



Bid / RFP / RFQ Number: SB-2022-15

Project Number: E2022-044

Project Name: Electric Substation Upgrades

Addendum No.: 1

Date of Addendum: October 3rd, 2022

To All Plan Holders:

1. CHANGE OF BID OPENING DATE:

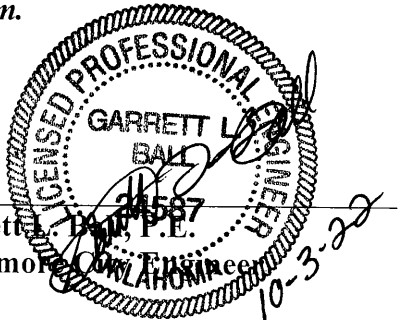
DUE TO LONG LEAD TIMES FOR QUOTES FROM MATERIAL SUPPLIERS, THE BID OPENING WILL BE POSTPONED UNTIL OCTOBER 24th, 2022 at 3:30 P.M. LOCATION OF THE BID OPENING WILL REMAIN THE SAME.

2. OIL TESTING:

The most current oil test results for the transformers and LTCs are attached to this addendum. Current PCB tests are not currently available. They will be provided in another addendum prior to the bid opening.

All other terms, conditions and specifications remain unchanged. Any additions made to the Bidding and Contract Documents including the Plans and Specifications per this Addendum shall be considered a part of the original Bidding and Contract Documents. The professional seals and signatures applied to the original Bidding and Contract Documents are thereby considered to cover any additions to said documents per this Addendum.

Garrett L. Ball
Claremore, Oklahoma



_____ Date

Bidders shall acknowledge receipt of this Addendum in the space provided in the Bid Proposal Form.

TEST RESULTS

Alternative Technologies, Inc.

12350 River Ridge Blvd.
Burnsville, MN 55337
Telephone (800) 255-8656 or (952) 894-3455

Rick Priest
Enserv Environmental Services
PO Box 5999
Jacksonville, AR 72076

Type / Tank: TRN
KVA: 15000
Voltage: 67000
Gallons: 3580
Manuf Date:
Fluid Type: Mineral Oil

Location: SUB 3
Bank & Phase: 3 PHASE
Manufacturer: MCGRAW EDISON
Container No.: GM121

Serial Number:	C-06387-5-1
Client Number:	
Date Received:	8-3-2022
Report Date:	8-3-2022

DISSOLVED GAS IN OIL ANALYSIS

Date	01-Aug-22	22-Jul-22	24-Sep-20	
Temp	55C	50C	30C	
Hydrogen (H2)	4	1	0	ppm
Methane (CH4)	3	3	3	ppm
Ethane (C2H6)	4	4	4	ppm
Ethylene (C2H4)	2	2	2	ppm
Acetylene (C2H2)	0	0	0	ppm
Carbon Monoxide (CO)	72	61	61	ppm
Carbon Dioxide (CO2)	2123	467	1725	ppm
Nitrogen (N2)	82826	84670	82774	ppm
Oxygen (O2)	3684	8953	2453	ppm
Total Gas	88718	94161	87022	ppm
Total Combustible Gas	85	71	70	ppm
Equivalent TCG Reading	0.0709	0.0523	0.0532	%

Comments: All gases at acceptable concentrations

Recommended Retest: 1 Year

PHYSICAL AND CHEMICAL TESTS

Date:	01-Aug-22	22-Jul-22	24-Sep-20	
Moisture in Oil	15	17	9	ppm
Interfacial Tension	36.2	28.8	30.2	dynes/cm
Acid Number	0.018	0.018	0.024	mg KOH/g
Color Number	1.5	1.5	1.5	relative
Visual	OK	OK	CLEAR	
Dielectric D877	46	47	54	kV
Viscosity				
Specific Gravity	0.885	0.883	0.885	relative
Power Factor @ 25C	<.05	<.05	<.05	%
Power Factor @ 100C	1.72	0.82	0.26	%
Oxidation Inhibitor				
Fural Screen				
Pour Point				
Flash Point				

PGB CONTENT

METALS IN OIL (ppm)

PPM	Aroclor	Date	Aluminum	Copper	Iron	Lead	Silver	Tin	Zinc

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Approved By: _____

Lab Number:	230429-001
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TEST RESULTS

Alternative Technologies, Inc.

12350 River Ridge Blvd.
Burnsville, MN 55337
Telephone (800) 255-8656 or (952) 894-3455

Type / Tank: LTC
KVA: 15000
Voltage: 67000
Gallons: 188
Manuf Date:
Fluid Type: Mineral Oil

Rick Priest
Enserv Environmental Services
PO Box 5999
Jacksonville, AR 72076

Location: SUB 3
Bank & Phase: LTC
Manufacturer: MCGRAW EDISON
Container No.: FE165

Serial Number:	C-06387-5-1LTC
Client Number:	
Date Received:	8-3-2022
Report Date:	8-3-2022

DISSOLVED GAS IN OIL ANALYSIS

	Date	01-Aug-22	22-Jul-22	24-Sep-20	
	Temp	55C	50C	30C	
Hydrogen (H2)		87	167	87	ppm
Methane (CH4)		36	41	40	ppm
Ethane (C2H6)		12	11	13	ppm
Ethylene (C2H4)		141	136	154	ppm
Acetylene (C2H2)		369	393	491	ppm
Carbon Monoxide (CO)		203	258	87	ppm
Carbon Dioxide (CO2)		3604	3135	2992	ppm
Nitrogen (N2)		75560	72732	69878	ppm
Oxygen (O2)		19326	15846	26053	ppm
Total Gas		99338	92719	99795	ppm
Total Combustible Gas		848	1006	872	ppm
Equivalent TCG Reading		0.3971	0.6403	0.3208	%

Comments: All gases at acceptable concentrations for LTC

Recommended Retest: 1 Year

PHYSICAL AND CHEMICAL TESTS

	Date:	01-Aug-22	22-Jul-22	24-Sep-20	
Moisture in Oil		76	94	56	ppm
Interfacial Tension		18.5	14.8	15.2	dynes/cm
Acid Number		0.594	0.536	0.565	mg KOH/g
Color Number		3.5	3.0	3.0	relative
Visual		WATER	WATER	CLEAR	
Dielectric D877		38	51	52	kV
Viscosity					
Specific Gravity		0.885	0.886	0.886	relative
Power Factor @ 25C		0.09	0.07	<.05	%
Power Factor @ 100C		2.06	2.20	0.64	%
Oxidation Inhibitor					
Fural Screen					
Pour Point					
Flash Point					

PCB CONTENT

METALS IN OIL (ppm)

PPM	Aroclor	Date	Aluminum	Copper	Iron	Lead	Silver	Tin	Zinc

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Lab Number:	230429-002
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TEST RESULTS

Alternative Technologies, Inc.

12350 River Ridge Blvd.
Burnsville, MN 55337
Telephone (800) 255-8656 or (952) 894-3455

Type / Tank: TRN
KVA: 15000
Voltage: 67000
Gallons: 5790
Manuf Date: 1/08
Fluid Type: Mineral Oil

Rick Priest
Ensenv Environmental Services
PO Box 5999
Jacksonville, AR 72076

Serial Number:	P700529
Client Number:	
Date Received:	7-26-2022
Report Date:	8-3-2022

Location: SUB 3
Bank & Phase: 3 PHASE
Manufacturer: JORDAN
Container No.: M2

DISSOLVED GAS IN OIL ANALYSIS

Date	22-Jul-22	24-Sep-20	
Temp	40C	30C	
Hydrogen (H2)	6	4	ppm
Methane (CH4)	31	27	ppm
Ethane (C2H6)	12	11	ppm
Ethylene (C2H4)	1	1	ppm
Acetylene (C2H2)	0	0	ppm
Carbon Monoxide (CO)	89	84	ppm
Carbon Dioxide (CO2)	1209	1221	ppm
Nitrogen (N2)	79672	83905	ppm
Oxygen (O2)	3012	4479	ppm
Total Gas	84032	89732	ppm
Total Combustible Gas	139	127	ppm
Equivalent TCG Reading	0.1013	0.0849	%

Comments: All gases at acceptable concentrations

Recommended Retest: 1 Year

PHYSICAL AND CHEMICAL TESTS

Date:	22-Jul-22	24-Sep-20	
Moisture in Oil	41	6	ppm
Interfacial Tension	38.4	38.5	dynes/cm
Acid Number	<.010	0.012	mg KOH/g
Color Number	0.5	0.5	relative
Visual	WATER	CLEAR	
Dielectric D877	39	48	kV
Viscosity			
Specific Gravity	0.874	0.875	relative
Power Factor @ 25C	<.05	<.05	%
Power Factor @ 100C	0.41	0.17	%
Oxidation Inhibitor			
Fural Screen			
Pour Point			
Flash Point			

PCB CONTENT

METALS IN OIL (ppm)

PPM	Aroclor	Date	Aluminum	Copper	Iron	Lead	Silver	Tin	Zinc

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Lab Number: 230269-007

TEST RESULTS

Alternative Technologies, Inc.

12350 River Ridge Blvd.
Burnsville, MN 55337
Telephone (800) 255-8656 or (952) 894-3455

Type / Tank: LTC
KVA: 15000
Voltage: 67000
Gallons: 270
Manuf Date: 1/08
Fluid Type: Mineral Oil

Rick Priest
Enserv Environmental Services
PO Box 5999
Jacksonville, AR 72076

Location: SUB 3
Bank & Phase: LTC
Manufacturer: JORDAN
Container No.: AB652

Serial Number:	P700529LTC
Client Number:	
Date Received:	7-26-2022
Report Date:	8-3-2022

DISSOLVED GAS IN OIL ANALYSIS

Date	22-Jul-22	24-Sep-20	
Temp	40C	30C	
Hydrogen (H2)	8	6	ppm
Methane (CH4)	4	4	ppm
Ethane (C2H6)	1	1	ppm
Ethylene (C2H4)	17	19	ppm
Acetylene (C2H2)	52	50	ppm
Carbon Monoxide (CO)	36	36	ppm
Carbon Dioxide (CO2)	629	838	ppm
Nitrogen (N2)	66439	72315	ppm
Oxygen (O2)	29770	33111	ppm
Total Gas	96956	106380	ppm
Total Combustible Gas	118	116	ppm
Equivalent TCG Reading	0.0557	0.0471	%

Comments: All gases at acceptable concentrations for LTC

Recommended Retest: 1 Year

PHYSICAL AND CHEMICAL TESTS

Date:	22-Jul-22	24-Sep-20	
Moisture in Oil	31	20	ppm
Interfacial Tension	33.2	33.3	dynes/cm
Acid Number	0.030	0.024	mg KOH/g
Color Number	1.5	1.5	relative
Visual	CLEAR	CLEAR	
Dielectric D877	53	54	kV
Viscosity			
Specific Gravity	0.875	0.875	relative
Power Factor @ 25C	<.05	<.05	%
Power Factor @ 100C	1.10	0.75	%
Oxidation Inhibitor			
Fural Screen			
Pour Point			
Flash Point			

PCB CONTENT METALS IN OIL (ppm)

PPM	Aroclor	Date	Aluminum	Copper	Iron	Lead	Silver	Tin	Zinc

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Approved By: _____

Lab Number:	230269-008
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TEST RESULTS

Alternative Technologies, Inc.

12350 River Ridge Blvd.
Burnsville, MN 55337
Telephone (800) 255-8656 or (952) 894-3455

Type / Tank: TRN
KVA: 15000
Voltage: 67000
Gallons: 3580
Manuf Date:
Fluid Type: Mineral Oil

Rick Priest
Enserv Environmental Services
PO Box 5999
Jacksonville, AR 72076

Serial Number:	C-06387-5-2
Client Number:	
Date Received:	7-26-2022
Report Date:	8-3-2022

Location: SUB 2
Bank & Phase: 3 PHASE
Manufacturer: MCGRAW EDISON
Container No.: EC153

DISSOLVED GAS IN OIL ANALYSIS

	Date	22-Jul-22	24-Sep-20	
	Temp	45C	30C	
Hydrogen (H2)		8	5	ppm
Methane (CH4)		13	10	ppm
Ethane (C2H6)		31	33	ppm
Ethylene (C2H4)		11	8	ppm
Acetylene (C2H2)		4	3	ppm
Carbon Monoxide (CO)		21	18	ppm
Carbon Dioxide (CO2)		2326	2409	ppm
Nitrogen (N2)		76759	83842	ppm
Oxygen (O2)		4055	1598	ppm
Total Gas		83228	87926	ppm
Total Combustible Gas		88	77	ppm
Equivalent TCG Reading		0.0431	0.0302	%

Comments: Increase in Acetylene may indicate arcing in oil

Recommended Retest: 1 Month

PHYSICAL AND CHEMICAL TESTS

	Date:	22-Jul-22	24-Sep-20	
Moisture in Oil		56	24	ppm
Interfacial Tension		30.1	29.5	dynes/cm
Acid Number		0.012	0.018	mg KOH/g
Color Number		2.5	3.0	relative
Visual		OK	OK	
Dielectric D877		54	53	kV
Viscosity				
Specific Gravity		0.884	0.886	relative
Power Factor @ 25C		<.05	<.05	%
Power Factor @ 100C		1.38	1.04	%
Oxidation Inhibitor				
Furat Screen				
Pour Point				
Flash Point				

PCB CONTENT

METALS IN OIL (ppm)

PPM	Aroclor	Date	Aluminum	Copper	Iron	Lead	Silver	Tin	Zinc

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Approved By: _____

Lab Number: 230269-005

TEST RESULTS

Alternative Technologies, Inc.

12350 River Ridge Blvd.
Burnsville, MN 55337
Telephone (800) 255-8656 or (952) 894-3455

Rick Priest
Enserv Environmental Services
PO Box 5999
Jacksonville, AR 72076

Type / Tank: LTC
KVA: 15000
Voltage: 67000
Gallons: 188
Manuf Date:
Fluid Type: Mineral Oil

Location: SUB 2
Bank & Phase: LTC
Manufacturer: MCGRAW EDISON
Container No.: AD261

Serial Number:	C-06387-5-2LTC
Client Number:	
Date Received:	7-26-2022
Report Date:	8-3-2022

DISSOLVED GAS IN OIL ANALYSIS

	Date	22-Jul-22	24-Sep-20	
	Temp	45C	30C	
Hydrogen (H2)		4453	5393	ppm
Methane (CH4)		2277	1775	ppm
Ethane (C2H6)		320	235	ppm
Ethylene (C2H4)		3999	2768	ppm
Acetylene (C2H2)		12580	9624	ppm
Carbon Monoxide (CO)		246	357	ppm
Carbon Dioxide (CO2)		5119	5324	ppm
Nitrogen (N2)		76498	72946	ppm
Oxygen (O2)		10536	3024	ppm
Total Gas		116028	101446	ppm
Total Combustible Gas		23875	20152	ppm
Equivalent TCG Reading		10.4461	12.7188	%

Comments: Concentrations of combustible gases high for LTC

Recommended Retest: 6 Months

PHYSICAL AND CHEMICAL TESTS

	Date:	22-Jul-22	24-Sep-20	
Moisture in Oil		52	31	ppm
Interfacial Tension		22.7	22.7	dynes/cm
Acid Number		0.104	0.093	mg KOH/g
Color Number		3.0	3.0	relative
Visual		OK	SEDIMENT	
Dielectric D877		50	49	kV
Viscosity				
Specific Gravity		0.885	0.884	relative
Power Factor @ 25C		<.05	<.05	%
Power Factor @ 100C		2.57	1.88	%
Oxidation Inhibitor				
Fural Screen				
Pour Point				
Flash Point				

PCB CONTENT

METALS IN OIL (ppm)

PPM	Aroclor	Date	Aluminum	Copper	Iron	Lead	Silver	Tin	Zinc

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Approved By: _____

Lab Number: 230269-006

TEST RESULTS

Alternative Technologies, Inc.

12350 River Ridge Blvd.
Burnsville, MN 55337
Telephone (800) 255-8656 or (952) 894-3455

Serial Number:	51364-B
Client Number:	
Date Received:	7-26-2022
Report Date:	8-3-2022

Rick Priest
Enserv Environmental Services
PO Box 5999
Jacksonville, AR 72076

Type / Tank: TRN
KVA: 15000
Voltage: 67000
Gallons: 4230
Manuf Date: 1/95
Fluid Type: Mineral Oil

Location: SUB 1
Bank & Phase: 3 PHASE
Manufacturer: NORTH AMERICAN
Container No.: DP982

DISSOLVED GAS IN OIL ANALYSIS

	Date	22-Jul-22	24-Sep-20	
	Temp	40C	30C	
Hydrogen (H2)		1	5	ppm
Methane (CH4)		2	1	ppm
Ethane (C2H6)		3	4	ppm
Ethylene (C2H4)		0	1	ppm
Acetylene (C2H2)		0	0	ppm
Carbon Monoxide (CO)		18	42	ppm
Carbon Dioxide (CO2)		1170	1273	ppm
Nitrogen (N2)		80123	82170	ppm
Oxygen (O2)		9202	4953	ppm
Total Gas		90519	88449	ppm
Total Combustible Gas		24	53	ppm
Equivalent TCG Reading		0.0181	0.0464	%

Comments: All gases at acceptable concentrations **Recommended Retest:** 1 Year

PHYSICAL AND CHEMICAL TESTS

	Date:	22-Jul-22	24-Sep-20	
Moisture in Oil		7	7	ppm
Interfacial Tension		32.6	34.0	dynes/cm
Acid Number		<.010	<.010	mg KOH/g
Color Number		2.0	2.0	relative
Visual		CLEAR	OK	
Dielectric D877		49	47	kV
Viscosity				
Specific Gravity		0.884	0.882	relative
Power Factor @ 25C		<.05	<.05	%
Power Factor @ 100C		0.36	0.28	%
Oxidation Inhibitor				
Fural Screen				
Pour Point				
Flash Point				

PCB CONTENT METALS IN OIL (ppm)

	PPM	Aroclor	Date	Aluminum	Copper	Iron	Lead	Silver	Tin	Zinc

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Approved By: _____

Lab Number: 230269-003

TEST RESULTS

Alternative Technologies, Inc.

12350 River Ridge Blvd.
Burnsville, MN 55337
Telephone (800) 255-8656 or (952) 894-3455

Type / Tank: LTC
KVA: 15000
Voltage: 67000
Gallons: 235
Manuf Date: 1/95
Fluid Type: Mineral Oil

Rick Priest
Ensenv Environmental Services
PO Box 5999
Jacksonville, AR 72076

Serial Number:	51364-BLTC
Client Number:	
Date Received:	7-26-2022
Report Date:	8-3-2022

Location: SUB 1
Bank & Phase: LTC
Manufacturer: NORTH AMERICAN
Container No.: EM443

DISSOLVED GAS IN OIL ANALYSIS

	Date	22-Jul-22	24-Sep-20	
	Temp	40C	30C	
Hydrogen (H2)		29	25	ppm
Methane (CH4)		8	8	ppm
Ethane (C2H6)		1	1	ppm
Ethylene (C2H4)		19	18	ppm
Acetylene (C2H2)		205	206	ppm
Carbon Monoxide (CO)		11	14	ppm
Carbon Dioxide (CO2)		564	700	ppm
Nitrogen (N2)		66974	68893	ppm
Oxygen (O2)		31293	31821	ppm
Total Gas		99104	101686	ppm
Total Combustible Gas		273	272	ppm
Equivalent TCG Reading		0.0922	0.0843	%

Comments: All gases at acceptable concentrations for LTC

Recommended Retest: 1 Year

PHYSICAL AND CHEMICAL TESTS

	Date:	22-Jul-22	24-Sep-20	
Moisture in Oil		26	24	ppm
Interfacial Tension		29.1	28.9	dynes/cm
Acid Number		0.018	0.018	mg KOH/g
Color Number		1.5	2.0	relative
Visual		WATER	WATER	
Dielectric D877		52	54	kV
Viscosity				
Specific Gravity		0.878	0.879	relative
Power Factor @ 25C		<.05	<.05	%
Power Factor @ 100C		0.62	0.37	%
Oxidation Inhibitor				
Fural Screen				
Pour Point				
Flash Point				

PCB CONTENT

METALS IN OIL (ppm)

PPM	Aroclor	Date	Aluminum	Copper	Iron	Lead	Silver	Tin	Zinc

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Approved By: _____

Lab Number: 230269-004