	2.10	2.28	2.29	2.22	2.11	1.98	1.87	1.82	1.81	1.82	1.82	1.79	1.61	1.35	1.08	0.86	0.69
STR 10 to STR 11																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.89	1.25	1.77	2.54	3.55	4.50	4.73	4.66	4.27	3.72	3.31	3.31	3.60	3.84	3.85	3.61	2.77	1.98	1.43	1.08	0.84
STR 11 to STR 12																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.90	1.25	1.76	2.47	3.35	4.13	4.30	4.21	3.88	3.41	3.05	3.01	3.21	3.40	3.43	3.26	2.59	1.90	1.40	1.06	0.83
STR 12 to STR 13																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.77	1.06	1.50	2.14	2.98	3.81	4.05	4.05	3.82	3.48	3.31	3.50	3.86	4.11	4.09	3.82	2.90	2.02	1.39	0.99	0.73
STR 13 to STR 14																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.85	1.14	1.54	2.06	2.66	3.13	3.22	3.16	2.99	2.77	2.64	2.68	2.83	2.96	2.98	2.87	2.38	1.80	1.32	0.98	0.75
STR 14 to STR 15																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.88	1.19	1.63	2.20	2.86	3.38	3.47	3.39	3.17	2.88	2.67	2.64	2.74	2.85	2.86	2.75	2.27	1.73	1.29	0.97	0.75
STR 15 to STR 16																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.80	1.11	1.59	2.29	3.21	4.10	4.33	4.31	4.01	3.58	3.26	3.24	3.42	3.57	3.53	3.31	2.58	1.86	1.33	0.97	0.74
STR 16 to STR 17																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.47	0.59	0.76	0.99	1.29	1.70	1.98	2.33	2.73	3.15	3.51	3.71	3.71	3.50	3.14	2.69	1.82	1.17	0.77	0.55	0.43
STR 17 to STR 18																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.06	0.13	0.35	0.75	1.41	2.41	3.01	3.64	4.20	4.60	4.74	4.58	4.16	3.59	2.96	2.36	1.38	0.73	0.34	0.11	0.04
STR 18 to STR 19																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.55	0.70	0.90	1.16	1.48	1.82	2.01	2.24	2.54	2.90	3.29	3.60	3.75	3.70	3.47	3.11	2.27	1.54	1.03	0.70	0.50
STR 19 to STR 20																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.87	1.10	1.38	1.68	1.95	2.10	2.11	2.07	2.00	1.93	1.90	1.93	2.00	2.09	2.18	2.22	2.16	1.95	1.67	1.38	1.13
STR 20 to STR 21																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.30	0.38	0.47	0.58	0.69	0.79	0.84	0.88	0.92	0.94	0.96	0.97	0.97	0.96	0.94	0.92	0.84	0.76	0.66	0.57	0.48
STR 21 to STR 22																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.48	0.56	0.71	0.96	1.34	1.82	2.08	2.34	2.58	2.77	2.89	2.92	2.86	2.72	2.52	2.27	1.74	1.28	0.92	0.69	0.54
STR 22 to POI																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
0.42	0.52	0.63	0.78	0.96	1.26	1.47	1.73	2.02	2.32	2.60	2.81	2.91	2.89	2.76	2.56	2.02	1.48	1.05	0.73	0.51

APPENDIX A 3D EMF CALCULATION SUMMARY

Attachment 5

Magnetic Field Strength (mG) Distance from Centerline (ft)																				
Collector to STR 1																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
12.62	15.55	19.32	24.12	29.72	35.28	37.66	39.55	40.85	41.51	41.56	40.97	39.76	37.96	35.68	33.07	27.45	22.18	17.79	14.31	11.64
STR 1 to STR 2																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
10.80	13.12	16.09	19.82	24.17	28.78	30.87	32.64	33.95	34.68	34.88	34.53	33.59	32.12	30.27	28.15	23.63	19.39	15.82	12.95	10.68
STR 2 to STR 3																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
9.51	11.49	13.97	17.01	20.51	24.16	25.84	27.27	28.33	28.98	29.17	28.89	28.17	27.07	25.67	24.06	20.59	17.24	14.31	11.86	9.88
STR 3 to STR 4																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
7.84	9.32	11.13	13.34	15.93	18.80	20.24	21.58	22.73	23.60	24.08	24.13	23.72	22.92	21.80	20.47	17.54	14.72	12.27	10.24	8.59
STR 4 to STR 5																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
9.24	10.95	13.07	15.67	18.72	22.05	23.64	25.08	26.22	26.95	27.18	26.88	26.09	24.90	23.44	21.83	18.54	15.55	13.00	10.90	9.19
STR 5 to STR 6																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
8.61	10.39	12.64	15.49	18.99	23.04	25.12	27.11	28.84	30.13	30.81	30.74	29.93	28.48	26.58	24.46	20.20	16.41	13.33	10.91	9.02
STR 6 to STR 7																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
10.76	13.54	17.37	22.66	29.85	38.77	43.36	47.47	50.66	52.57	53.05	52.11	49.84	46.50	42.44	38.02	29.59	22.72	17.59	13.84	11.07
STR 7 to STR 8																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
8.60	10.25	12.28	14.70	17.44	20.24	21.53	22.63	23.49	24.04	24.25	24.14	23.67	22.91	21.88	20.67	17.96	15.25	12.80	10.72	9.01
STR 8 to STR 9																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
51.16	52.18	53.33	54.27	54.66	55.50	55.70	55.71	55.82	56.05	55.68	55.72	55.63	55.22	54.84	54.38	53.38	52.29	51.33	50.47	49.81
STR 9 to STR 10																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
9.29	11.20	13.52	16.21	19.12	21.90	23.06	23.96	24.55	24.77	25.03	24.96	24.49	23.66	22.60	21.33	18.48	15.63	13.06	10.91	9.13
STR 10 to STR 11																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
11.37	14.28	18.32	23.96	31.65	41.03	45.79	50.01	53.22	55.11	55.62	54.76	52.61	49.35	45.28	40.79	31.92	24.56	19.01	14.93	11.94
STR 11 to STR 12																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
11.23	14.02	17.81	22.93	29.74	37.88	41.93	45.50	48.22	49.84	50.26	49.49	47.63	44.84	41.37	37.61	30.04	23.52	18.44	14.62	11.75
STR 12 to STR 13																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
10.42	12.97	16.45	21.24	27.72	35.79	40.09	44.08	47.40	49.70	50.76	50.46	48.79	45.92	42.18	37.96	29.61	22.71	17.53	13.74	10.96
STR 13 to STR 14																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
9.95	12.21	15.17	19.04	23.89	29.42	32.16	34.63	36.62	37.95	38.50	38.22	37.15	35.37	33.06	30.42	24.92	19.97	15.94	12.81	10.41
STR 14 to STR 15																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
10.10	12.46	15.57	19.66	24.82	30.68	33.54	36.07	38.05	39.29	39.70	39.27	38.03	36.12	33.70	30.98	25.37	20.34	16.25	13.07	10.63
STR 15 to STR 16																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
10.96	13.69	17.34	22.43	29.19	37.31	41.35	44.88	47.50	48.97	49.18	48.13	45.95	42.88	39.21	35.27	27.68	21.46	16.75	13.26	10.67
STR 16 to STR 17																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
8.54	10.33	12.63	15.55	19.21	23.54	25.83	28.07	30.10	31.70	32.65	32.79	32.07	30.61	28.59	26.28	21.61	17.48	14.12	11.47	9.42
STR 17 to STR 18																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
10.18	12.32	15.07	18.60	23.03	28.29	31.05	33.67	35.86	37.30	37.73	37.05	35.41	33.08	30.38	27.59	22.39	18.04	14.64	12.00	9.93
STR 18 to STR 19																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
9.24	11.21	13.72	16.91	20.86	25.44	27.82	30.10	32.12	33.71	34.63	34.67	33.84	32.23	30.06	27.62	22.55	18.07	14.51	11.76	9.64
STR 19 to STR 20																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
7.23	8.83	10.90	13.43	16.35	19.37	20.76	21.97	22.93	23.60	23.95	23.98	23.73	23.25	22.59	21.79	19.97	18.02	16.09	14.26	12.59
STR 20 to STR 21																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
3.42	3.86	4.30	4.77	5.41	6.08	6.43	6.79	7.13	7.46	7.77	8.04	8.30	8.56	8.81	9.03	9.42	9.76	10.04	10.33	10.65
STR 21 to STR 22																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
12.30	12.51	13.28	14.75	16.88	19.42	20.74	22.04	23.32	24.45	25.34	26.09	26.52	26.75	26.75	26.47	25.46	23.72	21.64	19.68	18.24
STR 22 to POI																				
-75	-65	-55	-45	-35	-25	-20	-15	-10	-5	0	5	10	15	20	25	35	45	55	65	75
7.24	8.54	10.15	12.14	14.52	17.27	18.71	20.09	21.32	22.32	23.17	23.62	23.69	23.28	22.49	21.46	18.97	16.36	13.95	11.84	10.07

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

3D EMF Calculation Notes:

- 1) Calculations based on the EPRI Red Book methods (3rd Edition, 2005 - 7.4 Calculation of Magnetic Fields and Appendices 7.1 Calculation of Field Ellipse Parameters and 7.6 Electric Field Calculations for 3D Geometry).
- 2) All wire positions are modeled at the specified weather case and wind direction. Height above ground determined by the modeled ground TIN.
- 3) Only the effects of wires are being analyzed. The effects of structures are not included unless enabled as noted below.
- 4) Ground return is being ignored for magnetic field calculations.

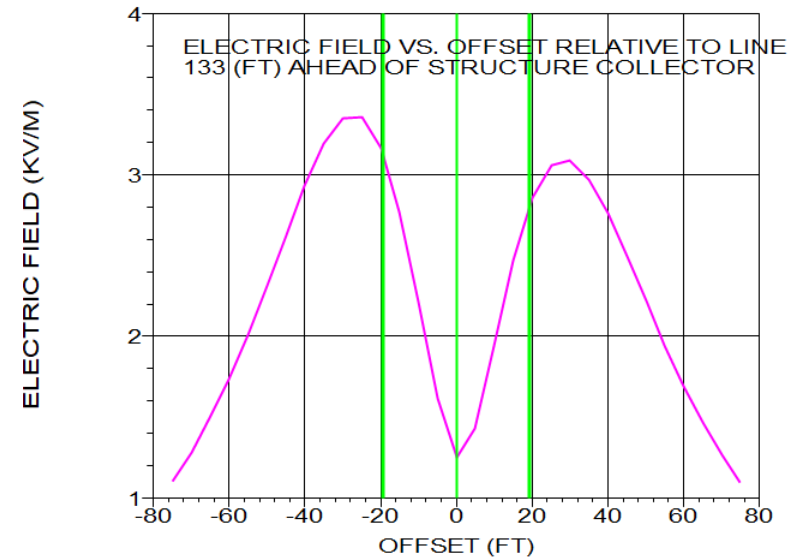
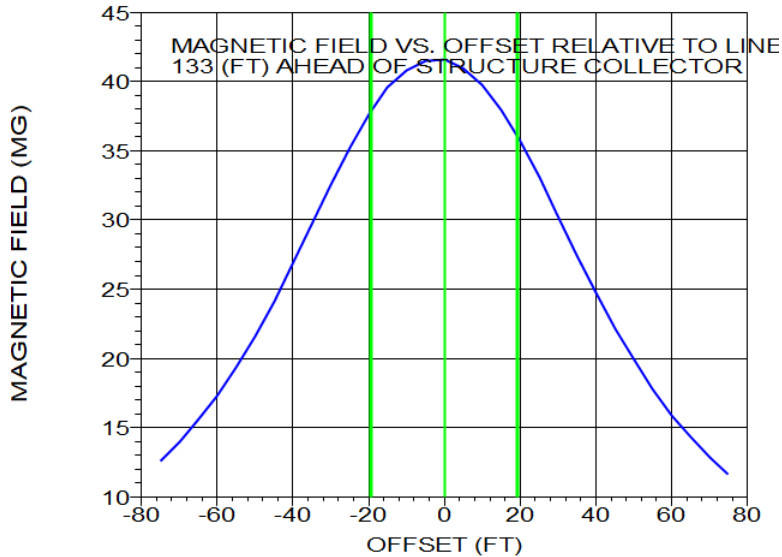
Meter height above ground: 3.28 (ft)
Maximum wire distance: 500.00 (ft)
Maximum cable segment size: 9.80 (ft)
Cross section offset +/-: 75.00 (ft)
Result interval: 5.00 (ft)
Overvoltage Percentage: 5%
Electric field limit: 8.00 (kV/m)
Magnetic field limit: 0.00 (mG)
Contour Map Spacing: 15 (ft)
Analyzing spans between these structures: COLLECTOR - POI

Section Data for 3D EMF Results:

Section Number	Section Note	Voltage Ph-Ph (kV)	Current (Amps)	Filename	Cable-Description	Conductors Per Phase	Bundle Diameter (in)	Cable Radius (in)	Weather Case	Condition	Wind Dir.	WC Temperature (deg F)	Effective Radius (in)
1	0.0	0.0		dno-10926.wir	AFL OPGW DNO-10926 CC-68/494	1	0.000	0.247	120°F	Max Sag FE	Left	120.000	0.247
2	0.0	0.0		dno-10926_7000cat.wir	AFL OPGW DNO-10926 CC-68/494	1	0.000	0.247	120°F	Max Sag FE	Left	120.000	0.247
3	0.0	0.0		dno-10926_6500cat.wir	AFL OPGW DNO-10926 CC-68/494	1	0.000	0.247	120°F	Max Sag FE	Left	120.000	0.247
4	0.0	0.0		dno-10926_3500cat.wir	AFL OPGW DNO-10926 CC-68/494	1	0.000	0.247	120°F	Max Sag FE	Left	120.000	0.247
5	0.0	0.0		dno-10926_7000cat.wir	AFL OPGW DNO-10926 CC-68/494	1	0.000	0.247	120°F	Max Sag FE	Left	120.000	0.247
6	0.0	0.0		dno-10926_6000cat.wir	AFL OPGW DNO-10926 CC-68/494	1	0.000	0.247	120°F	Max Sag FE	Left	120.000	0.247
7	0.0	0.0		dno-10926_7000cat.wir	AFL OPGW DNO-10926 CC-68/494	1	0.000	0.247	120°F	Max Sag FE	Left	120.000	0.247
8	0.0	0.0		dno-10926_1750cat.wir	AFL OPGW DNO-10926 CC-68/494	1	0.000	0.247	120°F	Max Sag FE	Left	120.000	0.247
9	0.0	0.0		dno-10926.wir	AFL OPGW DNO-10926 CC-68/494	1	0.000	0.247	120°F	Max Sag FE	Left	120.000	0.247
10	0.0	0.0		dno-10926_1750cat.wir	AFL OPGW DNO-10926 CC-68/494	1	0.000	0.247	120°F	Max Sag FE	Left	120.000	0.247
11	0.0	0.0		dno-10926_1750cat.wir	AFL OPGW DNO-10926 CC-68/494	1	0.000	0.247	120°F	Max Sag FE	Left	120.000	0.247
12	13.0	0.0		raven_acsr.wir	1 /O AWG 6/1 Strands RAVEN ACSR - Adapted from 1970's Publicly Available Data	1	0.000	0.199	120°F	Max Sag FE	Left	120.000	0.199
13	0.0	0.0		3-8_ehs.wir	3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data	1	0.000	0.180	120°F	Max Sag FE	Left	120.000	0.180
14	13.0	0.0		raven_acsr.wir	1 /O AWG 6/1 Strands RAVEN ACSR - Adapted from 1970's Publicly Available Data	1	0.000	0.199	120°F	Max Sag FE	Left	120.000	0.199
15	0.0	0.0		3-8_ehs.wir	3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data	1	0.000	0.180	120°F	Max Sag FE	Left	120.000	0.180
16	0.0	0.0		3-8_ehs.wir	3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data	1	0.000	0.180	120°F	Max Sag FE	Left	120.000	0.180
17	0.0	0.0		3-8_ehs.wir	3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data	1	0.000	0.180	120°F	Max Sag FE	Left	120.000	0.180
18	0.0	0.0		3-8_ehs_7000cat.wir	3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data	1	0.000	0.180	120°F	Max Sag FE	Left	120.000	0.180
19	0.0	0.0		3-8_ehs_6500cat.wir	3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data	1	0.000	0.180	120°F	Max Sag FE	Left	120.000	0.180
20	0.0	0.0		3-8_ehs_3500cat.wir	3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data	1	0.000	0.180	120°F	Max Sag FE	Left	120.000	0.180
21	0.0	0.0		3-8_ehs_7000cat.wir	3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data	1	0.000	0.180	120°F	Max Sag FE	Left	120.000	0.180
22	0.0	0.0		3-8_ehs_6000cat.wir	3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data	1	0.000	0.180	120°F	Max Sag FE	Left	120.000	0.180
23	0.0	0.0		3-8_ehs_7000cat.wir	3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data	1	0.000	0.180	120°F	Max Sag FE	Left	120.000	0.180
24	0.0	0.0		3-8_ehs_1750cat.wir	3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data	1	0.000	0.180	120°F	Max Sag FE	Left	120.000	0.180
25	0.0	0.0		3-8_ehs.wir	3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data	1	0.000	0.180	120°F	Max Sag FE	Left	120.000	0.180
26	0.0	0.0		3-8_ehs_1750cat.wir	3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data	1	0.000	0.180	120°F	Max Sag FE	Left	120.000	0.180
27	0.0	0.0		3-8_ehs_1750cat.wir	3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data	1	0.000	0.180	120°F	Max Sag FE	Left	120.000	0.180
28	0.0	0.0		3-8_ehs.wir	3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data	1	0.000	0.180	120°F	Max Sag FE	Left	120.000	0.180
29	362.3	372.0		drake_acsr.wir 795 kcmil 26/7	Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data	2	18.000	0.554	120°F	Max Sag FE	Left	120.000	3.158
30	362.3	372.0		drake_acsr.wir 795 kcmil 26/7	Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data	2	18.000	0.554	120°F	Max Sag FE	Left	120.000	3.158
31	362.3	372.0		drake_acsr.wir 795 kcmil 26/7	Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data	2	18.000	0.554	120°F	Max Sag FE	Left	120.000	3.158
32	362.3	372.0		drake_acsr.wir 795 kcmil 26/7	Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data	2	18.000	0.554	120°F	Max Sag FE	Left	120.000	3.158
33	362.3	372.0		drake_acsr.wir 795 kcmil 26/7	Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data	2	18.000	0.554	120°F	Max Sag FE	Left	120.000	3.158
34	362.3	372.0		drake_acsr.wir 795 kcmil 26/7	Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data	2	18.000	0.554	120°F	Max Sag FE	Left	120.000	3.158
35	362.3	372.0		drake_acsr.wir 795 kcmil 26/7	Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data	2	18.000	0.554	120°F	Max Sag FE	Left	120.000	3.158
36	362.3	372.0		drake_acsr.wir 795 kcmil 26/7	Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data	2	18.000	0.554	120°F	Max Sag FE	Left	120.000	3.158
37	362.3	372.0		drake_acsr.wir 795 kcmil 26/7	Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data	2	18.000	0.554	120°F	Max Sag FE	Left	120.000	3.158
38	362.3	372.0		drake_acsr.wir 795 kcmil 26/7	Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data	2	18.000	0.554	120°F	Max Sag FE	Left	120.000	3.158
39	362.3	372.0		drake_acsr.wir 795 kcmil 26/7	Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data	2	18.000	0.554	120°F	Max Sag FE	Left	120.000	3.158
40	144.9	372.0		drake_acsr.wir 795 kcmil 26/7	Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data	1	0.000	0.554	120°F	Max Sag FE	Left	120.000	0.554
41	13.0	372.0		raven_acsr.wir 1 /O AWG 6/1	Strands RAVEN ACSR - Adapted from 1970's Publicly Available Data	1	0.000	0.199	120°F	Max Sag FE	Left	120.000	0.199
42	362.3	372.0		drake_acsr.wir 795 kcmil 26/7	Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data	2	18.000	0.554	120°F	Max Sag FE	Left	120.000	3.158
43	144.9	372.0		drake_acsr.wir 795 kcmil 26/7	Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data	1	0.000	0.554	120°F	Max Sag FE	Left	120.000	0.554
44	144.9	372.0		drake_acsr.wir 795 kcmil 26/7	Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data	1	0.000	0.554	120°F	Max Sag FE	Left	120.000	0.554
45	144.9	372.0		drake_acsr.wir 795 kcmil 26/7	Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data	1	0.000	0.554	120°F	Max Sag FE	Left	120.000	0.554

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures COLLECTOR and 1



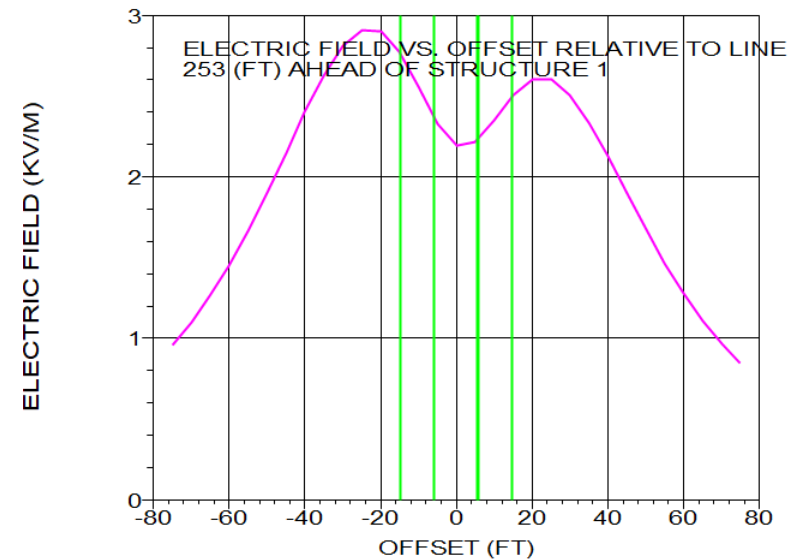
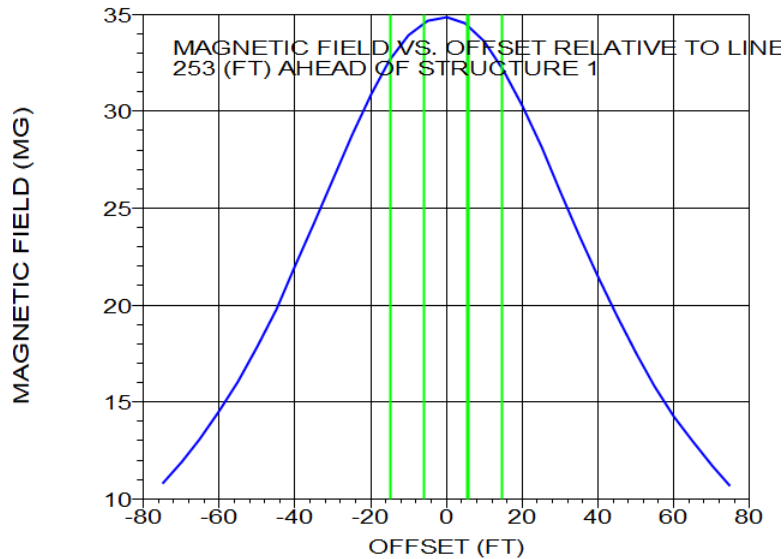
3D EMF Point Results Span from COLLECTOR to 1:

Measurement			B-					H	EF					Space Potential			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2964494.5	703606.0	1285.2	4.131	11.929	70.9	12.623	27.8	1.005	0.307	1.062	73.9	1.106	1.5	-0.368	1.470	-76.0	1.515
2964499.5	703606.1	1285.0	4.468	13.257	71.4	13.990	26.7	1.113	0.378	1.228	72.9	1.285	1.5	-0.446	1.630	-74.7	1.690
2964504.5	703606.2	1284.8	4.828	14.778	71.9	15.547	25.6	1.237	0.464	1.420	71.9	1.494	1.5	-0.536	1.804	-73.5	1.882
2964509.5	703606.3	1284.6	5.205	16.518	72.5	17.319	24.3	1.378	0.566	1.641	71.0	1.736	1.4	-0.638	1.988	-72.2	2.088
2964514.5	703606.4	1284.4	5.587	18.499	73.2	19.324	22.9	1.538	0.686	1.890	70.0	2.011	1.4	-0.750	2.175	-71.0	2.301
2964519.5	703606.5	1284.2	5.962	20.756	74.0	21.595	21.4	1.718	0.823	2.162	69.2	2.313	1.4	-0.876	2.375	-69.7	2.532
2964524.5	703606.6	1284.0	6.296	23.283	74.9	24.119	19.7	1.919	0.971	2.444	68.3	2.630	1.4	-1.007	2.557	-68.5	2.748
2964529.5	703606.7	1283.8	6.547	26.049	75.9	26.860	17.8	2.137	1.122	2.714	67.5	2.937	1.5	-1.127	2.683	-67.2	2.910
2964534.5	703606.8	1283.7	6.655	28.966	77.1	29.721	15.9	2.365	1.260	2.936	66.8	3.195	1.6	-1.215	2.696	-65.7	2.957
2964539.5	703606.9	1283.5	6.562	31.916	78.4	32.583	13.8	2.593	1.364	3.063	66.0	3.353	2.0	-1.258	2.562	-63.8	2.854
2964544.5	703607.0	1283.3	6.212	34.729	79.9	35.280	11.7	2.808	1.416	3.043	65.1	3.357	2.7	-1.245	2.243	-61.0	2.566
2964549.5	703607.1	1283.1	5.582	37.246	81.5	37.662	9.7	2.997	1.404	2.836	63.7	3.165	4.1	-1.191	1.743	-55.7	2.110
2964554.5	703607.2	1282.9	4.682	39.275	83.2	39.553	7.8	3.148	1.337	2.425	61.1	2.769	7.0	-1.107	1.055	-43.6	1.529
2964559.5	703607.3	1282.8	3.600	40.686	84.9	40.845	6.3	3.250	1.241	1.833	55.9	2.213	13.3	-1.026	0.224	-12.3	1.050
2964564.5	703607.4	1282.6	2.562	41.434	86.5	41.514	5.3	3.304	1.156	1.132	44.4	1.618	28.2	-0.986	-0.673	34.3	1.194
2964569.5	703607.5	1282.5	2.086	41.503	87.1	41.555	5.0	3.307	1.113	0.578	27.4	1.254	50.8	-1.006	-1.558	57.1	1.854
2964574.5	703607.6	1282.3	2.589	40.889	86.4	40.971	5.5	3.260	1.125	0.886	38.2	1.432	26.1	-1.081	-2.351	65.3	2.587
2964579.5	703607.7	1282.1	3.556	39.602	84.9	39.761	6.7	3.164	1.179	1.549	52.7	1.947	8.7	-1.180	-2.976	68.4	3.201
2964584.5	703607.8	1282.0	4.499	37.693	83.2	37.961	8.3	3.021	1.244	2.134	59.8	2.470	2.7	-1.262	-3.375	69.5	3.603
2964589.5	703607.9	1281.8	5.234	35.296	81.6	35.682	10.1	2.839	1.288	2.551	63.2	2.858	0.8	-1.300	-3.539	69.8	3.770
2964594.5	703608.0	1281.6	5.711	32.568	80.1	33.065	12.1	2.631	1.290	2.778	65.1	3.063	0.3	-1.278	-3.497	69.9	3.723
2964599.5	703608.1	1281.5	5.940	29.690	78.7	30.278	14.1	2.409	1.241	2.829	66.3	3.090	0.2	-1.204	-3.304	70.0	3.516
2964604.5	703608.2	1281.3	5.958	26.800	77.5	27.454	16.1	2.185	1.150	2.742	67.2	2.973	0.2	-1.085	-3.002	70.1	3.192
2964609.5	703608.3	1281.2	5.819	24.030	76.4	24.725	18.0	1.968	1.030	2.561	68.1	2.760	0.2	-0.944	-2.647	70.4	2.810
2964614.5	703608.4	1281.0	5.577	21.466	75.4	22.179	19.7	1.765	0.898	2.329	68.9	2.496	0.3	-0.799	-2.282	70.7	2.418
2964619.5	703608.5	1280.9	5.274	19.149	74.6	19.862	21.4	1.581	0.767	2.079	69.8	2.216	0.3	-0.663	-1.935	71.1	2.045
2964624.5	703608.6	1280.7	4.943	17.087	73.9	17.788	22.9	1.416	0.644	1.833	70.6	1.943	0.4	-0.541	-1.621	71.5	1.708
2964629.5	703608.7	1280.5	4.600	15.255	73.2	15.933	24.3	1.268	0.535	1.604	71.6	1.691	0.5	-0.428	-1.316	72.0	1.384
2964634.5	703608.8	1280.3	4.268	13.655	72.6	14.306	25.6	1.138	0.441	1.397	72.5	1.465	0.5	-0.337	-1.060	72.4	1.112
2964639.5	703608.9	1280.1	3.954	12.262	72.1	12.883	26.7	1.025	0.361	1.215	73.5	1.268	0.5	-0.265	-0.850	72.7	0.890
2964644.5	703609.1	1279.9	3.663	11.049	71.7	11.641	27.8	0.926	0.294	1.057	74.5	1.097	0.5	-0.210	-0.683	72.9	0.714

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Attachment 5

Wire low point cross section results between structures 1 and 2



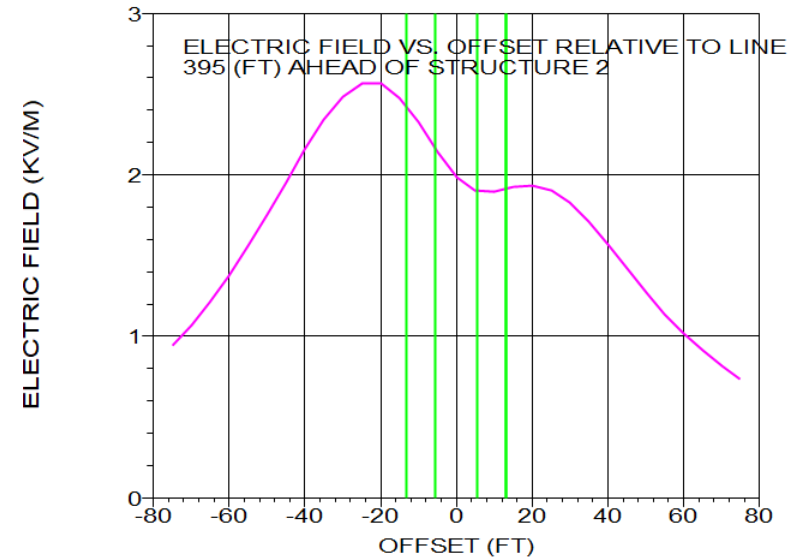
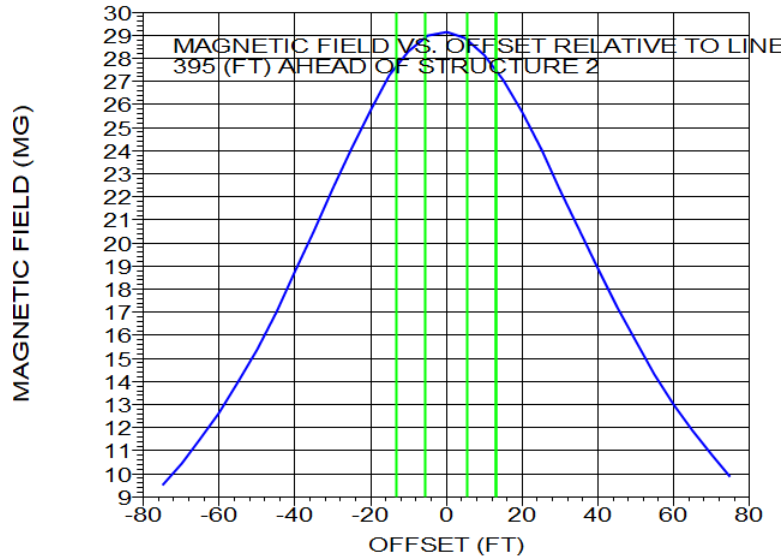
3D EMF Point Results Span from 1 to 2:

-----Measurement-----			B-----					H	E-----					-----Space Potential-----			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2964486.3	704006.4	1283.8	6.440	8.674	53.4	10.803	53.1	0.860	0.301	0.911	71.7	0.959	2.7	-0.399	1.052	-69.2	1.125
2964491.3	704006.5	1283.7	7.006	9.609	53.9	11.892	52.3	0.946	0.376	1.035	70.1	1.101	2.7	-0.489	1.187	-67.6	1.283
2964496.3	704006.6	1283.6	7.626	10.678	54.5	13.122	51.4	1.044	0.466	1.177	68.4	1.265	2.7	-0.594	1.334	-66.0	1.460
2964501.3	704006.8	1283.6	8.302	11.900	55.1	14.510	50.5	1.155	0.574	1.336	66.8	1.454	2.6	-0.717	1.493	-64.4	1.656
2964506.3	704006.9	1283.5	9.042	13.306	55.8	16.087	49.5	1.280	0.702	1.511	65.1	1.666	2.7	-0.870	1.689	-62.7	1.900
2964511.3	704007.0	1283.5	9.831	14.905	56.6	17.856	48.5	1.421	0.852	1.698	63.4	1.900	2.7	-1.048	1.896	-61.1	2.167
2964516.3	704007.1	1283.5	10.657	16.705	57.5	19.815	47.5	1.577	1.024	1.889	61.6	2.149	2.9	-1.249	2.103	-59.3	2.446
2964521.3	704007.2	1283.4	11.483	18.683	58.4	21.930	46.5	1.745	1.213	2.069	59.6	2.399	3.1	-1.456	2.268	-57.3	2.695
2964526.3	704007.3	1283.4	12.281	20.815	59.5	24.167	45.5	1.923	1.414	2.216	57.5	2.628	3.4	-1.665	2.379	-55.0	2.904
2964531.3	704007.4	1283.3	13.021	23.068	60.6	26.489	44.6	2.108	1.614	2.299	54.9	2.809	4.1	-1.884	2.434	-52.2	3.078
2964536.3	704007.5	1283.3	13.648	25.335	61.7	28.777	43.7	2.290	1.801	2.283	51.7	2.908	5.2	-2.089	2.376	-48.7	3.164
2964541.3	704007.6	1283.3	14.111	27.454	62.8	30.868	43.1	2.456	1.958	2.136	47.5	2.898	7.0	-2.247	2.153	-43.8	3.112
2964546.3	704007.7	1283.2	14.399	29.293	63.8	32.640	42.7	2.597	2.074	1.838	41.6	2.771	9.8	-2.356	1.762	-36.8	2.942
2964551.3	704007.8	1283.2	14.521	30.686	64.7	33.948	42.7	2.701	2.142	1.398	33.1	2.558	14.0	-2.404	1.209	-26.7	2.690
2964556.3	704007.9	1283.1	14.515	31.498	65.3	34.682	43.0	2.760	2.163	0.868	21.9	2.331	18.7	-2.384	0.535	-12.7	2.443
2964561.3	704008.0	1283.0	14.459	31.746	65.5	34.884	43.8	2.776	2.144	0.473	12.5	2.196	21.8	-2.343	-0.175	4.3	2.350
2964566.3	704008.1	1283.0	14.379	31.392	65.4	34.529	45.0	2.748	2.087	0.744	19.6	2.215	19.9	-2.277	-0.867	20.8	2.436
2964571.2	704008.2	1283.0	14.255	30.414	64.9	33.589	46.6	2.673	1.991	1.253	32.2	2.352	14.9	-2.158	-1.468	34.2	2.610
2964576.2	704008.3	1282.9	14.053	28.885	64.1	32.122	48.6	2.556	1.856	1.690	42.3	2.510	10.3	-1.984	-1.911	43.9	2.755
2964581.2	704008.4	1282.8	13.744	26.967	63.0	30.267	50.9	2.409	1.684	1.989	49.8	2.606	7.3	-1.775	-2.180	50.8	2.811
2964586.2	704008.5	1282.8	13.303	24.807	61.8	28.149	53.4	2.240	1.482	2.141	55.3	2.604	5.4	-1.542	-2.282	56.0	2.754
2964591.2	704008.6	1282.7	12.732	22.552	60.6	25.898	56.0	2.061	1.263	2.165	59.7	2.506	4.4	-1.298	-2.247	60.0	2.595
2964596.2	704008.7	1282.6	12.057	20.326	59.3	23.633	58.6	1.881	1.042	2.091	63.5	2.336	3.9	-1.059	-2.117	63.4	2.367
2964601.2	704008.8	1282.6	11.314	18.217	58.2	21.445	61.2	1.707	0.832	1.954	66.9	2.123	3.6	-0.838	-1.929	66.5	2.103
2964606.2	704008.9	1282.5	10.538	16.278	57.1	19.391	63.6	1.543	0.643	1.783	70.2	1.895	3.4	-0.643	-1.715	69.4	1.831
2964611.2	704009.0	1282.4	9.764	14.533	56.1	17.508	66.0	1.393	0.480	1.601	73.3	1.671	3.4	-0.479	-1.499	72.3	1.573
2964616.2	704009.1	1282.4	9.019	12.991	55.2	15.815	68.1	1.259	0.344	1.421	76.4	1.462	3.4	-0.348	-1.308	75.1	1.353
2964621.2	704009.2	1282.4	8.312	11.634	54.5	14.298	70.2	1.138	0.233	1.254	79.5	1.275	3.4	-0.243	-1.132	77.9	1.158
2964626.2	704009.3	1282.3	7.650	10.442	53.8	12.945	72.0	1.030	0.145	1.101	82.5	1.111	3.3	-0.159	-0.973	80.7	0.986
2964631.2	704009.4	1282.3	7.037	9.399	53.2	11.742	73.8	0.934	0.077	0.966	85.4	0.969	3.3	-0.094	-0.829	83.5	0.835
2964636.2	704009.5	1282.2	6.476	8.487	52.7	10.675	75.3	0.850	0.032	0.847	87.8	0.848	3.2	-0.046	-0.703	86.3	0.704

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Attachment 5

Wire low point cross section results between structures 2 and 3



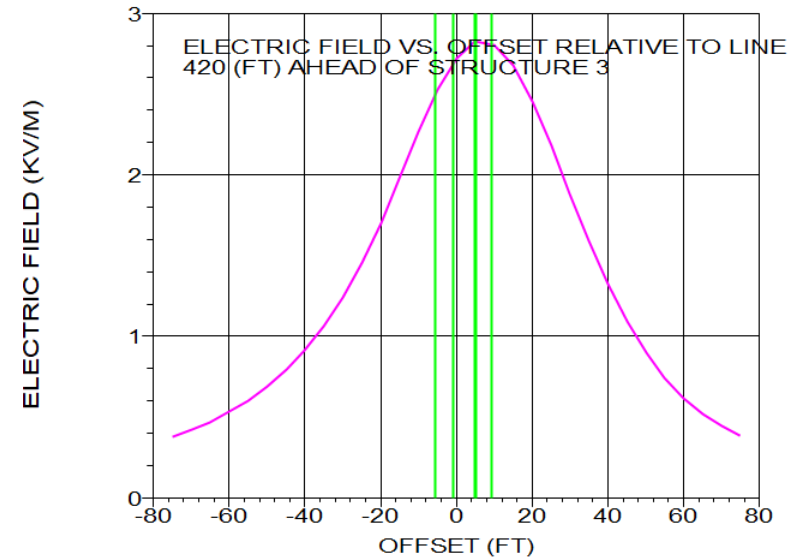
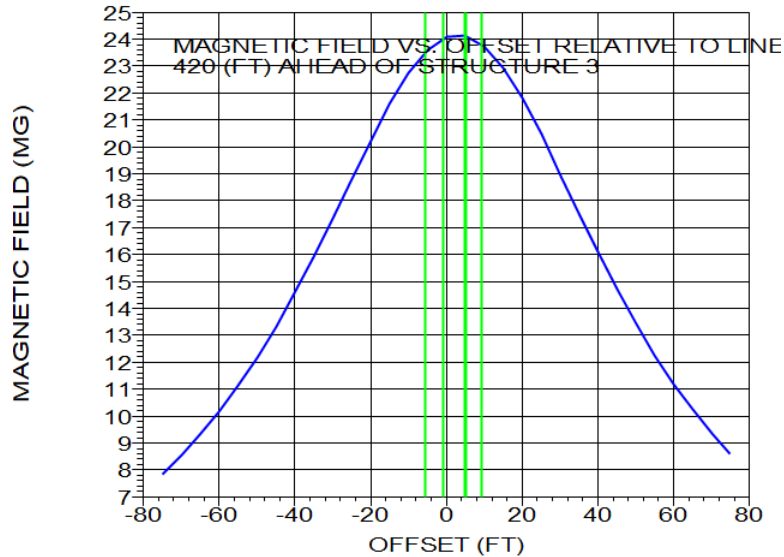
3D EMF Point Results Span from 2 to 3:

-----Measurement-----			B-----					H	EF-----					-----Space Potential-----			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2964471.2	704735.8	1274.1	6.179	7.232	49.5	9.512	42.0	0.757	0.418	0.843	63.6	0.941	1.7	-0.438	0.903	-64.2	1.004
2964476.2	704735.9	1274.0	6.722	7.992	49.9	10.443	41.9	0.831	0.495	0.947	62.4	1.069	1.8	-0.517	1.001	-62.7	1.127
2964481.2	704736.0	1274.0	7.321	8.854	50.4	11.489	41.7	0.914	0.585	1.064	61.2	1.215	1.8	-0.609	1.108	-61.2	1.265
2964486.2	704736.1	1273.9	7.977	9.832	50.9	12.661	41.6	1.008	0.690	1.193	60.0	1.379	1.9	-0.717	1.226	-59.7	1.420
2964491.2	704736.2	1273.9	8.692	10.938	51.5	13.971	41.5	1.112	0.811	1.332	58.7	1.560	2.0	-0.841	1.351	-58.1	1.591
2964496.2	704736.3	1273.9	9.461	12.179	52.2	15.422	41.5	1.227	0.949	1.477	57.3	1.755	2.1	-0.980	1.476	-56.4	1.772
2964501.2	704736.4	1273.8	10.274	13.556	52.8	17.010	41.5	1.354	1.101	1.620	55.8	1.959	2.4	-1.131	1.589	-54.6	1.951
2964506.2	704736.5	1273.7	11.114	15.059	53.6	18.717	41.6	1.489	1.266	1.749	54.1	2.159	2.7	-1.288	1.676	-52.5	2.114
2964511.2	704736.6	1273.7	11.960	16.667	54.3	20.514	41.7	1.632	1.436	1.848	52.1	2.340	3.2	-1.447	1.722	-50.0	2.249
2964516.2	704736.7	1273.6	12.782	18.338	55.1	22.353	42.1	1.779	1.605	1.894	49.7	2.483	3.9	-1.602	1.710	-46.9	2.343
2964521.2	704736.8	1273.6	13.543	20.007	55.9	24.160	42.6	1.923	1.759	1.865	46.7	2.563	4.9	-1.743	1.617	-42.9	2.378
2964526.2	704736.9	1273.6	14.203	21.581	56.6	25.835	43.3	2.056	1.886	1.737	42.6	2.564	6.4	-1.855	1.420	-37.4	2.337
2964531.2	704737.0	1273.5	14.728	22.947	57.3	27.267	44.4	2.170	1.976	1.498	37.2	2.480	8.6	-1.924	1.107	-29.9	2.219
2964536.2	704737.1	1273.4	15.092	23.980	57.8	28.334	45.7	2.255	2.018	1.154	29.8	2.325	11.4	-1.929	0.680	-19.4	2.045
2964541.2	704737.2	1273.4	15.304	24.612	58.1	28.982	47.5	2.306	2.010	0.738	20.2	2.141	14.5	-1.883	0.183	-5.6	1.892
2964546.2	704737.3	1273.3	15.376	24.787	58.2	29.168	49.6	2.321	1.951	0.369	10.7	1.986	16.9	-1.790	-0.337	10.7	1.822
2964551.2	704737.4	1273.2	15.320	24.492	58.0	28.889	52.1	2.299	1.844	0.472	14.3	1.904	16.9	-1.655	-0.829	26.6	1.851
2964556.2	704737.5	1273.2	15.142	23.754	57.5	28.170	54.9	2.242	1.694	0.853	26.7	1.897	14.4	-1.482	-1.245	40.0	1.936
2964561.2	704737.7	1273.1	14.841	22.638	56.8	27.069	57.9	2.154	1.507	1.196	38.4	1.924	11.2	-1.281	-1.552	50.5	2.013
2964566.2	704737.8	1273.0	14.415	21.237	55.8	25.667	61.1	2.043	1.293	1.441	48.1	1.936	8.6	-1.060	-1.738	58.6	2.036
2964571.2	704737.9	1272.9	13.870	19.658	54.8	24.059	64.2	1.915	1.064	1.581	56.1	1.905	6.8	-0.834	-1.807	65.2	1.991
2964576.2	704738.0	1272.9	13.222	18.001	53.7	22.336	67.2	1.777	0.834	1.624	62.8	1.826	5.7	-0.616	-1.783	70.9	1.886
2964581.2	704738.1	1272.8	12.499	16.357	52.6	20.586	70.0	1.638	0.616	1.593	68.9	1.707	5.1	-0.419	-1.693	76.1	1.744
2964586.2	704738.2	1272.8	11.729	14.786	51.6	18.873	72.4	1.502	0.419	1.509	74.5	1.567	4.8	-0.248	-1.568	81.0	1.588
2964591.2	704738.3	1272.7	10.938	13.322	50.6	17.237	74.3	1.372	0.251	1.396	79.8	1.418	4.7	-0.107	-1.421	85.7	1.425
2964596.2	704738.4	1272.7	10.154	11.989	49.7	15.711	75.8	1.250	0.117	1.268	84.7	1.273	4.6	0.006	-1.274	-89.7	1.274
2964601.2	704738.5	1272.6	9.394	10.789	49.0	14.306	76.7	1.138	0.052	1.138	87.4	1.139	4.5	0.093	-1.134	-85.3	1.138
2964606.2	704738.6	1272.6	8.670	9.719	48.3	13.024	77.3	1.036	0.107	1.012	84.0	1.018	4.3	0.157	-1.002	-81.1	1.014
2964611.2	704738.7	1272.6	7.989	8.768	47.7	11.862	77.4	0.944	0.166	0.896	79.5	0.911	4.2	0.203	-0.881	-77.0	0.904
2964616.2	704738.8	1272.6	7.357	7.928	47.1	10.816	77.3	0.861	0.210	0.791	75.1	0.818	3.9	0.233	-0.773	-73.3	0.807
2964621.2	704738.9	1272.5	6.774	7.187	46.7	9.876	76.9	0.786	0.240	0.697	71.0	0.737	3.7	0.251	-0.678	-69.7	0.723

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Attachment 5

Wire low point cross section results between structures 3 and 4



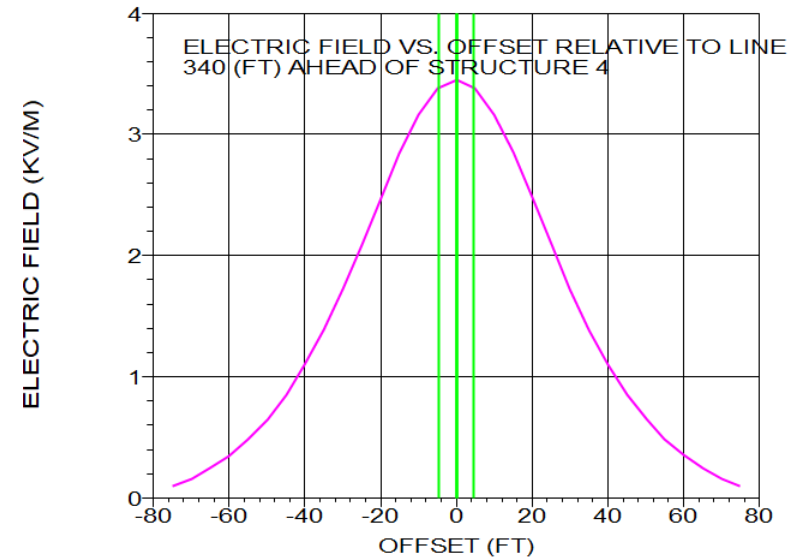
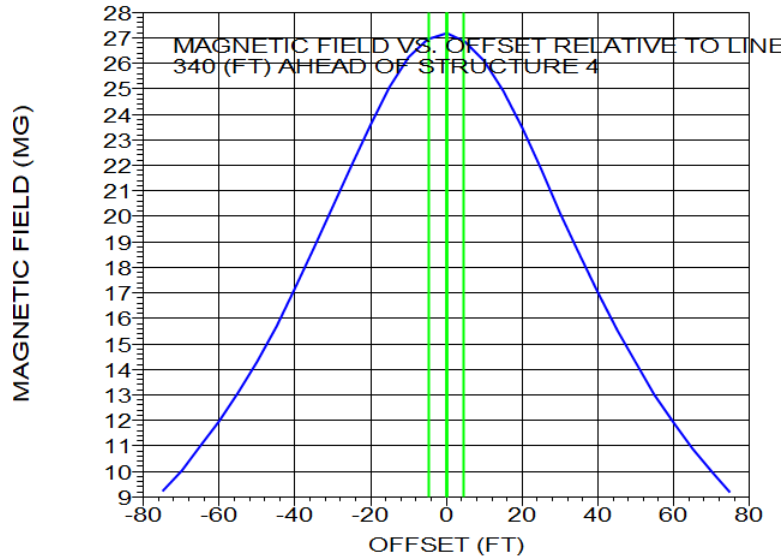
3D EMF Point Results Span from 3 to 4:

-----Measurement-----			B-----					H	EF-----					-----Space Potential-----			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2964457.3	705410.3	1262.4	6.601	4.234	32.7	7.842	51.0	0.624	0.167	0.337	63.6	0.376	6.1	-0.163	0.328	-63.5	0.366
2964462.3	705410.4	1262.5	7.153	4.664	33.1	8.539	51.5	0.680	0.222	0.356	58.1	0.419	6.4	-0.218	0.348	-58.0	0.411
2964467.3	705410.6	1262.5	7.761	5.151	33.6	9.315	52.0	0.741	0.289	0.372	52.2	0.471	6.8	-0.284	0.366	-52.2	0.463
2964472.3	705410.7	1262.5	8.429	5.701	34.1	10.176	52.5	0.810	0.369	0.383	46.0	0.532	7.2	-0.363	0.377	-46.1	0.523
2964477.3	705410.8	1262.5	9.159	6.323	34.6	11.129	52.9	0.886	0.467	0.385	39.5	0.605	7.6	-0.458	0.378	-39.6	0.594
2964482.3	705410.9	1262.5	9.954	7.022	35.2	12.182	53.1	0.969	0.582	0.372	32.6	0.691	8.1	-0.570	0.366	-32.7	0.678
2964487.3	705411.0	1262.5	10.814	7.803	35.8	13.336	53.3	1.061	0.717	0.340	25.4	0.793	8.5	-0.701	0.334	-25.5	0.777
2964492.3	705411.1	1262.5	11.736	8.667	36.4	14.589	53.2	1.161	0.872	0.282	17.9	0.916	8.9	-0.852	0.274	-17.8	0.896
2964497.3	705411.2	1262.5	12.712	9.606	37.1	15.933	52.9	1.268	1.046	0.195	10.6	1.065	9.2	-1.022	0.178	-9.9	1.038
2964502.3	705411.3	1262.5	13.729	10.608	37.7	17.350	52.2	1.381	1.238	0.117	5.4	1.243	9.3	-1.211	0.037	-1.7	1.211
2964507.3	705411.4	1262.5	14.764	11.643	38.3	18.803	51.2	1.496	1.439	0.226	8.9	1.457	9.2	-1.411	-0.159	6.4	1.420
2964512.3	705411.5	1262.5	15.785	12.665	38.7	20.237	49.8	1.610	1.640	0.466	15.9	1.705	8.6	-1.612	-0.409	14.3	1.663
2964517.3	705411.6	1262.5	16.745	13.609	39.1	21.578	48.1	1.717	1.826	0.767	22.8	1.981	7.9	-1.799	-0.710	21.5	1.934
2964522.3	705411.7	1262.5	17.591	14.398	39.3	22.732	46.1	1.809	1.980	1.099	29.0	2.265	6.9	-1.956	-1.040	28.0	2.215
2964527.3	705411.8	1262.5	18.258	14.952	39.3	23.599	43.9	1.878	2.082	1.429	34.5	2.526	5.9	-2.061	-1.369	33.6	2.475
2964532.3	705411.9	1262.5	18.678	15.196	39.1	24.079	41.7	1.916	2.115	1.716	39.1	2.723	5.0	-2.094	-1.654	38.3	2.668
2964537.3	705412.0	1262.5	18.812	15.105	38.8	24.125	39.6	1.920	2.069	1.922	42.9	2.824	4.2	-2.052	-1.863	42.2	2.771
2964542.3	705412.1	1262.5	18.635	14.682	38.2	23.724	37.6	1.888	1.945	2.024	46.1	2.807	3.6	-1.933	-1.971	45.6	2.761
2964547.3	705412.2	1262.5	18.163	13.980	37.6	22.920	35.8	1.824	1.756	2.021	49.0	2.677	3.3	-1.750	-1.974	48.5	2.638
2964552.3	705412.3	1262.6	17.442	13.077	36.9	21.800	34.3	1.735	1.524	1.927	51.7	2.457	3.2	-1.522	-1.889	51.1	2.426
2964557.2	705412.4	1262.6	16.537	12.061	36.1	20.468	33.1	1.629	1.273	1.772	54.3	2.181	3.3	-1.274	-1.741	53.8	2.158
2964562.2	705412.5	1262.6	15.516	11.007	35.4	19.023	32.2	1.514	1.023	1.582	57.1	1.884	3.6	-1.026	-1.557	56.6	1.864
2964567.2	705412.6	1262.5	14.432	9.968	34.6	17.540	31.5	1.396	0.790	1.383	60.3	1.592	4.0	-0.789	-1.353	59.8	1.566
2964572.2	705412.7	1262.5	13.348	8.990	34.0	16.093	30.9	1.281	0.584	1.190	63.9	1.326	4.6	-0.580	-1.157	63.4	1.294
2964577.2	705412.8	1262.5	12.296	8.093	33.4	14.720	30.6	1.171	0.409	1.014	68.0	1.093	5.3	-0.404	-0.979	67.6	1.060
2964582.2	705412.9	1262.5	11.299	7.283	32.8	13.443	30.4	1.070	0.265	0.859	72.9	0.898	6.1	-0.260	-0.823	72.5	0.863
2964587.2	705413.0	1262.5	10.368	6.561	32.3	12.269	30.3	0.976	0.151	0.724	78.2	0.740	6.9	-0.145	-0.689	78.1	0.705
2964592.2	705413.1	1262.5	9.511	5.922	31.9	11.204	30.3	0.892	0.068	0.610	83.6	0.614	7.6	-0.056	-0.578	84.5	0.581
2964597.2	705413.2	1262.4	8.726	5.357	31.5	10.239	30.4	0.815	0.047	0.515	84.8	0.517	8.1	0.013	-0.484	-88.5	0.484
2964602.2	705413.3	1262.4	8.012	4.859	31.2	9.370	30.5	0.746	0.084	0.435	79.1	0.443	8.4	0.064	-0.407	-81.0	0.412
2964607.2	705413.4	1262.4	7.364	4.420	31.0	8.589	30.7	0.684	0.119	0.368	72.1	0.387	8.3	0.102	-0.343	-73.4	0.358

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Attachment 5

Wire low point cross section results between structures 4 and 5



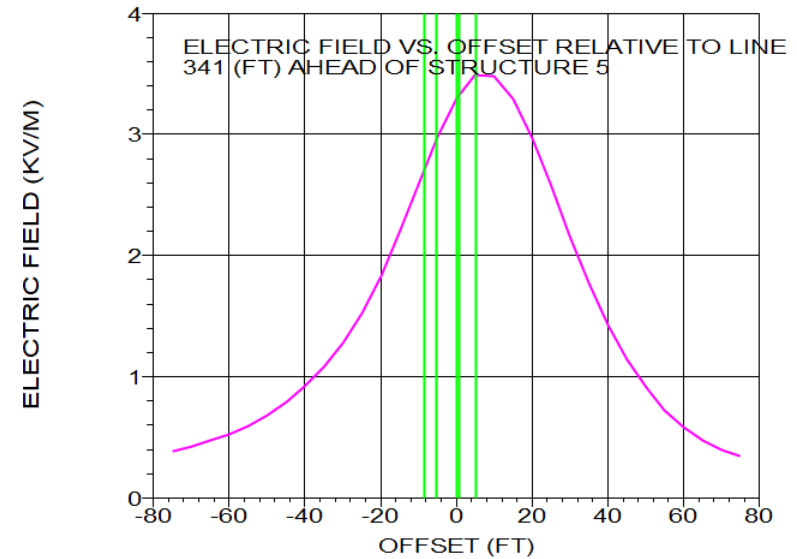
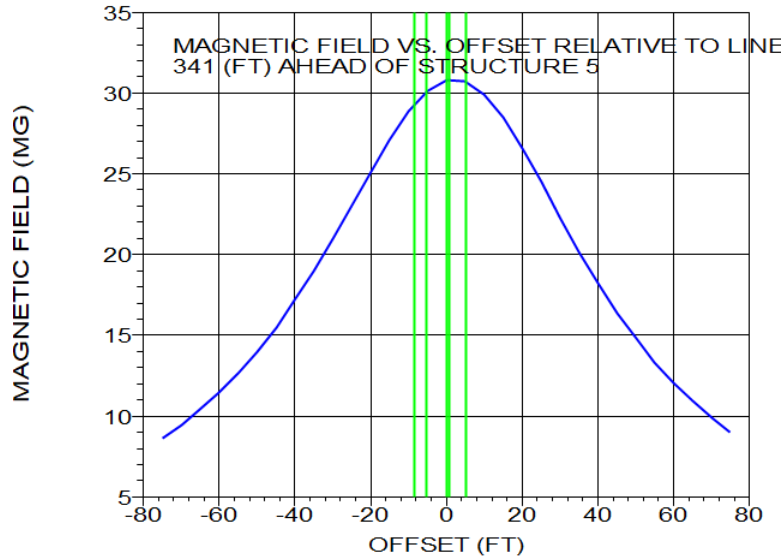
3D EMF Point Results Span from 4 to 5:

-----Measurement-----			B-----					H	EF-----					-----Space Potential-----			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2964422.1	706028.8	1260.0	7.639	5.192	34.2	9.236	10.4	0.735	0.082	0.052	32.1	0.097	1.4	-0.104	-0.061	30.4	0.121
2964427.1	706029.3	1259.9	8.274	5.704	34.6	10.049	10.4	0.800	0.135	0.088	33.1	0.162	1.4	-0.164	-0.102	32.0	0.193
2964432.1	706029.7	1259.9	8.972	6.281	35.0	10.952	10.3	0.872	0.202	0.138	34.2	0.245	1.4	-0.237	-0.156	33.4	0.284
2964437.1	706030.1	1259.8	9.740	6.933	35.4	11.955	10.3	0.951	0.286	0.203	35.3	0.350	1.5	-0.327	-0.226	34.7	0.397
2964442.1	706030.6	1259.8	10.586	7.672	35.9	13.074	10.1	1.040	0.388	0.287	36.5	0.483	1.6	-0.439	-0.319	36.0	0.543
2964447.0	706031.0	1259.8	11.510	8.503	36.5	14.310	9.9	1.139	0.512	0.397	37.8	0.648	1.6	-0.575	-0.439	37.3	0.723
2964452.0	706031.4	1259.8	12.511	9.430	37.0	15.667	9.6	1.247	0.660	0.536	39.1	0.850	1.7	-0.738	-0.591	38.7	0.945
2964457.0	706031.9	1259.8	13.584	10.456	37.6	17.142	9.1	1.364	0.834	0.711	40.4	1.096	1.7	-0.928	-0.781	40.1	1.213
2964462.0	706032.3	1259.8	14.719	11.573	38.2	18.724	8.6	1.490	1.034	0.924	41.8	1.387	1.8	-1.147	-1.014	41.5	1.531
2964467.0	706032.7	1259.8	15.894	12.765	38.8	20.385	7.8	1.622	1.256	1.177	43.1	1.721	1.7	-1.391	-1.290	42.9	1.897
2964472.0	706033.2	1259.8	17.051	13.972	39.3	22.045	6.9	1.754	1.495	1.463	44.4	2.092	1.6	-1.630	-1.582	44.1	2.272
2964476.9	706033.6	1259.7	18.151	15.149	39.8	23.643	5.7	1.881	1.736	1.769	45.5	2.478	1.4	-1.864	-1.883	45.3	2.649
2964481.9	706034.0	1259.7	19.127	16.217	40.3	25.076	4.4	1.996	1.962	2.067	46.5	2.850	1.2	-2.073	-2.168	46.3	2.999
2964486.9	706034.5	1259.6	19.896	17.077	40.6	26.220	3.0	2.087	2.149	2.324	47.2	3.165	1.0	-2.235	-2.399	47.0	3.279
2964491.9	706034.9	1259.6	20.380	17.635	40.9	26.951	1.4	2.145	2.274	2.499	47.7	3.379	0.8	-2.328	-2.541	47.5	3.446
2964496.9	706035.4	1259.5	20.521	17.816	41.0	27.176	0.2	2.163	2.317	2.562	47.9	3.454	0.7	-2.336	-2.565	47.7	3.469
2964501.8	706035.8	1259.5	20.307	17.606	40.9	26.876	1.7	2.139	2.273	2.501	47.7	3.379	0.7	-2.264	-2.473	47.5	3.352
2964506.8	706036.2	1259.5	19.761	17.031	40.8	26.087	3.3	2.076	2.148	2.327	47.3	3.167	0.9	-2.118	-2.278	47.1	3.110
2964511.8	706036.7	1259.4	18.942	16.161	40.5	24.900	4.7	1.981	1.960	2.072	46.6	2.852	1.1	-1.914	-2.008	46.4	2.774
2964516.8	706037.1	1259.4	17.931	15.094	40.1	23.438	5.9	1.865	1.734	1.775	45.7	2.481	1.2	-1.677	-1.702	45.4	2.390
2964521.8	706037.5	1259.3	16.808	13.925	39.6	21.827	6.9	1.737	1.492	1.470	44.6	2.095	1.3	-1.430	-1.396	44.3	1.999
2964526.7	706038.0	1259.3	15.641	12.734	39.1	20.169	7.8	1.605	1.254	1.184	43.4	1.725	1.4	-1.191	-1.113	43.1	1.630
2964531.7	706038.4	1259.3	14.485	11.578	38.6	18.544	8.4	1.476	1.032	0.932	42.1	1.390	1.4	-0.975	-0.870	41.8	1.307
2964536.7	706038.8	1259.3	13.371	10.492	38.1	16.996	8.9	1.353	0.832	0.718	40.8	1.099	1.4	-0.785	-0.668	40.4	1.031
2964541.7	706039.3	1259.3	12.317	9.492	37.6	15.550	9.3	1.237	0.658	0.544	39.6	0.854	1.3	-0.621	-0.504	39.1	0.800
2964546.7	706039.7	1259.2	11.333	8.583	37.1	14.216	9.5	1.131	0.510	0.404	38.4	0.650	1.2	-0.482	-0.374	37.8	0.610
2964551.7	706040.1	1259.2	10.425	7.767	36.7	13.000	9.6	1.034	0.386	0.294	37.3	0.485	1.1	-0.366	-0.272	36.6	0.456
2964556.6	706040.6	1259.2	9.592	7.038	36.3	11.897	9.6	0.947	0.283	0.208	36.3	0.352	0.9	-0.272	-0.193	35.4	0.333
2964561.6	706041.0	1259.2	8.831	6.389	35.9	10.900	9.5	0.867	0.200	0.142	35.5	0.245	0.7	-0.195	-0.133	34.3	0.236
2964566.6	706041.4	1259.2	8.138	5.812	35.5	10.001	9.4	0.796	0.133	0.092	34.9	0.162	0.4	-0.133	-0.087	33.3	0.159
2964571.6	706041.9	1259.1	7.509	5.301	35.2	9.192	9.3	0.731	0.079	0.055	34.8	0.096	0.4	-0.084	-0.053	32.3	0.100

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Attachment 5

Wire low point cross section results between structures 5 and 6



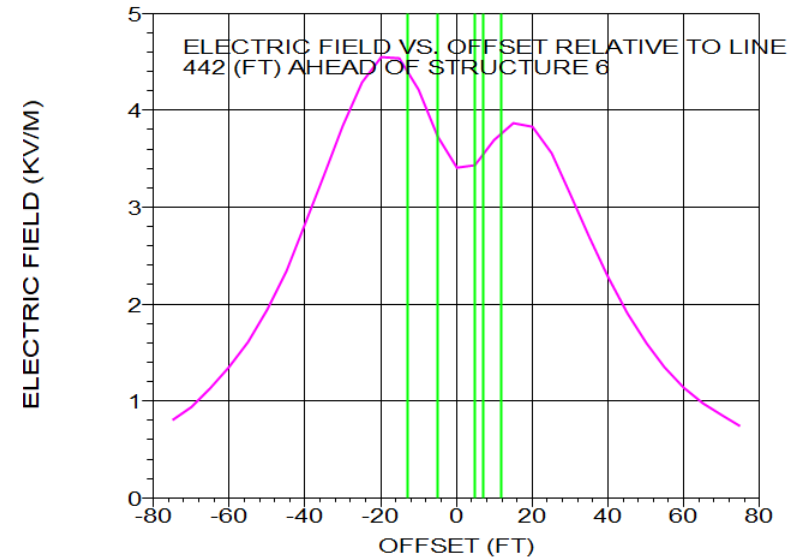
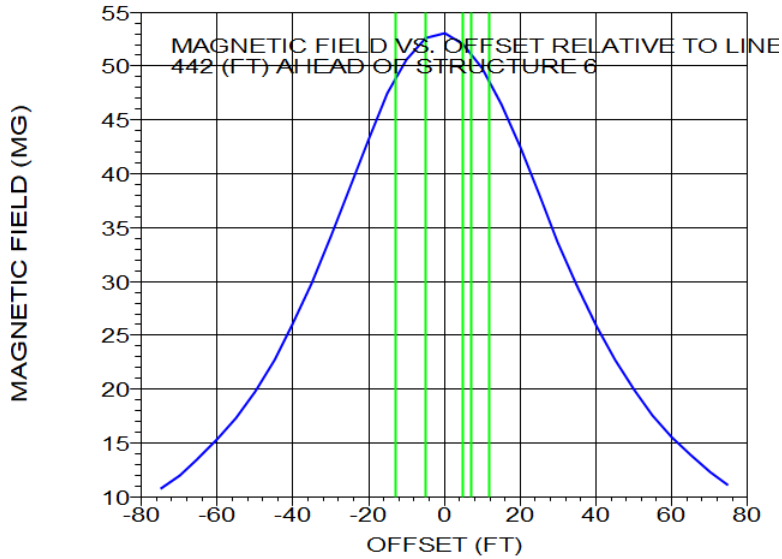
3D EMF Point Results Span from 5 to 6:

Measurement			B-					H	EF					Space Potential			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2964385.2	706709.8	1264.1	7.534	4.168	29.0	8.610	44.7	0.685	0.035	0.385	84.7	0.387	7.6	0.052	0.400	82.6	0.403
2964390.2	706709.9	1264.1	8.236	4.626	29.3	9.446	45.2	0.752	0.043	0.423	84.2	0.425	8.4	0.004	0.433	89.5	0.433
2964395.2	706710.0	1264.0	9.019	5.154	29.7	10.388	45.9	0.827	0.092	0.462	78.7	0.471	9.2	-0.059	0.467	-82.8	0.471
2964400.2	706710.1	1264.0	9.892	5.765	30.2	11.449	46.5	0.911	0.165	0.501	71.8	0.528	10.0	-0.140	0.499	-74.4	0.519
2964405.2	706710.3	1264.0	10.862	6.471	30.8	12.643	47.2	1.006	0.261	0.537	64.1	0.597	10.7	-0.243	0.527	-65.2	0.580
2964410.2	706710.4	1264.0	11.938	7.289	31.4	13.988	47.9	1.113	0.383	0.566	55.9	0.683	11.4	-0.374	0.546	-55.6	0.661
2964415.2	706710.5	1264.0	13.123	8.232	32.1	15.492	48.5	1.233	0.537	0.580	47.2	0.790	12.0	-0.537	0.547	-45.5	0.766
2964420.2	706710.6	1263.9	14.415	9.312	32.9	17.161	49.0	1.366	0.724	0.569	38.2	0.921	12.6	-0.736	0.519	-35.2	0.900
2964425.1	706710.7	1263.9	15.803	10.530	33.7	18.990	49.3	1.511	0.950	0.521	28.8	1.083	13.0	-0.971	0.445	-24.6	1.068
2964430.1	706710.8	1263.9	17.270	11.882	34.5	20.963	49.3	1.668	1.211	0.423	19.3	1.283	13.3	-1.242	0.310	-14.0	1.280
2964435.1	706710.9	1263.9	18.784	13.337	35.4	23.037	48.8	1.833	1.503	0.280	10.5	1.529	13.2	-1.543	0.093	-3.5	1.546
2964440.1	706711.0	1263.8	20.280	14.827	36.2	25.123	47.7	1.999	1.814	0.246	7.7	1.831	12.6	-1.850	-0.218	6.7	1.863
2964445.1	706711.1	1263.8	21.692	16.257	36.8	27.108	46.1	2.157	2.122	0.537	14.2	2.189	11.3	-2.145	-0.622	16.2	2.233
2964450.1	706711.3	1263.8	22.926	17.492	37.3	28.837	43.9	2.295	2.396	0.974	22.1	2.587	9.7	-2.398	-1.095	24.5	2.636
2964455.1	706711.4	1263.7	23.873	18.385	37.6	30.131	41.3	2.398	2.602	1.455	29.2	2.982	7.9	-2.583	-1.586	31.6	3.031
2964460.1	706711.5	1263.7	24.413	18.790	37.6	30.807	38.5	2.452	2.705	1.899	35.1	3.305	6.1	-2.662	-2.025	37.3	3.344
2964465.1	706711.6	1263.7	24.456	18.629	37.3	30.743	35.8	2.446	2.682	2.227	39.7	3.486	4.7	-2.615	-2.335	41.8	3.506
2964470.1	706711.7	1263.6	23.970	17.918	36.8	29.927	33.2	2.382	2.531	2.390	43.4	3.481	3.6	-2.441	-2.470	45.3	3.473
2964475.1	706711.8	1263.6	23.010	16.773	36.1	28.475	30.9	2.266	2.276	2.380	46.3	3.294	2.8	-2.168	-2.429	48.3	3.256
2964480.1	706711.9	1263.6	21.695	15.361	35.3	26.582	29.0	2.115	1.956	2.234	48.8	2.969	2.4	-1.837	-2.254	50.8	2.908
2964485.1	706712.0	1263.5	20.165	13.848	34.5	24.462	27.5	1.947	1.613	2.003	51.1	2.572	2.3	-1.494	-2.003	53.3	2.499
2964490.1	706712.1	1263.5	18.560	12.366	33.7	22.302	26.4	1.775	1.282	1.737	53.6	2.159	2.5	-1.178	-1.738	55.9	2.100
2964495.1	706712.2	1263.5	16.957	10.977	32.9	20.200	25.5	1.607	0.982	1.473	56.3	1.770	2.9	-0.893	-1.474	58.8	1.724
2964500.1	706712.4	1263.5	15.417	9.719	32.2	18.225	24.9	1.450	0.726	1.230	59.5	1.428	3.5	-0.648	-1.230	62.2	1.390
2964505.1	706712.5	1263.4	13.973	8.602	31.6	16.409	24.6	1.306	0.514	1.019	63.3	1.142	4.3	-0.442	-1.008	66.3	1.101
2964510.1	706712.6	1263.4	12.654	7.631	31.1	14.777	24.4	1.176	0.344	0.841	67.8	0.909	5.1	-0.280	-0.824	71.2	0.870
2964515.1	706712.7	1263.4	11.466	6.793	30.6	13.327	24.3	1.061	0.211	0.694	73.1	0.725	6.1	-0.156	-0.676	77.0	0.694
2964520.1	706712.8	1263.4	10.403	6.072	30.3	12.046	24.4	0.959	0.111	0.573	79.1	0.584	7.1	-0.062	-0.559	83.6	0.562
2964525.1	706712.9	1263.3	9.452	5.450	30.0	10.911	24.5	0.868	0.045	0.475	84.6	0.477	8.0	0.008	-0.463	-89.0	0.463
2964530.1	706713.0	1263.3	8.604	4.913	29.7	9.908	24.7	0.788	0.049	0.395	82.9	0.398	8.6	0.061	-0.386	-81.0	0.390
2964535.1	706713.1	1263.3	7.849	4.448	29.5	9.022	24.9	0.718	0.085	0.330	75.6	0.341	8.9	0.099	-0.323	-72.9	0.338

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Attachment 5

Wire low point cross section results between structures 6 and 7



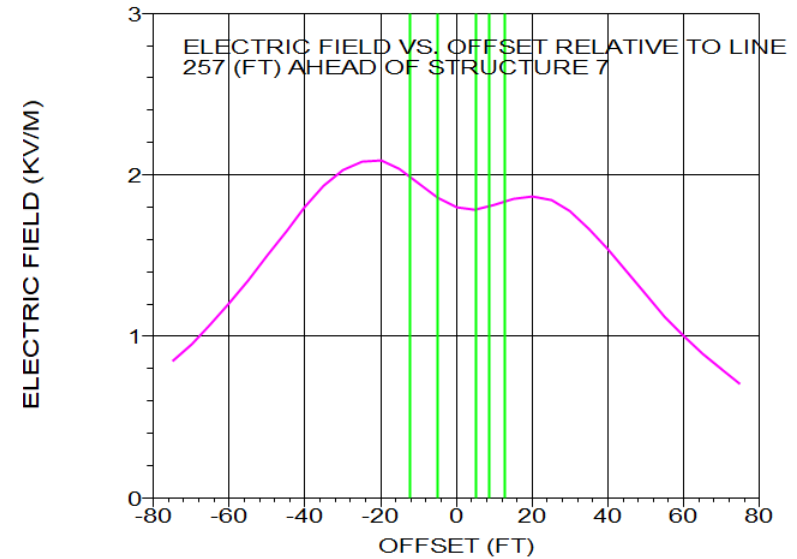
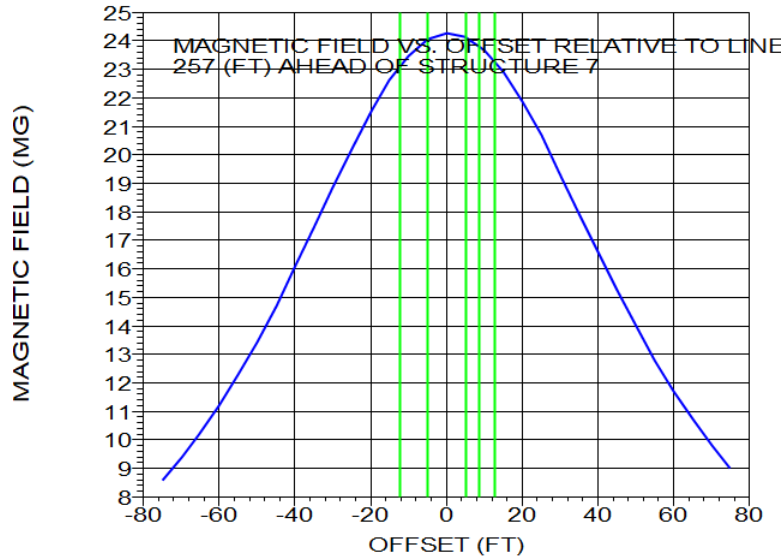
3D EMF Point Results Span from 6 to 7:

-----Measurement-----			B-----					H	EF-----					-----Space Potential-----			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2964893.6	707182.7	1262.1	7.277	7.930	47.5	10.763	49.1	0.857	0.175	0.783	77.4	0.802	2.1	-0.152	0.675	-77.3	0.692
2964893.6	707177.7	1262.2	8.070	8.935	47.9	12.040	48.6	0.958	0.243	0.915	75.1	0.947	2.2	-0.216	0.816	-75.2	0.844
2964893.5	707172.7	1262.4	8.982	10.126	48.4	13.536	48.1	1.077	0.332	1.075	72.9	1.125	2.2	-0.301	0.991	-73.1	1.035
2964893.5	707167.7	1262.5	10.030	11.549	49.0	15.296	47.5	1.217	0.446	1.269	70.6	1.345	2.2	-0.415	1.207	-71.0	1.277
2964893.4	707162.7	1262.6	11.227	13.248	49.7	17.365	46.8	1.382	0.594	1.503	68.4	1.616	2.2	-0.562	1.460	-68.9	1.564
2964893.4	707157.7	1262.7	12.586	15.282	50.5	19.798	46.2	1.575	0.783	1.783	66.3	1.947	2.2	-0.746	1.751	-66.9	1.903
2964893.3	707152.7	1262.7	14.124	17.726	51.5	22.664	45.5	1.804	1.021	2.110	64.2	2.344	2.2	-0.982	2.097	-64.9	2.315
2964893.3	707147.7	1262.8	15.826	20.637	52.5	26.007	44.9	2.070	1.315	2.481	62.1	2.808	2.2	-1.271	2.483	-62.9	2.790
2964893.3	707142.7	1262.8	17.661	24.068	53.7	29.853	44.2	2.376	1.665	2.873	59.9	3.321	2.3	-1.618	2.900	-60.8	3.320
2964893.2	707137.7	1262.8	19.550	28.013	55.1	34.161	43.7	2.718	2.059	3.242	57.6	3.841	2.6	-2.013	3.303	-58.6	3.868
2964893.2	707132.7	1262.9	21.352	32.359	56.6	38.768	43.3	3.085	2.470	3.506	54.8	4.288	3.2	-2.431	3.611	-56.0	4.353
2964893.1	707127.7	1262.9	22.873	36.830	58.2	43.355	43.1	3.450	2.849	3.551	51.3	4.553	4.6	-2.823	3.706	-52.7	4.658
2964893.1	707122.7	1263.0	23.932	40.998	59.7	47.472	43.3	3.778	3.143	3.266	46.1	4.533	7.1	-3.136	3.468	-47.9	4.676
2964893.0	707117.7	1263.0	24.454	44.369	61.1	50.662	43.9	4.032	3.313	2.599	38.1	4.211	11.8	-3.339	2.828	-40.3	4.375
2964893.0	707112.7	1263.1	24.527	46.502	62.2	52.574	45.2	4.184	3.354	1.641	26.1	3.734	19.4	-3.418	1.806	-27.8	3.866
2964892.9	707107.7	1263.1	24.358	47.126	62.7	53.049	47.3	4.222	3.288	0.879	15.0	3.403	26.2	-3.383	0.536	-9.0	3.425
2964892.9	707102.7	1263.2	24.124	46.188	62.4	52.109	50.1	4.147	3.131	1.411	24.3	3.435	24.0	-3.249	-0.765	13.2	3.338
2964892.9	707097.8	1263.2	23.813	43.777	61.5	49.835	53.7	3.966	2.884	2.299	38.6	3.688	16.7	-3.000	-1.867	31.9	3.534
2964892.8	707092.8	1263.2	23.296	40.246	59.9	46.502	57.8	3.701	2.543	2.918	48.9	3.870	11.3	-2.653	-2.624	44.7	3.731
2964892.8	707087.8	1263.3	22.426	36.027	58.1	42.436	62.2	3.377	2.124	3.180	56.3	3.824	8.4	-2.219	-2.989	53.4	3.723
2964892.7	707082.8	1263.3	21.169	31.580	56.2	38.019	66.8	3.025	1.668	3.140	62.0	3.555	7.1	-1.734	-3.007	60.0	3.472
2964892.7	707077.8	1263.3	19.637	27.334	54.3	33.656	71.3	2.678	1.227	2.903	67.1	3.152	6.6	-1.267	-2.812	65.7	3.084
2964892.6	707072.8	1263.3	17.967	23.510	52.6	29.589	75.7	2.355	0.837	2.573	72.0	2.706	6.5	-0.855	-2.509	71.2	2.651
2964892.6	707067.8	1263.2	16.274	20.185	51.1	25.928	79.7	2.063	0.519	2.221	76.8	2.281	6.5	-0.514	-2.163	76.6	2.223
2964892.5	707062.8	1263.2	14.651	17.367	49.8	22.721	83.4	1.808	0.277	1.888	81.7	1.909	6.5	-0.249	-1.829	82.2	1.846
2964892.5	707057.8	1263.2	13.151	15.007	48.8	19.954	86.8	1.588	0.121	1.593	85.7	1.598	6.5	-0.055	-1.533	88.0	1.534
2964892.5	707052.8	1263.2	11.800	13.046	47.9	17.591	89.8	1.400	0.110	1.341	85.3	1.346	6.3	0.083	-1.291	-86.3	1.293
2964892.4	707047.8	1263.2	10.593	11.408	47.1	15.568	92.5	1.239	0.174	1.130	81.2	1.143	6.1	0.179	-1.087	-80.7	1.102
2964892.4	707042.8	1263.2	9.524	10.036	46.5	13.835	94.8	1.101	0.226	0.954	76.7	0.981	5.7	0.242	-0.918	-75.2	0.950
2964892.3	707037.8	1263.2	8.579	8.882	46.0	12.349	96.6	0.983	0.260	0.809	72.2	0.850	5.3	0.282	-0.778	-70.1	0.827
2964892.3	707032.8	1263.2	7.748	7.905	45.6	11.069	97.6	0.881	0.278	0.689	68.0	0.743	4.8	0.304	-0.661	-65.3	0.728

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Attachment 5

Wire low point cross section results between structures 7 and 8



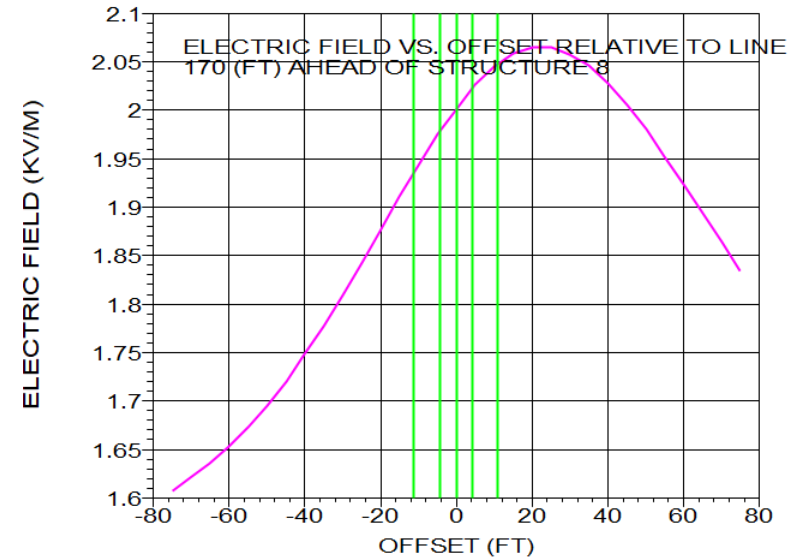
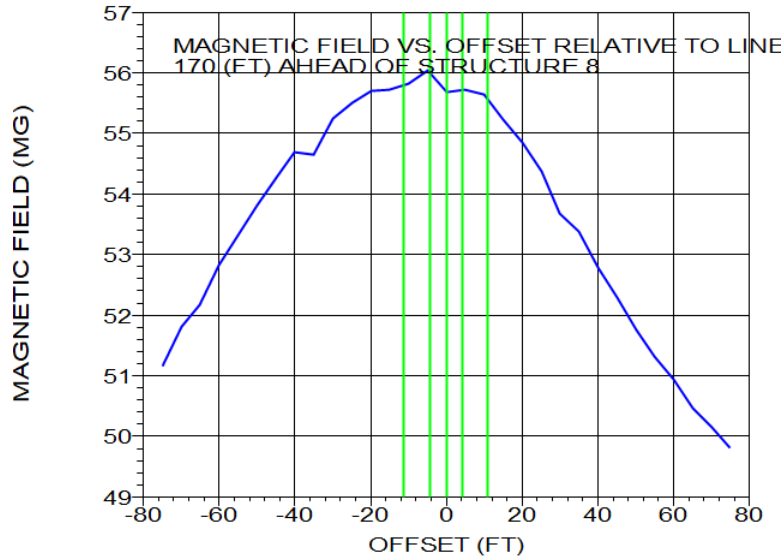
3D EMF Point Results Span from 7 to 8:

-----Measurement-----			B-----					H	EF-----					-----Space Potential-----			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2965517.4	707177.2	1253.4	5.528	6.586	50.0	8.598	55.1	0.684	0.348	0.770	65.7	0.845	1.8	-0.350	0.806	-66.5	0.879
2965517.4	707172.2	1253.4	5.978	7.229	50.4	9.381	54.7	0.746	0.415	0.857	64.2	0.952	1.8	-0.415	0.889	-65.0	0.981
2965517.3	707167.2	1253.4	6.469	7.950	50.9	10.250	54.3	0.816	0.493	0.952	62.6	1.072	1.8	-0.490	0.979	-63.4	1.095
2965517.3	707162.2	1253.4	7.000	8.760	51.4	11.213	53.9	0.892	0.584	1.054	61.0	1.205	1.9	-0.579	1.077	-61.7	1.223
2965517.2	707157.2	1253.4	7.572	9.664	51.9	12.277	53.5	0.977	0.688	1.159	59.3	1.348	2.0	-0.683	1.181	-60.0	1.364
2965517.2	707152.2	1253.4	8.179	10.665	52.5	13.440	53.2	1.070	0.805	1.265	57.5	1.500	2.2	-0.799	1.285	-58.1	1.513
2965517.1	707147.2	1253.4	8.814	11.763	53.2	14.698	52.9	1.170	0.935	1.363	55.6	1.653	2.4	-0.929	1.381	-56.1	1.664
2965517.1	707142.2	1253.4	9.464	12.948	53.8	16.038	52.7	1.276	1.075	1.445	53.3	1.801	2.8	-1.068	1.459	-53.8	1.808
2965517.0	707137.2	1253.4	10.115	14.202	54.5	17.436	52.6	1.387	1.221	1.496	50.8	1.931	3.3	-1.213	1.507	-51.2	1.935
2965517.0	707132.2	1253.4	10.744	15.492	55.3	18.853	52.6	1.500	1.367	1.501	47.7	2.030	4.0	-1.359	1.508	-48.0	2.030
2965517.0	707127.2	1253.4	11.328	16.770	56.0	20.238	52.8	1.610	1.504	1.444	43.8	2.085	5.1	-1.496	1.446	-44.0	2.081
2965516.9	707122.2	1253.4	11.845	17.973	56.6	21.525	53.2	1.713	1.624	1.312	38.9	2.088	6.6	-1.617	1.306	-38.9	2.079
2965516.9	707117.2	1253.4	12.270	19.020	57.2	22.634	53.8	1.801	1.717	1.097	32.6	2.038	8.6	-1.705	1.078	-32.3	2.018
2965516.8	707112.2	1253.3	12.587	19.830	57.6	23.487	54.7	1.869	1.777	0.808	24.5	1.952	11.1	-1.750	0.766	-23.6	1.911
2965516.8	707107.2	1253.3	12.799	20.348	57.8	24.039	56.0	1.913	1.798	0.477	14.9	1.860	13.5	-1.757	0.395	-12.7	1.801
2965516.7	707102.2	1253.3	12.906	20.534	57.9	24.253	57.6	1.930	1.778	0.264	8.4	1.798	14.8	-1.725	-0.003	0.1	1.725
2965516.7	707097.2	1253.3	12.918	20.387	57.6	24.135	59.5	1.921	1.718	0.486	15.8	1.786	14.5	-1.668	-0.397	13.4	1.715
2965516.6	707092.2	1253.3	12.824	19.900	57.2	23.674	61.7	1.884	1.619	0.818	26.8	1.814	12.6	-1.573	-0.754	25.6	1.745
2965516.6	707087.2	1253.3	12.623	19.113	56.6	22.905	64.1	1.823	1.486	1.105	36.6	1.852	10.3	-1.445	-1.046	35.9	1.784
2965516.6	707082.2	1253.3	12.314	18.087	55.8	21.881	66.8	1.741	1.326	1.316	44.8	1.868	8.3	-1.291	-1.255	44.2	1.800
2965516.5	707077.2	1253.3	11.903	16.899	54.8	20.671	69.6	1.645	1.148	1.441	51.5	1.843	6.8	-1.119	-1.379	51.0	1.776
2965516.5	707072.2	1253.3	11.404	15.623	53.9	19.343	72.5	1.539	0.964	1.489	57.1	1.774	5.9	-0.940	-1.425	56.6	1.707
2965516.4	707067.2	1253.3	10.836	14.326	52.9	17.963	75.3	1.429	0.782	1.474	62.0	1.668	5.2	-0.764	-1.408	61.5	1.602
2965516.4	707062.2	1253.3	10.223	13.059	51.9	16.584	78.0	1.320	0.612	1.413	66.6	1.539	4.9	-0.599	-1.347	66.0	1.474
2965516.3	707057.2	1253.3	9.587	11.858	51.0	15.249	80.6	1.213	0.460	1.322	70.8	1.399	4.7	-0.451	-1.256	70.2	1.335
2965516.3	707052.2	1253.3	8.948	10.745	50.2	13.983	83.1	1.113	0.327	1.216	74.9	1.259	4.5	-0.323	-1.151	74.3	1.195
2965516.2	707047.2	1253.3	8.322	9.729	49.5	12.803	85.3	1.019	0.217	1.104	78.9	1.125	4.5	-0.215	-1.040	78.3	1.062
2965516.2	707042.2	1253.3	7.721	8.812	48.8	11.716	87.3	0.932	0.127	0.994	82.7	1.002	4.4	-0.127	-0.931	82.2	0.940
2965516.2	707037.2	1253.3	7.152	7.990	48.2	10.724	89.1	0.853	0.060	0.889	86.1	0.891	4.3	-0.057	-0.829	86.1	0.830
2965516.1	707032.2	1253.3	6.620	7.258	47.6	9.823	90.6	0.782	0.035	0.793	87.5	0.793	4.2	-0.001	-0.734	89.9	0.734
2965516.1	707027.2	1253.3	6.126	6.606	47.2	9.009	91.8	0.717	0.062	0.705	85.0	0.708	4.0	0.041	-0.648	-86.4	0.650

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Attachment 5

Wire low point cross section results between structures 8 and 9



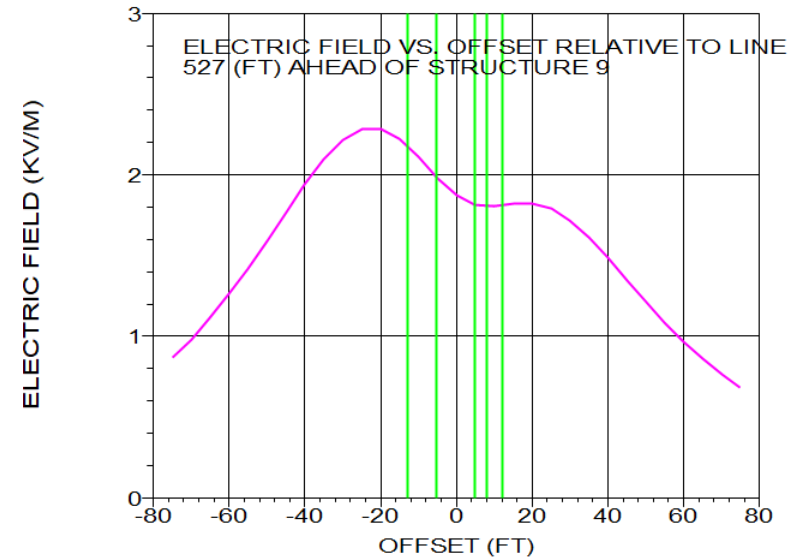
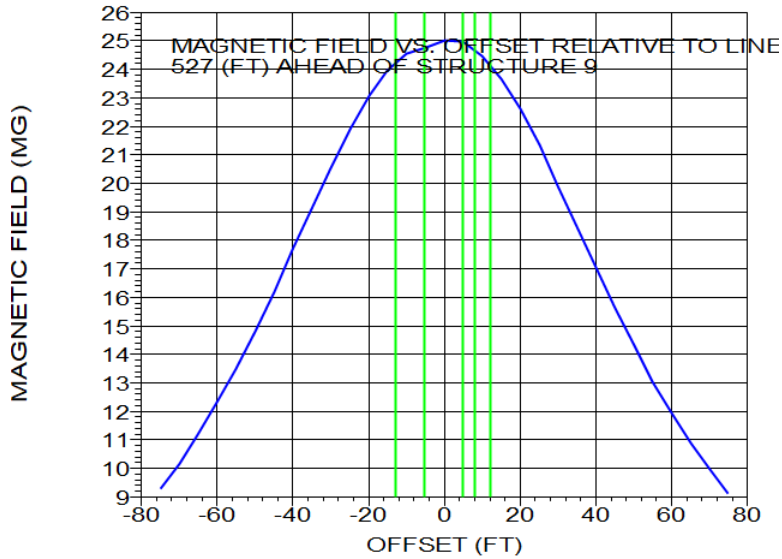
3D EMF Point Results Span from 8 to 9:

Measurement			B-					H	EF					Space Potential			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2965991.9	707267.2	1247.2	41.008	30.591	36.7	51.161	7.7	4.071	1.255	1.004	38.7	1.607	2.1	-0.548	-0.128	13.1	0.562
2965996.9	707267.2	1247.2	41.418	31.132	36.9	51.814	8.2	4.123	1.276	1.000	38.1	1.622	2.4	-0.589	-0.150	14.3	0.608
2966001.9	707267.2	1247.2	41.583	31.512	37.2	52.175	8.8	4.152	1.299	0.995	37.5	1.636	2.6	-0.584	-0.135	13.0	0.600
2966006.9	707267.2	1247.3	41.950	32.110	37.4	52.828	9.3	4.204	1.322	0.993	36.9	1.654	2.9	-0.635	-0.161	14.2	0.655
2966011.9	707267.2	1247.4	42.176	32.637	37.7	53.329	9.9	4.244	1.347	0.992	36.4	1.673	3.1	-0.662	-0.168	14.2	0.682
2966016.9	707267.3	1247.4	42.371	33.187	38.1	53.821	10.4	4.283	1.373	0.994	35.9	1.695	3.3	-0.691	-0.175	14.2	0.713
2966021.9	707267.3	1247.5	42.508	33.735	38.4	54.268	11.0	4.318	1.400	0.999	35.5	1.720	3.5	-0.716	-0.179	14.0	0.738
2966026.9	707267.3	1247.5	42.609	34.298	38.8	54.698	11.5	4.353	1.427	1.009	35.3	1.748	3.6	-0.744	-0.185	14.0	0.766
2966031.9	707267.3	1247.4	42.340	34.568	39.2	54.659	11.9	4.350	1.453	1.022	35.1	1.777	3.3	-0.692	-0.137	11.2	0.705
2966036.9	707267.3	1247.6	42.524	35.272	39.7	55.249	12.3	4.397	1.479	1.043	35.2	1.810	3.4	-0.764	-0.176	13.0	0.784
2966041.9	707267.4	1247.7	42.442	35.756	40.1	55.496	12.6	4.416	1.503	1.068	35.4	1.843	3.3	-0.782	-0.182	13.1	0.803
2966046.9	707267.4	1247.7	42.324	36.212	40.5	55.702	12.8	4.433	1.523	1.097	35.8	1.877	3.1	-0.803	-0.195	13.6	0.827
2966051.9	707267.4	1247.7	42.070	36.527	41.0	55.714	13.0	4.434	1.540	1.131	36.3	1.911	2.8	-0.801	-0.196	13.7	0.824
2966056.9	707267.4	1247.8	41.892	36.887	41.4	55.818	13.0	4.442	1.552	1.170	37.0	1.943	2.5	-0.828	-0.225	15.2	0.858
2966061.9	707267.4	1248.0	41.823	37.312	41.7	56.048	13.0	4.460	1.560	1.211	37.8	1.975	2.3	-0.894	-0.290	18.0	0.940
2966066.9	707267.5	1248.0	41.351	37.284	42.0	55.678	12.9	4.431	1.562	1.252	38.7	2.002	1.9	-0.858	-0.283	18.3	0.904
2966071.9	707267.5	1248.1	41.206	37.512	42.3	55.723	12.7	4.430	1.560	1.293	39.7	2.026	1.7	-0.915	-0.357	21.3	0.982
2966076.9	707267.5	1248.3	41.001	37.605	42.5	55.634	12.5	4.427	1.552	1.332	40.6	2.045	1.5	-0.957	-0.426	24.0	1.047
2966081.9	707267.5	1248.3	40.607	37.427	42.7	55.224	12.3	4.395	1.539	1.367	41.6	2.058	1.2	-0.946	-0.456	25.7	1.050
2966086.9	707267.5	1248.4	40.271	37.228	42.8	54.843	12.0	4.364	1.521	1.396	42.6	2.065	0.9	-0.948	-0.500	27.8	1.072
2966091.9	707267.6	1248.5	39.915	36.934	42.8	54.381	11.7	4.328	1.499	1.419	43.4	2.065	0.8	-0.939	-0.538	29.8	1.082
2966096.9	707267.6	1248.4	39.423	36.436	42.7	53.682	11.4	4.272	1.474	1.435	44.2	2.058	0.6	-0.887	-0.536	31.1	1.037
2966101.9	707267.6	1248.6	39.243	36.192	42.7	53.384	11.0	4.248	1.447	1.446	45.0	2.046	0.6	-0.914	-0.611	33.7	1.099
2966106.9	707267.6	1248.6	38.875	35.717	42.6	52.792	10.7	4.201	1.418	1.450	45.6	2.028	0.5	-0.884	-0.629	35.4	1.085
2966111.9	707267.6	1248.7	38.591	35.290	42.4	52.294	10.3	4.161	1.388	1.448	46.2	2.006	0.5	-0.870	-0.662	37.3	1.093
2966116.9	707267.7	1248.7	38.284	34.819	42.3	51.750	9.9	4.118	1.358	1.441	46.7	1.980	0.6	-0.845	-0.682	38.9	1.086
2966121.9	707267.7	1248.8	38.071	34.425	42.1	51.327	9.6	4.084	1.328	1.431	47.1	1.952	0.6	-0.840	-0.720	40.6	1.107
2966126.9	707267.7	1248.9	37.887	34.053	41.9	50.941	9.2	4.054	1.299	1.419	47.5	1.923	0.6	-0.839	-0.760	42.2	1.132
2966131.9	707267.7	1249.0	37.640	33.622	41.8	50.470	8.8	4.016	1.271	1.404	47.8	1.893	0.6	-0.819	-0.778	43.5	1.129
2966136.9	707267.7	1249.1	37.506	33.303	41.6	50.157	8.4	3.991	1.244	1.387	48.1	1.863	0.6	-0.826	-0.821	44.8	1.164
2966141.9	707267.8	1249.2	37.338	32.962	41.4	49.806	8.1	3.963	1.219	1.370	48.4	1.834	0.6	-0.823	-0.851	46.0	1.184

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Attachment 5

Wire low point cross section results between structures 9 and 10

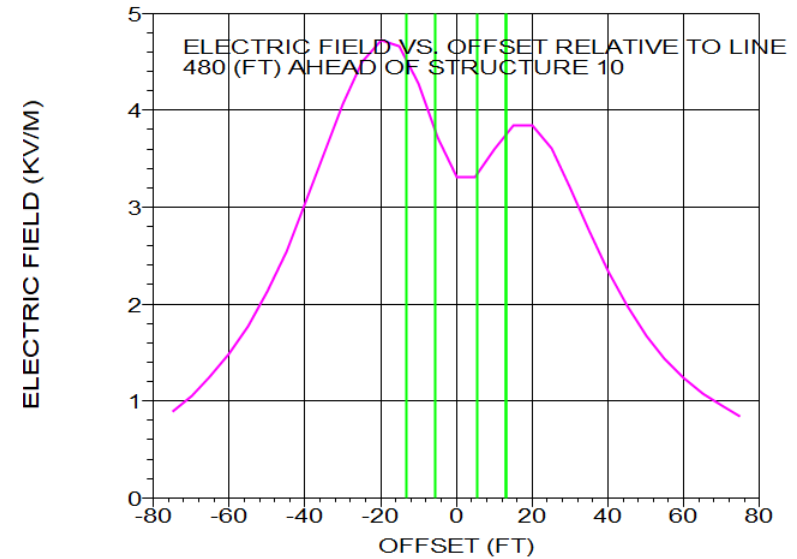
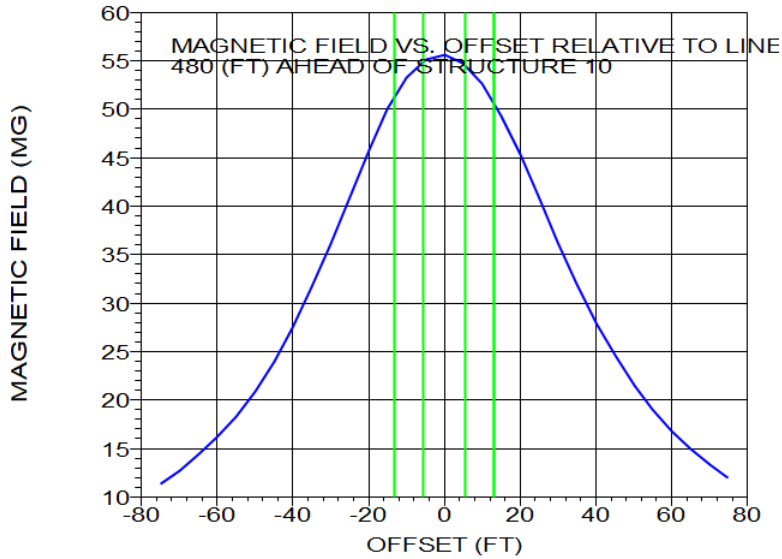


3D EMF Point Results Span from 9 to 10:

Measurement			B					H	EF					Space Potential			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2966594.2	707462.9	1255.9	6.140	6.971	48.6	9.289	50.7	0.739	0.350	0.793	66.2	0.867	2.9	-0.561	1.400	-68.2	1.508
2966594.1	707457.9	1256.0	6.674	7.696	49.1	10.187	50.4	0.811	0.421	0.888	64.6	0.983	3.0	-0.693	1.593	-66.5	1.737
2966594.1	707452.9	1256.1	7.264	8.521	49.6	11.197	50.0	0.891	0.504	0.993	63.1	1.114	3.1	-0.852	1.809	-64.8	1.999
2966594.0	707447.9	1256.2	7.911	9.460	50.1	12.331	49.7	0.981	0.601	1.108	61.5	1.261	3.2	-1.040	2.048	-63.1	2.297
2966594.0	707442.9	1256.0	8.567	10.465	50.7	13.524	49.4	1.076	0.714	1.229	59.9	1.421	3.2	-1.196	2.194	-61.4	2.499
2966593.9	707437.9	1255.7	9.255	11.571	51.3	14.817	49.2	1.179	0.841	1.353	58.1	1.593	3.3	-1.356	2.316	-59.7	2.684
2966593.9	707432.9	1255.5	9.968	12.779	52.0	16.207	49.1	1.290	0.983	1.473	56.3	1.770	3.4	-1.520	2.413	-57.8	2.852
2966593.9	707427.9	1255.2	10.680	14.063	52.8	17.659	49.1	1.405	1.136	1.576	54.2	1.943	3.7	-1.670	2.454	-55.8	2.969
2966593.8	707422.9	1254.9	11.362	15.382	53.5	19.123	49.2	1.522	1.295	1.649	51.9	2.097	4.1	-1.789	2.415	-53.5	3.005
2966593.8	707417.9	1254.6	11.993	16.699	54.3	20.559	49.4	1.636	1.453	1.674	49.0	2.216	4.7	-1.876	2.296	-50.7	2.965
2966593.7	707412.9	1254.3	12.542	17.949	55.1	21.897	49.9	1.742	1.599	1.630	45.5	2.284	5.5	-1.919	2.087	-47.4	2.835
2966593.7	707407.9	1254.0	12.981	19.055	55.7	23.057	50.6	1.835	1.724	1.502	41.1	2.287	6.7	-1.909	1.788	-43.1	2.616
2966593.7	707402.9	1253.7	13.294	19.935	56.3	23.961	51.5	1.907	1.817	1.282	35.2	2.224	8.2	-1.841	1.413	-37.5	2.321
2966593.6	707397.9	1253.4	13.471	20.518	56.7	24.545	52.8	1.953	1.871	0.974	27.5	2.109	9.9	-1.717	0.992	-30.0	1.983
2966593.6	707392.9	1253.1	13.517	20.755	56.9	24.769	54.4	1.971	1.881	0.606	17.8	1.976	11.3	-1.544	0.566	-20.1	1.645
2966593.5	707387.9	1253.2	13.626	21.000	57.0	25.033	56.1	1.992	1.848	0.292	9.0	1.871	13.9	-1.594	0.200	-7.2	1.607
2966593.5	707382.9	1253.4	13.635	20.909	56.9	24.962	58.2	1.986	1.772	0.400	12.7	1.817	15.2	-1.623	-0.211	7.4	1.637
2966593.4	707377.9	1253.6	13.514	20.421	56.5	24.488	60.6	1.949	1.657	0.730	23.8	1.811	14.4	-1.581	-0.625	21.6	1.700
2966593.4	707372.9	1253.7	13.268	19.588	55.9	23.659	63.3	1.883	1.508	1.025	34.2	1.824	12.5	-1.476	-0.990	33.8	1.777
2966593.4	707367.9	1253.9	12.929	18.536	55.1	22.599	66.2	1.798	1.334	1.244	43.0	1.824	10.6	-1.352	-1.298	43.8	1.875
2966593.3	707362.9	1254.0	12.481	17.298	54.2	21.331	69.2	1.697	1.146	1.375	50.2	1.790	9.0	-1.190	-1.517	51.9	1.928
2966593.3	707357.9	1254.1	11.931	15.949	53.2	19.918	72.3	1.585	0.953	1.427	56.3	1.716	7.9	-0.996	-1.633	58.6	1.912
2966593.2	707352.9	1254.2	11.325	14.597	52.2	18.476	75.3	1.470	0.766	1.416	61.6	1.610	7.2	-0.807	-1.686	64.4	1.869
2966593.2	707347.9	1254.4	10.680	13.287	51.2	17.047	78.1	1.357	0.594	1.359	66.4	1.483	6.8	-0.625	-1.688	69.7	1.800
2966593.2	707342.9	1254.4	9.992	12.019	50.3	15.630	80.7	1.244	0.441	1.273	70.9	1.347	6.5	-0.442	-1.609	74.6	1.668
2966593.1	707337.9	1254.4	9.305	10.849	49.4	14.293	83.0	1.137	0.309	1.171	75.2	1.211	6.2	-0.281	-1.500	79.4	1.526
2966593.1	707332.9	1254.5	8.642	9.793	48.6	13.061	84.9	1.039	0.201	1.064	79.3	1.083	6.1	-0.147	-1.389	84.0	1.396
2966593.0	707327.9	1254.6	8.009	8.845	47.8	11.933	86.3	0.950	0.115	0.958	83.1	0.965	6.0	-0.036	-1.274	88.4	1.275
2966593.0	707322.9	1254.6	7.415	8.000	47.2	10.908	87.3	0.868	0.058	0.858	86.2	0.860	5.8	0.053	-1.164	-87.4	1.165
2966592.9	707317.9	1254.6	6.853	7.242	46.6	9.971	87.9	0.793	0.050	0.766	86.2	0.767	5.6	0.123	-1.042	-83.2	1.050
2966592.9	707312.9	1254.6	6.337	6.574	46.1	9.131	88.0	0.727	0.078	0.682	83.5	0.686	5.3	0.176	-0.937	-79.3	0.954

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 10 and 11



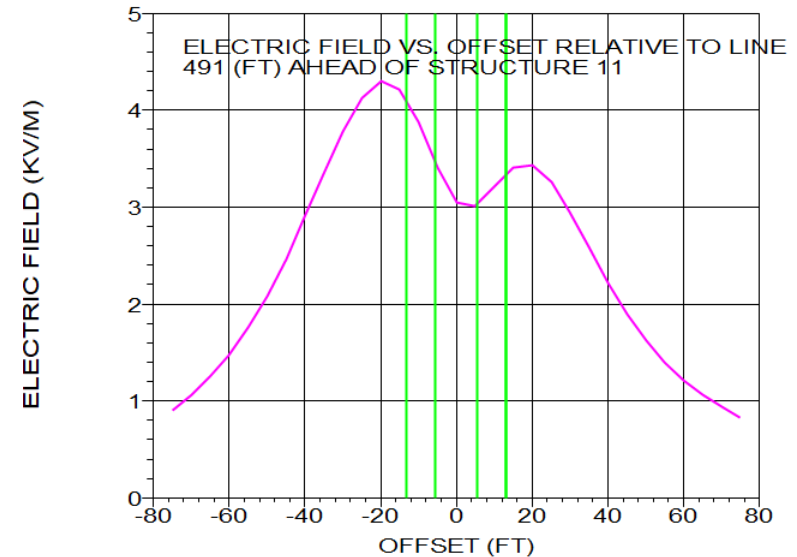
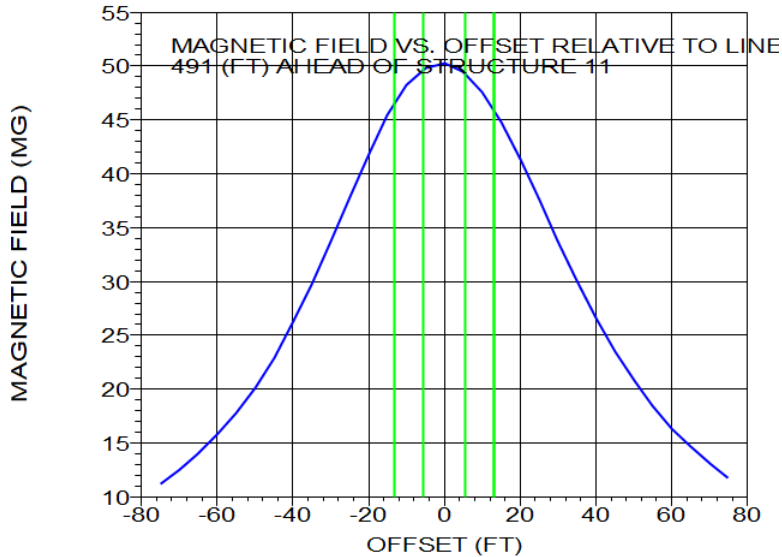
3D EMF Point Results Span from 10 to 11:

Measurement			B-					H	EF					Space Potential			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2967383.1	707456.4	1254.7	7.410	8.625	49.3	11.371	39.8	0.905	0.299	0.841	70.4	0.893	2.0	-0.289	0.890	-72.0	0.935
2967383.0	707451.4	1254.7	8.205	9.709	49.8	12.712	39.4	1.012	0.379	0.981	68.9	1.052	2.0	-0.371	1.029	-70.2	1.094
2967383.0	707446.4	1254.7	9.118	10.992	50.3	14.282	38.9	1.137	0.480	1.150	67.3	1.247	1.9	-0.475	1.197	-68.4	1.288
2967383.0	707441.4	1254.7	10.172	12.524	50.9	16.134	38.4	1.284	0.608	1.354	65.8	1.484	1.9	-0.609	1.408	-66.6	1.534
2967382.9	707436.4	1254.6	11.382	14.357	51.6	18.321	37.8	1.458	0.768	1.600	64.3	1.774	1.9	-0.777	1.660	-64.9	1.833
2967382.9	707431.4	1254.6	12.768	16.555	52.4	20.907	37.3	1.664	0.969	1.891	62.9	2.125	1.9	-0.988	1.959	-63.2	2.194
2967382.8	707426.4	1254.6	14.340	19.191	53.2	23.957	36.8	1.906	1.216	2.232	61.4	2.542	2.0	-1.247	2.305	-61.6	2.621
2967382.8	707421.4	1254.6	16.095	22.334	54.2	27.529	36.2	2.191	1.514	2.615	59.9	3.021	2.1	-1.559	2.690	-59.9	3.109
2967382.7	707416.4	1254.6	17.998	26.028	55.3	31.645	35.8	2.518	1.860	3.018	58.3	3.545	2.3	-1.921	3.088	-58.1	3.637
2967382.7	707411.4	1254.6	19.937	30.213	56.6	36.198	35.4	2.881	2.241	3.392	56.6	4.065	2.7	-2.290	3.402	-56.1	4.101
2967382.7	707406.4	1254.5	21.779	34.771	57.9	41.028	35.3	3.265	2.623	3.653	54.3	4.497	3.4	-2.648	3.575	-53.5	4.449
2967382.6	707401.4	1254.4	23.326	39.402	59.4	45.788	35.4	3.644	2.958	3.689	51.3	4.729	4.9	-2.950	3.498	-49.9	4.575
2967382.6	707396.4	1254.4	24.385	43.657	60.8	50.006	35.9	3.979	3.197	3.389	46.7	4.659	7.5	-3.148	3.066	-44.2	4.394
2967382.5	707391.4	1254.3	24.878	47.043	62.1	53.216	37.0	4.235	3.307	2.705	39.3	4.272	12.3	-3.218	2.240	-34.8	3.921
2967382.5	707386.4	1254.3	24.906	49.160	63.1	55.109	38.7	4.385	3.294	1.723	27.6	3.717	19.9	-3.167	1.084	-18.9	3.348
2967382.5	707381.4	1254.2	24.716	49.827	63.6	55.620	41.2	4.426	3.185	0.897	15.7	3.309	27.3	-3.037	-0.236	4.5	3.047
2967382.4	707376.4	1254.2	24.510	48.968	63.4	54.760	44.6	4.358	3.000	1.395	24.9	3.309	24.5	-2.837	-1.521	28.2	3.219
2967382.4	707371.4	1254.2	24.319	46.653	62.5	52.611	48.9	4.187	2.734	2.335	40.5	3.595	16.2	-2.557	-2.566	45.1	3.622
2967382.3	707366.4	1254.1	23.991	43.127	60.9	49.351	53.7	3.927	2.373	3.017	51.8	3.839	10.5	-2.187	-3.236	56.0	3.906
2967382.3	707361.4	1254.1	23.337	38.805	59.0	45.282	59.0	3.603	1.928	3.328	59.9	3.846	7.7	-1.741	-3.502	63.6	3.911
2967382.2	707356.4	1254.1	22.273	34.175	56.9	40.792	64.4	3.246	1.440	3.308	66.5	3.608	6.7	-1.260	-3.433	69.8	3.657
2967382.2	707351.4	1254.0	20.844	29.648	54.9	36.242	69.6	2.884	0.966	3.067	72.5	3.215	6.5	-0.796	-3.134	75.7	3.233
2967382.2	707346.4	1254.0	19.186	25.509	53.1	31.919	74.3	2.540	0.554	2.714	78.5	2.770	6.6	-0.395	-2.719	81.7	2.747
2967382.1	707341.4	1253.9	17.458	21.902	51.4	28.008	78.3	2.229	0.241	2.333	84.1	2.346	6.7	-0.084	-2.293	87.9	2.294
2967382.1	707336.4	1253.8	15.766	18.836	50.1	24.563	81.4	1.955	0.150	1.972	85.6	1.978	6.7	0.138	-1.902	-85.9	1.907
2967382.0	707331.4	1253.7	14.177	16.263	48.9	21.575	83.3	1.717	0.273	1.652	80.6	1.674	6.4	0.284	-1.564	-79.7	1.590
2967382.0	707326.4	1253.7	12.724	14.116	48.0	19.005	84.1	1.512	0.378	1.380	74.7	1.431	6.0	0.372	-1.282	-73.8	1.335
2967382.0	707321.4	1253.6	11.421	12.327	47.2	16.804	84.0	1.337	0.444	1.153	68.9	1.235	5.5	0.418	-1.054	-68.4	1.134
2967381.9	707316.4	1253.6	10.272	10.838	46.5	14.932	83.3	1.188	0.479	0.966	63.6	1.078	5.0	0.444	-0.887	-63.4	0.992
2967381.9	707311.4	1253.6	9.255	9.583	46.0	13.323	82.2	1.060	0.491	0.812	58.9	0.949	4.5	0.451	-0.750	-59.0	0.875
2967381.8	707306.4	1253.6	8.356	8.522	45.6	11.935	81.1	0.950	0.487	0.687	54.6	0.842	4.0	0.445	-0.637	-55.1	0.777

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Attachment 5

Wire low point cross section results between structures 11 and 12

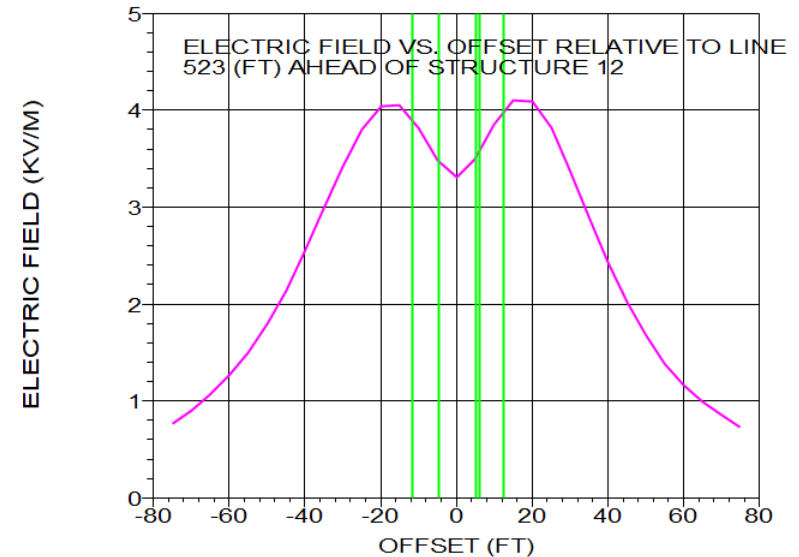
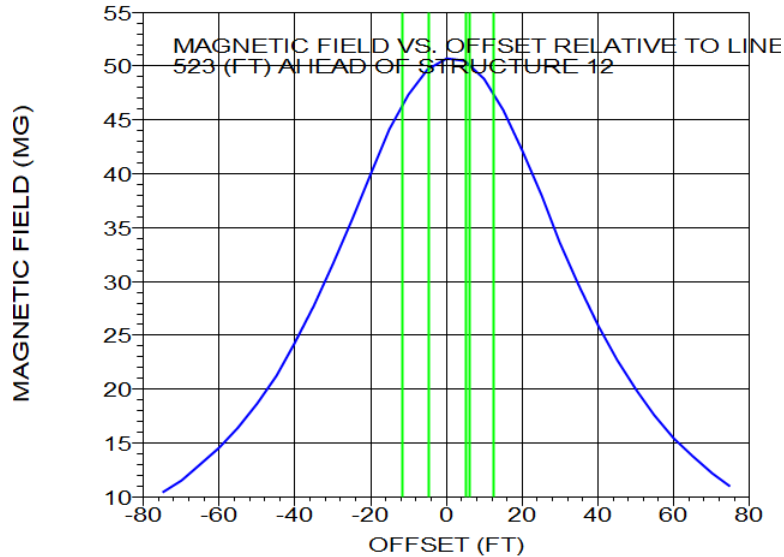


3D EMF Point Results Span from 11 to 12:

-----Measurement-----			B-----					H	EF-----					-----Space Potential-----			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2968292.8	707448.8	1246.0	7.316	8.523	49.4	11.232	39.9	0.894	0.316	0.847	69.6	0.904	2.4	-0.405	1.051	-68.9	1.126
2968292.7	707443.8	1245.9	8.077	9.567	49.8	12.520	39.5	0.996	0.397	0.984	68.1	1.061	2.4	-0.494	1.183	-67.3	1.282
2968292.7	707438.8	1245.7	8.945	10.795	50.4	14.020	39.1	1.116	0.497	1.147	66.6	1.251	2.3	-0.602	1.339	-65.8	1.468
2968292.6	707433.8	1245.6	9.933	12.245	51.0	15.767	38.6	1.255	0.623	1.342	65.1	1.480	2.2	-0.732	1.519	-64.3	1.686
2968292.6	707428.8	1245.4	11.054	13.959	51.6	17.805	38.2	1.417	0.779	1.574	63.7	1.756	2.1	-0.888	1.722	-62.7	1.938
2968292.6	707423.8	1245.3	12.318	15.984	52.4	20.180	37.7	1.606	0.971	1.844	62.2	2.084	2.1	-1.071	1.948	-61.2	2.223
2968292.5	707418.8	1245.1	13.726	18.370	53.2	22.931	37.3	1.825	1.204	2.151	60.8	2.465	2.1	-1.283	2.189	-59.6	2.538
2968292.5	707413.8	1245.0	15.278	21.175	54.2	26.112	36.9	2.078	1.479	2.488	59.3	2.895	2.2	-1.540	2.463	-58.0	2.904
2968292.4	707408.8	1245.0	16.951	24.437	55.3	29.740	36.6	2.367	1.793	2.829	57.6	3.350	2.4	-1.848	2.758	-56.2	3.320
2968292.4	707403.8	1244.9	18.648	28.094	56.4	33.720	36.4	2.683	2.131	3.130	55.8	3.787	2.9	-2.173	2.994	-54.0	3.699
2968292.3	707398.8	1244.9	20.249	32.012	57.7	37.879	36.4	3.014	2.464	3.318	53.4	4.133	3.7	-2.485	3.095	-51.2	3.969
2968292.3	707393.8	1244.8	21.598	35.938	59.0	41.929	36.6	3.337	2.754	3.301	50.2	4.299	5.2	-2.747	2.972	-47.3	4.047
2968292.3	707388.8	1244.8	22.554	39.513	60.3	45.497	37.3	3.621	2.960	2.999	45.4	4.214	7.8	-2.921	2.550	-41.1	3.878
2968292.2	707383.8	1244.7	23.060	42.347	61.4	48.219	38.4	3.837	3.058	2.380	37.9	3.875	12.3	-2.988	1.805	-31.1	3.491
2968292.2	707378.8	1244.7	23.184	44.120	62.3	49.840	40.2	3.966	3.049	1.520	26.5	3.407	19.1	-2.952	0.795	-15.1	3.057
2968292.1	707373.8	1244.6	23.084	44.645	62.7	50.260	42.7	4.000	2.950	0.778	14.8	3.051	25.2	-2.829	-0.345	6.9	2.850
2968292.1	707368.8	1244.6	22.900	43.875	62.4	49.492	46.0	3.938	2.774	1.165	22.8	3.009	23.2	-2.633	-1.441	28.7	3.002
2968292.1	707363.8	1244.5	22.660	41.893	61.6	47.629	50.0	3.790	2.523	1.984	38.2	3.210	16.0	-2.366	-2.329	44.5	3.320
2968292.0	707358.8	1244.5	22.272	38.913	60.2	44.836	54.5	3.568	2.192	2.604	49.9	3.404	10.5	-2.027	-2.903	55.1	3.541
2968292.0	707353.8	1244.4	21.617	35.270	58.5	41.367	59.4	3.292	1.794	2.921	58.4	3.428	7.6	-1.631	-3.141	62.6	3.539
2968291.9	707348.8	1244.4	20.680	31.411	56.6	37.607	64.4	2.993	1.363	2.960	65.3	3.259	6.5	-1.233	-3.144	68.6	3.377
2968291.9	707343.8	1244.4	19.457	27.582	54.8	33.754	69.2	2.686	0.941	2.798	71.4	2.952	6.3	-0.842	-2.956	74.1	3.073
2968291.8	707338.8	1244.4	18.041	24.014	53.1	30.036	73.6	2.390	0.568	2.524	77.3	2.587	6.5	-0.491	-2.659	79.5	2.704
2968291.8	707333.8	1244.4	16.540	20.833	51.6	26.600	77.3	2.117	0.273	2.207	82.9	2.224	6.7	-0.200	-2.324	85.1	2.333
2968291.8	707328.8	1244.4	15.045	18.073	50.2	23.516	80.2	1.871	0.131	1.893	86.0	1.898	6.9	0.023	-1.995	-89.3	1.995
2968291.7	707323.8	1244.4	13.618	15.717	49.1	20.796	82.1	1.655	0.219	1.607	82.2	1.622	6.9	0.184	-1.695	-83.8	1.705
2968291.7	707318.8	1244.5	12.302	13.730	48.1	18.435	82.9	1.467	0.323	1.357	76.6	1.395	6.8	0.296	-1.447	-78.4	1.477
2968291.6	707313.8	1244.5	11.106	12.054	47.3	16.390	83.0	1.304	0.393	1.144	71.0	1.210	6.5	0.371	-1.239	-73.3	1.293
2968291.6	707308.8	1244.6	10.028	10.635	46.7	14.617	82.4	1.163	0.434	0.966	65.8	1.059	6.1	0.415	-1.061	-68.6	1.140
2968291.6	707303.8	1244.6	9.065	9.432	46.1	13.081	81.5	1.041	0.452	0.818	61.1	0.935	5.6	0.438	-0.912	-64.4	1.012
2968291.5	707298.8	1244.7	8.208	8.407	45.7	11.750	80.4	0.935	0.455	0.695	56.8	0.831	5.1	0.445	-0.787	-60.5	0.904

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 12 and 13

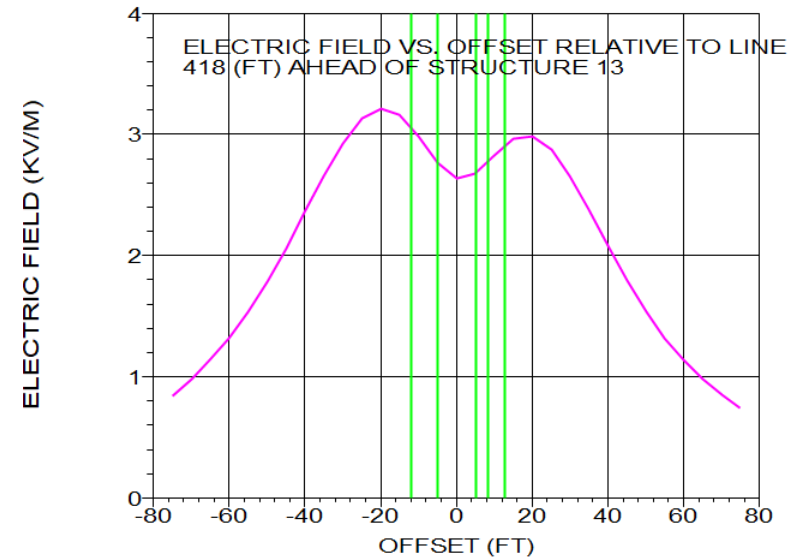
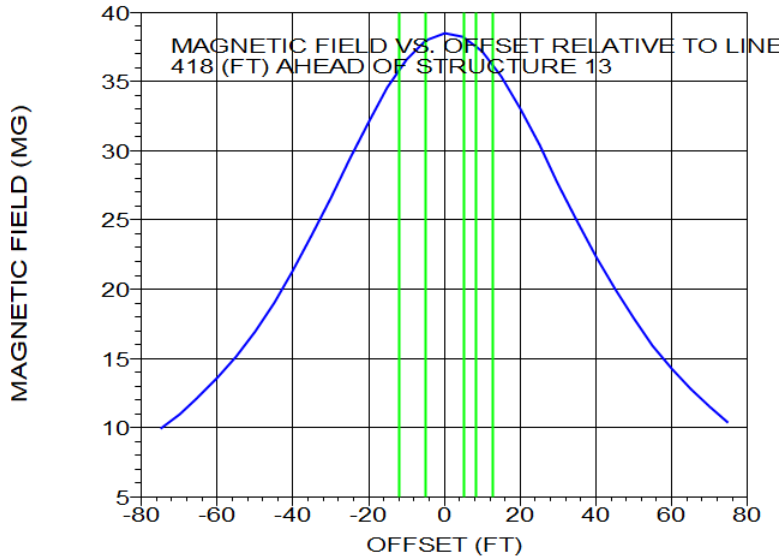


3D EMF Point Results Span from 12 to 13:

-----Measurement-----			-----B-----					H	-----EF-----					-----Space Potential-----				
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)	
2969269.8	707440.7	1238.8	6.973	7.747	48.0	10.423	58.6	0.829	0.124	0.760	80.8	0.770	2.7	-0.111	0.742	-81.5	0.750	
2969269.8	707435.7	1238.8	7.692	8.684	48.5	11.601	58.0	0.923	0.183	0.884	78.3	0.903	2.7	-0.167	0.858	-79.0	0.874	
2969269.8	707430.7	1238.8	8.512	9.789	49.0	12.972	57.5	1.032	0.260	1.032	75.9	1.064	2.7	-0.239	0.998	-76.5	1.027	
2969269.7	707425.7	1238.8	9.445	11.099	49.6	14.574	56.8	1.160	0.360	1.209	73.4	1.262	2.7	-0.333	1.166	-74.1	1.212	
2969269.7	707420.7	1238.8	10.504	12.660	50.3	16.451	56.1	1.309	0.490	1.421	71.0	1.503	2.6	-0.454	1.367	-71.6	1.440	
2969269.6	707415.7	1238.8	11.703	14.526	51.1	18.654	55.2	1.484	0.656	1.670	68.6	1.795	2.6	-0.611	1.609	-69.2	1.721	
2969269.6	707410.7	1238.8	13.049	16.761	52.1	21.242	54.3	1.690	0.866	1.958	66.1	2.142	2.6	-0.815	1.899	-66.8	2.067	
2969269.5	707405.7	1238.9	14.531	19.419	53.2	24.254	53.3	1.930	1.127	2.279	63.7	2.542	2.7	-1.069	2.226	-64.4	2.469	
2969269.5	707400.7	1238.9	16.117	22.547	54.4	27.715	52.3	2.205	1.438	2.612	61.2	2.982	2.8	-1.376	2.571	-61.8	2.916	
2969269.5	707395.7	1238.9	17.742	26.148	55.8	31.599	51.2	2.515	1.794	2.918	58.4	3.426	3.2	-1.731	2.896	-59.1	3.373	
2969269.4	707390.7	1239.0	19.298	30.146	57.4	35.794	50.2	2.848	2.173	3.129	55.2	3.809	3.9	-2.113	3.130	-56.0	3.777	
2969269.4	707385.7	1239.0	20.652	34.356	59.0	40.085	49.3	3.190	2.540	3.148	51.1	4.045	5.4	-2.497	3.187	-51.9	4.048	
2969269.3	707380.7	1239.0	21.653	38.399	60.6	44.084	48.6	3.508	2.849	2.878	45.3	4.050	8.2	-2.820	2.934	-46.1	4.069	
2969269.3	707375.7	1239.1	22.260	41.852	62.0	47.404	48.2	3.772	3.068	2.268	36.5	3.816	13.2	-3.054	2.313	-37.1	3.831	
2969269.3	707370.7	1239.1	22.554	44.291	63.0	49.703	48.4	3.955	3.185	1.397	23.7	3.478	20.7	-3.188	1.341	-22.8	3.459	
2969269.2	707365.7	1239.1	22.699	45.399	63.4	50.757	49.2	4.039	3.207	0.830	14.5	3.313	25.8	-3.226	0.136	-2.4	3.229	
2969269.2	707360.7	1239.1	22.803	45.016	63.1	50.463	50.6	4.016	3.140	1.534	26.0	3.495	21.8	-3.169	-1.107	19.3	3.357	
2969269.1	707355.7	1239.1	22.801	43.132	62.1	48.787	52.7	3.882	2.972	2.456	39.6	3.856	14.6	-2.996	-2.163	35.8	3.695	
2969269.1	707350.7	1239.2	22.524	40.017	60.6	45.920	55.3	3.654	2.691	3.100	49.0	4.105	9.7	-2.713	-2.882	46.7	3.958	
2969269.0	707345.7	1239.2	21.827	36.092	58.8	42.179	58.2	3.356	2.308	3.374	55.6	4.088	7.1	-2.335	-3.223	54.1	3.980	
2969269.0	707340.7	1239.2	20.689	31.827	57.0	37.960	61.3	3.021	1.866	3.328	60.7	3.816	5.9	-1.896	-3.233	59.6	3.748	
2969269.0	707335.7	1239.2	19.220	27.646	55.2	33.671	64.4	2.679	1.420	3.072	65.2	3.384	5.5	-1.449	-3.020	64.4	3.350	
2969268.9	707330.7	1239.2	17.580	23.824	53.6	29.608	67.4	2.356	1.016	2.713	69.5	2.897	5.5	-1.040	-2.693	68.9	2.887	
2969268.9	707325.7	1239.3	15.911	20.482	52.2	25.936	70.2	2.064	0.677	2.333	73.8	2.429	5.6	-0.694	-2.335	73.5	2.436	
2969268.8	707320.7	1239.3	14.309	17.636	50.9	22.711	72.9	1.807	0.412	1.974	78.2	2.017	5.8	-0.418	-1.995	78.2	2.039	
2969268.8	707315.7	1239.3	12.827	15.245	49.9	19.923	75.3	1.585	0.216	1.658	82.6	1.672	6.0	-0.207	-1.693	83.0	1.705	
2969268.8	707310.7	1239.4	11.486	13.246	49.1	17.532	77.5	1.395	0.095	1.389	86.1	1.393	6.1	-0.050	-1.431	88.0	1.432	
2969268.7	707305.7	1239.4	10.290	11.577	48.4	15.489	79.5	1.233	0.092	1.165	85.5	1.169	6.0	0.063	-1.211	-87.0	1.213	
2969268.7	707300.7	1239.4	9.233	10.179	47.8	13.742	81.4	1.094	0.144	0.980	81.7	0.991	5.8	0.141	-1.028	-82.2	1.037	
2969268.6	707295.7	1239.5	8.303	9.004	47.3	12.247	83.0	0.975	0.184	0.828	77.5	0.848	5.6	0.195	-0.876	-77.5	0.897	
2969268.6	707290.7	1239.5	7.485	8.009	46.9	10.962	84.6	0.872	0.210	0.703	73.4	0.734	5.3	0.229	-0.748	-73.0	0.782	

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 13 and 14

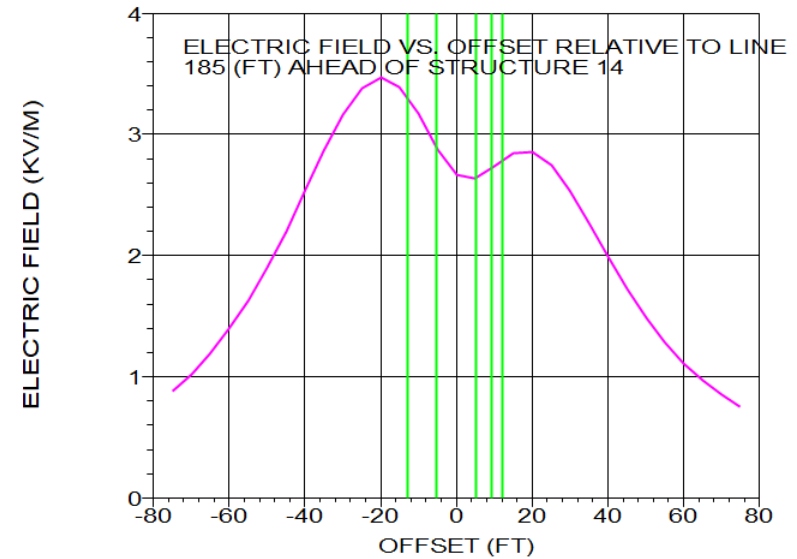
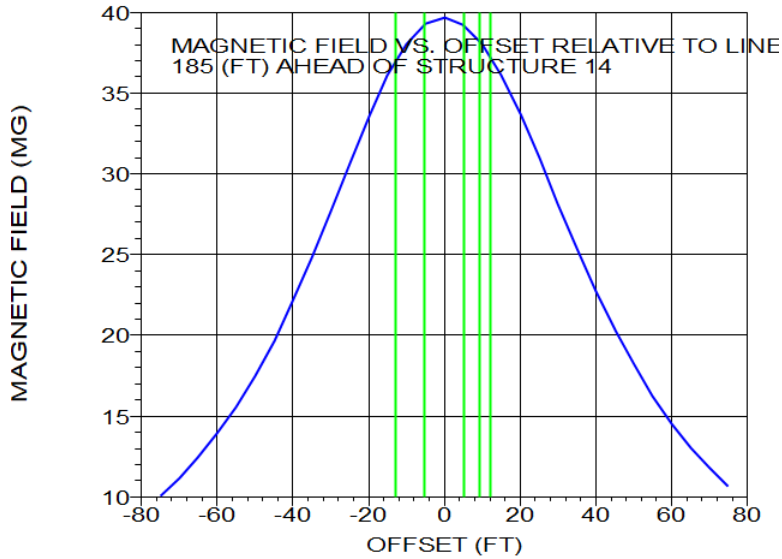


3D EMF Point Results Span from 13 to 14:

Measurement-----			B-----					H	EF-----					-----Space Potential-----			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2969637.7	707778.2	1232.6	6.574	7.473	48.7	9.953	53.4	0.792	0.256	0.805	72.4	0.845	2.2	-0.277	0.795	-70.8	0.841
2969642.7	707778.3	1232.6	7.203	8.318	49.1	11.003	53.0	0.876	0.326	0.921	70.5	0.977	2.2	-0.346	0.907	-69.1	0.971
2969647.7	707778.4	1232.6	7.908	9.300	49.6	12.208	52.6	0.971	0.413	1.057	68.7	1.135	2.2	-0.432	1.041	-67.5	1.127
2969652.7	707778.5	1232.6	8.697	10.443	50.2	13.590	52.2	1.081	0.520	1.213	66.8	1.320	2.2	-0.538	1.196	-65.8	1.311
2969657.7	707778.6	1232.6	9.574	11.773	50.9	15.174	51.8	1.208	0.651	1.391	64.9	1.536	2.2	-0.667	1.371	-64.1	1.525
2969662.7	707778.7	1232.6	10.542	13.317	51.6	16.985	51.3	1.352	0.809	1.590	63.0	1.784	2.2	-0.824	1.567	-62.3	1.770
2969667.7	707778.7	1232.6	11.595	15.103	52.5	19.040	50.9	1.515	0.997	1.804	61.1	2.061	2.3	-1.009	1.777	-60.4	2.043
2969672.7	707778.8	1232.6	12.718	17.146	53.4	21.348	50.4	1.699	1.215	2.022	59.0	2.359	2.5	-1.224	1.990	-58.4	2.336
2969677.7	707778.9	1232.6	13.882	19.444	54.5	23.891	50.0	1.901	1.459	2.222	56.7	2.658	2.8	-1.465	2.184	-56.1	2.630
2969682.7	707779.0	1232.6	15.039	21.961	55.6	26.617	49.6	2.118	1.719	2.371	54.1	2.929	3.4	-1.722	2.326	-53.5	2.894
2969687.7	707779.1	1232.6	16.124	24.613	56.8	29.424	49.4	2.342	1.980	2.425	50.8	3.130	4.4	-1.979	2.371	-50.1	3.088
2969692.7	707779.2	1232.6	17.067	27.260	57.9	32.162	49.3	2.559	2.218	2.331	46.4	3.217	6.0	-2.217	2.269	-45.7	3.172
2969697.7	707779.3	1232.6	17.808	29.702	59.1	34.632	49.6	2.756	2.410	2.049	40.4	3.163	8.6	-2.412	1.975	-39.3	3.118
2969702.7	707779.4	1232.6	18.319	31.711	60.0	36.622	50.2	2.914	2.539	1.570	31.7	2.986	12.6	-2.546	1.469	-30.0	2.940
2969707.7	707779.5	1232.6	18.617	33.065	60.6	37.946	51.2	3.020	2.597	0.956	20.2	2.767	17.6	-2.605	0.778	-16.6	2.718
2969712.7	707779.5	1232.6	18.751	33.619	60.8	38.495	52.8	3.063	2.582	0.537	11.8	2.638	20.8	-2.590	-0.022	0.5	2.590
2969717.7	707779.6	1232.6	18.754	33.304	60.6	38.221	54.8	3.042	2.496	0.965	21.1	2.676	19.1	-2.504	-0.826	18.3	2.636
2969722.7	707779.7	1232.6	18.616	32.148	59.9	37.149	57.4	2.956	2.339	1.588	34.2	2.827	14.5	-2.345	-1.524	33.0	2.796
2969727.7	707779.8	1232.6	18.293	30.276	58.9	35.373	60.3	2.815	2.114	2.074	44.5	2.961	10.4	-2.115	-2.035	43.9	2.935
2969732.7	707779.9	1232.6	17.745	27.897	57.5	33.063	63.6	2.631	1.832	2.355	52.1	2.984	7.8	-1.831	-2.327	51.8	2.961
2969737.7	707780.0	1232.6	16.968	25.253	56.1	30.424	67.0	2.421	1.516	2.440	58.1	2.873	6.3	-1.517	-2.418	57.9	2.854
2969742.7	707780.1	1232.6	15.999	22.558	54.7	27.655	70.4	2.201	1.195	2.370	63.2	2.654	5.6	-1.197	-2.354	63.0	2.641
2969747.7	707780.2	1232.6	14.902	19.975	53.3	24.921	73.7	1.983	0.893	2.201	67.9	2.375	5.3	-0.897	-2.189	67.7	2.366
2969752.7	707780.3	1232.6	13.747	17.605	52.0	22.336	76.9	1.777	0.627	1.982	72.4	2.079	5.3	-0.633	-1.973	72.2	2.072
2969757.7	707780.4	1232.6	12.594	15.492	50.9	19.965	79.9	1.589	0.406	1.748	76.9	1.795	5.3	-0.413	-1.742	76.7	1.790
2969762.7	707780.4	1232.6	11.484	13.643	49.9	17.833	82.7	1.419	0.233	1.522	81.3	1.540	5.3	-0.237	-1.518	81.1	1.536
2969767.7	707780.5	1232.6	10.443	12.042	49.1	15.940	85.2	1.268	0.107	1.316	85.3	1.320	5.3	-0.102	-1.312	85.6	1.316
2969772.7	707780.6	1232.6	9.486	10.665	48.3	14.273	87.5	1.136	0.064	1.133	86.8	1.135	5.3	-0.000	-1.130	90.0	1.130
2969777.7	707780.7	1232.6	8.615	9.482	47.7	12.812	89.6	1.020	0.108	0.975	83.7	0.981	5.1	0.073	-0.972	-85.7	0.975
2969782.7	707780.8	1232.6	7.831	8.466	47.2	11.532	91.5	0.918	0.153	0.839	79.7	0.853	4.9	0.124	-0.837	-81.6	0.846
2969787.7	707780.9	1232.6	7.126	7.590	46.8	10.411	93.2	0.828	0.185	0.724	75.7	0.747	4.7	0.158	-0.721	-77.6	0.738

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 14 and 15



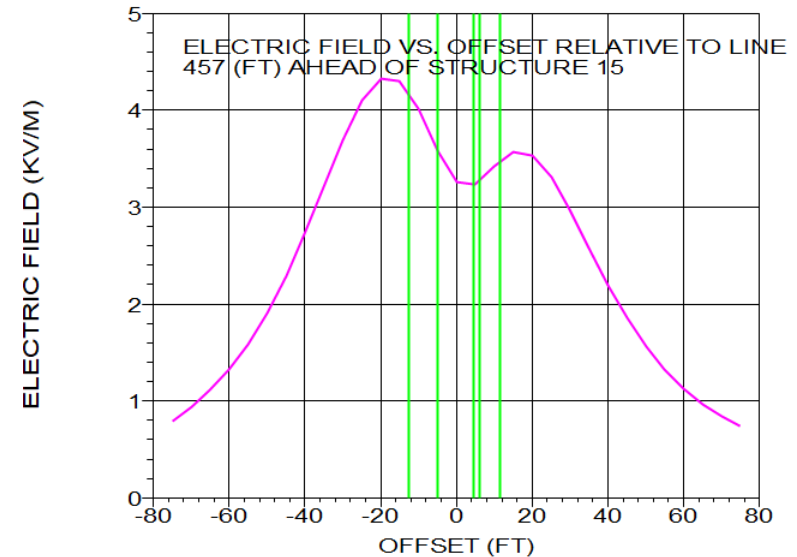
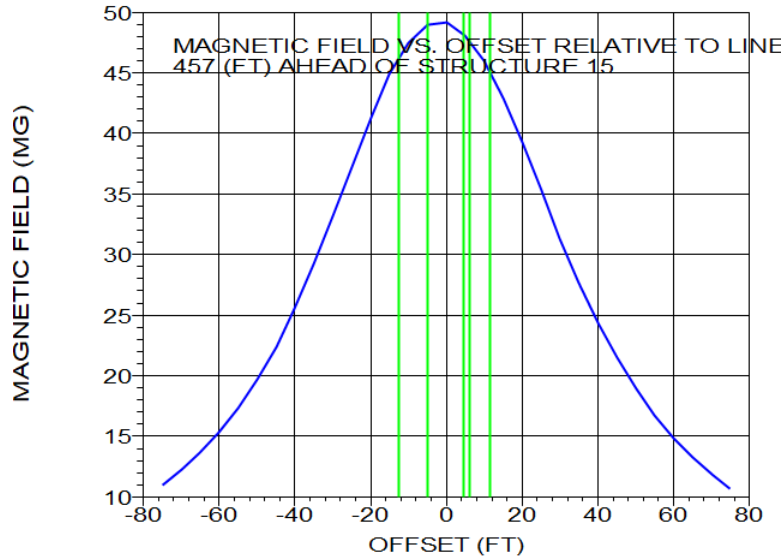
3D EMF Point Results Span from 14 to 15:

Measurement			B-					H	EF					Space Potential			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2969630.3	708196.4	1234.6	6.622	7.624	49.0	10.099	46.0	0.804	0.297	0.828	70.3	0.880	1.5	-0.309	0.706	-66.4	0.770
2969635.3	708196.4	1234.7	7.282	8.503	49.4	11.195	45.6	0.891	0.373	0.952	68.6	1.023	1.5	-0.376	0.825	-65.5	0.907
2969640.3	708196.5	1234.7	8.025	9.525	49.9	12.455	45.2	0.991	0.467	1.097	66.9	1.193	1.5	-0.460	0.967	-64.6	1.070
2969645.3	708196.6	1234.8	8.860	10.716	50.4	13.905	44.8	1.107	0.583	1.266	65.3	1.393	1.4	-0.565	1.138	-63.6	1.271
2969650.3	708196.7	1234.9	9.795	12.105	51.0	15.572	44.5	1.239	0.724	1.459	63.6	1.628	1.4	-0.696	1.339	-62.5	1.509
2969655.3	708196.8	1235.0	10.834	13.721	51.7	17.483	44.1	1.391	0.893	1.676	61.9	1.899	1.4	-0.857	1.570	-61.4	1.789
2969660.3	708196.9	1235.0	11.972	15.593	52.5	19.659	43.8	1.564	1.094	1.913	60.2	2.204	1.5	-1.051	1.830	-60.1	2.110
2969665.3	708197.0	1235.1	13.196	17.739	53.4	22.109	43.5	1.759	1.327	2.156	58.4	2.532	1.6	-1.279	2.110	-58.8	2.467
2969670.3	708197.1	1235.2	14.475	20.157	54.3	24.815	43.3	1.975	1.585	2.384	56.4	2.863	1.8	-1.539	2.389	-57.2	2.842
2969675.3	708197.2	1235.2	15.750	22.798	55.4	27.710	43.2	2.205	1.858	2.558	54.0	3.162	2.3	-1.816	2.625	-55.3	3.192
2969680.3	708197.2	1235.3	16.947	25.571	56.5	30.677	43.3	2.441	2.125	2.630	51.1	3.381	3.1	-2.094	2.772	-52.9	3.474
2969685.3	708197.3	1235.4	17.980	28.313	57.6	33.540	43.7	2.669	2.361	2.542	47.1	3.470	4.4	-2.348	2.772	-49.7	3.633
2969690.3	708197.4	1235.4	18.771	30.805	58.6	36.073	44.4	2.871	2.541	2.250	41.5	3.394	6.8	-2.553	2.569	-45.2	3.622
2969695.3	708197.5	1235.5	19.281	32.802	59.6	38.049	45.5	3.028	2.644	1.746	33.4	3.169	10.7	-2.686	2.135	-38.5	3.432
2969700.3	708197.6	1235.5	19.528	34.090	60.2	39.287	47.1	3.126	2.666	1.090	22.2	2.881	16.0	-2.740	1.488	-28.5	3.118
2969705.3	708197.7	1235.6	19.574	34.541	60.5	39.702	49.3	3.159	2.610	0.562	12.1	2.670	20.8	-2.719	0.699	-14.4	2.808
2969710.3	708197.8	1235.7	19.471	34.098	60.3	39.266	52.1	3.125	2.482	0.889	19.7	2.637	20.9	-2.624	-0.133	2.9	2.627
2969715.3	708197.9	1235.8	19.232	32.811	59.6	38.032	55.3	3.026	2.288	1.508	33.4	2.740	16.9	-2.455	-0.894	20.0	2.612
2969720.3	708198.0	1235.8	18.829	30.824	58.6	36.120	59.1	2.874	2.032	1.995	44.5	2.848	12.8	-2.217	-1.496	34.0	2.674
2969725.3	708198.1	1235.9	18.225	28.349	57.3	33.702	63.1	2.682	1.729	2.278	52.8	2.860	10.0	-1.923	-1.893	44.5	2.698
2969730.3	708198.1	1236.0	17.410	25.624	55.8	30.979	67.2	2.465	1.401	2.365	59.4	2.748	8.3	-1.594	-2.088	52.6	2.627
2969735.3	708198.2	1236.0	16.415	22.867	54.3	28.149	71.3	2.240	1.076	2.300	64.9	2.539	7.5	-1.258	-2.120	59.3	2.465
2969740.3	708198.3	1236.1	15.297	20.236	52.9	25.367	75.2	2.019	0.776	2.138	70.0	2.274	7.2	-0.939	-2.036	65.2	2.242
2969745.3	708198.4	1236.2	14.121	17.827	51.6	22.742	78.9	1.810	0.519	1.927	74.9	1.995	7.2	-0.654	-1.884	70.9	1.995
2969750.3	708198.5	1236.3	12.945	15.683	50.5	20.336	82.1	1.618	0.311	1.701	79.7	1.729	7.2	-0.413	-1.702	76.4	1.751
2969755.3	708198.6	1236.3	11.811	13.810	49.5	18.172	84.9	1.446	0.158	1.483	83.9	1.491	7.2	-0.217	-1.513	81.8	1.529
2969760.3	708198.7	1236.4	10.745	12.190	48.6	16.250	87.1	1.293	0.092	1.283	85.9	1.286	7.1	-0.064	-1.332	87.3	1.334
2969765.3	708198.8	1236.5	9.763	10.798	47.9	14.557	88.7	1.158	0.129	1.106	83.4	1.113	6.9	0.053	-1.167	87.4	1.168
2969770.3	708198.9	1236.5	8.869	9.602	47.3	13.071	89.7	1.040	0.180	0.952	79.3	0.969	6.7	0.139	-1.020	82.2	1.030
2969775.3	708198.9	1236.6	8.061	8.576	46.8	11.770	90.1	0.937	0.218	0.821	75.1	0.849	6.3	0.201	-0.892	77.3	0.914
2969780.3	708199.0	1236.7	7.336	7.693	46.4	10.630	90.1	0.846	0.243	0.709	71.1	0.749	5.9	0.244	-0.780	72.7	0.817

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Attachment 5

Wire low point cross section results between structures 15 and 16



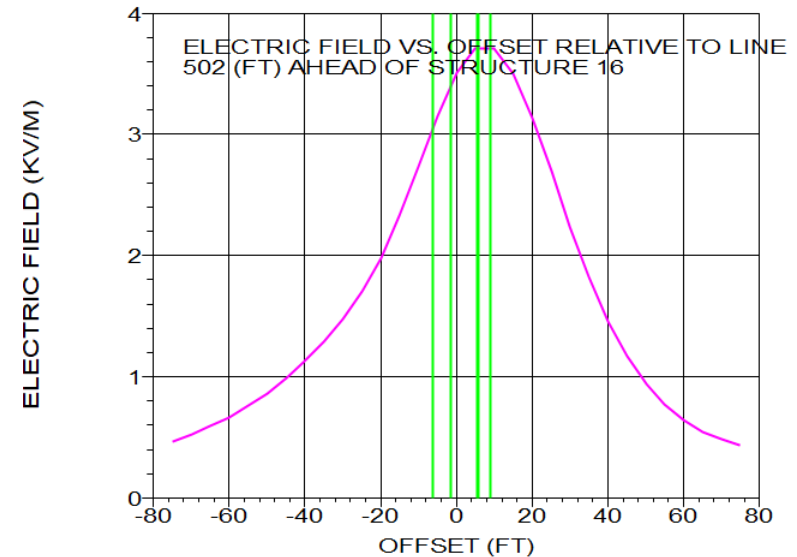
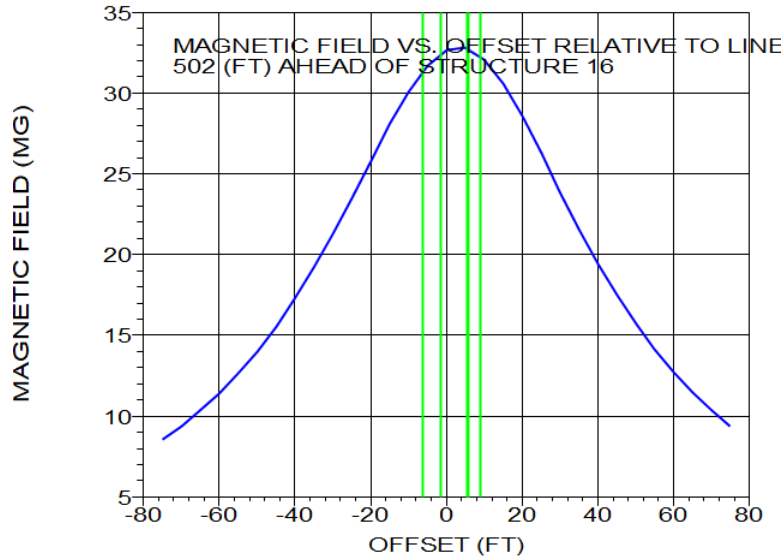
3D EMF Point Results Span from 15 to 16:

Measurement			B					H	EF					Space Potential				
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)	
2970153.7	708737.3	1247.0	7.461	8.026	47.1	10.959	50.4	0.872	0.169	0.777	77.7	0.795	3.4	-0.153	0.912	-80.5	0.925	
2970153.7	708732.3	1246.9	8.251	9.014	47.5	12.220	49.9	0.972	0.237	0.907	75.4	0.938	3.3	-0.229	1.048	-77.7	1.073	
2970153.7	708727.3	1246.8	9.151	10.179	48.0	13.688	49.4	1.089	0.325	1.064	73.0	1.113	3.3	-0.327	1.209	-74.9	1.253	
2970153.7	708722.3	1246.8	10.137	11.503	48.6	15.332	49.3	1.220	0.436	1.254	70.8	1.328	3.2	-0.444	1.402	-72.4	1.471	
2970153.7	708717.3	1246.7	11.301	13.151	49.3	17.340	48.7	1.380	0.582	1.481	68.6	1.591	3.2	-0.601	1.627	-69.7	1.735	
2970153.7	708712.3	1246.6	12.616	15.117	50.2	19.690	48.1	1.567	0.767	1.750	66.3	1.911	3.1	-0.796	1.887	-67.1	2.048	
2970153.7	708707.3	1246.5	14.085	17.455	51.1	22.429	47.5	1.785	1.000	2.062	64.1	2.292	3.0	-1.035	2.181	-64.6	2.414	
2970153.7	708702.3	1246.5	15.694	20.216	52.2	25.593	46.8	2.037	1.285	2.410	61.9	2.731	3.0	-1.322	2.496	-62.1	2.824	
2970153.7	708697.3	1246.4	17.406	23.433	53.4	29.190	46.3	2.323	1.621	2.772	59.7	3.211	3.2	-1.655	2.813	-59.5	3.264	
2970153.7	708692.3	1246.3	19.134	27.074	54.8	33.152	45.8	2.638	1.997	3.105	57.3	3.691	3.5	-2.020	3.081	-56.7	3.684	
2970153.7	708687.3	1246.3	20.745	31.007	56.2	37.306	45.4	2.969	2.385	3.331	54.4	4.097	4.2	-2.386	3.219	-53.5	4.007	
2970153.7	708682.3	1246.2	22.072	34.967	57.7	41.350	45.3	3.291	2.742	3.352	50.7	4.330	5.6	-2.709	3.130	-49.1	4.139	
2970153.7	708677.3	1246.1	22.969	38.561	59.2	44.884	45.6	3.572	3.019	3.070	45.5	4.305	8.2	-2.945	2.727	-42.8	4.014	
2970153.6	708672.3	1246.1	23.385	41.349	60.5	47.503	46.3	3.780	3.183	2.444	37.5	4.012	12.5	-3.065	1.980	-32.9	3.648	
2970153.6	708667.3	1246.0	23.420	43.007	61.4	48.970	47.7	3.897	3.226	1.553	25.7	3.581	18.9	-3.081	0.959	-17.3	3.226	
2970153.6	708662.3	1246.0	23.238	43.340	61.8	49.177	49.7	3.913	3.165	0.788	14.0	3.262	24.0	-3.007	-0.200	3.8	3.014	
2970153.6	708657.3	1246.0	22.953	42.300	61.5	48.126	52.4	3.830	3.013	1.192	21.6	3.240	21.6	-2.844	-1.315	24.8	3.133	
2970153.6	708652.3	1246.0	22.559	40.034	60.6	45.953	55.7	3.657	2.774	2.003	35.8	3.422	15.0	-2.596	-2.211	40.4	3.410	
2970153.6	708647.3	1245.9	21.957	36.831	59.2	42.879	59.5	3.412	2.450	2.592	46.6	3.567	9.9	-2.268	-2.783	50.8	3.590	
2970153.6	708642.3	1245.9	21.058	33.078	57.5	39.212	63.6	3.120	2.061	2.870	54.3	3.533	7.1	-1.881	-3.019	58.1	3.557	
2970153.6	708637.3	1245.8	19.854	29.156	55.7	35.274	67.8	2.807	1.642	2.878	60.3	3.313	5.7	-1.466	-2.973	63.8	3.315	
2970153.6	708632.3	1245.8	18.414	25.369	54.0	31.347	72.0	2.495	1.233	2.702	65.5	2.970	5.1	-1.059	-2.727	68.8	2.925	
2970153.6	708627.3	1245.7	16.870	21.944	52.4	27.679	76.0	2.203	0.869	2.429	70.3	2.580	4.8	-0.707	-2.399	73.6	2.501	
2970153.6	708622.3	1245.6	15.324	18.955	51.0	24.374	79.7	1.940	0.565	2.125	75.1	2.198	4.8	-0.423	-2.056	78.4	2.099	
2970153.6	708617.3	1245.6	13.844	16.401	49.8	21.462	83.1	1.708	0.326	1.828	79.9	1.857	4.8	-0.206	-1.734	83.2	1.746	
2970153.6	708612.3	1245.5	12.471	14.244	48.8	18.932	86.2	1.507	0.150	1.559	84.5	1.566	4.8	-0.048	-1.450	88.1	1.451	
2970153.6	708607.3	1245.4	11.224	12.432	47.9	16.749	89.1	1.333	0.061	1.324	87.3	1.325	4.6	0.062	-1.208	-87.1	1.210	
2970153.6	708602.3	1245.4	10.115	10.917	47.2	14.883	91.6	1.184	0.112	1.124	84.3	1.129	4.5	0.137	-1.024	-82.4	1.033	
2970153.6	708597.3	1245.4	9.074	9.663	46.8	13.256	92.9	1.055	0.167	0.956	80.1	0.971	4.3	0.181	-0.871	-78.3	0.890	
2970153.6	708592.3	1245.3	8.197	8.587	46.3	11.871	94.7	0.945	0.206	0.816	75.8	0.842	4.1	0.212	-0.743	-74.1	0.773	
2970153.6	708587.3	1245.3	7.421	7.671	46.0	10.673	96.4	0.849	0.231	0.699	71.7	0.736	3.8	0.230	-0.637	-70.1	0.677	

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Attachment 5

Wire low point cross section results between structures 16 and 17



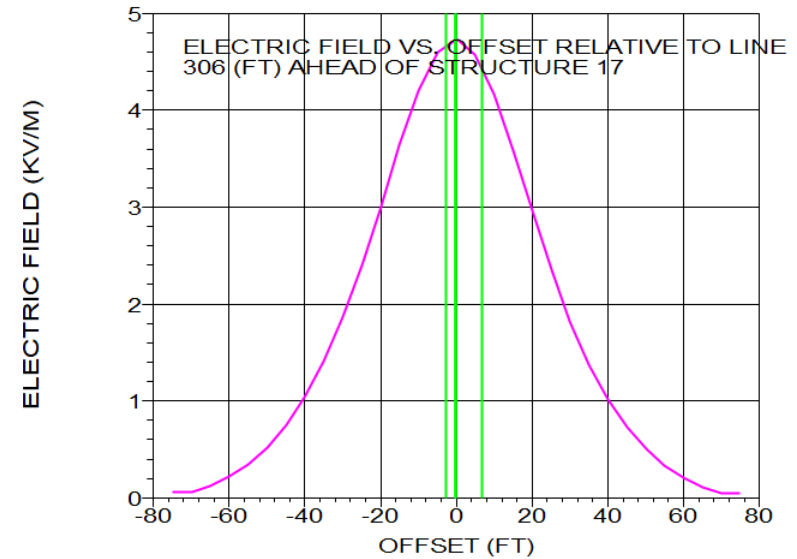
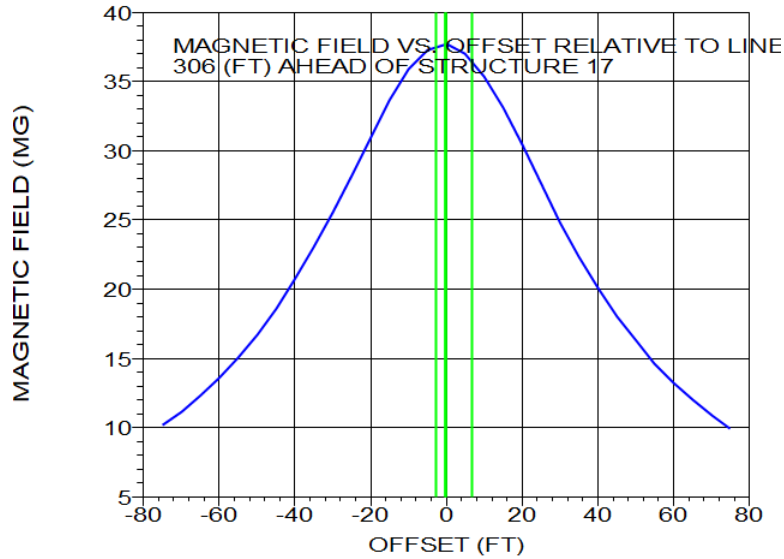
3D EMF Point Results Span from 16 to 17:

Measurement			B-					H	EF					Space Potential			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2971151.4	708736.8	1242.9	7.123	4.719	33.5	8.544	59.2	0.680	0.115	0.450	75.6	0.465	5.5	-0.142	0.450	-72.5	0.472
2971151.4	708731.8	1242.8	7.781	5.246	34.0	9.384	60.0	0.747	0.169	0.494	71.1	0.522	5.8	-0.198	0.494	-68.1	0.533
2971151.4	708726.8	1242.8	8.515	5.854	34.5	10.333	60.8	0.822	0.236	0.540	66.4	0.589	6.1	-0.268	0.537	-63.5	0.601
2971151.4	708721.8	1242.8	9.335	6.558	35.1	11.408	61.6	0.908	0.321	0.585	61.2	0.668	6.5	-0.355	0.580	-58.5	0.680
2971151.4	708716.8	1242.8	10.249	7.372	35.7	12.625	62.5	1.005	0.427	0.628	55.8	0.759	6.9	-0.462	0.618	-53.2	0.771
2971151.4	708711.8	1242.7	11.266	8.315	36.4	14.002	63.3	1.114	0.557	0.662	49.9	0.865	7.5	-0.593	0.646	-47.4	0.877
2971151.4	708706.8	1242.7	12.389	9.400	37.2	15.551	63.9	1.238	0.716	0.679	43.5	0.987	8.2	-0.751	0.655	-41.1	0.996
2971151.4	708701.8	1242.7	13.618	10.641	38.0	17.283	64.2	1.375	0.907	0.669	36.4	1.127	9.0	-0.936	0.632	-34.0	1.130
2971151.4	708696.8	1242.6	14.956	12.048	38.9	19.205	64.1	1.528	1.131	0.617	28.6	1.288	10.1	-1.155	0.567	-26.2	1.286
2971151.4	708691.8	1242.6	16.388	13.610	39.7	21.302	63.5	1.695	1.388	0.506	20.0	1.477	11.2	-1.403	0.436	-17.3	1.469
2971151.4	708686.8	1242.6	17.888	15.295	40.5	23.535	62.2	1.873	1.670	0.335	11.3	1.704	12.2	-1.674	0.219	-7.5	1.688
2971151.4	708681.8	1242.6	19.417	17.035	41.3	25.831	60.3	2.056	1.967	0.254	7.3	1.984	12.5	-1.954	-0.102	3.0	1.957
2971151.4	708676.8	1242.5	20.914	18.720	41.8	28.068	57.7	2.234	2.258	0.570	14.2	2.329	11.9	-2.224	-0.530	13.4	2.287
2971151.4	708671.8	1242.5	22.306	20.205	42.2	30.097	54.6	2.395	2.513	1.071	23.1	2.732	10.5	-2.468	-1.048	23.0	2.681
2971151.4	708666.8	1242.5	23.473	21.300	42.2	31.696	51.3	2.522	2.697	1.627	31.1	3.150	8.7	-2.645	-1.605	31.3	3.094
2971151.4	708661.8	1242.5	24.279	21.826	42.0	32.647	47.9	2.598	2.774	2.144	37.7	3.506	7.0	-2.718	-2.121	38.0	3.447
2971151.4	708656.8	1242.5	24.599	21.675	41.4	32.786	44.8	2.609	2.716	2.529	43.0	3.712	5.5	-2.660	-2.505	43.3	3.654
2971151.4	708651.8	1242.5	24.364	20.856	40.6	32.072	42.0	2.552	2.523	2.720	47.2	3.710	4.5	-2.470	-2.698	47.5	3.658
2971151.4	708646.8	1242.5	23.597	19.503	39.6	30.613	39.6	2.436	2.219	2.709	50.7	3.501	3.9	-2.172	-2.691	51.1	3.458
2971151.4	708641.8	1242.5	22.374	17.793	38.5	28.586	37.7	2.275	1.848	2.535	53.9	3.137	3.7	-1.793	-2.501	54.4	3.077
2971151.4	708636.8	1242.5	20.876	15.965	37.4	26.281	36.2	2.091	1.459	2.263	57.2	2.693	3.8	-1.405	-2.221	57.7	2.628
2971151.4	708631.8	1242.5	19.259	14.184	36.4	23.918	35.1	1.903	1.092	1.954	60.8	2.239	4.4	-1.053	-1.923	61.3	2.192
2971151.4	708626.8	1242.5	17.614	12.525	35.4	21.613	34.4	1.720	0.770	1.649	65.0	1.820	5.1	-0.744	-1.628	65.4	1.790
2971151.4	708621.8	1242.5	16.021	11.034	34.6	19.453	33.9	1.548	0.503	1.372	69.9	1.461	6.1	-0.486	-1.359	70.3	1.444
2971151.4	708616.8	1242.5	14.524	9.725	33.8	17.480	33.6	1.391	0.291	1.132	75.6	1.169	7.2	-0.281	-1.126	76.0	1.161
2971151.4	708611.8	1242.5	13.147	8.588	33.2	15.703	33.5	1.250	0.136	0.931	81.7	0.941	8.2	-0.123	-0.930	82.5	0.938
2971151.4	708606.8	1242.4	11.895	7.608	32.6	14.120	33.5	1.124	0.070	0.765	84.8	0.768	9.0	-0.005	-0.765	89.6	0.765
2971151.4	708601.8	1242.4	10.763	6.762	32.1	12.711	33.6	1.011	0.119	0.630	79.3	0.641	9.2	0.078	-0.624	-82.9	0.629
2971151.4	708596.8	1242.3	9.753	6.036	31.8	11.470	33.8	0.913	0.175	0.520	71.4	0.549	9.0	0.134	-0.512	-75.3	0.529
2971151.4	708591.8	1242.3	8.855	5.412	31.4	10.377	34.0	0.826	0.216	0.431	63.4	0.482	8.3	0.170	-0.421	-68.1	0.454
2971151.4	708586.8	1242.2	8.056	4.873	31.2	9.415	34.3	0.749	0.242	0.359	56.0	0.433	7.4	0.190	-0.349	-61.4	0.397

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Attachment 5

Wire low point cross section results between structures 17 and 18



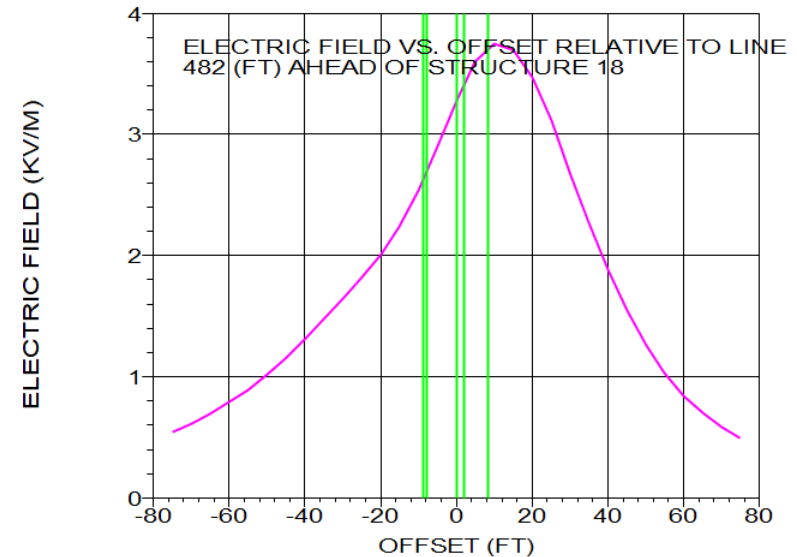
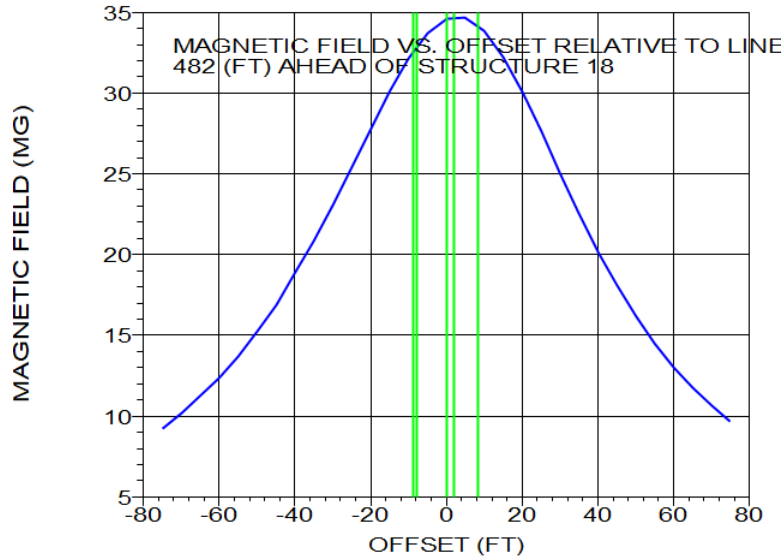
3D EMF Point Results Span from 17 to 18:

Measurement			B-					H	EF					Space Potential			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2971867.2	708759.2	1254.9	8.443	5.682	33.9	10.177	11.2	0.810	0.038	0.043	48.3	0.057	39.7	0.015	0.044	71.0	0.047
2971867.6	708754.2	1254.8	9.228	6.313	34.4	11.181	11.3	0.890	0.058	0.029	26.6	0.065	41.5	-0.046	0.011	-13.3	0.047
2971868.0	708749.2	1254.8	10.108	7.039	34.9	12.318	11.4	0.980	0.116	0.046	21.5	0.125	14.4	-0.125	-0.037	16.4	0.131
2971868.3	708744.2	1254.8	11.094	7.878	35.4	13.607	11.5	1.083	0.198	0.096	25.8	0.220	7.3	-0.227	-0.104	24.6	0.249
2971868.7	708739.2	1254.7	12.199	8.849	36.0	15.071	11.5	1.199	0.306	0.172	29.4	0.351	4.9	-0.355	-0.197	29.0	0.406
2971869.1	708734.3	1254.7	13.434	9.973	36.6	16.731	11.4	1.331	0.443	0.281	32.4	0.525	3.9	-0.517	-0.324	32.1	0.610
2971869.5	708729.3	1254.7	14.801	11.264	37.3	18.600	11.1	1.480	0.616	0.430	34.9	0.751	3.4	-0.712	-0.494	34.7	0.866
2971869.8	708724.3	1254.6	16.308	12.742	38.0	20.696	10.8	1.647	0.830	0.631	37.3	1.043	3.1	-0.946	-0.715	37.1	1.186
2971870.2	708719.3	1254.5	17.955	14.417	38.8	23.027	10.2	1.832	1.089	0.897	39.5	1.411	2.9	-1.221	-1.001	39.3	1.579
2971870.6	708714.3	1254.4	19.725	16.282	39.5	25.576	9.4	2.035	1.395	1.238	41.6	1.865	2.7	-1.537	-1.357	41.4	2.051
2971870.9	708709.3	1254.4	21.575	18.298	40.3	28.289	8.4	2.251	1.743	1.657	43.6	2.406	2.5	-1.886	-1.784	43.4	2.596
2971871.3	708704.3	1254.3	23.429	20.380	41.0	31.053	7.1	2.471	2.118	2.142	45.3	3.013	2.2	-2.249	-2.263	45.2	3.191
2971871.7	708699.4	1254.2	25.162	22.375	41.6	33.671	5.5	2.679	2.491	2.653	46.8	3.640	1.9	-2.598	-2.753	46.7	3.786
2971872.1	708694.4	1254.2	26.595	24.061	42.1	35.864	3.7	2.854	2.816	3.121	47.9	4.204	1.5	-2.885	-3.182	47.8	4.295
2971872.4	708689.4	1254.1	27.523	25.181	42.5	37.304	1.8	2.969	3.039	3.453	48.6	4.600	1.2	-3.059	-3.458	48.5	4.616
2971872.8	708684.4	1254.1	27.783	25.527	42.6	37.730	0.3	3.002	3.115	3.566	48.9	4.735	1.1	-3.079	-3.509	48.7	4.668
2971873.2	708679.4	1254.0	27.324	25.028	42.5	37.054	2.3	2.949	3.025	3.432	48.6	4.575	1.2	-2.937	-3.316	48.5	4.430
2971873.6	708674.4	1253.9	26.227	23.787	42.2	35.407	4.2	2.818	2.791	3.085	47.9	4.160	1.4	-2.660	-2.927	47.7	3.955
2971873.9	708669.4	1253.9	24.674	22.032	41.8	33.079	5.9	2.632	2.461	2.611	46.7	3.588	1.7	-2.299	-2.429	46.6	3.344
2971874.3	708664.5	1253.8	22.861	20.007	41.2	30.380	7.4	2.418	2.087	2.101	45.2	2.961	1.9	-1.903	-1.908	45.1	2.695
2971874.7	708659.5	1253.7	20.970	17.936	40.5	27.594	8.5	2.196	1.713	1.622	43.4	2.359	2.0	-1.524	-1.437	43.3	2.094
2971875.0	708654.5	1253.6	19.113	15.955	39.9	24.898	9.4	1.981	1.369	1.209	41.5	1.826	2.1	-1.186	-1.045	41.4	1.580
2971875.4	708649.5	1253.6	17.359	14.138	39.2	22.388	10.1	1.782	1.067	0.875	39.4	1.379	2.2	-0.900	-0.736	39.3	1.163
2971875.8	708644.5	1253.5	15.729	12.506	38.5	20.095	10.5	1.599	0.811	0.614	37.1	1.017	2.2	-0.659	-0.498	37.1	0.826
2971876.2	708639.5	1253.4	14.248	11.072	37.8	18.044	10.7	1.436	0.600	0.417	34.8	0.731	2.3	-0.468	-0.325	34.8	0.570
2971876.5	708634.5	1253.3	12.925	9.831	37.3	16.239	10.7	1.292	0.430	0.271	32.2	0.509	2.5	-0.326	-0.206	32.3	0.386
2971876.9	708629.6	1253.2	11.739	8.755	36.7	14.644	10.7	1.165	0.295	0.165	29.2	0.338	3.0	-0.218	-0.123	29.4	0.250
2971877.3	708624.6	1253.2	10.678	7.822	36.2	13.237	10.5	1.053	0.189	0.089	25.1	0.209	4.5	-0.136	-0.065	25.4	0.150
2971877.6	708619.6	1253.1	9.731	7.013	35.8	11.995	10.3	0.955	0.107	0.036	18.7	0.113	9.3	-0.074	-0.025	18.4	0.078
2971878.0	708614.6	1253.0	8.885	6.311	35.4	10.898	10.1	0.867	0.046	0.017	20.3	0.049	36.9	-0.028	0.002	-4.5	0.028
2971878.4	708609.6	1253.0	8.129	5.699	35.0	9.928	9.8	0.790	0.021	0.036	59.5	0.042	35.1	0.005	0.020	75.2	0.020

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Attachment 5

Wire low point cross section results between structures 18 and 19



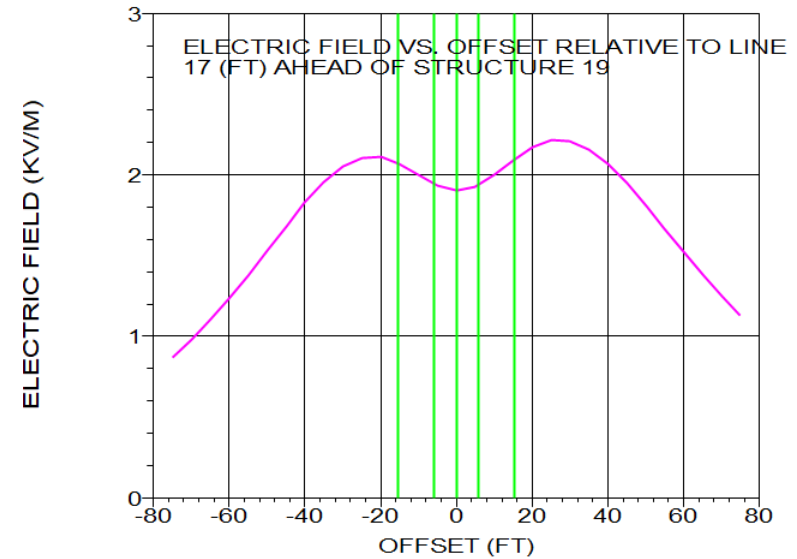
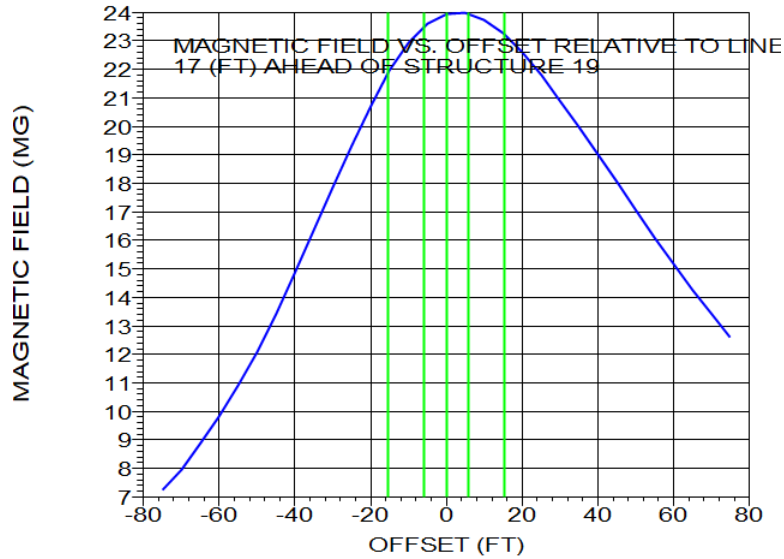
3D EMF Point Results Span from 18 to 19:

Measurement			B-					H	EF					Space Potential				
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)	
2972908.2	708807.0	1262.3	7.484	5.422	35.9	9.242	65.4	0.735	0.034	0.547	86.4	0.548	6.1	-0.009	0.563	-89.0	0.563	
2972908.3	708802.0	1262.2	8.178	6.033	36.4	10.162	66.4	0.809	0.068	0.612	83.7	0.616	6.5	-0.067	0.624	-83.9	0.628	
2972908.4	708797.0	1262.2	8.953	6.740	37.0	11.206	67.5	0.892	0.126	0.684	79.5	0.695	6.9	-0.142	0.692	-78.4	0.706	
2972908.4	708792.0	1262.1	9.813	7.558	37.6	12.386	68.7	0.986	0.205	0.761	74.9	0.788	7.3	-0.236	0.760	-72.7	0.796	
2972908.5	708787.0	1262.1	10.765	8.505	38.3	13.719	69.9	1.092	0.306	0.842	70.0	0.896	7.7	-0.355	0.827	-66.8	0.900	
2972908.6	708782.0	1262.0	11.814	9.602	39.1	15.224	71.0	1.211	0.435	0.922	64.7	1.020	8.2	-0.502	0.888	-60.5	1.020	
2972908.6	708777.0	1262.0	12.961	10.867	40.0	16.914	72.0	1.346	0.595	0.995	59.1	1.159	8.8	-0.682	0.934	-53.9	1.156	
2972908.7	708772.0	1261.9	14.201	12.315	40.9	18.797	72.5	1.496	0.790	1.048	53.0	1.313	9.6	-0.896	0.951	-46.7	1.306	
2972908.8	708767.0	1261.8	15.517	13.946	41.9	20.863	72.5	1.660	1.021	1.065	46.2	1.476	10.6	-1.141	0.915	-38.7	1.462	
2972908.8	708762.0	1261.8	16.890	15.749	43.0	23.093	71.7	1.838	1.288	1.024	38.5	1.645	12.0	-1.415	0.807	-29.7	1.629	
2972908.9	708757.0	1261.7	18.287	17.683	44.0	25.438	69.9	2.024	1.583	0.900	29.6	1.821	13.7	-1.707	0.601	-19.4	1.810	
2972909.0	708752.0	1261.6	19.669	19.669	45.0	27.816	67.3	2.214	1.895	0.676	19.6	2.012	15.3	-2.006	0.274	-7.8	2.025	
2972909.0	708747.0	1261.5	20.982	21.580	45.8	30.099	64.0	2.395	2.204	0.408	10.5	2.242	16.0	-2.289	-0.181	4.5	2.296	
2972909.1	708742.0	1261.4	22.162	23.246	46.4	32.118	60.3	2.556	2.487	0.508	11.5	2.538	15.1	-2.532	-0.750	16.5	2.641	
2972909.2	708737.0	1261.4	23.151	24.502	46.6	33.709	56.5	2.682	2.712	1.036	20.9	2.903	12.7	-2.729	-1.387	26.9	3.061	
2972909.2	708732.0	1261.3	23.825	25.128	46.5	34.627	52.8	2.756	2.847	1.643	30.0	3.287	9.8	-2.826	-2.009	35.4	3.468	
2972909.3	708727.0	1261.3	24.053	24.970	46.1	34.671	49.5	2.759	2.864	2.180	37.3	3.599	7.0	-2.778	-2.498	42.0	3.736	
2972909.3	708722.0	1261.2	23.791	24.066	45.3	33.840	46.5	2.693	2.751	2.551	42.8	3.752	5.0	-2.607	-2.785	46.9	3.815	
2972909.4	708717.0	1261.1	23.038	22.545	44.4	32.234	44.0	2.565	2.521	2.713	47.1	3.704	3.6	-2.331	-2.848	50.7	3.681	
2972909.5	708712.0	1261.0	21.874	20.623	43.3	30.064	42.0	2.392	2.207	2.678	50.5	3.470	2.8	-1.989	-2.719	53.8	3.369	
2972909.5	708707.0	1260.9	20.451	18.558	42.2	27.616	40.4	2.198	1.851	2.498	53.5	3.109	2.4	-1.646	-2.487	56.5	2.982	
2972909.6	708702.0	1260.9	18.882	16.501	41.1	25.076	39.2	1.995	1.495	2.236	56.2	2.690	2.3	-1.315	-2.196	59.1	2.559	
2972909.7	708697.0	1260.8	17.238	14.534	40.1	22.547	38.4	1.794	1.166	1.945	59.1	2.267	2.3	-0.988	-1.840	61.8	2.089	
2972909.7	708692.0	1260.6	15.647	12.766	39.2	20.194	37.8	1.607	0.879	1.660	62.1	1.879	2.4	-0.716	-1.508	64.6	1.669	
2972909.8	708687.0	1260.5	14.164	11.218	38.4	18.068	37.4	1.438	0.640	1.402	65.5	1.542	2.6	-0.501	-1.221	67.7	1.320	
2972909.9	708682.0	1260.4	12.807	9.880	37.6	16.175	37.1	1.287	0.448	1.177	69.2	1.260	2.9	-0.339	-0.983	71.0	1.039	
2972909.9	708677.0	1260.2	11.585	8.732	37.0	14.508	37.0	1.154	0.296	0.987	73.3	1.030	3.1	-0.219	-0.790	74.5	0.819	
2972910.0	708672.0	1260.1	10.492	7.750	36.5	13.044	37.0	1.038	0.178	0.828	77.9	0.846	3.3	-0.133	-0.635	78.2	0.649	
2972910.1	708667.0	1260.0	9.517	6.907	36.0	11.759	37.0	0.936	0.089	0.696	82.7	0.701	3.4	-0.072	-0.509	81.9	0.514	
2972910.1	708662.0	1259.8	8.649	6.182	35.6	10.631	37.1	0.846	0.027	0.587	87.4	0.587	3.5	-0.031	-0.406	85.6	0.408	
2972910.2	708657.0	1259.7	7.879	5.559	35.2	9.643	37.2	0.767	0.037	0.497	85.8	0.498	3.4	-0.004	-0.325	89.2	0.325	

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Attachment 5

Wire low point cross section results between structures 19 and 20



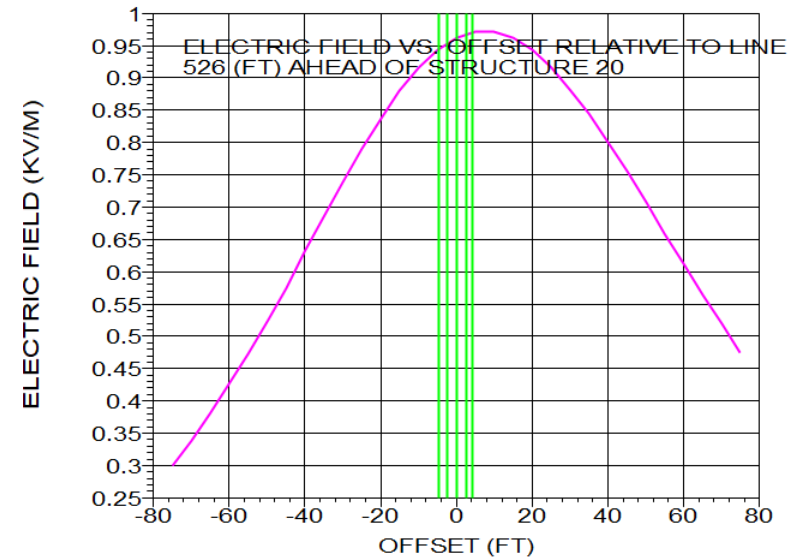
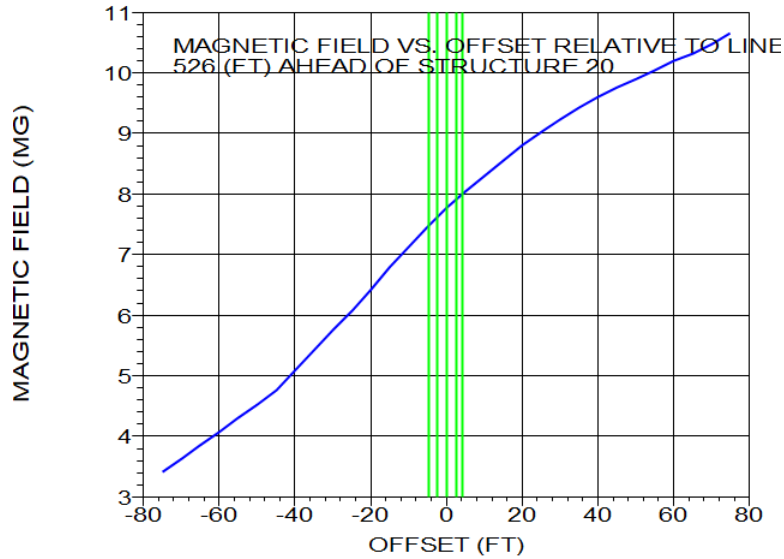
3D EMF Point Results Span from 19 to 20:

-----Measurement-----			B-----					H	EF-----					-----Space Potential-----			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2973412.7	708792.6	1264.0	2.070	6.928	73.4	7.231	23.4	0.575	0.256	0.832	72.9	0.871	3.5	-0.140	1.018	-82.2	1.028
2973410.0	708788.4	1264.0	2.564	7.553	71.2	7.977	25.6	0.635	0.328	0.923	70.5	0.979	3.3	-0.221	1.115	-78.8	1.136
2973407.4	708784.2	1264.0	3.099	8.270	69.5	8.832	27.6	0.703	0.410	1.021	68.1	1.100	3.2	-0.316	1.221	-75.5	1.261
2973404.7	708779.9	1264.1	3.675	9.089	68.0	9.803	29.2	0.780	0.505	1.126	65.9	1.234	3.1	-0.424	1.336	-72.4	1.401
2973402.1	708775.7	1264.1	4.293	10.015	66.8	10.897	30.5	0.867	0.612	1.234	63.6	1.378	3.1	-0.548	1.455	-69.4	1.554
2973399.4	708771.4	1264.1	4.951	11.048	65.9	12.107	31.6	0.963	0.733	1.342	61.4	1.529	3.1	-0.682	1.564	-66.4	1.706
2973396.8	708767.2	1264.1	5.646	12.187	65.1	13.432	32.5	1.069	0.865	1.441	59.0	1.681	3.3	-0.826	1.660	-63.5	1.854
2973394.2	708762.9	1264.1	6.372	13.420	64.6	14.856	33.3	1.182	1.007	1.523	56.5	1.826	3.5	-0.979	1.735	-60.6	1.992
2973391.5	708758.7	1264.1	7.120	14.718	64.2	16.350	34.0	1.301	1.155	1.574	53.7	1.953	4.0	-1.134	1.771	-57.4	2.103
2973388.9	708754.5	1264.1	7.877	16.043	63.8	17.873	34.8	1.422	1.303	1.581	50.5	2.049	4.7	-1.289	1.758	-53.8	2.180
2973386.2	708750.2	1264.1	8.627	17.338	63.5	19.365	35.8	1.541	1.446	1.528	46.6	2.103	5.7	-1.436	1.681	-49.5	2.211
2973383.6	708746.0	1264.0	9.354	18.530	63.2	20.757	37.1	1.652	1.576	1.402	41.7	2.110	7.2	-1.568	1.528	-44.3	2.189
2973380.9	708741.7	1264.0	10.044	19.536	62.8	21.967	38.8	1.748	1.688	1.199	35.4	2.070	9.1	-1.676	1.290	-37.6	2.115
2973378.3	708737.5	1264.0	10.689	20.287	62.2	22.931	41.0	1.825	1.777	0.922	27.4	2.002	11.5	-1.760	0.975	-29.0	2.011
2973375.6	708733.2	1264.0	11.284	20.726	61.4	23.598	43.9	1.878	1.840	0.596	18.0	1.934	13.8	-1.815	0.597	-18.2	1.911
2973373.0	708729.0	1264.0	11.828	20.821	60.4	23.946	47.6	1.906	1.876	0.310	9.4	1.902	15.0	-1.843	0.182	-5.6	1.852
2973370.4	708724.8	1264.0	12.312	20.576	59.1	23.978	52.0	1.908	1.884	0.398	11.9	1.925	14.4	-1.842	-0.241	7.5	1.857
2973367.7	708720.5	1263.9	12.725	20.033	57.6	23.733	57.1	1.889	1.861	0.729	21.4	1.999	12.4	-1.816	-0.642	19.5	1.926
2973365.1	708716.3	1263.9	13.043	19.248	55.9	23.251	63.0	1.850	1.809	1.054	30.2	2.093	9.9	-1.760	-0.992	29.4	2.020
2973362.4	708712.0	1263.9	13.243	18.295	54.1	22.585	69.2	1.797	1.727	1.322	37.4	2.175	7.7	-1.675	-1.272	37.2	2.103
2973359.8	708707.8	1263.9	13.308	17.254	52.4	21.790	75.6	1.734	1.619	1.516	43.1	2.218	6.0	-1.564	-1.473	43.3	2.149
2973357.1	708703.5	1263.9	13.231	16.188	50.7	20.907	81.4	1.664	1.491	1.635	47.6	2.212	4.8	-1.434	-1.596	48.1	2.145
2973354.5	708699.3	1263.9	13.018	15.143	49.3	19.970	85.8	1.589	1.350	1.685	51.3	2.159	3.9	-1.289	-1.647	51.9	2.092
2973351.8	708695.0	1263.9	12.688	14.144	48.1	19.001	87.5	1.512	1.203	1.681	54.4	2.067	3.4	-1.138	-1.640	55.2	1.997
2973349.2	708690.8	1263.9	12.265	13.207	47.1	18.023	86.2	1.434	1.057	1.635	57.1	1.947	3.0	-0.990	-1.592	58.1	1.875
2973346.6	708686.6	1263.9	11.774	12.331	46.3	17.049	83.6	1.357	0.917	1.561	59.6	1.810	2.7	-0.848	-1.516	60.8	1.737
2973343.9	708682.3	1263.8	11.239	11.516	45.7	16.091	80.8	1.281	0.787	1.469	61.8	1.666	2.5	-0.717	-1.423	63.3	1.593
2973341.3	708678.1	1263.8	10.681	10.757	45.2	15.159	78.1	1.206	0.668	1.368	64.0	1.522	2.4	-0.598	-1.322	65.7	1.451
2973338.6	708673.8	1263.8	10.117	10.051	44.8	14.261	75.9	1.135	0.562	1.264	66.0	1.383	2.3	-0.492	-1.217	68.0	1.313
2973336.0	708669.6	1263.8	9.555	9.391	44.5	13.398	73.9	1.066	0.468	1.162	68.1	1.253	2.2	-0.396	-1.108	70.3	1.177
2973333.3	708665.3	1263.8	9.015	8.783	44.3	12.586	72.3	1.002	0.386	1.063	70.0	1.131	2.2	-0.318	-1.016	72.6	1.065

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Attachment 5

Wire low point cross section results between structures 20 and 21

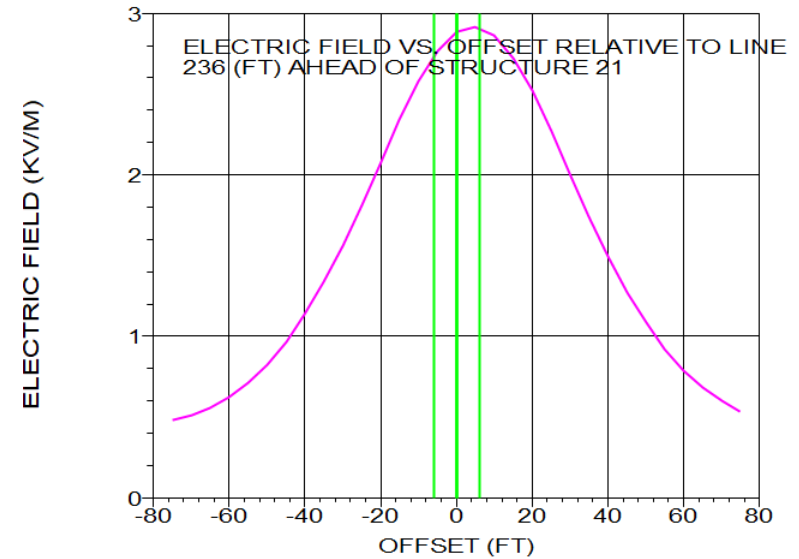
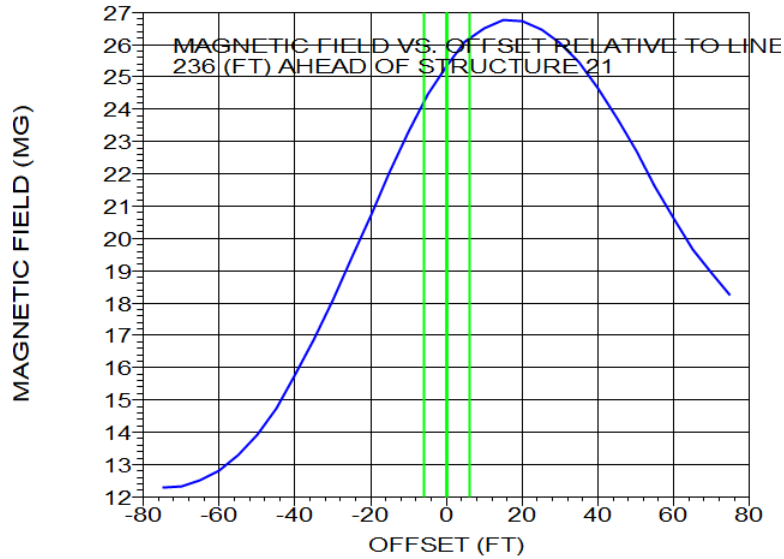


3D EMF Point Results Span from 20 to 21:

Measurement			B-					H	EF					Space Potential			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2974124.9	708671.5	1243.3	2.833	1.918	34.1	3.421	31.6	0.272	0.264	0.143	28.4	0.300	7.0	-1.019	-0.559	28.8	1.162
2974125.0	708666.5	1242.4	3.020	2.035	34.0	3.642	31.1	0.290	0.295	0.167	29.6	0.339	6.2	-1.059	-0.613	30.1	1.224
2974125.0	708661.5	1241.1	3.201	2.148	33.9	3.855	30.6	0.307	0.327	0.194	30.7	0.381	5.2	-1.058	-0.646	31.4	1.240
2974125.1	708656.5	1239.9	3.390	2.264	33.7	4.076	30.1	0.324	0.362	0.224	31.8	0.426	4.4	-1.037	-0.665	32.7	1.232
2974125.2	708651.5	1238.6	3.581	2.381	33.6	4.300	29.6	0.342	0.398	0.257	32.8	0.473	3.5	-0.986	-0.664	34.0	1.188
2974125.3	708646.5	1237.3	3.775	2.500	33.5	4.528	29.1	0.360	0.435	0.292	33.9	0.524	2.8	-0.907	-0.640	35.2	1.110
2974125.4	708641.5	1236.0	3.980	2.624	33.4	4.767	28.5	0.379	0.472	0.330	34.9	0.576	2.1	-0.813	-0.600	36.4	1.011
2974125.5	708636.5	1235.7	4.245	2.790	33.3	5.080	27.9	0.404	0.511	0.370	35.9	0.631	1.8	-0.820	-0.626	37.3	1.032
2974125.6	708631.5	1235.4	4.525	2.964	33.2	5.410	27.4	0.430	0.548	0.412	36.9	0.686	1.5	-0.831	-0.653	38.2	1.056
2974125.7	708626.5	1235.1	4.811	3.140	33.1	5.746	26.7	0.457	0.584	0.454	37.9	0.739	1.3	-0.832	-0.673	38.9	1.070
2974125.7	708621.5	1234.7	5.100	3.314	33.0	6.082	26.1	0.484	0.616	0.495	38.8	0.791	1.1	-0.820	-0.680	39.7	1.065
2974125.8	708616.6	1234.5	5.400	3.491	32.9	6.430	25.5	0.512	0.646	0.534	39.6	0.838	0.9	-0.820	-0.695	40.3	1.075
2974125.9	708611.6	1234.4	5.708	3.669	32.7	6.786	24.9	0.540	0.670	0.571	40.4	0.881	0.8	-0.830	-0.716	40.8	1.096
2974126.0	708606.6	1234.2	6.007	3.834	32.5	7.127	24.3	0.567	0.690	0.603	41.2	0.916	0.6	-0.822	-0.721	41.3	1.093
2974126.1	708601.6	1234.1	6.305	3.991	32.3	7.462	23.8	0.594	0.703	0.630	41.9	0.944	0.5	-0.816	-0.726	41.6	1.092
2974126.2	708596.6	1233.9	6.584	4.127	32.1	7.770	23.2	0.618	0.709	0.651	42.6	0.963	0.3	-0.788	-0.707	41.9	1.059
2974126.3	708591.6	1233.6	6.834	4.235	31.8	8.040	22.7	0.640	0.708	0.665	43.2	0.972	0.2	-0.727	-0.656	42.1	0.979
2974126.3	708586.6	1233.4	7.081	4.332	31.5	8.301	22.3	0.661	0.701	0.672	43.8	0.971	0.1	-0.684	-0.618	42.1	0.921
2974126.4	708581.6	1233.4	7.331	4.422	31.1	8.562	21.8	0.681	0.687	0.672	44.3	0.961	0.1	-0.668	-0.604	42.1	0.900
2974126.5	708576.6	1233.4	7.575	4.496	30.7	8.808	21.4	0.701	0.668	0.666	44.9	0.943	0.1	-0.663	-0.598	42.0	0.893
2974126.6	708571.6	1233.4	7.801	4.547	30.2	9.029	21.0	0.719	0.643	0.653	45.4	0.916	0.2	-0.654	-0.587	41.9	0.879
2974126.7	708566.6	1233.5	8.016	4.580	29.7	9.232	20.7	0.735	0.613	0.635	46.0	0.883	0.2	-0.648	-0.579	41.8	0.869
2974126.8	708561.6	1233.6	8.226	4.597	29.2	9.423	20.5	0.750	0.580	0.613	46.6	0.844	0.2	-0.651	-0.580	41.7	0.872
2974126.9	708556.6	1233.7	8.424	4.594	28.6	9.595	20.2	0.764	0.545	0.588	47.2	0.801	0.3	-0.650	-0.577	41.6	0.869
2974126.9	708551.6	1233.9	8.618	4.575	28.0	9.757	20.1	0.776	0.507	0.560	47.9	0.755	0.3	-0.653	-0.578	41.5	0.872
2974127.0	708546.6	1234.1	8.799	4.536	27.3	9.899	20.0	0.788	0.468	0.531	48.6	0.708	0.4	-0.644	-0.567	41.4	0.858
2974127.1	708541.6	1234.2	8.980	4.482	26.5	10.036	19.9	0.799	0.429	0.501	49.5	0.660	0.4	-0.636	-0.558	41.3	0.846
2974127.2	708536.6	1234.5	9.181	4.424	25.7	10.191	19.9	0.811	0.389	0.472	50.5	0.612	0.6	-0.641	-0.565	41.4	0.855
2974127.3	708531.6	1234.7	9.369	4.345	24.9	10.328	20.0	0.822	0.350	0.443	51.7	0.565	0.8	-0.626	-0.551	41.4	0.835
2974127.4	708526.6	1235.0	9.576	4.260	24.0	10.481	20.1	0.834	0.312	0.415	53.1	0.519	1.1	-0.615	-0.543	41.4	0.820
2974127.5	708521.6	1235.2	9.803	4.167	23.0	10.652	20.2	0.848	0.274	0.389	54.9	0.476	1.5	-0.603	-0.536	41.6	0.807

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 21 and 22

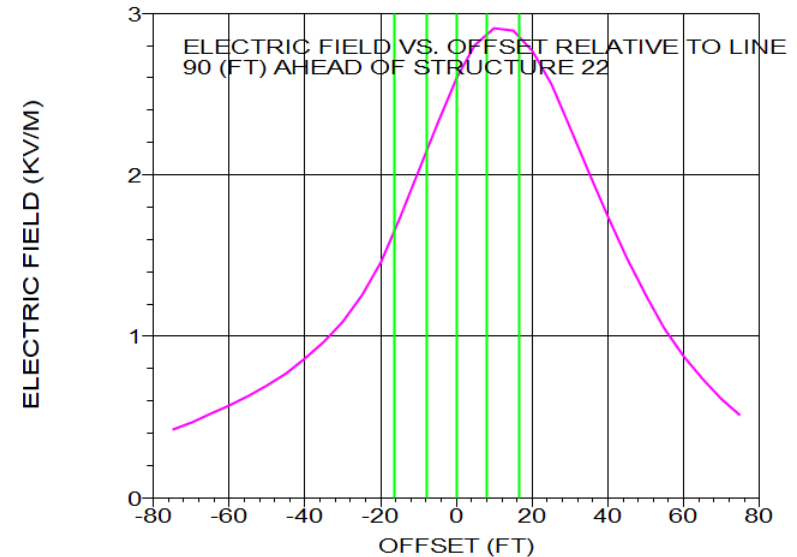
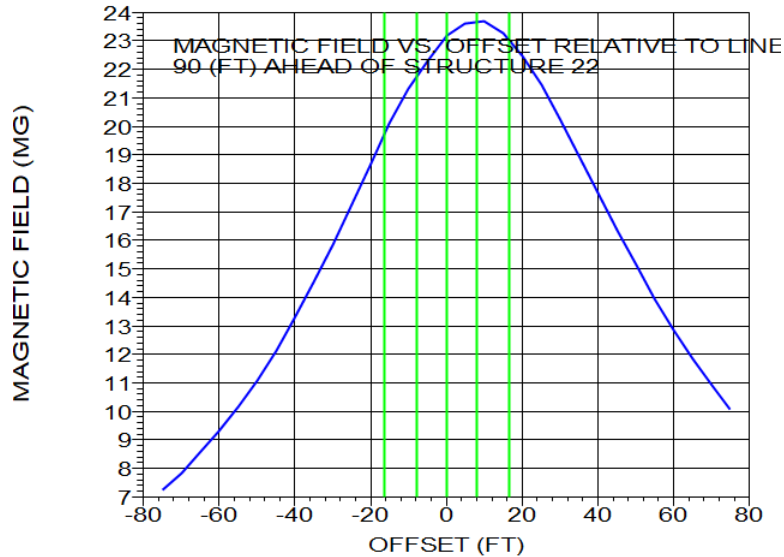


3D EMF Point Results Span from 21 to 22:

Measurement			B-					H	EF					Space Potential			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2974307.9	708362.0	1240.4	10.139	6.954	34.4	12.295	49.1	0.978	0.450	0.166	20.2	0.479	4.5	-0.512	0.190	-20.4	0.546
2974302.9	708362.0	1240.5	10.099	7.098	35.1	12.343	53.5	0.982	0.496	0.129	14.6	0.512	4.4	-0.543	0.159	-16.3	0.565
2974297.9	708362.0	1240.8	10.147	7.318	35.8	12.511	58.4	0.996	0.553	0.083	8.5	0.559	4.3	-0.594	0.120	-11.4	0.606
2974292.9	708362.0	1240.8	10.302	7.619	36.5	12.813	63.4	1.020	0.623	0.032	2.9	0.624	3.9	-0.637	0.068	-6.1	0.641
2974287.9	708362.0	1240.9	10.544	8.079	37.5	13.283	68.7	1.057	0.708	0.058	4.7	0.710	3.3	-0.710	0.007	-0.6	0.710
2974282.9	708362.0	1241.1	10.863	8.718	38.7	13.928	74.3	1.108	0.810	0.144	10.1	0.823	2.7	-0.813	-0.069	4.8	0.816
2974277.9	708362.0	1241.3	11.250	9.541	40.3	14.751	80.1	1.174	0.930	0.252	15.2	0.964	2.2	-0.956	-0.167	9.9	0.970
2974272.9	708362.0	1241.5	11.722	10.509	41.9	15.743	85.7	1.253	1.067	0.384	19.8	1.134	2.0	-1.129	-0.294	14.6	1.167
2974267.9	708362.0	1241.7	12.300	11.554	43.2	16.875	90.7	1.343	1.221	0.542	24.0	1.336	1.8	-1.316	-0.447	18.8	1.390
2974262.9	708362.0	1241.7	13.007	12.566	44.0	18.085	94.7	1.439	1.386	0.726	27.6	1.565	1.6	-1.471	-0.605	22.3	1.590
2974257.9	708362.0	1241.7	13.875	13.583	44.4	19.417	97.9	1.545	1.559	0.933	30.9	1.817	1.5	-1.648	-0.786	25.5	1.826
2974252.9	708362.0	1241.8	14.847	14.481	44.3	20.740	95.4	1.650	1.732	1.154	33.7	2.081	1.4	-1.833	-0.985	28.3	2.081
2974247.9	708362.0	1241.8	15.932	15.233	43.7	22.042	90.8	1.754	1.895	1.375	36.0	2.342	1.3	-2.003	-1.183	30.6	2.327
2974242.9	708362.0	1241.9	17.108	15.841	42.8	23.315	85.7	1.855	2.037	1.581	37.8	2.579	1.4	-2.191	-1.393	32.4	2.596
2974237.9	708362.0	1242.0	18.297	16.214	41.5	24.447	80.4	1.945	2.146	1.748	39.2	2.768	1.6	-2.326	-1.553	33.7	2.797
2974232.9	708362.0	1241.9	19.402	16.305	40.0	25.344	75.1	2.017	2.209	1.857	40.0	2.886	1.9	-2.364	-1.614	34.3	2.863
2974227.9	708362.0	1242.0	20.435	16.216	38.4	26.087	70.1	2.076	2.221	1.894	40.5	2.919	2.3	-2.416	-1.660	34.5	2.931
2974222.9	708362.0	1242.0	21.252	15.867	36.7	26.522	65.6	2.111	2.179	1.855	40.4	2.862	2.8	-2.365	-1.592	34.0	2.851
2974217.9	708362.0	1242.1	21.895	15.367	35.1	26.750	61.6	2.129	2.089	1.746	39.9	2.722	3.4	-2.308	-1.495	32.9	2.750
2974212.9	708362.0	1242.1	22.320	14.735	33.4	26.745	58.2	2.128	1.959	1.582	38.9	2.518	4.1	-2.219	-1.352	31.4	2.598
2974207.9	708362.0	1242.1	22.471	13.998	31.9	26.474	55.5	2.107	1.801	1.382	37.5	2.271	4.7	-2.058	-1.144	29.1	2.355
2974202.9	708362.0	1242.1	22.437	13.237	30.5	26.051	53.3	2.073	1.630	1.168	35.6	2.006	5.5	-1.898	-0.938	26.3	2.117
2974197.9	708362.0	1242.1	22.191	12.475	29.3	25.457	51.6	2.026	1.457	0.956	33.3	1.743	6.2	-1.708	-0.720	22.9	1.853
2974192.9	708362.0	1241.9	21.689	11.736	28.4	24.661	50.7	1.962	1.290	0.758	30.4	1.496	6.6	-1.454	-0.484	18.4	1.532
2974187.9	708362.0	1241.5	20.991	11.053	27.8	23.723	50.3	1.888	1.135	0.580	27.1	1.275	6.6	-1.172	-0.266	12.8	1.202
2974182.9	708362.0	1241.0	20.156	10.440	27.4	22.700	50.3	1.806	0.996	0.426	23.2	1.083	5.9	-0.888	-0.090	5.8	0.893
2974177.9	708362.0	1240.4	19.246	9.895	27.2	21.640	50.6	1.722	0.874	0.297	18.8	0.923	4.5	-0.625	0.035	-3.2	0.626
2974172.9	708362.0	1239.7	18.339	9.411	27.2	20.613	51.0	1.640	0.768	0.190	13.9	0.791	2.6	-0.408	0.104	-14.3	0.421
2974167.9	708362.0	1239.2	17.508	8.977	27.1	19.675	51.2	1.566	0.677	0.105	8.8	0.685	0.6	-0.254	0.128	-26.7	0.284
2974162.9	708362.0	1238.9	16.835	8.586	27.0	18.898	51.0	1.504	0.600	0.037	3.5	0.601	0.8	-0.179	0.122	-34.2	0.217
2974157.9	708362.0	1238.9	16.281	8.231	26.8	18.243	50.5	1.452	0.535	0.019	2.0	0.535	1.4	-0.154	0.108	-35.2	0.188

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 22 and POI



3D EMF Point Results Span from 22 to POI:

Measurement			B-					H	EF					Space Potential			
X (ft)	Y (ft)	Z (ft)	Real (mG)	Imaginary (mG)	Angle (deg)	Magnitude (mG)	Polarization Axial Ratio %	Magnitude (A/m)	Real (kV/m)	Imaginary (kV/m)	Angle (deg)	Magnitude (kV/m)	Polarization Axial Ratio %	Real (kV)	Imaginary (kV)	Angle (deg)	Magnitude (kV)
2974307.9	708258.5	1244.3	4.690	5.510	49.6	7.236	58.5	0.576	0.162	0.391	67.5	0.423	5.9	-0.118	0.407	-73.8	0.424
2974302.9	708258.5	1244.3	5.043	6.016	50.0	7.850	59.6	0.625	0.210	0.419	63.4	0.468	6.4	-0.169	0.431	-68.6	0.462
2974297.9	708258.5	1244.3	5.432	6.585	50.5	8.536	60.3	0.679	0.267	0.444	59.0	0.518	7.1	-0.230	0.451	-63.0	0.507
2974292.9	708258.5	1244.3	5.860	7.224	50.9	9.302	60.7	0.740	0.336	0.464	54.1	0.573	7.8	-0.304	0.467	-56.9	0.557
2974287.9	708258.5	1244.3	6.329	7.941	51.4	10.154	60.8	0.808	0.419	0.476	48.7	0.634	8.7	-0.392	0.472	-50.3	0.614
2974282.9	708258.5	1244.3	6.839	8.741	52.0	11.098	60.5	0.883	0.516	0.475	42.6	0.701	9.6	-0.493	0.461	-43.1	0.675
2974277.9	708258.5	1244.3	7.390	9.630	52.5	12.139	59.7	0.966	0.630	0.453	35.7	0.776	10.6	-0.609	0.427	-35.0	0.743
2974272.9	708258.5	1244.3	7.984	10.611	53.0	13.280	58.7	1.057	0.761	0.404	27.9	0.861	11.6	-0.740	0.363	-26.1	0.825
2974267.9	708258.5	1244.3	8.621	11.684	53.6	14.521	57.2	1.156	0.908	0.320	19.4	0.963	12.4	-0.890	0.262	-16.4	0.927
2974262.9	708258.5	1244.3	9.306	12.847	54.1	15.863	55.5	1.262	1.071	0.208	11.0	1.091	12.9	-1.065	0.113	-6.1	1.071
2974257.9	708258.5	1244.3	10.026	14.066	54.5	17.273	53.6	1.375	1.244	0.165	7.5	1.255	12.7	-1.254	-0.096	4.4	1.258
2974252.9	708258.5	1244.3	10.773	15.301	54.9	18.713	51.5	1.489	1.423	0.354	14.0	1.466	11.6	-1.452	-0.370	14.3	1.498
2974247.9	708258.5	1244.3	11.511	16.462	55.0	20.087	49.4	1.598	1.596	0.653	22.2	1.725	9.9	-1.620	-0.695	23.2	1.763
2974242.9	708258.5	1244.2	12.216	17.470	55.0	21.318	47.3	1.696	1.753	1.002	29.8	2.019	7.9	-1.745	-1.041	30.8	2.032
2974237.9	708258.5	1244.1	12.854	18.243	54.8	22.317	45.3	1.776	1.878	1.367	36.0	2.323	6.0	-1.815	-1.369	37.0	2.273
2974232.9	708258.5	1244.2	13.471	18.845	54.4	23.165	43.4	1.843	1.958	1.710	41.1	2.600	4.7	-1.930	-1.733	41.9	2.594
2974227.9	708258.5	1244.2	13.931	19.076	53.9	23.621	41.6	1.880	1.979	1.988	45.1	2.805	3.6	-1.964	-2.019	45.8	2.817
2974222.9	708258.5	1244.3	14.183	18.973	53.2	23.689	39.8	1.885	1.933	2.171	48.3	2.907	2.8	-1.950	-2.226	48.8	2.959
2974217.9	708258.5	1244.2	14.201	18.440	52.4	23.275	38.5	1.852	1.826	2.240	50.8	2.890	2.2	-1.827	-2.274	51.2	2.917
2974212.9	708258.5	1244.2	13.992	17.603	51.5	22.487	37.2	1.789	1.668	2.204	52.9	2.764	1.8	-1.640	-2.197	53.3	2.742
2974207.9	708258.5	1244.2	13.617	16.592	50.6	21.464	36.1	1.708	1.478	2.085	54.7	2.556	1.7	-1.447	-2.067	55.0	2.523
2974202.9	708258.5	1244.2	13.093	15.464	49.7	20.263	35.1	1.612	1.274	1.910	56.3	2.296	1.7	-1.243	-1.886	56.6	2.259
2974197.9	708258.5	1244.2	12.467	14.294	48.9	18.967	34.2	1.509	1.073	1.707	57.8	2.017	1.8	-1.043	-1.680	58.2	1.978
2974192.9	708258.5	1244.2	11.783	13.141	48.1	17.650	33.3	1.405	0.886	1.498	59.4	1.740	2.0	-0.861	-1.477	59.8	1.710
2974187.9	708258.5	1244.2	11.079	12.041	47.4	16.362	32.4	1.302	0.719	1.297	61.0	1.483	2.2	-0.703	-1.291	61.4	1.470
2974182.9	708258.5	1244.3	10.374	11.012	46.7	15.129	31.6	1.204	0.574	1.112	62.7	1.251	2.5	-0.567	-1.122	63.2	1.257
2974177.9	708258.5	1244.3	9.673	10.052	46.1	13.951	30.8	1.110	0.452	0.948	64.5	1.050	2.8	-0.440	-0.953	65.2	1.050
2974172.9	708258.5	1244.3	8.999	9.173	45.5	12.850	30.1	1.023	0.351	0.805	66.4	0.878	3.0	-0.332	-0.800	67.5	0.866
2974167.9	708258.5	1244.2	8.362	8.377	45.1	11.836	29.4	0.942	0.268	0.682	68.5	0.733	3.3	-0.243	-0.667	70.0	0.710
2974162.9	708258.5	1244.3	7.774	7.667	44.6	10.919	28.7	0.869	0.201	0.577	70.8	0.612	3.6	-0.175	-0.567	72.9	0.594
2974157.9	708258.5	1244.2	7.219	7.022	44.2	10.071	28.0	0.801	0.147	0.489	73.3	0.511	3.9	-0.115	-0.471	76.2	0.485

Byron Solar, LLC

Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review

In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the
Byron Solar Project in Dodge and Olmsted Counties

PUC Docket No.	IP-7041/GS-20-763, CN-20-764, TL-20-765	Directed To:	Scott Wentzell
EERA Question No.	6	Date of Response	July 28, 2022
☒ Public		☐ Nonpublic	

Note: Energy Environmental Review and Analysis staff intends to use information provided in this response to develop an environmental review document and is a public document. Responses to these questions will be considered to be public information unless otherwise designated by the respondent as “nonpublic information” pursuant to Minnesota Stat. § 13.02, subd. 12.

Question(s):

Collection System.

- Clarify whether collector lines will be underground or overhead. The application (at p. 28) states that collector lines will deliver power from the panels to inverters through underground cabling installed in accordance with the AIMP. However, the AIMP (at p. 4) references cabling “via above-ground means and belowground trenches” and (at p. 21) discusses trenches “if the collection lines are buried”.
- Provide the anticipated length (in feet or miles) of collection lines.
- If overhead collector lines are anticipated, please provide a description of the installation process and dimensions and illustrations of a typical overhead collector structure and foundation.

Response:

- The reference to aboveground was intended to acknowledge that there will be some conductor that is aboveground as it transitions from above- to belowground from the trackers, modules and inverters. The aboveground connections are generally direct current (DC) whereas belowground collection is generally alternating current (AC). The intent is to bury all AC collection unless there is an engineering or site limitation such as shallow bedrock.
- The total length of collection lines calculated from the Project Layout (application Map 3) dated February 14, 2022, is approximately 35.3 miles.
- N/A - overhead collector lines are not anticipated.

Name of Responder: Scott Wentzell
Title: Project Development Manager

Date: July 28, 2022

Byron Solar, LLC

Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review

In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the
Byron Solar Project in Dodge and Olmsted Counties

PUC Docket No. IP-7041/GS-20-763,
CN-20-764, TL-20-765 Directed To: Scott Wentzell

EERA Question No. 7 Date of Response July 28, 2022

☒ Public

☐ Nonpublic

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Question(s):

Weather Stations:

The application (at pp. 27 and 32) mentions “several weather stations” as associated facilities, but there is no further discussion of the weather stations in the application. Appendix D (at p. 3) mentions weather stations of up to 20 feet but does not discuss them further.

Please provide a brief description of the role of the weather stations in the operation of the facility, the approximate number of weather stations anticipated, general installation procedures (approximate size, foundation, fencing, etc.), and whether they would be located within the fenced area or in other nearby areas.

Response:

Weather stations, sometimes referred to as meteorological stations, play an important role in the operation of a solar PV project. The energy produced by a solar PV project is highly dependent on the local weather conditions, including cloud cover, precipitation, ambient temperature and irradiance, among other factors. The role of a weather station is to validate the performance of the solar project and help predict/forecast the power output of the facility. Most common uses for weather stations include performance testing of the facility during commissioning, validation of performance by an Independent Engineer as required by investors, and monitoring the facility throughout its operational life. The primary measurement is irradiance, which is a measurement of the sunlight by a system of pyranometers mounted on the tracker in the same plane as the solar modules and mounted in a fixed horizontal position. To validate bifacial systems, a rear plane of array sensor is also used in conjunction with an albedometer, which measures the reflectiveness, or albedo, of the ground. Temperature sensors are mounted on the rear side of solar modules to measure the PV module temperature since temperature is negatively correlated to module performance. In addition, an all-in-one sensor is used for wind speed, precipitation, air pressure, ambient temperature, and humidity.

Byron Solar will incorporate up to five weather stations scattered evenly throughout the Project. All weather stations will be located within the fenced area of the Project and generally collocated with the inverter skids. Weather stations require a small footprint and are mounted on a permanent tower approximately 15-20 feet high. The foundations are typically a driven steel pile or a small concrete pad.

Name of Responder: Scott Wentzell
Title: Project Development Manager

Date: July 28, 2022

Byron Solar, LLC

Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review

In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the
Byron Solar Project in Dodge and Olmsted Counties

PUC Docket No.	IP-7041/GS-20-763, CN-20-764, TL-20-765	Directed To:	Scott Wentzell
EERA Question No.	8	Date of Response	July 28, 2022
☒ Public		☐ Nonpublic	

Note: Energy Environmental Review and Analysis staff intends to use information provided in this response to develop an environmental review document and is a public document. Responses to these questions will be considered to be public information unless otherwise designated by the respondent as “nonpublic information” pursuant to Minnesota Stat. § 13.02, subd. 12.

Question(s):

Impervious Surface Area:

The application, at p. 103 anticipates the creation of approximately 226.7 acres of impervious surface from access roads, inverter skids, and about half the solar array area. This calculation appears inconsistent with the approximate acreage for various solar facility components shown in Table 8 of the application, which anticipates the solar array area as approximately 1,271 acres, half of which would be approximately 636 acres. Please review and explain:

- Any changes to the calculation of impervious area from the 226.7 acres shown on p. 103. If provide a breakdown of the composition of the acreage of impervious surface (e.g. access roads, inverter skids, substation, etc.).
- the rationale for estimating approximately one-half the array area as impervious.
- If the O&M facility and the project substation are not included in a revised estimate of impervious surfaces, please explain why not.

Response:

The “solar array area” of 1,271 acres captures area between the solar panels as well as the solar panels. The solar panel surface area used to calculate the impervious surface is 395 acres. The application calculation was based on approximately 45 acres for access roads and inverters and approximately 187.7 acres for solar panels, for a total of 226.7 acres. The O&M and substation add approximately 6.05 acres to the total. Consequently, the total impervious surface with the substation and O&M added is approximately 232.8 acres.

Westwood used the MPCA's solar panel calculator to estimate impervious from the solar panel array. The modeling analysis considers different ratios of impervious to pervious area and different soil types. The analysis quantified the runoff reduction achieved from redirecting runoff from impervious to pervious surfaces. Inputs to the calculator include soil type, amount of impervious and pervious surface area, and the runoff depth from the solar panel

https://stormwater.pca.state.mn.us/index.php?title=File:Solar_panel_calculator_feb_2021.xlsx. Using this calculator, an estimate of 181.7 acres of impervious surface attributed to the solar panels was calculated.

The O&M and substation have been added. The revised estimate of impervious surface is 232.8 acres.

Name of Responder: Scott Wentzell
Title: Project Development Manager

Date: July 28, 2022

Byron Solar, LLC

Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review

In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the
Byron Solar Project in Dodge and Olmsted Counties

PUC Docket No.	IP-7041/GS-20-763, CN-20-764, TL-20-765	Directed To:	Scott Wentzell
EERA Question No.	9	Date of Response	July 28, 2022
☒ Public		☐ Nonpublic	

Note: Energy Environmental Review and Analysis staff intends to use information provided in this response to develop an environmental review document and is a public document. Responses to these questions will be considered to be public information unless otherwise designated by the respondent as “nonpublic information” pursuant to Minnesota Stat. § 13.02, subd. 12.

Question(s):

Karst Features.

The permit application states that three karst point features identified as sinkholes in the DNR Karst Database were inspected during the geotechnical evaluation, and significant depressions were not observed. The application indicates (at p. 132) that plans to bridge these karst features in a way that allows for panel installation. Please discuss how the project design and construction will bridge karst features in the project area. and Byron Solar will ensure that construction and operation of the project do not create downward migration of unwanted materials into the groundwater.

Response:

Byron Solar will conduct further geotechnical and karst studies to better understand the extent and nature of the karst features. Byron Solar will use the further investigation when determining whether it is cost effective to remediate the feature or remove it from the Project.

If it is determined that remediation is possible/preferable, Byron Solar will:

- Close the feature using grouting or implementation of reverse graded filters or an inverse aggregate graded filter. Each solution would be custom engineered and field fitted for each feature identified.
- Grade the area around the remediated feature to prevent surface ponding and water infiltration to limit future subsidence of the feature. Other stormwater features, such as drain tile may be implemented as well.
- Incorporate the Minnesota Pollution Control Agency’s stormwater best management practices for use in karst settings.

Further investigation may indicate that the size, extent or nature of the karst feature is not conducive to

remediation. In this case, Byron Solar would exclude the karst feature and a 100-150-foot buffer around the feature from active construction.

Name of Responder: Scott Wentzell
Title: Project Development Manager

Date: July 28, 2022

Byron Solar, LLC			
Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review			
In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties			
PUC Docket No.	IP-7041/GS-20-763, CN-20-764, TL-20-765	Directed To:	Scott Wentzell
EERA Question No.	10	Date of Response	August 24, 2022
☒ Public		☐ Nonpublic	

Note: Energy Environmental Review and Analysis staff intends to use information provided in this response to develop an environmental review document and is a public document. Responses to these questions will be considered to be public information unless otherwise designated by the respondent as “nonpublic information” pursuant to Minnesota Stat. § 13.02, subd. 12.

Question(s):

Red Route Information

With the information available to Byron Solar at this time, please describe any reasonably foreseeable changes between the design and engineering, operations, and maintenance of the route proposed in the application (Blue Route) that should be considered if the Red Route (proposed in scoping) is selected. Examples of changes may include, but are not limited to, structure types, conductor types, spans between structures, ROW requirements, grading needs, EMF fields, etc.

Response:

Based on the limited information available for the Red Route, we believe that structure types, span lengths and general ROW requirements would be similar between the Red and Blue Routes. We would not expect substantial changes to how the transmission facilities would be operated or maintained.

The EMF profile of the Red Route would be different and EMF fields could be higher than the proposed Blue Route. The Red Route runs parallel to two existing transmission lines - one at 345kV and another at 138kV. The proximity to these two existing lines, particularly the higher voltage 345kV line, would result in additional magnetic field strength and induction current. Byron Solar is not able to quantify the impact of these changes at this time.

Name of Responder: Scott Wentzell
Title: Project Development Manager

Date August 24, 2022

Byron Solar, LLC			
Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review			
In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties			
PUC Docket No.	IP-7041/GS-20-763, CN-20-764, TL-20-765	Directed To:	Scott Wentzell
EERA Question No.	11	Date of Response	August 24, 2022
☒ Public		☐ Nonpublic	

Note: Energy Environmental Review and Analysis staff intends to use information provided in this response to develop an environmental review document and is a public document. Responses to these questions will be considered to be public information unless otherwise designated by the respondent as “nonpublic information” pursuant to Minnesota Stat. § 13.02, subd. 12.

Question(s):

Transmission Structures

- a. Please describe the approximate width and depth of the holes for direct embed structures.
- b. Please clarify the potential impacts of the transmission facilities to groundwater resources. The discussion of construction of the concrete pier foundations on page 43 of the application indicates that drilled pier foundations may be up to 20 to 30 feet deep or more, while the discussion of impacts to groundwater on pages 102-103 of the application, Byron Solar indicates that the foundations for the transmission poles and substation are not expected to exceed the 5 to 12 foot depth of the piers for the PV arrays.

Response:

- a. 20' direct embedment is typical for 345kV foundations. The exact depth of each structure will vary as a function of soil strength and soil properties. Hole width may vary between 4.5' to 6.5'.
- b. The applicant does not anticipate impacts to groundwater resources associated with the transmission facilities. While there are no County Well Index (CWI) wells located within the narrow transmission line construction corridor, there are a number of CWI wells in proximity to the route. The following table lists the wells reviewed and the well log depth to static water level in each. As shown, the depth to static groundwater is over 200 feet deep in this area based on the CWI data, deeper than the anticipated depths of the transmission facility foundations. If a concrete pier foundation is required for a transmission structure, it would be embedded to a depth of approximately 30 feet. Only turning structures generally require a concrete pier foundation, and thus only a few such foundations are expected to be required. The remaining direct imbedded poles are expected to be installed at a depth of approximately 20 feet below grade.

Well Log Number	Depth to Static Water Level (ft)
689519	218
826020	210
618296	219
655827	230
188858	239
139590	255
599122	229
7644837	231
139591	270

Name of Responder: Scott Wentzell
Title: Project Development Manager

Date August 24, 2022

Byron Solar, LLC			
Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review			
In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties			
PUC Docket No.	IP-7041/GS-20-763, CN-20-764, TL-20-765	Directed To:	Scott Wentzell
EERA Question No.	12	Date of Response	August 24, 2022
☒ Public		☐ Nonpublic	

Note: Energy Environmental Review and Analysis staff intends to use information provided in this response to develop an environmental review document and is a public document. Responses to these questions will be considered to be public information unless otherwise designated by the respondent as “nonpublic information” pursuant to Minnesota Stat. § 13.02, subd. 12.

Question(s):

Land Rights

- a. If the Red Route (introduced during scoping) is selected, how will Byron Solar acquire the land rights necessary to construct and operate the route?
- b. How will the approximately 250 acres under lease but not developed for the project (shown as “undeveloped” in Tables 3 and Table 8) be used?
- c. Please clarify whether Byron Solar owns any of the land proposed to be used for the solar facility, or whether all the approximately 1801 acres within the proposed site is under a lease agreement.

Response:

- a. If the Red Route were permitted by the Commission, Byron Solar would attempt to negotiate transmission easement agreements with the landowners along the permitted route. Byron Solar is currently attempting to contact the landowners within the Red Route right-of-way. At this time, we are not certain that there is sufficient interest from landowners to support a viable and connected pathway from the alternate project substation to the Byron Substation. If Byron Solar is unable to secure the necessary land rights, this route would not be viable.
- b. Any acres that are not required to construct and operate the Byron Solar project will be removed from the final project boundary and Byron Solar will terminate its leasehold interests pursuant to legal agreement(s) with those landowners. It is expected that acreage that is not required to construct and operate Byron Solar will remain in agricultural production.
- c. Byron Solar maintains an Option to Purchase for four to six acres of land where the proposed project substation will be built. All of the remaining property within the Project Area is subject to a lease or easement agreement.

Name of Responder: Scott Wentzell
Title: Project Development Manager

Date August 24, 2022

Byron Solar, LLC			
Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review			
In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties			
PUC Docket No.	IP-7041/GS-20-763, CN-20-764, TL-20-765	Directed To:	Scott Wentzell
EERA Question No.	13	Date of Response	August 24, 2022
☒ Public		☐ Nonpublic	

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Question(s):

Project Schedule

- Please discuss any changes to the anticipated schedule described in the joint permit applications.
- If the Red Route is selected, would that require changes to the proposed schedule?
- Is Byron Solar considering phasing construction and operation of the project? If so, please provide a brief discussion of what circumstances would lead Byron Solar to consider phasing the construction (e.g., a delay in interconnection agreement, more than one power sales agreement, delays in acquiring all the panels or other project components).

Response:

- Generally, Byron Solar's schedule has been delayed by one year. This delay is largely attributable to the longer-than-expected timeline for the Certificate of Need, Site and Route Permit processes. Currently, Byron Solar expects to reach commercial operations by the end of 2025. Table 1 from the Joint Permit Application has been updated accordingly below:

Table 1: Project Schedule		
Activity	Description	Timeline
Interconnection Request	Approval from the Midcontinent Independent System Operator (MISO) to connect the project to the grid.	Applicant has entered into a GIA for the first 100MW queue position J1124 and expects to enter into a GIA for the remaining 100MWs (J1534) in March 2023.
Land Acquisition	Acquire leases, easements, and purchase agreements necessary for development of the Project.	Began Solar Facility land campaign in Q3 2018 and HVTL land campaign in Q2 2020. The Project currently has executed

		agreements for the land needed to construct both the Solar Facility and HVTL.
Field Surveys	Field surveys conducted within the Solar Facility and HVTL route for wetlands, native prairies, and cultural resources.	Field surveys initiated in Q4 2020 and completed in Q2 2021.
Site Permit, Route Permit, and Certificate of Need (CN)	CN, Site Permit and Route Permit issuance for the Project.	Anticipated Q2 2023.
Other Permits	Acquisition of all federal, state, local, and tribal government permits and approvals necessary for construction and operation of the Project.	The Applicant is working with applicable regulatory authorities to obtain the necessary permits/approvals by the end of the Q3 2023.
Equipment and Contractor Acquisition	Procurement of project equipment including, but not limited to, panels, trackers, inverters, transformers, and steel monopoles. Final contractor selections will be made contingent on the Joint Site and Route Permit Application being approved by the Commission.	Between Q3/Q4 2023.
Construction	The Applicant will oversee the primary contractors performing construction of the Project. These construction activities will include access road building, solar array assembly, electrical, transmission, and communications installation work. The Applicant anticipates beginning construction of the Project soon after being granted a CN, Site Permit, and Route Permit by the MPUC and fulfilling necessary pre-construction compliance requirements.	Begin Q3/Q4 2024 and end Q3/Q4 2025.
Testing and Commissioning	Testing and commissioning of project related equipment.	End of construction and prior to the start of commercial operation – Q3/Q4 2025.
Operation	Commercial operation of the solar facility and transmission line following construction and testing/commissioning activities are completed.	Q4 2025.
Project Extension or Decommissioning		2061 or later.

- b. The schedule impacts of selecting the Red Route would be considerable, unpredictable and could put the project in-service at risk. Byron Solar has been unable to contact all the landowners within the Red Route and at this time we are uncertain if sufficient landowner interest is present to connect a viable transmission ROW along this route.
- c. A phased construction approach is possible but not Byron Solar's current preference. As of now, Byron Solar expects that all 200MWs of the project's capacity will be constructed in sequence and achieve commercial operation simultaneously by the end of 2025. Below are several items that could delay the construction of part, but not all, of the facility:
 - o Interconnection agreement delay - If the MISO study process is significantly delayed, a GIA may not be reached on J1534 prior to the date by which Byron Solar needs to procure

equipment to support a 2025 COD. In that case, Byron Solar may elect to move forward with construction on a 100MW first phase, with the balance of the project coming online once it is commercially feasible to do so.

- o Interconnection upgrade delay - It is possible that large or time consuming upgrades are required prior to J1534 being able to deliver power to the grid. In that instance, Byron Solar may elect to construct the initial 100MWs for a 2025 COD, with the balance of the plant coming online once interconnection upgrades have been completed.
- o Procurement delays/tariffs - There are considerable supply chain constraints across the solar industry currently. Byron Solar may elect to construct the project in two or more phases to accommodate supply chain shortages or as a result of tariffs or future tariffs on the importation of equipment.

Name of Responder: Scott Wentzell

Date August 24, 2022

Title: Project Development Manager

Byron Solar, LLC			
Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review			
In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties			
PUC Docket No.	IP-7041/GS-20-763, CN-20-764, TL-20-765	Directed To:	Scott Wentzell
EERA Question No.	14	Date of Response	August 24, 2022
☒ Public		☐ Nonpublic	

Note: Energy Environmental Review and Analysis staff intends to use information provided in this response to develop an environmental review document and is a public document. Responses to these questions will be considered to be public information unless otherwise designated by the respondent as “nonpublic information” pursuant to Minnesota Stat. § 13.02, subd. 12.

Question(s):

Project Costs

- a. Capital Cost: Please provide any updates to the proposed project cost shown in Section 2.3 of the application, including cost estimates for the Red Route (citizen-proposed during scoping).
- b. Operating Cost: The Joint Permit Application, at pp. 15 -16 estimates an annual operating cost of \$3.2 million dollars to cover labor, materials, and property taxes.
 - i. P. 71 of the Joint Permit Application indicates annual lease payments of \$1 million at the outset with annual increases. Please clarify whether lease payments are included in the estimated \$3.2 million operating costs identified on p. 15.
 - ii. Please clarify whether the annual operating costs include the solar energy production taxes paid to counties and townships where the project is located.
 - iii. P. 76 of the Joint permit application estimates that ~\$400,000 to 450,000 to Dodge and Olmsted counties. Given that the solar generating facility is located entirely within Dodge County, please describe how that revenue will be divided between counties and townships

Response:

- a. Byron Solar does not have updates to the proposed project costs at this time. The Red Route would create approximately an additional \$3M or more in costs. The added costs are the result of an additional 1.5 miles of transmission lines and structures and a narrow and twisting ROW requiring expensive turning structures. The potential for karst could introduce additional and currently unknown costs.

Table 5: Estimated Project Costs	Blue Route	Red Route
HVTL		
Engineering, Procurement, Construction Contractor	\$3.0	\$5.5
Development Expense	\$0.2	\$0.6
Interconnection	N/A	N/A
Financing	N/A	N/A
Project Substation	N/A	N/A
Subtotal	\$3.2	\$6.1

- b. Operating Cost: The Joint Permit Application, at pp. 15 -16 estimates an annual operating cost of \$3.2 million dollars to cover labor, materials, and property taxes.
- i. Yes
 - ii. Yes
 - iii. The solar facility is located entirely within Dodge County and thus the entire production tax will be allocated to Dodge County. The \$400,000-\$450,000 estimate includes a nominal property tax payment for transmission infrastructure located in Olmsted County. Additionally, Canisteo Township will receive approximately \$100,000-\$125,000 annually in production-based property taxes

Name of Responder: Scott Wentzell
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Date August 24, 2022

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PUC Docket No.	IP-7041/GS-20-763, CN-20-764, TL-20-765	Directed To:	Scott Wentzell
EERA Question No.	15	Date of Response	August 24, 2022
☒ Public		☐ Nonpublic	

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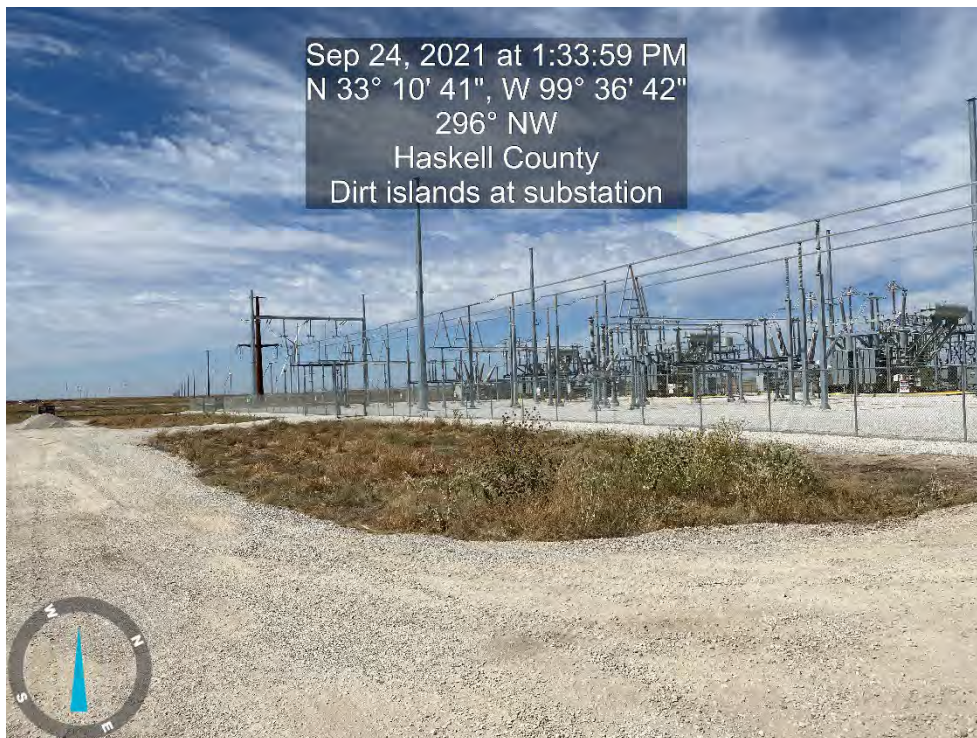
Question(s):

Substations

- a. Project Substation: The joint permit application provides a general description of the proposed project substation. Please provide a depiction (e.g. illustration or photo) of a substation of a similar size and construction as the project substation proposed by Byron Solar.
- b. Byron Substation: Briefly describe the anticipated improvements at the Byron Substation necessary to accommodate the Byron Solar Project. Please indicate the entity (Byron Solar, SMMPA, or some other entity) responsible for construction of the necessary improvements and the operation, maintenance, and potential repair of improvements related to the Byron Solar project at the Byron Substation.
- c. Circuit Breakers: Sulfur hexafluoride, a GHG, is sometimes used in circuit breakers. Does Byron Solar contemplate using sulfur hexafluoride circuit breakers in either the project substation or the improvements to the Byron Substation?

Responses

- a. See the provided photos of a recent 345kV project substation that EDF Renewables constructed for a wind farm in Texas:





- b. The following improvements are anticipated to be needed at the Byron Substation:

SMMPA Scope (GIA)

- Adding Byron Solar's interconnection line will require installation of a new 345 kV circuit breaker. In addition to the new 345 kV circuit breaker, additional GOAB switches, dead-end structure, protection and control equipment, instrumentation, etc. will be required.
- SMMPA shall construct the 345 kV transmission line between the Point of Change of Ownership structure and the Point of Interconnection, terminal structures, and the communication circuit. All structures and foundations will be designed and constructed to the SMMPA's standards.
- SMMPA is responsible for procuring and installing the 345 kV transmission line protection equipment at the Byron Substation.

Xcel Scope (FCA)

- Xcel Energy is responsible for installing the metering at Byron Substation: One (1) meter will be installed inside the electrical equipment enclosure (EEE).
- Network Upgrades to be constructed by Xcel include the installation of one (1) RTU panel, a full set of Business Systems equipment, a new telephone circuit, relay settings and control testing
- Xcel Energy is responsible for operating and maintaining the Byron Substation.

- c. Byron Solar expects that the project substation will require 2 high-voltage breakers containing sulfur hexafluoride. At a voltage of 345kV, there are limited and largely untested alternatives to sulfur hexafluoride. Ultimately, any breakers that are implemented will require approval from the interconnecting utility, MISO and from NERC.

Byron Solar, LLC			
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PUC Docket No.	IP-7041/GS-20-763, CN-20-764, TL-20-765	Directed To:	Scott Wentzell
EERA Question No.	16	Date of Response	August 24, 2022
☒ Public		☐ Nonpublic	

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Question(s):

Perimeter Fencing

- a. What is the estimated length of the perimeter fencing?
- b. Please confirm that the perimeter fencing will not use barbed wire. The description of the fencing at p. 132. of the application indicates a design option with a 6-foot chain link fence topped by 3-4 strands of smooth wire (no barbs) angled out and upward at a 45 degree angle or an 8-foot chain link fence. The “Typical Chain Link Security Fence Detail” illustration on sheet C.600 of the Preliminary Civil Site Plan in Appendix G of the application indicates a 6-foot chain link fence topped with barbed wire apron.

Response:

- a. The linear distance of fencing shown on Map 3 (Project Layout) of the Site Permit Application is approximately 101,031 feet, or 19.1 miles.
- b. The perimeter fencing will not use barbed wire.

Name of Responder: Scott Wentzell
Title: Project Development Manager

Date August 24, 2022

Byron Solar, LLC			
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PUC Docket No.	IP-7041/GS-20-763, CN-20-764, TL-20-765	Directed To:	Scott Wentzell
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Question(s):

Erosion Management

Please respond to the Department of Natural Resources query about how the design of the project addresses the grass waterways created to manage erosion in the project area (eDocket ID: 20222-182833-01). DNR specifically requested clarification on whether these grassed waterways will be avoided, removed, or maintained to manage drainage on site during construction and operation to protect water quality.

Response:

Many of these drainage features were identified during field wetland delineations as jurisdictional wetlands/watercourses and will therefore be avoided by permanent impacts. Temporary impacts may occur to cross equipment or collection, where needed. Drainage features that are not jurisdictional wetlands will be removed and drain tile may be installed to manage erosion and flows during construction and operation. The project is designed with wet sedimentation ponds to protect water quality.

Name of Responder: Scott Wentzell
Title: Project Development Manager

Date August 24, 2022