



# BORDER WINDS ENERGY PROJECT

## WEEKLY PROJECT REPORT

Weekly report no:	59
Report for week period ending COB Friday:	09/11/15
Calendar week no:	37

### Executive Summary

#### Week's Highlights

- Successfully completed the energization of Circuit 3 on 9/8/2015.
- Xcel started reviewing job books on site.
- RES graded the asphalt area on the east side of the O&M building. Knife River will asphalt on 9/14/15.
- Crane 1 completed the top out of the WTGs on Circuit 4 and Crane 2 completed the top out of WTGs on Circuit 1A. Both cranes will mobilize to the final circuit to top out (Circuit 2).
- All mechanical completion walk downs of the WTGs on Circuit 6 have been completed will be ready for energization, which has been scheduled for 9/15/2015.
- Civil crew continues to reclaim the turbine sites on Circuit 1B and Circuit 5.
- The LR 1300 cranes have demobilized from the site.

#### Week's Key Issues

- The site had two damage reports for the civil crew on 9/10/2015.
- Observed dusty conditions on the roads as farmers continue to harvest the crops.
- One of the blades at T66 had to be replaced and was delivered on site on 9/10/15. Crane 1 walked back from T64 to T66 to complete the blade installation.
- During the installation of the top section at T64 an existing dent was discovered in the component. Vestas approved the top for installation on 9/9/15.
- Night shift discovered a dent on the top section of the T75, on 9/11/15, it was cleared by Vestas for installation the same day.



## Safety

Type	Lost Time	Recordable Injury (Medical Aid)	Minor Injury (First Aid)	Equipment Property Damage	Near Miss	Safety Walks
<b>Current Period</b>	0	0	0	2	1	12
<b>Project To Date</b>	1	5	14	42	85	673

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

**TRIR: Previous Week = 2.8 / Current week = 2.8**

**RES Safety Index: Previous Week = 0.52/ Current week = 0.50**

### **Weeks Highlights:**

- HSQE Manager, Julio Jauregui, arrived onsite to support the project and conducted site audits and safety w.
- Site completed energization of circuit 3. All crews were reminded to be aware of what WTGs are energized before proceeding with any tower work. Updated map is on the site information board in front of the RES main office trailer.

### **Weeks Issues:**

- Crews were reminded to follow designated site speed limit. A unidentified vehicle was witnessed passing other vehicles on the county road. A warning was given at the all-hands meeting that this type of driving will not be tolerated and if the person is caught, they will be removed from the project.
- Two safety stand downs were held to ensure that all tower climbers attended. Stand downs were held to address the dropped object which occurred on the final walk down at T51.
- The site had two damage reports for the civil crew on 9/10/2015.
  - Mechanic shattered the glass door on the grader while trying to remove the hinge with a pry bar.
  - While the operator was trying to open the door of the front end loader, the door got caught in the wind, slamming it against the equipment and shattering the glass..

### **Project Work Hours:**

- Weekly Man-hours: 10,468.00
- Total Project Man-hours: 424,028.00
- Hours since Last Recordable Injury: 10,468.00



### Environmental

Type	Major Incident	Minor Incident	Near Miss	Observation
Current Period	0	1	0	1
Project to Date	0	79	7	75

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

**Rolling Incident Score: Previous week: 0.54 / Current Week: 0.53**

**Comments:**

- Observed dusty conditions on the roads as farmers continue to harvest the crops.
- Observed swarm of bees at 106<sup>th</sup> st and 5nd Ave intersection as farmers started moving boxes of bees from the field.

### Quality

Type	RES Issued NCRs				Client Issued NCRs		
	Issued	Open	Closed		Issued	Open	Closed
Current Period	0	0	0		0	0	1
PTD	4	1	3		10	3	7

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

**Week's Highlights:**

- Xcel representative arrived onsite and started reviewing the job books. Working on resolving any questions identified during the review.
- Punchlist item concerning a surface crack at T54 has been closed as the surface crack does not meet the criteria listed in Cast-in-Place Concrete, document 23053-000126, as requiring repair.



## SCHEDULE STATUS

Project duration	68
No. of weeks into contract	63
Contract time passed (%)	93%

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%	100%	96%
Substation	15.0%	100.0%	100%	99%
O&M Building	6.0%	100.0%	100%	99%
WTG Delivery, Erection, & MCC	15.0%	92%	88%	84%
<b>Overall Actual Percent Complete</b>		<b>98.8%</b>	<b>95.4%</b>	<b>93.8%</b>

## 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	41	33
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
<b>Roads</b>	<b>70%</b>	<b>Roads</b>			<b>80.0%</b>
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%
<b>Crane Pads &amp; Site Laydown</b>	<b>30%</b>	<b>Crane Pads &amp; Site Laydown</b>			<b>100.0%</b>
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%
<b>Roads &amp; Crane Pads Progress</b>					<b>86%</b>

**Comments:**

- Reclaiming on turbine sites on circuit 1B and Circuit 5.

**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%
<b>Foundation Progress</b>					<b>100.0%</b>

**Comments:**

- All foundation work complete.



**COLLECTION SYSTEM**

Item	Weighted %	Quantity	Total Received	Total Remaining	Percent Complete
<b>Deliveries</b>	<b>30.0%</b>	<b>Deliveries</b>			<b>100%</b>
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%
<b>Installations</b>	<b>50.0%</b>	<b>Installations</b>			<b>98.6%</b>
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	24	4	85.7%
<b>Terminations</b>	<b>20.0%</b>	<b>Terminations</b>			<b>82.2%</b>
MV Cable at WTG switch gear	45.0%	75	58	17	77.3%
Junction Boxes	35.0%	28	26	2	92.9%
Underground MV Splices	20.0%	51	38	13	74.5%
<b>Collection System Progress:</b>					<b>95.7%</b>

**Comments:**

- Circuit 3 was energized successfully on 9/8/15.
- Installed and terminated four (4) junction boxes.
- Completed one (1) underground splice.
- Terminated twelve (12) switchgears.
- Continuing to dig MV splice pits on Circuit 4.
- Continuing to splice fiber on Circuit 3.

**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%	97%	3%	97.0%
Cleaning and Shop Finish	4.0%	100%	100%	0%	100.0%
Security System	4.0%	100%	100%	0%	100.0%
<b>O&amp;M Building Progress</b>					<b>99.7%</b>

**Comments:**

- RES fixed the fiber trench that settled in the O&M yard.
- RES graded the asphalt area on the east side of the O&M building. Knife River will complete the asphaltting on 9/14/15.
- AB Systems completed installing the loops for the gates on 9/1/15.
- Discussion is ongoing with AB Systems regarding photo eye sensor installation for the gates and the water leak in the floor heating system.

### SUBSTATION

Item	Weighted %	Budget	Total Completed	Total Remaining	Percent Complete
<b>Engineering</b>	<b>10%</b>	<b>Engineering</b>			<b>100%</b>
IFC Drawings	100%	100%	100%	0%	100%
<b>Procurement and Delivery</b>	<b>20%</b>	<b>Procurement and Delivery</b>			<b>100%</b>
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%
<b>Construction</b>	<b>70%</b>	<b>Construction</b>			<b>99%</b>
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 3 was energized successfully on 9/8/15.
- Circuit 6 is scheduled for energization on 9/15/15.

### TURBINES

Item	Weighted %	Budget	Total Received	Total Remaining	Percent Complete
<b>Deliveries</b>	<b>20.0%</b>	<b>Delivered to turbine pad</b>			<b>100.0%</b>
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%
<b>Erection</b>	<b>60.0%</b>	<b>Erection</b>			<b>88.6%</b>
Base	17.0%	75	75	0	100.0%
Mid	16.0%	75	75	0	100.0%
Upper Mid	16.0%	75	63	12	84.0%
Top	17.0%	75	62	13	82.7%
Nacelle	17.0%	75	62	13	82.7%
Blades	17.0%	75	62	13	82.7%
<b>Mechanical Completions</b>	<b>20.0%</b>	<b>Mechanical Completions</b>			<b>54.7%</b>
Walk downs	33.3%	75	49	26	65.3%
MCC Submitted	33.3%	75	41	34	54.7%
MCC Signed	33.4%	75	33	42	44.0%
<b>Turbines Progress</b>					<b>84.1%</b>

#### Week's Highlights

- Completed turbine top out on Circuit 1A on 9/10/15 and Circuit 4 on 9/11/15. Both cranes are being mobilized to the final Circuit.
- Installed eight (8) lower mid-sections. Lower mid installation for all 75 turbines are now complete.
- Installed twelve (12) upper mid-sections, nacelle and blades sets; and eleven (11) top sections.
- Vestas commissioned seven (7) turbines on Circuit 5 which completes all WTGs on Circuit 5.
- Completed walk downs on 19 turbines. RES completed the MCCs on all turbines on Circuit 6. Crane 2 will be broken down at T33 to mobilize it to T62 on Circuit 2.

#### Week's Issues

- During installation of the blade at T66 an issue was discovered with the blade stud inserts. The defective blade will be returned to the factory for further root cause analysis. The replacement blade was delivered to site on 9/10/15. The LR 1600 walked back from T64 to T66 to complete the blade installation.
- During the installation of the top section at T64 an existing dent was discovered in the component which was not identified during the offloading process due to the location of the damage/defect. Vestas approved the top section for installation on 9/9/15.

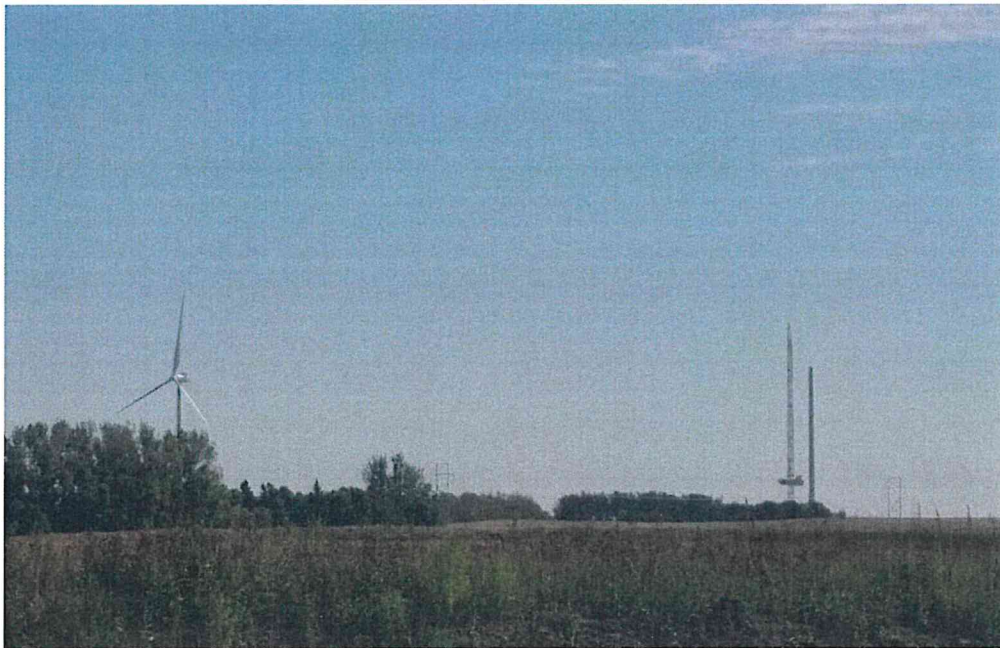


- Night shift discovered a dent on the top section of the T75, on 9/11/15.
- Loss in production for Crane 1 due to long crane walks from T66 to T75. Top off crew was winded out on 9/8/15 & 9/9/15.

**Exhibit 1 – Site Photographs**



**Early Morning at Border Winds**



**Lifting the Nacelle at T63**



**Labor Day lunch**



## 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:
841	9/5/15	Safety Walk	<b>Hazard Observation</b>	RES Cable and Earth	On county road 107 2 splice pits were not barricaded.	Communication Addressed	I called one of the new cable crew foremen and let him know what I found, he had his crew go out to locations and install barricades.
842	9/5/15	Safety Walk	<b>Hazard Observation</b>	RES Civil	Thought out the site cones warning of ditches, culverts and turn radius were down due to farming (harvest), and weather conditions.	Environmental Condition Addressed	Safety Supervisor Vernon drove the site, pulled cones out of ditches and added missing cones.
843	9/5/15	Safety Walk	<b>Safe Work Observation</b>	RES Cable and Earth	RES crew installing junction box on county road 107 good job on equipment inspection on both back hoes.		None required at this time.
844	9/5/15	Normal Work Activities	<b>Near Miss</b>	RES Erection	RES employee was working at the top mid-section he was using a pair of side cutter's to cut some zip tie's when he dropped the side cutters, they fell two section down landing on the base top section no one was working below the RES employee.	Training provided.	VESTAS called a safety stand down on the incident, incident was reviewed between RES and Vestas, the site will have a safety stand down with all employees working in and around the turbines to review incident and training.



#	Date:	Incident Observed During:	Incident Type:	Company Involved:	Incident Details:	Corrective Action Details:	Actions Taken to Prevent Reoccurrence:
845	9/7/15	Safety Walk	<b>Safe Work Observation</b>	RES Civil	Work removing turn radius on 106 and 30 good uses of cone's and spotters for traffic control.		None required at this time.
846	9/7/15	Safety Walk	<b>Safe Work Observation</b>	RES Erection	In laydown yard fork lift drive good equipment inspection, good use of spotter in blind spots.		None required at this time.
847	9/8/15	Safety Walk	<b>Hazard Observation</b>	RES Erection	During a site inspection I notice a nacelle door off and a truck next to it, when I asked the worker if he was in the nacelle he said not yet I asked if he had a ladder he said no.	Communication Addressed	I stopped the worker and had him return to the laydown yard and get a ladder to be able to enter into the nacelle safely
848	9/8/15	Safety Walk	<b>Hazard Observation</b>	RES	At the intersection of 52nd and 106 a large piece of wood cribbing was in the intersection.	Environmental Condition Addressed	I pulled over to the side of the road; I removed the wood cribbing from the road and placed it in the trash in the laydown yard.
849	9/8/15	Safety Walk	<b>Safe Work Observation</b>	RES Erection	At T-80 crane barricades properly erected, trucks parked at a safe distance, and crew picking up trash, good housekeeping.		None required at this time.
850	9/8/15	Safety Walk	<b>Hazard Observation</b>	RES Erection	T-80 a RES worker using a power washer was not using a full face shield.	Tools provided	RES employee was stopped and he went and retrieved a full face shield before continuing with his job.
851	9/1/15	Safety Walk	<b>Hazard Observation</b>	RES Erection	T-5 a can or food was left in one of the wings of the nacelle.	Provide Details	Shannon used a magnet to get it out so it would not fall?



#	Date:	Incident Observed During:	Incident Type:	Company Involved:	Incident Details:	Corrective Action Details:	Actions Taken to Prevent Reoccurrence:
852	9/9/15	Safety Walk	<b>Hazard Observation</b>	RES Civil	Safety Supervisor was doing a walk through the laydown yard, the RES mechanic was doing some work on a piece of equipment I asked for his JHA, and I noticed he was not steel toe boots.	Training provided.	Safety Supervisor asked the mechanic why was he not wearing his steel toe boots, he said they hurt his feet, he had them in his truck and I had him put them on and explained why he needs to be wearing them.
853	9/11/15	Safety Walk	<b>Safe Work Observation</b>	RES Erection	When Julio J. and Vernon G. RES Safety approached the pad location RES employee walked over and meets us and explained the JHA and hazards good job.		None required at this time.
854	9/11/15	Safety Walk	<b>Hazard Observation</b>	RES Erection	RES employee meets safety when approaching the site good job, but the employee was not wearing approved safety glasses.	Communication Addressed	I stopped the RES employee and asked him to get the correct safety glasses, his glasses are safety lenses but they did not have side shield, no strike was given.
855	9/11/15	Safety Walk	<b>Hazard Observation</b>	Buckner Cranes	A truck driver who is a sub for Buckner crane co. was not wearing his PPE and throwing his cigarette buds on the ground.	Communication Addressed	I talked to the driver and had him put on his PPE and explained to him on this site we do not throw are cigarette buds on the ground fire danger high in our area, since these drivers most likely won't be back on site. No strike was given.



#	Date:	Incident Observed During:	Incident Type:	Company Involved:	Incident Details:	Corrective Action Details:	Actions Taken to Prevent Reoccurrence:
856	9/11/15	Safety Walk	<b>Hazard Observation</b>	RES Erection	At t-35 RES employee was using a power washer and did not have a full face shield on.	Training provided.	The RES employee said no one on his crew told him he needed to wear a full face shield when using the power washer. I explained to him why he needs to wear a full face shield and it is our policy, he had a good attitude about it and got the correct face shield, no strike was issued.
857	9/11/15	Normal Work Activities	<b>Near Miss</b>	RES Erection	At 0615 Matt Wilson who works for the erection crew past the Vestas safety manager at a high rate of speed on county road 52 in a RES work truck on site property, Vestas Safety called me as soon as he pulled up behind Matt in the laydown yard.	Procedure re-training provided	I went out as soon as I got the call and pulled Matt Wilson into my office, I wanted to remove Matt from the project but his manager and mine talked me out of it, I gave him a strike and two days off without pay for careless driving and endangering other driver in a company truck on company property.



**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
121	Minor Incident (Below RQ)	Equipment Failure or leak	RES	9/7/15	3 gallons of hydraulic fluid leaked on the ground from a motor grader while operating at T45. The hydraulic hose leaked due to normal wear and tear.	A bucket was placed to collect the hydraulic fluid leak. Placed absorbent pads at the bottom of the base. The absorbents were removed after fixing the motor grader and will be disposed in the contaminated soil bin.	Reminded the crews to report all leaks and spills to ensure its taken care of in a timely manner
122	Observation	Informational	RES	9/8/15	Some areas of the site are dusty reducing visibility as the farmers continue to harvest the crops	No action required	No action required



**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			3	8
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-2015-016 Backfills and compactions of the turbine bases in freezing conditions			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
23053-105	Kyler Leen	RES	Kyle Louis	REI	Feeder Fault Clearing Time	7/27/15	7/29/15	Substation		
23053-106	John Radabaugh	RES	Sean Simmons	Vestas	RES concerns regarding the turbine punch list	07/28/15	08/04/15	Turbine		
23053-108	Shabeeb Abdul Khader	RES	Peter Doherty	Xcel Energy - Generation	Substation Interconnect Data	08/25/15	08/28/15	SCADA		
23053-109	Chuck Marso	RES	Peter Doherty	Xcel Energy - Generation	Capacitor Bank Control	09/01/15	09/03/15	SCADA		
23053-111	Chuck Marso	RES	Peter Doherty	Xcel Energy - Generation	Remote Curtailment	09/10/15	09/14/15	SCADA		09/11/15



**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.
<b>TOTAL</b>					\$ 379,294.00	