



BORDER WINDS ENERGY PROJECT

WEEKLY PROJECT REPORT

Weekly report no:	57
Report for week period ending COB Friday:	08/28/15
Calendar week no:	35

Executive Summary

Week's Highlights

- Site completed 400,000 project man hours.
- Circuit 5 was successfully energized on 8/28/2015.
- Completed commissioning all six (6) turbines on circuit 1B.
- Completed all turbine installation on circuit 6 and started on circuit 1A.
- Collection crew continues to work on junction boxes to complete circuit 3 for energization.
- Civil crew continues to work on radii and collector line reclamation.

Week's Key Issues

- Observed increasing number of wildlife within the project area – raptors, moose and bees. All crews advised to stay safe and away from the wildlife.
- Vestas was unable to commission turbine due to issues with communications with the turbine. The issue was resolved on 8/27/2015.
- WTG installation crews continue to experience a decrease in production due to long crane walks, heavy winds which affected both top-out cranes.
- Vestas discovered a potential wiring issue in the bottom controller while arc flash testing at T32.



Safety

Type	Lost Time	Recordable Injury (Medical Aid)	Minor Injury (First Aid)	Equipment Property Damage	Near Miss	Safety Walks
Current Period	0	0	0	0	1	6
Project To Date	1	3	14	40	85	665

*Full description of week's Safety Log plus the formulas for TRIR and Safety index calculation in Exhibit 2.

TRIR: Previous Week = 2.0 / Current week = 1.99

RES Safety Index: Previous Week = 0.58/ Current week = 0.57

Weeks Highlights:

- Site completed 400,000 project man hours.
- Border Winds energized circuit 5 on 8/28/2015 with no incidents. Necessary safety precautions were taken and followed by team members.
- Site team completed the week safely and without incident.

Weeks Issues:

- Observed speeding by an unidentified person near T10. Advised all crews to maintain designated speed limit across the site and ensure safe distance between the vehicles.
- Changing weather conditions through the day with low 40F temperature in the morning and high 80F temperature during the day. All teams advised to dress in layers and continue to stay hydrated.
- Observed large number of bees swarming around the sites as the farmers start to move bee boxes from the field. Crew advised to stay away from the bees and to alert someone if they are allergic.

Project Work Hours:

- Weekly Man-hours: 11,328.00
- Total Project Man-hours: 400,918.00
- Hours since Last Recordable Injury: 73,404.00



Environmental

Type	Major Incident	Minor Incident	Near Miss	Observation
Current Period	0	1	0	4
Project to Date	0	78	7	71

*Full description of week's Environmental Report and Rolling Incident Score formula in Exhibit 2.

Rolling Incident Score: Previous week: 0.57 / Current Week: 0.56

Week's Highlights:

- Waste Management replaced one (1) trash bin on site on 8/26/2015.
- Spotted brown raptors - possibly red shouldered hawk - flying on the west side of the project site near T7 and Hwy 30. Also, spotted moose on the east side of 52nd. Addressed at the all hands meeting to avoid any disturbance to any wildlife on site and take pictures for proper identification.

Week's Issues:

- Received 1" of rain on Saturday night leading to muddy conditions along the crane path. No significant run off observed on site.
- Noticed water bottles and zip ties on a few turbine sites on the west side of the project. Erection crew cleaned these during the windy days.

Quality

Type	RES Issued NCRs			Client Issued NCRs		
	Issued	Open	Closed	Issued	Open	Closed
Current Period	0	0	0	0	0	1
PTD	1	1	0	10	4	7

*Full description of week's Quality Report can be found in Exhibit 4

NCRs Issued Details:

- Xcel signed NCR-2015-24 regarding the orientation of the turbine doors to the south for closure. Vestas has confirmed that the orientation of the tower door does not affect the operability of the wind turbine.

Week's Highlights:

- Building & Earth: Witnessed compaction test for access roads reclaim and sampling and breaking grout cubes.



SCHEDULE STATUS

Project duration	68
No. of weeks into contract	61
Contract time passed (%)	89.7%

Key Activities (Construction)	Weighted %	Percentage Complete		
		Contract Schedule	Construction Schedule	Actual
Design Engineering	2.5%	100.0%	100%	100%
Roads & Crane Pads	20.0%	100.0%	86%	86%
Foundations	20.0%	100.0%	100%	100%
Collection System	21.5%	100.0%	92%	93%
Substation	15.0%	100.0%	97%	98%
O&M Building	6.0%	100.0%	100%	99%
WTG Delivery, Erection, & MCC	15.0%	67.0%	73%	73%
Overall Actual Percent Complete		95.1%	94.4%	91.0%

PROGRESS REPORT

PERMIT STATUS

Permit Type / Description	County / State	Responsible Group	Date Needed By	Status
FAA Part 2	Federal	RES	Final Height	OPEN

CONSTRUCTION STATUS

Certificates	Total	Submitted	Signed
Foundation Completion Certificate	75	75	75
Mechanical Completion Certificate	75	24	21
Electrical Works Completion Certificate	1	0	0
Project Mechanical Completion Certificate	1	0	0
Project Substantial Completion Certificate	1	0	0
Project Final Completion	1	0	0



ROADS AND CRANE PADS

Item	Weighted %	Budget	Total Completed	Total Remaining	Percent Complete
Roads	70%	Roads			80.0%
Rough Grade	30%	137,622	137,622	-	100.0%
Sub Grade	30%	137,622	137,622	-	100.0%
1st Lift	20%	137,622	137,622	-	100.0%
Shoulders	10%	152,837	0	152,837	0.0%
Ditches	10%	152,837	0	152,837	0.0%
Crane Pads & Site Laydown	30%	Crane Pads & Site Laydown			100.0%
WTG Site Ready for Delivery	30%	75	75	0	100.0%
Cut & Subgrade Compacted	40%	75	75	0	100.0%
Material Placed & Compacted	30%	75	75	0	100.0%
Roads & Crane Pads Progress					86%

Comments:

- Continuing reclamation of WTG pads on circuit 5, circuit 6; collection line on circuit 4, 3 and 6 and radius removal across the site.

FOUNDATION

Item	Weighted %	Budget	Total Completed	Total Remaining	Percent Complete
Excavations	10%	75	75	0	100.0%
Mud Mats	5%	75	75	0	100.0%
Bases	40%	75	75	0	100.0%
Pedestals	20%	75	75	0	100.0%
Earthing Kit	5%	75	75	0	100.0%
Backfill	20%	75	75	0	100.0%
Foundation Progress					100.0%

Comments:

- All foundation work complete.



COLLECTION SYSTEM

Item	Weighted %	Quantity	Total Received	Total Remaining	Percent Complete
Deliveries	30.0%	Deliveries			100%
MV Cable	50.0%	901,972	314,910	0	100%
Fiber	40.0%	335,107	336,590	0	100%
Junction Boxes	5.0%	28	28	0	100%
Grounding Transformers	5.0%	6	6	0	100%
Installations	50.0%	Installations			97.1%
Trench	40.0%	278,230	278,230	0	100.0%
MV & Fiber/Ground Cable	50.0%	297,945	297,945	0	100.0%
Junction Boxes	10.0%	28	20	8	71.4%
Terminations	20.0%	Terminations			70.0%
MV Cable at WTG switch gear	45.0%	75	46	29	61.3%
Junction Boxes	35.0%	28	22	6	78.6%
Underground MV Splices	20.0%	51	37	14	74.52%
Collection System Progress:					92.6%

Comments:

- Installed four (4) junction boxes.
- Terminated four (4) WTG switchgears, four (4) junction boxes and thirteen (13) underground splices.



O&M BUILDING

Item	Weighted %	Budget	Total Completed	Total Remaining	Percent Complete
Design	4.0%	100%	100%	0%	100.0%
Earthworks	8.0%	100%	100%	0%	100.0%
Septic System	4.0%	100%	100%	0%	100.0%
Water Service and Filter	4.0%	100%	100%	0%	100.0%
Delivery	5.0%	100%	100%	0%	100.0%
Foundation Floor slab	9.0%	100%	100%	0%	100.0%
Electrical prep, rough-in and trim out	5.0%	100%	100%	0%	100.0%
Plumbing prep, rough-in and trim out	8.0%	100%	100%	0%	100.0%
Building Erect and enclose	8.0%	100%	100%	0%	100.0%
Internal Walls & Ceiling	9.0%	100%	100%	0%	100.0%
HVAC	8.0%	100%	100%	0%	100.0%
Finishes prep, rough-in and trim out	12.0%	100%	100%	0%	100.0%
Grading, Drainage	8.0%	100%	95%	5%	95.0%
Cleaning and Shop Finish	4.0%	100%	100%	0%	100.0%
Security System	4.0%	100%	100%	0%	100.0%
O&M Building Progress					99.6%

Comments:

- AB system will complete remaining entrance gate work on 9/7/2015.
- AB system will start on the asphalt work on the east side of the building on 9/7/2015.
- Trees planted at the O&M building slanted due to the high wind experienced on 8/22/2015. RES planning to complete the rest of the grading by 9/4/2015.



SUBSTATION

Item	Weighted %	Budget	Total Completed	Total Remaining	Percent Complete
Engineering	10%	Engineering			100%
IFC Drawings	100%	100%	100%	0%	100%
Procurement and Delivery	20%	Procurement and Delivery			100%
Foundation Rebar & Cages	5.00%	100%	100%	0%	100%
Breakers - Low and High Sides	15.00%	100%	100%	0%	100%
Reactors, Cap Back and Switchers	20.00%	100%	100%	0%	100%
MPT 230/34.5kV	10.00%	100%	100%	0%	100%
Grounding Transformer	5.00%	100%	100%	0%	100%
EEE - Control Building with DC Station	15.00%	100%	100%	0%	100%
Grounding Wire, Rods and Accessories	5.00%	100%	100%	0%	100%
Dead End and Static Mast	5.00%	100%	100%	0%	100%
Structural Steel and Bus	10.00%	100%	100%	0%	100%
MET Tower Foundation	5.00%	100%	100%	0%	100%
Chain Link Fence and Gates	5.00%	100%	100%	0%	100%
Construction	70%	Construction			99%
Site Preparation & Grading	3.00%	100%	100%	0%	100%
Site Aggregate and Finishing Rock	3.00%	100%	100%	0%	100%
Foundations work for substation	9.00%	100%	100%	0%	100%
Breakers, Switches, PTs, CTs	12.00%	100%	100%	0%	100%
Reactors, Cap Back and Switchers	8.00%	100%	100%	0%	100%
EEE - Energize and Finish	4.00%	100%	100%	0%	100%
Ground Grid, Conduits, Trenwa	12.00%	100%	100%	0%	100%
Structural Steel, Risers, Bus	12.00%	100%	100%	0%	100%
Collection Risers/Feeders and GTs	8.00%	100%	100%	0%	100%
EEE Wire Pull, Termination and Test	5.00%	100%	100%	0%	100%
SCADA Fiber Optic Cables Pull	4.00%	100%	95%	5%	95%
Chain Link Fence, Gates	4.00%	100%	100%	0%	100%
MPT Testing and Commissioning	4.00%	100%	100%	0%	100%
MET Tower Install, Wiring and Testing	4.00%	100%	95%	5%	95%
Substation Commissioning	6.00%	100%	100%	0%	100%
Handover of Job Books	2.00%	100%	80%	20%	80%

Substation Progress 99.4%

Comments:

- Circuit 5 was energized on 8/28/2015. Circuit 3 is scheduled for energization on 9/4/2015.
- RES handed over the transformer manuals to Xcel for review.

TURBINE

Item	Weighted %	Budget	Total Received	Total Remaining	Percent Complete
Deliveries	20.0%	Delivered to turbine pad			100.0%
Base	15.0%	75	75	0	100.0%
Mid	14.0%	75	75	0	100.0%
Upper Mid	14.0%	75	75	0	100.0%
Top	14.0%	75	75	0	100.0%
Nacelle	14.0%	75	75	0	100.0%
Hub	14.0%	75	75	0	100.0%
Blades	15.0%	75	75	0	100.0%
Erection	60.0%	Erection			76.4%
Base	17.0%	75	75	0	100.0%
Mid	16.0%	75	67	8	89.3%
Upper Mid	16.0%	75	51	24	68.0%
Top	17.0%	75	51	24	68.0%
Nacelle	17.0%	75	50	25	66.7%
Blades	17.0%	75	50	25	66.7%
Mechanical Completions	20.0%	Mechanical Completions			33.3%
Walk downs	33.3%	75	30	45	40.0%
MCC Submitted	33.3%	75	24	51	32.0%
MCC Signed	33.4%	75	21	54	28.0%
Turbines Progress					72.5%

Week's Highlights

- Installed four (4) lower middle, nine (9) upper middle and tops, and eight (8) nacelle and blades.
- Vestas commissioned the two (2) remaining WTGs (T40 and T58) on circuit 1B on 8/28/2015. All turbines on circuit 1B are now commissioned.
- Completed eight (8) mechanical completion walk downs on circuit 3.
- Crane 1 completed top out of all turbines on circuit 6 on 8/28/2015 and started on circuit 1A. Crane 2 is continuing turbine top out on circuit 4.
- Erection crew cleaned up the turbine site on windy days.
- Nelson continued prepping and placing concrete for the stair pad to the turbine.

Week's Issues

- Turning gear and power issue delayed stacking the WTG at T9.
- Erection crew experienced decrease in production with long crane walks, muddy conditions, winds and rain.
- Tower T42 which was commissioned last week had a hydraulic leak from the nacelle and had to be stopped until the issue was resolved. The leak was repaired.

- Vestas had issues with SCADA physical connection which had to be resolved to continue additional turbine commissioning.
- While performing arc flash testing at T32, Vestas discovered a potential wiring issue in the bottom controller. The wire between the bottom controller and the switchgear was reported to be incorrect which caused damage to wiring and relays in the cabinet. After energization of the circuit Vestas investigation to resolve the issue and identify the root cause analysis will resume.

Exhibit 1 – Site Photographs



Collection line reclamation at T9



Collection line reclamation near the substation



Cable splice between T13 and T12



Roll blades at T19



Turbine erection at T49



Blade installed at T10 and topping at T11



Exhibit 2 – Safety Log

Formulas for TRIR and RES Safety Index calculation:

$$\text{TRIR} = ((\text{Lost Time} + \text{Medical Aid}) * 200,000) / \text{Total Project Man Hours} \quad ((1+3) * 200,000 / \text{Total Project Man Hours})$$

$$\text{RES Safety Index} = ((\text{Lost Time} * 64) + (\text{Injury} * 16) + (\text{Minor Injury} * 4) + (\text{Damage} * 1) + (\text{Near Miss} * 0.25)) / \text{Man Hours} * 1000$$

$$((1 * 64) + (3 * 16) + (14 * 4) + (40 * 1) + (85 * .25)) / \text{Total Project Man Hours} * 1000$$

#	Date:	Incident Observed During:	Incident Type:	Company Involved:	Incident Details:	Corrective Action Details:	Actions Taken to Prevent Reoccurrence:
826	8/25/15	Safety Walk	Hazard Observation	TC Nursery	Landscapers at the O&M building were planting the trees by the fence and as they went to manhandle a tree into the excavation found it was too heavy for them.	Tools provided	Crew decided to use the bob cat to move the tree into the excavation hole.
827	8/25/15	Safety Walk	Near Miss	SCADA	RES inspector found one of the fire extinguishers to be missing the tamper seal tag. Fire extinguisher was recently installed but somehow the tag had been accidentally removed.	Communication Addressed	RES safety contacted about this issue and new extinguisher ordered.
828	8/25/15	Safety Walk	Safe Work Observation	RES Erection	As the MCC walk was about to occur at T-27, the RES crew cleared area around the stairs of any debris.		None needed.
829	8/25/15	Safety Walk	Hazard Observation	RES Erection	RES tower worker noticed that the switch gear in T-28 was not grounded.	Communication Addressed	RES electrical was contacted about this issue and asked to return and remove the lock so gear could be grounded.



#	Date:	Incident Observed During:	Incident Type:	Company Involved:	Incident Details:	Corrective Action Details:	Actions Taken to Prevent Reoccurrence:
830	8/25/15	Safety Walk	Safe Work Observation	RES Electrical	RES crew entering the substation made sure they inspected each other prior to entering the sub to make sure all was in place. Once the tailgate was done they entered the substation area.		None needed.
831	8/25/15	Safety Walk	Safe Work Observation	RES Electrical	Emptying of the reels in the yard and then stacking empty reels in a corner out of the way was well done by RES. Spotters in place and JSEA covering hazards and mitigations.		None needed.
832	8/25/15	Safety Walk	Safe Work Observation	Nelson Wind	Nelson crew had finished for the day and was cleaning up their utility trailer and mixer along with other tools on the trailer. Working as a team and helping each other out when needed.		Good work.
833	8/25/15	Safety Walk	Safe Work Observation	RES Erection	In the main yard the erection crew was assembling the cooler components to be taken out into the field. All tools and parts were laid out as they would be assembled by the crew and JSEA covered their task and mitigations for the area.		Good job.



Exhibit 3 – Environmental Log

Formula for the Rolling Incident Score =

$$((\text{Major Incident} * 16) + (\text{Minor Incident} * 4) + (\text{Near Miss} * 0.25) + (\text{Observation} * 0)) * 1000 / \text{Total Man Hours}$$

#	CLASS	SUB-CAT	CONTR ACTOR	DATE	INCIDENT DETAILS	ACTION TAKEN TO CORRECT SITUATION	ACTION TAKEN TO PREVENT REOCCURANCE
112	Observation	Weather Event	RES	8/22/15	Received 1" of rain with heavy winds overnight.	Perform BMP inspection and ensure all culverts inlets are clear of silt. Few culverts will be removed while radii reclamation.	
113	Observation	Trash or other Refuse	Other	8/25/15	Trash seen across the site that blew during the high winds and some left by the crew while working at the turbine site.	Crew picked trash across the site.	Fasten all material being transported across the site. Advised all crew to clean up after work.
114	Observation	Informational	RES	8/26/15	Waste Management removed the filled trash bin off site.	No action required	No action required
115	Observation	Wildlife	RES	8/26/15	Spotted brown raptors - possibly red shouldered hawk - flying on the west side of the project site near T7 and Hwy 30	Described the bird at the all hands meeting and take pictures for proper identification.	Addressed at the all hands meeting to avoid any disturbance to any wildlife on site and take pictures for proper identification.
116	Minor Incident (Below RQ)	Equipment Failure or leak	Turbine Manufacturer	8/27/15	4 cups of hydraulic fluid leaked on the ground from the turbine generator of erected T42 after the hydraulic hose blew off. The leak was controlled. The oil continues to flow down on the wall of the turbine and will be cleaned up by Vestas.	Placed absorbent pads at the bottom of the base. The absorbents will be removed after cleaning the turbine and will be disposed in the contaminated soil bin.	Check nacelle for any leaks.
117	Observation	Wildlife	RES	8/27/15	Spotted moose on the east side of 52 Ave.	Informed all crews to stay alert and watch any moose/deer on the road especially in the night hours.	Addressed at the all hands meeting to avoid any disturbance to any wildlife on site and stay away from them.



Exhibit 4 – Quality Log

- Incidents - None
- CPARs - 1
- NCRs - 10

NCR log

Description of Material	NCR Opened	NCR Closed	Total NCR Open	Total NCR Closed
	(Current Week)	(Current Week)	(As of this Week)	(As of this week)
Totals		1	4	7
NCR-2015-026 for not having 115V outlets at work locations per page 1 exhibit I of the Purchase and Sale Agreement.			X	
NCR CPAR 23053-004 Sent to Vestas concerning the high rate of damage to the turbine blades during shipping			X	
NCR-2015-024 Concerning tower door to be facing south.		X		
NCR-2015-016 Backfills and compactions of the turbine bases in freezing conditions			X	
NCR-2015-026 for not having 115V outlets at work locations per page 1 exhibit I of the Purchase and Sale Agreement.			X	



Exhibit 5 – RFI Log

Outgoing RFIs

	Generated By	Company	Sent To	Company	Subject	Date Sent	Response Requested By	Type: Civil, Electrical, etc.	Status / Comments	Date Closed
23053-030	Shabeeb Khader	RES	Bradley Morrison	Xcel Energy - Generation	Install crushed aggregate on the substation site	10/31/14	11/6/14	Civil		8/25/15
23053-096	Emad Alaydi	RES	Ritchie Farmer	Vestas	Ice detection documentation	06/22/15	06/29/15	SCADA	Vestas responded on 6/23/15. Awaiting additional info	
23053-098	Emad Alaydi	RES	Ritchie Farmer	Vestas	VPN Tunnel in tunnel communication	06/25/15	07/02/15	Turbine	Vestas responded. Awaiting additional info	
23053-105	Kyler Leen	RES	Kyle Louis	REI	Feeder Fault Clearing Time	7/27/2015	7/29/2015	Substation		
23053-106	John Radabaugh	RES	Sean Simmons	Vestas	RES concerns regarding the turbine punchlist	07/28/15	08/04/15	Turbine		
23053-107	George Protz	RES	Sean Simmons	Vestas	Turbine Orientation	08/24/15	08/31/15	Turbine		08/24/15
23053-108	Shabeeb Abdul Khader	RES	Peter Doherty	Xcel Energy - Generation	Substation Interconnect Data	08/25/15	08/28/15	SCADA		



Exhibit 6 - Change Order Request Log

CO No.	Date Identified	Date Submitted	Date Executed	Description	Value of CO	Comments
1	06/11/15			Change in the landscaping design - larger trees for windbreak at O&M	\$ 3,176.00	RES and Xcel agreed to split total cost of \$6,352.00
2	06/11/15			Storm shelter changes at O&M	\$ 11,907.00	RES to request additional information from ABS on who directed the changes
3	06/11/15			Changes in final design vs specification of electrical layout at O&M	\$ 2,300	RES is still working through the changes
4	06/11/15			Changes in security system at O&M	\$ 8,936.00	Xcel requested breakdown of changes and the delta
5	06/11/15			Changes in the Control Building - Increasing the station service transformer, additional switch requests, and additional landings at entrance doors	\$ 36,141.00	<p>Station Service transformer sizing – Original station service transformer sizing was done at 50kVA. This was based on historic numbers initially and was later proven by station service calculations. Xcel requested to change this to 100kVA, since that is the Xcel standard (was requested at the 90% design review meeting). RES reviewed the Xcel standards provided and did not see this requirement anywhere in the standards provided. This increase in station service size also required upgrading multiple disconnect and safety switches from 200A to 400A rating in order to meet the requirements of the 100kVA station service transformer to be installed per the Xcel direction/request.</p> <p>Additional switch requests - Xcel requested during the 90% design review meeting that safety disconnect switches be moved from inside the control building to the outside. This requires the installation of waterproof cabinets for the switches. Xcel also requested an additional yard cabinet to connect and supply larger equipment from the AC system.</p> <p>Addition of landings at entrance doors – this was added at the 90% design review meeting per Xcel request and was not evident for the provided Xcel specifications.</p>



CO No.	Date Identified	Date Submitted	Date Executed	Description	Value of CO	Comments
6	06/11/15			Upgrade from SEL351 to SEL421 relay and bus relays at the substation	\$ 163,789.00	Industry standard for wind farm collection circuits are to install SEL351 relays (O/C & G/F) relays to protect the collector systems. Collection systems (although balanced) are considered distribution circuits, since they are four wire systems, with a ground reference transformer connected to each circuit. The collection circuits are insulated to 150kV BIL, which is further evidence that they are considered as distribution feeders (compared to the 200kV BIL insulation levels typically associated with transmission lines/circuits). Xcel identified the requirement to install SEL 351 relays on Distribution feeders. During design review meetings, Xcel classified these as transmission lines and required the installation of step distance protection (SEL421 relays). This resulted in additional cost. The 34.5kV bus differential relays subsequently were also upgraded from distribution bus relays to transmission class bus diff relays with 100% redundancy
7	06/11/15			Addition of three additional shield masts at the substation	\$ 73,838.00	The original substation design utilized a combination of shield masts and shield wires in order to establish a lightning shielding system for the substation equipment. During the 60% design review meeting Xcel indicated they do not allow shield wires to span over top of equipment and requested that the shield wires be removed and that lightning shielding protection be done with shield masts. This requirement is not seen in any of the supplied specifications. This required the addition of 3 additional shield masts and thus additional cost.
8	06/11/15			Addition of anchor/rigging points for the oil containment based on the change to above ground containment system at the substation	\$ 36,907.00	Xcel required an above grade containment system with a removable wall and built in rigging/anchor points in the containment system. This was not evident in any of the provided specifications or the contract agreement. The above grade construction as such does not add cost, but the inclusion of the removable wall and the addition of the anchor/rigging points that is integrated into the oil containment system does add cost
9	06/11/15			Addition of separate relay/plc controller to control the capacitor banks at the substation	\$ 23,510.00	Typical capacitor bank controls on wind farms are done by the wind farm controller through the SCADA system. Xcel requested during the 90% design review not to control the equipment through the SCADA system, but rather have a separate relay/plc controller to control the capacitor banks. This required the installation of an additional relay in order to have a dedicated controller for the capacitor banks. This was not evident from any of the supplied specifications, since Xcel does not have a standard specification for 34.5kV capacitor banks.



CO No.	Date Identified	Date Submitted	Date Executed	Description	Value of CO	Comments
10	06/11/15			Upgrade to the capacitor bank interlock system	\$ 10,846.00	Typical interlocks for capacitor banks only include a time delay after opening the associated capacitor/circuit switched to release a key that will unlock the ground switch and lock the switcher in the open position. Xcel requires a much more elaborate system, which in turn costs more. This was not identified in any of the supplied standard and was determined as designs progressed.
TOTAL					\$ 379,294.00	