Revised

Generation Interconnection

System Impact Study Report

for

Queue Project AE2-154

MEADOW LAKE 345 KV (MLV VIII)

32.5 MW Capacity / 250 MW Energy

August 2022

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1 Preface

The intent of the System Impact Study is to determine a plan, with approximate cost and construction time estimates, to connect the subject generation interconnection project to the PJM network at a location specified by the Interconnection Customer. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system. All facilities required for interconnection of a generation interconnection project must be designed to meet the technical specifications (on PJM web site) for the appropriate transmission owner.

In some instances, a generator interconnection may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection, may also contribute to the need for the same network reinforcement. Cost allocation rules for network upgrades can be found in PJM Manual 14A, Attachment B. The possibility of sharing the reinforcement costs with other projects may be identified in the feasibility study, but the actual allocation will be deferred until the impact study is performed.

The Interconnection Customer seeking to interconnect a wind generation facility shall maintain meteorological data facilities as well as provide that meteorological data which is required per Schedule H to the Interconnection Service Agreement and Section 8 of Manual 14D.

An Interconnection Customer with a proposed new Customer Facility that has a Maximum Facility Output equal to or greater than 100 MW shall install and maintain, at its expense, phasor measurement units (PMUs). See Section 8.5.3 of Appendix 2 to the Interconnection Service Agreement as well as section 4.3 of PJM Manual 14D for additional information.

PJM utilizes manufacturer models to ensure the performance of turbines is properly captured during the simulations performed for stability verification and, where applicable, for compliance with low voltage ride through requirements. Turbine manufacturers provide such models to their customers. The list of manufacturer models PJM has already validated is contained in Attachment B of Manual 14G. Manufacturer models may be updated from time to time, for various reasons such as to reflect changes to the control systems or to more accurately represent the capabilities turbines and controls which are currently available in the field. Additionally, as new turbine models are developed, turbine manufacturers provide such new models which must be used in the conduct of these studies. PJM needs adequate time to evaluate the new models in order to reduce delays to the System Impact Study process timeline for the Interconnection Customer as well as other Interconnection Customers in the study group. Therefore, PJM will require that any Interconnection Customer with a new manufacturer model must supply that model to PJM, along with a $10,000 fully refundable deposit, no later than three (3) months prior to the starting date of the System Impact Study (See Section 4.3 for starting dates) for the Interconnection Request which shall specify the use of the new model. The Interconnection Customer will be required to submit a completed dynamic model study request form (Attachment B-1 of Manual 14G) in order to document the request for the study.

2 General

The Interconnection Customer has proposed a Wind generating facility located in White County , Indiana. The installed facilities will have a total capability of 250 MW with 32.5 MW of this output being recognized by PJM as Capacity. The proposed PJM project #AE2-154 will connect to the existing Meadow Lake 345kV switching station which was initially constructed for PJM project #S06, and then expanded for PJM projects #T-126, #T-127 and # AB1-006 (see Figure 1). The proposed in-service date for this project is 10/31/2021. This study does not imply a TO commitment to this in-service date.

The objective of this System Impact Study is to determine budgetary cost estimates and approximate construction timelines for identified transmission facilities required to connect the proposed generating facilities to the AEP transmission system. These reinforcements include the Attachment Facilities, Local Upgrades, and Network Upgrades required for maintaining the reliability of the AEP transmission system.

Queue Number	**AE2-154**
Project Name	MEADOW LAKE 345 KV (MLV VIII)
State	Indiana
County	White
Transmission Owner	AEP
MFO	250
MWE	250
MWC	32.5
Fuel	Wind
Basecase Study Year	2022

2.1 Point of Interconnection

AE2-154 will interconnect with the AEP transmission system at the existing Meadow Lake 345kV switching station which was constructed for PJM project #S06 and then expanded for PJM projects #T-126, #T-127 and # AB1-006 (Figure 1).

Note: It is assumed that the existing 345 kV revenue metering system, gen lead and Protection & Control Equipment will be adequate for the increased generation of AE2-154.

It is further assumed that at a minimum, relay settings will need to be reviewed, and some settings revised, to accommodate the connection of additional turbines through the shared facilities. Detailed engineering review will be performed in the Facilities study stage of this project.

2.2 Cost Summary

The AE2-154 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	$0
Direct Connection Network Upgrade	$0
Non Direct Connection Network Upgrades	$50,000
Allocation for New System Upgrades	$0
Contribution for Previously Identified Upgrades	$24,280
Total Costs	$74.280

The estimates provided in this report are preliminary in nature, as they were determined without the benefit of detailed engineering studies. Final estimates will require an on-site review and coordination to determine final construction requirements. In addition, Stability analysis will be completed during the Facilities Study stage. It is possible that a need for additional upgrades could be identified by these studies.

3 Transmission Owner Scope of Work

4 Attachment Facilities

The total preliminary cost estimate for the Attachment work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
none	
Total Attachment Facility Costs	$0

5 Direct Connection Cost Estimate

The total preliminary cost estimate for the Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
none	
Total Direct Connection Facility Costs	$0

6 Non-Direct Connection Cost Estimate

The total preliminary cost estimate for the Non-Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Review and update Protection and Control settings at the AEP Meadow Lake 345 kV station	$50,000
Total Non-Direct Connection Facility Costs	$50,000

7 Incremental Capacity Transfer Rights (ICTRs)

Will be determined at a later study phase

8 Schedule

It is anticipated that the time between receipt of executed Agreements and Commercial Operation may range from 12 to 18 months if no line work is required. If line work is required, construction time would generally be between 24 to 36 months after signing Agreement execution.

9 Interconnection Customer Requirements

It is understood that the Interconnection Customer is responsible for all costs associated with this interconnection. The costs above are reimbursable to AEP. The cost of the Interconnection Customer's generating plant and the costs for the line connecting the generating plant to the transmission system are not included in this report; these are assumed to be the Interconnection Customer's responsibility.

The Generation Interconnection Agreement does not in or by itself establish a requirement for American Electric Power to provide power for consumption at the developer's facilities. A separate agreement may be reached with the local utility that provides service in the area to ensure that infrastructure is in place to meet this demand and proper metering equipment is installed. It is the responsibility of the developer to contact the local service provider to determine if a local service agreement is required.

Requirement from the PJM Open Access Transmission Tariff:

1. An Interconnection Customer entering the New Services Queue on or after October 1, 2012 with a proposed new Customer Facility that has a Maximum Facility Output equal to or greater than 100 MW shall install and maintain, at its expense, phasor measurement units (PMUs). See Section 8.5.3 of Appendix 2 to the Interconnection Service Agreement as well as section 4.3 of PJM Manual 14D for additional information.
2. The Interconnection Customer may be required to install and/or pay for metering as necessary to properly track real time output of the facility as well as installing metering which shall be used for billing purposes. See Section 8 of Appendix 2 to the Interconnection Service Agreement as well as Section 4 of PJM Manual 14D for additional information.

10 Revenue Metering and SCADA Requirements

10.1 PJM Requirements

The Interconnection Customer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Section 8 of Attachment O.

10.2 AEP Requirements

The Interconnection Customer will be required to comply with all AEP Revenue Metering Requirements for Generation Interconnection Customers. The Revenue Metering Requirements may be found within the "Requirements for Connection of New Facilities or Changes to Existing Facilities Connected to the AEP Transmission System" document located at the following link:

http://www.pjm.com/~/media/planning/plan-standards/private-aep/aep-interconnection-requirements.ashx

11 Network Impacts

The Queue Project AE2-154 was evaluated as a 250.0 MW (Capacity 32.5 MW) injection at into the Meadowlake 345kV substation in the AEP area. Project AE2-154 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-154 was studied with a commercial probability of 100%. Potential network impacts were as follows:

Summer Peak Load Flow

11.1 Generation Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

11.2 Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)

None.

11.3 Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

None.

11.4 Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

#	Type	Contingency Name	Affected Area	Facility Description	Bus From	Bus To	Cir.	PF	Loading Initial	Loading Final	Rating Type	Rating MVA	MW Con.	FG App.
1	N-1	AEP_P1-2_#8807	AEP - MISO NIPS	05MEADOW-17REYNOLDS 345 kV line	243878	255205	1	DC	105.71	113.18	NR	2246	167.78	
2	N-1	AEP_P1-2_#8695	AEP - MISO NIPS	05MEADOW-17REYNOLDS 345 kV line	243878	255205	2	DC	105.71	113.18	NR	2246	167.78	

11.5 Steady-State Voltage Requirements

(Summary of the VAR requirements based upon the results of the steady-state voltage studies)

To be determined in the Facilities Study Phase

11.6 Stability and Reactive Power Requirement for Low Voltage Ride Through

(Summary of the VAR requirements based upon the results of the dynamic studies)

To be determined in the Facilities Study Phase

11.7 System Reinforcements – Summer Peak

ID	Index	Facility	Upgrade Description	Cost	Cost Allocated to AE2-154	Upgrade Number
			TOTAL COST		$0	

11.8 Contingency Descriptions

Contingency Name	Contingency Definition
AEP_P1-2_#8695	CONTINGENCY 'AEP_P1-2_#8695' OPEN BRANCH FROM BUS 243878 TO BUS 255205 CKT 1 / 243878 05MEADOW 345 255205 17REYNOLDS 345 1 END
AEP_P1-2_#8807	CONTINGENCY 'AEP_P1-2_#8807' OPEN BRANCH FROM BUS 243878 TO BUS 255205 CKT 2 / 243878 05MEADOW 345 255205 17REYNOLDS 345 2 END

Light Load Analysis

12 Light Load Analysis

The Queue Project AE2-154 was evaluated as a 250.0 MW (Capacity 32.5 MW) injection at into the Meadowlake 345kV substation in the AEP area. Project AE2-154 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE2-154 was studied with a commercial probability of 100%. Potential network impacts were as follows:

12.1 Generation Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

12.2 Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)

None.

12.3 Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

#	Contingency Type	Contingency Name	Affected Area	Facility Description	Bus From	Bus To	Cir.	PF	Loading Initial	Loading Final	Rating Type	Rating MVA	MW Con.	FG App.
1	LFFB	AEP_P1-2_#7441-B	AEP - AEP	05ALLEN-05RPMONE 345 kV line	243211	242933	1	DC	107.12	108.67	ER	897	13.96	1
2	LFFB	AEP_P1-2_#7441-A	AEP - AEP	05ALLEN-05RPMONE 345 kV line	243211	242933	1	DC	107.04	108.59	ER	897	13.96	

12.4 Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

Not Applicable.

12.5 Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study)

Facility	Upgrade Description	Cost	Cost Allocation	Upgrade Number
05ALLEN-05RPMONE 345 kV line (from bus 243211 to bus 242933 ckt 1)	**AEP** AEP SE rating 897 MVA. **AEP Reinforcement** **N6740:** A sag study will be required on ACSR/PE~ 1275 ~ 54/19, conductor section 3, 12.25 miles of line. Cost of sag study is $49 K. New SE rating of conductor section 3 after sag study: 1301 MVA SE. New expected SE rating of line to be 971 MVA. If the sag study concludes a complete Rebuild/Reconductor is required, the estimated cost is $ 24.5 million. Project Type : FAC Cost : $ 49,000 Time Estimate : 6-12 Months New Ratings: Rate B: 971 MVA **Notes:** 1. Since the cost of the upgrade is less than $5M, based on PJM cost allocation criteria, AE2-154 currently does not receive cost allocation towards this upgrade.	$49,000 + $24,280	$0 + $24,280	N6740 N6740.1

	2. As changes to the PJM queue process occur (such as prior queued projects withdrawing from the queue, reducing in size, etc.) AE2-154 could receive cost allocation. 3. Although Queue Project AE2-038 may not presently have cost responsibility for this upgrade, Queue Project AE2-154 may need this upgrade in-service to be deliverable to the PJM system. 4. If Queue Project AE2-154 comes into service prior to completion of the upgrade, Queue Project AE2-154 will need an interim study. **AEP Reinforcement** **N6740.1:** A sag study will be required on ACSR/PE~ 1414 ~ 62/19, conductor section 2, 6.07 miles of line. The cost of the sag study is expected to be $24,280. New Ratings of conductor section 2 after sag study: S/N: 971 MVA S/E: 1419 MVA. New expected SE rating of line to be 1301 MVA. Rebuild/Reconductor, cost: $ 12.14 million Project Type : FAC Cost : $ 24,280 Time Estimate : 6-12 Months New Ratings: Rate B: 1301 MVA AE2-154 is the driver for this reinforcement.			
	Total	**$73,280**	**$24,280**	

Affected Systems

13 Affected Systems

13.1 TVA

None

13.2 Duke Energy Progress

None

13.3 MISO

The October 2019 AE2 Group – Preliminary MISO Report has identified no impacts. Please refer to the MISO Affected System report for details. The Final October 2019 MISO Affected System report will be needed to confirm there are no impacts from AE2-154 on MISO.

13.4 LG&E

None

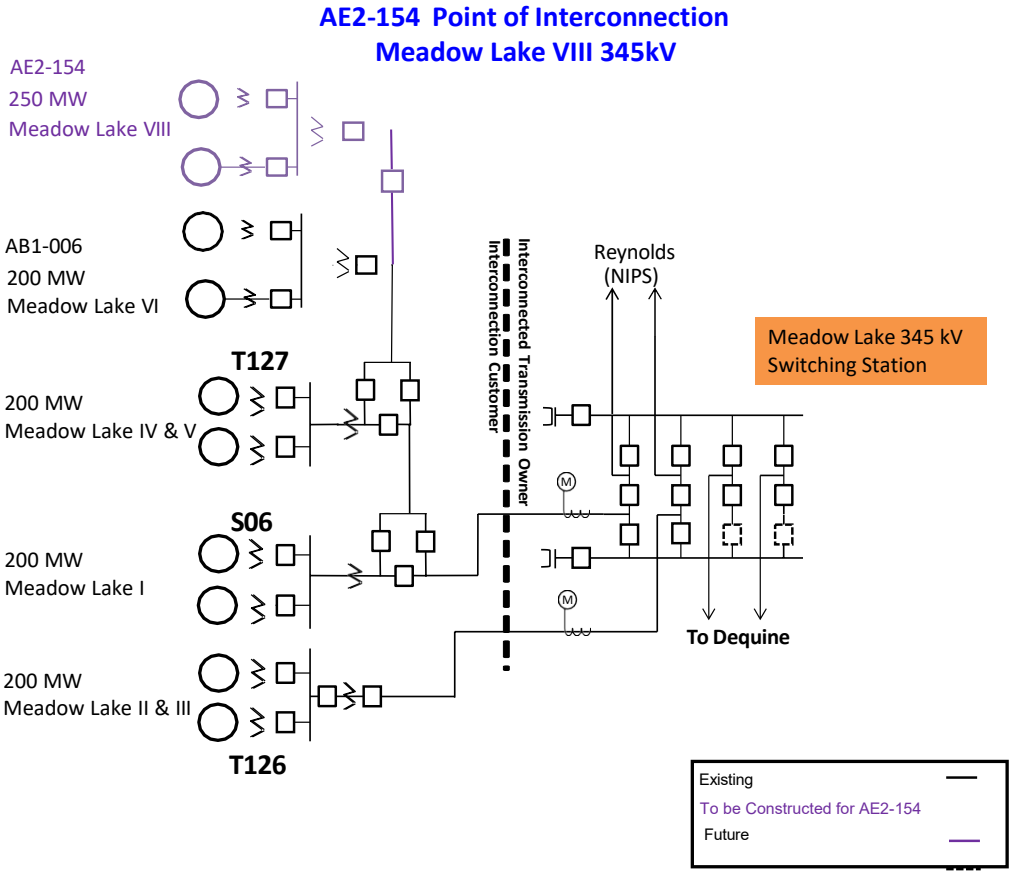
Short Circuit

14 Short Circuit

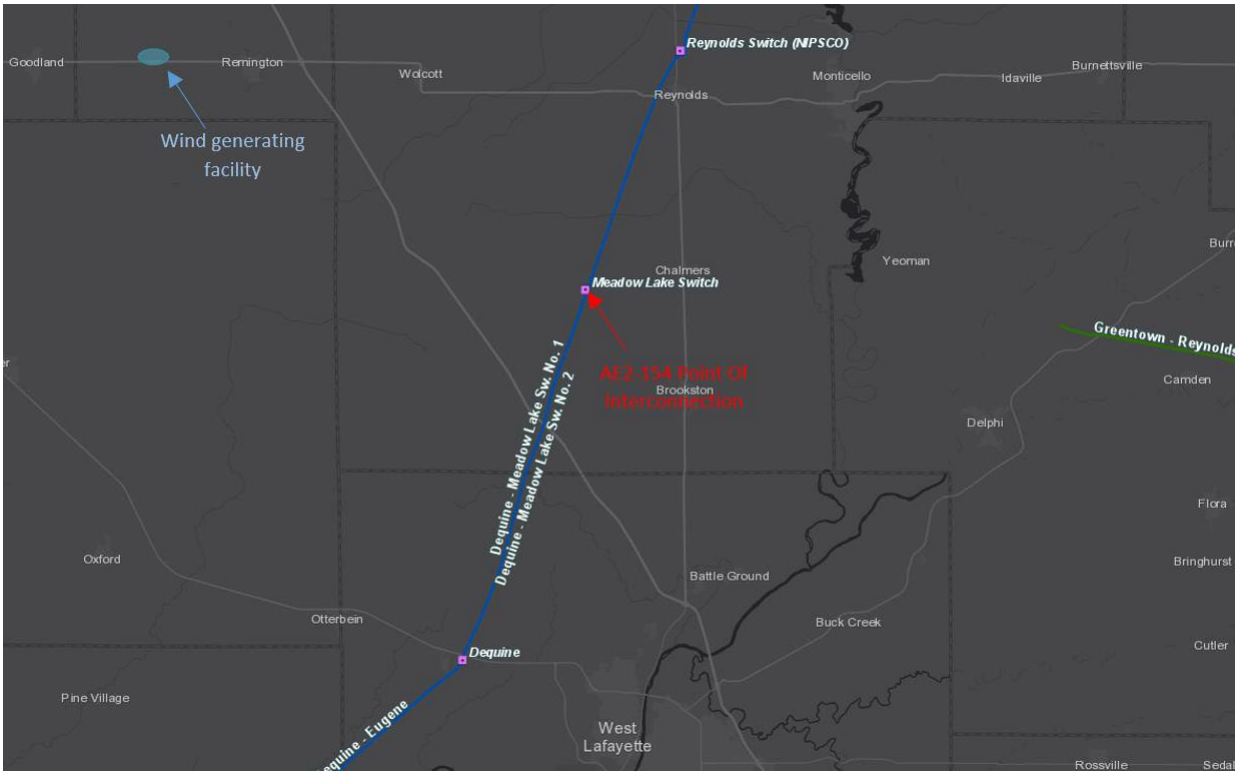
The following Breakers are overduty

Bus Number	Bus Name	BREAKER	Type	Capacity (Amps)	Duty Percentage Post Queue	Duty Percentage Pre Queue

15 Figure 1: AE2-154 One Line Diagram Meadow Lake 345kV



16 Figure 2: Point of Interconnection Map



17 Appendices

The following appendices contain additional information about each flowgate presented in the body of the report. For each appendix, a description of the flowgate and its contingency was included for convenience. However, the intent of the appendix section is to provide more information on which projects/generators have contributions to the flowgate in question. All New Service Queue Requests, through the end of the Queue under study, that are contributors to a flowgate will be listed in the Appendices. Please note that there may be contributors that are subsequently queued after the queue under study that are not listed in the Appendices. Although this information is not used "as is" for cost allocation purposes, it can be used to gage the impact of other projects/generators.

It should be noted the project/generator MW contributions presented in the body of the report and appendices sections are full contributions, whereas the loading percentages reported in the body of the report, take into consideration the commercial probability of each project as well as the ramping impact of "Adder" contributions.

Appendix 1

(AEP - AEP) The 05ALLEN-05RPMONE 345 kV line (from bus 243211 to bus 242933 ckt 1) loads from 107.12% to 108.67% (DC power flow) of its normal rating (897 MVA) for the single line contingency outage of 'AEP_P1-2_#7441-B'. This project contributes approximately 13.96 MW to the thermal violation.

CONTINGENCY 'AEP_P1-2_#7441-B'
OPEN BRANCH FROM BUS 932800 TO BUS 246999 CKT 1 / 932800 AC2-104 TAP 765 246999 05SORENS 765 1
END

Bus Number	*Bus Name*	*Full Contribution*
243859	*05FR-11G C*	*0.53*
243862	*05FR-12G C*	*0.52*
247901	*05FR-12G E*	*2.07*
243864	*05FR-21G C*	*0.55*
247902	*05FR-21G E*	*2.21*
243866	*05FR-22G C*	*0.53*
243870	*05FR-3G C*	*1.07*
247904	*05FR-3G E*	*4.29*
243873	*05FR-4G C*	*0.83*
247905	*05FR-4G E*	*3.23*
243795	*05HDWTR1G C*	*0.68*
247963	*05HDWTR1G E*	*1.63*
246909	*05MDL-1G C*	*1.12*
247906	*05MDL-1G E*	*4.48*
246910	*05MDL-2G C*	*0.56*
247907	*05MDL-2G E*	*2.22*
246976	*05MDL-3G C*	*0.56*
247912	*05MDL-3G E*	*2.32*
246979	*05MDL-4G C*	*1.12*
247913	*05MDL-4G E*	*2.24*
246953	*05TIMB G C*	*1.1*

247911	*05TIMB G E*	*4.45*
246991	*05WLD G1 C*	*0.34*
247914	*05WLD G1 E*	*4.49*
247255	*05WLD G2 C*	*0.35*
247958	*05WLD G2 E*	*2.37*
933281	*AC2-140 C*	*3.12*
933282	*AC2-140 E*	*0.16*
933591	*AC2-176 C O1*	*0.95*
933592	*AC2-176 E O1*	*6.37*
934431	*AD1-067 C*	*0.06*
934432	*AD1-067 E*	*0.26*
934721	*AD1-100 C*	*8.84*
934722	*AD1-100 E*	*41.26*
935141	*AD1-148*	*2.4*
936291	*AD2-038 C O1*	*1.1*
936292	*AD2-038 E O1*	*7.36*
936371	*AD2-047 C O1*	*2.03*
936372	*AD2-047 E O1*	*9.9*
936722	*AD2-091 BAT*	*6.86*
936752	*AD2-096 BAT*	*3.18*
937001	*AD2-134 C*	*1.22*
937002	*AD2-134 E*	*4.86*
938851	*AE1-113 C O1*	*3.74*
938852	*AE1-113 E O1*	*13.25*
938861	*AE1-114 C O1*	*1.87*
938862	*AE1-114 E O1*	*6.38*
939321	*AE1-163 C O1*	*2.76*
939322	*AE1-163 E O1*	*16.98*
939401	*AE1-172 C*	*2.55*
939402	*AE1-172 E*	*11.94*
939641	*AE1-194 C*	*4.01*
939642	*AE1-194 E*	*26.81*
939651	*AE1-195 C*	*4.01*
939652	*AE1-195 E*	*26.81*
939682	*AE1-198 E O1*	*6.86*
939791	*AE1-210 C O1*	*0.76*
939792	*AE1-210 E O1*	*5.09*
940102	*AE1-252 E*	*5.33*
941561	*AE2-153 C O1*	*2.09*
941562	*AE2-153 E O1*	*9.81*
941571	*AE2-154 C*	*1.81*
941572	*AE2-154 E*	*12.14*
941721	*AE2-172*	*2.91*
941731	*AE2-173*	*3.4*
942043	*AE2-216 BAT*	*7.54*
942111	*AE2-223 C*	*1.06*

942112	*AE2-223 E*	*7.1*
942421	*AE2-255 C O1*	*1.42*
942422	*AE2-255 E O1*	*4.25*
942651	*AE2-281 C*	*0.4*
942652	*AE2-281 E*	*2.43*
943021	*AE2-325 C*	*2.62*
943022	*AE2-325 E*	*1.74*
274857	*BIG SKY ;U1*	*0.66*
274858	*BIG SKY ;U2*	*0.66*
274877	*BISHOP HL;1U*	*0.54*
274878	*BISHOP HL;2U*	*0.54*
294401	*BSHIL;1U E*	*2.15*
294410	*BSHIL;2U E*	*2.15*
274848	*CAMPGROVE;RU*	*0.8*
274890	*CAYUG;1U E*	*3.37*
274891	*CAYUG;2U E*	*3.37*
274863	*CAYUGA RI;1U*	*0.84*
274864	*CAYUGA RI;2U*	*0.84*
274849	*CRESCENT ;1U*	*0.26*
274859	*EASYR;U1 E*	*2.64*
274860	*EASYR;U2 E*	*2.64*
274856	*ECOGROVE ;U1*	*0.56*
274871	*GR RIDGE ;2U*	*1.12*
274847	*GR RIDGE ;BU*	*0.88*
274855	*GSG-6 ;RU*	*0.62*
290051	*GSG-6; E*	*2.47*
275149	*KEMPTON ;1E*	*4.19*
990901	*L-005 E*	*3.2*
274872	*LEE DEKAL;1U*	*1.37*
290108	*LEEDK;1U E*	*5.69*
274850	*MENDOTA H;RU*	*0.17*
274879	*MINONK ;1U*	*1.14*
293061	*N-015 E*	*3.53*
293513	*O-009 C1*	*0.56*
293514	*O-009 C2*	*0.28*
293515	*O-009 C3*	*0.31*
293516	*O-009 E1*	*2.22*
293517	*O-009 E2*	*1.13*
293518	*O-009 E3*	*1.24*
293712	*O-029 C*	*0.59*
293713	*O-029 C*	*0.33*
293714	*O-029 C*	*0.3*
293715	*O-029 E*	*2.38*
293716	*O-029 E*	*1.3*
293717	*O-029 E*	*1.2*
293771	*O-035 E*	*1.6*

293644	*O22 E1*	*2.37*
293645	*O22 E2*	*4.59*
290021	*O50 E*	*4.55*
294392	*P-010 E*	*4.48*
294763	*P-046 E*	*2.23*
274888	*PILOT HIL;1E*	*4.19*
274887	*PILOT HIL;1U*	*1.05*
274881	*PLEAS RDG;2U*	*1.05*
274851	*PROVIDENC;RU*	*0.4*
290261	*S-027 E*	*4.15*
290265	*S-028 E*	*4.15*
247536	*S-071 C*	*0.63*
247929	*S-071 E*	*2.52*
295110	*SUBLETTE C*	*0.09*
247943	*T-127 E*	*2.24*
247521	*T-131 C*	*1.3*
247925	*T-131 E*	*5.18*
274861	*TOP CROP ;1U*	*0.59*
274862	*TOP CROP ;2U*	*1.15*
274853	*TWINGROVE;U1*	*1.04*
274854	*TWINGROVE;U2*	*1.04*
247543	*V3-007 C*	*1.35*
247935	*V3-007 E*	*9.03*
905081	*W4-005 C*	*0.86*
905082	*W4-005 E*	*5.76*
295108	*WESTBROOK C*	*0.2*
909052	*X2-022 E*	*9.2*
916211	*Z1-072 E*	*1.21*
916221	*Z1-073 E*	*1.27*
917501	*Z2-087 C*	*1.41*
917502	*Z2-087 E*	*9.47*
918051	*AA1-018 C*	*1.12*
918052	*AA1-018 E*	*7.52*
920272	*AA2-123 E*	*1.42*
924041	*AB2-047 C O1*	*1.77*
924042	*AB2-047 E O1*	*11.83*
924261	*AB2-070 C O1*	*1.29*
924262	*AB2-070 E O1*	*8.63*
925301	*AB2-191 C*	*0.35*
925302	*AB2-191 E*	*0.49*
925581	*AC1-033 C*	*0.7*
925582	*AC1-033 E*	*4.69*
925771	*AC1-053 C*	*1.29*
925772	*AC1-053 E*	*8.6*
926821	*AC1-168 C O1*	*0.56*
926822	*AC1-168 E O1*	*3.76*

926841	*AC1-171 C O1*	*0.53*
926842	*AC1-171 E O1*	*3.54*
926861	*AC1-173 C*	*0.85*
926862	*AC1-173 E*	*5.68*
927201	*AC1-214 C O1*	*1.02*
927202	*AC1-214 E O1*	*3.25*