

September 11, 2015

***VIA ELECTRONIC FILING
AND OVERNIGHT DELIVERY***

Steven V. King
Executive Director and Secretary
Washington Utilities and Transportation Commission
1300 S. Evergreen Park Drive S.W.
P.O. Box 47250
Olympia, WA 98504-7250

RE: Docket UE-15 ____—Affiliated Interest Filing—Phillips 66 Company

Under the provisions of RCW 80.16.020 and in accordance with WAC 480-100-245, Pacific Power & Light Company, a division of PacifiCorp (Pacific Power or Company), provides notice of ongoing ordinary course affiliated interest transactions from time to time with Phillips 66 Company (Phillips 66).

PacifiCorp is a wholly-owned indirect subsidiary of Berkshire Hathaway Energy Company (BHE). BHE is a subsidiary of Berkshire Hathaway Inc. On August 28, 2015, Berkshire Hathaway Inc. acquired 10 percent of the outstanding common stock of Phillips 66, causing it to become a new affiliate of Pacific Power. RCW 80.16.010 includes in its definition of “affiliated interest,” “every corporation five percent or more of whose voting securities are owned by any person or corporation owning five percent or more of the voting securities of such public service company or by any person or corporation in any such chain of successive ownership of five percent or more of voting securities.” Therefore, Berkshire Hathaway, Inc.’s ownership interest in BHE and Phillips 66 creates an affiliated interest relationship between Pacific Power and Phillips 66.

Phillips 66 sells to Pacific Power gear and engine lubricating oil, transformer insulation oil, hydraulic oil, grease, and other lubricating and insulating petroleum and synthetic fluids, all used in the normal operations of PacifiCorp’s generation, mining and distribution operations. Pacific Power purchased such supplies from Phillips 66 before August 28, 2015, and desires to continue using Phillips 66 as one of its lubrication product suppliers. The oil and grease is purchased from time to time via purchase orders, in the same manner as other supplies purchased under blanket agreements via PacifiCorp’s procurement department. Phillips 66 had a pre-existing master materials supply contract in place with BHE and certain of its subsidiaries, including PacifiCorp (the Agreement). Purchase order transactions are done by PacifiCorp under this Agreement. A copy of the Agreement is included with this Notice as Attachment A.

Pacific Power purchases the oil and grease products from Phillips 66 as needed from time to time, to use in its fleet of trucks and transformers. As such, there is no set dollar amount of such purchases, but PacifiCorp has historically purchased approximately \$700,000 of oil and grease products per year and anticipates future purchase levels will be similar.

The Agreement contains standard commercial sales terms and conditions to protect the Company's ability to provide safe and reliable service. Thus, the continuation of the purchase transactions under the Agreement will not harm the public interest.

Pacific Power requests confidential treatment for Exhibits B, B.1, and B.2 in accordance with WAC 480-07-160. These exhibits contain commercially sensitive pricing information that could expose the Company and Phillips 66 to competitive injury if disclosure is unrestricted. Therefore, the Company requests confidential treatment on the basis that the documents contain "valuable commercial information, including trade secrets or confidential marketing, cost, or financial information, or customer-specific usage and network configuration and design information," as provided in RCW 80.04.095 and in accordance with WAC 480-07-160(2)(c).

Also included with this filing is a notarized verification from Jeff Erb, Assistant General Counsel, Pacific Power, regarding the Agreement.


It is respectfully requested that all formal correspondence and Staff requests regarding this material be addressed to:

By E-Mail (preferred): datarequest@pacificorp.com

By regular mail: Data Request Response Center
 PacifiCorp
 825 NE Multnomah Street, Suite 2000
 Portland, Oregon, 97232

Please contact Ariel Son, Manager, Regulatory Projects, at 503-813-5410 if you have any informal questions.

Sincerely,


R. Bryce Dalley
Vice President, Regulation

Enclosures

WASHINGTON AFFILIATED INTEREST FILING

ATTACHMENT A

AGREEMENT

MASTER MATERIALS SUPPLY CONTRACT

BETWEEN

BERKSHIRE HATHAWAY ENERGY COMPANY

AND

PHILLIPS 66 COMPANY

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ATTACHMENTS

EXHIBIT A – MATERIALS AND SPECIFICATIONS

- APPENDIX 1, SPECIAL CONDITIONS – PACIFICORP
- APPENDIX 2, SPECIAL CONDITIONS – MIDAMERICAN ENERGY COMPANY
- APPENDIX 3, SPECIAL CONDITIONS – NV ENERGY
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- ATTACHMENT 1, PACIFICORP LUBE OIL SPECIFICATION
- ATTACHMENT 2, MIDAMERICAN ENERGY LUBE OIL SPECIFICATION

EXHIBIT B – PRICING SCHEDULE

- EXHIBIT B.1- PRICING ESCALATION AND DE-ESCALATION
- EXHIBIT B.2 – BERKSHIRE ENERGY EQUIPMENT FUND AMORTIZATION SCHEDULE

EXHIBIT C – FORM OF PURCHASE ORDER

EXHIBIT D – [RESERVED]

EXHIBIT E – AFFILIATES LIST AND PRINCIPAL BUSINESS ADDRESS

EXHIBIT F – FORM OF AFFILIATE PARTICIPATION LETTER

MASTER MATERIALS SUPPLY CONTRACT

BETWEEN

BERKSHIRE HATHAWAY ENERGY COMPANY

AND

PHILLIPS 66 COMPANY

PARTIES

The Parties to this Master Materials Supply Contract (the "Contract") are Berkshire Hathaway Energy Company whose principal address is 666 Grand Avenue, P.O. Box 657, Des Moines, Iowa 50306-0657, and its Affiliates who elect to utilize this Contract and agree to be bound by the terms and conditions, and applicable Exhibits and Appendices set forth herein (hereinafter collectively "Company"), and Phillips 66 Company (hereinafter "Supplier"), whose address is 3010 Briarpark Drive, Houston TX 77042. Company and Supplier are hereinafter sometimes collectively referred to as "Parties" and individually as a "Party," as the context may require. The Parties will incorporate these master terms and conditions in their contracts for Supplier's supply of Materials and Work for participating Affiliates. Each Affiliate Participation Letter issued in accordance with this Contract shall constitute a separate contract between Company or its applicable participating Affiliate and Supplier (and references to "the Contract" or "this Contract" shall be construed to refer to the applicable Participation Letter - - with these terms incorporated therein). Each Affiliate that submits an Affiliate Participation Letter in accordance with these master terms and conditions shall be construed as "Company" with respect to the Purchase Orders placed by such Affiliate and is solely responsible for the obligations of "Company" assumed with respect those orders, and neither Berkshire Hathaway Energy Company nor any other Affiliate shall have any responsibility for such obligations.

ARTICLE 1. DEFINITIONS

Affiliate(s) shall mean any entity which Berkshire Hathaway Energy Company now or hereafter (a) owns or controls at least fifty percent (50%) or more of the ownership interest; or (b) exercises management control; or (c) lists as an affiliated company on Exhibit E. Any Affiliate, which elects to participate in and utilize this Contract shall also be "Company" under this Contract and shall be responsible for all obligations associated with the purchase of Materials from Supplier. Additional Affiliates may be added to or removed from Exhibit E at any time upon Supplier's receipt of Notice from Company. Changes to Exhibit E are not required to be incorporated via a written amendment to this Contract. When placing an initial order for Materials, or in conjunction with an initial purchase order, an Affiliate will execute and submit an Affiliate Participation Letter with the order in the form of Exhibit E.

Business Day shall mean a day, other than a Saturday, Sunday or holiday, on which banks are generally open for business. Any generic references to "days" shall be deemed to mean a calendar day and not a Business Day; provided, however, that if the final "day" of any period specified in this Contract falls on a day other than a Business Day, then the period shall be construed so as to end on the next succeeding Business Day.

CIPS Covered Assets shall mean any assets identified by Company as "critical assets" or "critical cyber assets," as those terms are defined in the North American Electric Reliability Corporation Glossary of Terms. To the extent the Materials are to be delivered to a Company Work Site location that requires Supplier to gain access to CIPS Covered Assets or any of the Work to be performed relating to the supply of Materials to Company requires Supplier to gain access to CIPS Covered Assets, Supplier shall adhere to the requirements set forth in Appendix 1, Appendix 2 and Appendix 3, Special Conditions.

Deliverables shall mean all drawings, manuals, calculations, specifications, maps, sketches, designs, tracings, notes, reports, data, computer programs, models, plans, programs, procedures, protocols, samples and other documents and deliverables that are to be provided, obtained, prepared and delivered to Company by Supplier, as set forth in the Specifications.

Emergency shall mean conditions under which, without effecting an immediate repair or replacement: (i) life, health, or safety would be endangered by operation of the Company's assets; (ii) the Company's assets would be

unavailable for commercial use; or (iii) the Company's assets could not be operated, or demonstrated to be operating, in compliance with a) environmental regulations; b) regulations, policies or procedures issued by governmental or regulatory authorities; or c) prudent utility practice.

Force Majeure Event shall mean a delay caused by any national or general strikes (but excluding strikes relating solely to the work force of Company, Supplier or a Subcontractor), fires, riots, acts of God, acts of the public enemy, floods, acts of terrorism, unavoidable transportation accidents or embargoes, or other events which are: (i) not reasonably foreseeable as of the date the applicable Purchase Order is released; and (ii) attributable to a cause beyond the control and without the fault or negligence of the Party incurring such delay. The term Force Majeure Event does not include a delay caused by seasonal weather conditions, general economic conditions, changes in the costs of goods or Supplier's failure to place orders for equipment, materials or other items sufficiently in advance to ensure delivery of the Materials and/or availability when needed.

Lead Time shall mean the maximum production time for any specific item of Material from the date of Supplier's confirmed receipt of Company's Purchase Order, as such Lead Times are stated in Exhibit A.

Material(s) shall mean all lubricant products, equipment, materials, goods, parts, associated hardware, documentation, spare parts, data packages, software and associated incidental services to be delivered or provided to Company, by Supplier, under this Contract and pursuant to Purchase Orders issued to Supplier by Company.

Material Adverse Change or MAC shall mean, with respect to Supplier, if Supplier, in the reasonable opinion of Company, has experienced a material adverse change in Supplier's financial condition or Supplier's ability to fulfill its obligations under this Contract, including, but not limited to, any such change that results in its inability to satisfy ARTICLE 8, CREDIT REQUIREMENTS, including any event or circumstance that would give Company the right to terminate for cause pursuant to ARTICLE 33, TERMINATION FOR CAUSE.

Minimum Order Quantity is defined as three hundred fifty dollars (\$350.00) on any single Purchase Order. For orders less than three hundred fifty dollars (\$350.00), Supplier may elect to ship the material with a common carrier FOB Ship Point, freight terms, pre-pay and add.

Net Replacement Costs shall mean the "cost to cover" remedy available to Company in the event of a default by Supplier under a Purchase Order. The Net Replacement Costs shall be calculated by: (i) subtracting the price payable under the Purchase Order from the costs incurred by Company to obtain an alternative supplier to furnish the Materials that Supplier was otherwise obligated to provide; and (ii) adding a sum for additional managerial, administrative, and other reasonable costs (internal and third-party) Company incurs as a result of Supplier's default.

Notice shall mean a formal written communication which, pursuant to the Contract, one Party must deliver to the other in order to invoke a Contract right set forth herein.

Personnel shall mean the employees of Supplier or any of the employees or representatives of any of Supplier's agents, Subcontractors, or independent contractors, of any tier, who are employed or engaged by Supplier to perform Work or provide all or part or any subpart of the Materials under this Contract.

Purchase Order shall mean the document(s) containing the information set forth in ARTICLE 3, PURCHASE ORDERS, which is used to order Materials pursuant to the master terms and conditions set forth in this Contract.

Specification(s) shall mean any and all drawings, specifications, product descriptions and/or other requirements setting forth Supplier's obligations with respect to the Materials as detailed in Exhibit B, or in any attachment appended to a Purchase Order for a specific Materials order.

Subcontractor shall mean any sub-supplier or contractor, at any tier, having an agreement with Supplier to perform a portion of Supplier's obligations under this Contract.

Term shall mean the period commencing upon the execution of this Contract by Company and continuing thereafter until December 31, 2019, unless earlier terminated as provided herein.

Work shall mean all obligations, duties, requirements and responsibilities for the successful supply and delivery of the Materials in accordance with the terms and conditions set forth herein and inclusive of those detailed within a specific Purchase Order.

Work Site shall mean the location or locations on Company's premises (if any) where the Materials are to be

delivered and any portion of the Work is to be performed.

ARTICLE 2. DESCRIPTION OF SUPPLY

Upon Supplier's receipt of a Purchase Order, Supplier shall supply and deliver to Company the Materials listed and specifically described in Exhibit B in accordance with the Specifications contained therein. Each Purchase Order issued by Company to Supplier shall be placed subject to, and in accordance with, the general terms and conditions set forth in this Contract, including any Lead Times and Minimum Order Quantities.

Company is under no obligation to purchase any specific amount of Materials under this Contract, and this Contract shall not be construed in any way as granting to Supplier an exclusive right to provide any or all of the Materials contemplated herein. The use of Supplier for the purchase of Materials is discretionary with Company, and Company expressly reserves the right to purchase similar or identical items from alternative suppliers during the Term, in Company's sole discretion. The intent of this Contract is to establish master terms and conditions that will govern Purchase Orders issued by Company to Supplier during the Term. The Parties acknowledge the difficulty of determining in advance the exact quantity of Materials Company will need to purchase from Supplier during any contract year, and agree that there must be some elasticity around any estimate. As a consequence, Supplier agrees to supply the estimated quantity set forth in the Affiliate Participation Letter, and Company agrees to exert good faith efforts to purchase the estimated quantity.

Supplier shall maintain inventory levels of Materials to meet Company's estimated Materials purchase forecasts, as such may be provided to Supplier from time to time.

ARTICLE 3. PURCHASE ORDERS

Each Purchase Order will identify and/or describe: (i) the Materials; (ii) the guaranteed delivery date, including any liquidated damages to be assessed in the event of Supplier's failure to timely perform; (iii) agreed pricing (if any) that modifies Exhibit B; (iv) the delivery location and agreed delivery terms that modify ARTICLE 12, DELIVERY (if any); (v) whether the performance of such Work will require access to Company CIPS Covered Assets; (vi) the designated representatives for each Party with respect to the order; (vii) order-specific invoicing instructions; and (viii) any other order-specific terms and conditions. The terms and conditions of this Contract shall apply to each Purchase Order, as supplemented by the order-specific terms of the Purchase Order. This Contract and the applicable Purchase Order shall, together, constitute the entire agreement between the Parties with respect to any specific Materials ordered under this Contract. A Purchase Order will be issued through the Company's procurement system and will specifically reference this Contract.

Purchase Order Submittal - All Purchase Orders from the Company shall be sent via email to:

Phillips 66 Customer Service Center

800-448-6630 Ex. 2

LubesCSCNaturalGasPowerGEN@p66.com

ARTICLE 4. PERIOD OF PERFORMANCE

The Contract shall be effective for Materials ordered pursuant to a Purchase Order issued during the Term of the Contract, whether or not such Materials are scheduled to be delivered or actually delivered prior to the expiration of such Term. The expiration of the Term shall not impact the Parties' respective rights or obligations with respect to any Purchase Orders issued prior to expiration. Moreover, neither the expiration of the Term nor any earlier termination of this Contract shall impact any warranties, indemnities, insurance requirements, confidentiality obligations, termination obligations, or other obligations, which by their own terms are intended to survive the completion of delivery of Materials pursuant to a Purchase Order, all of which shall continue in full force and effect after the termination or expiration of the Contract.

Each Purchase Order will specify a guaranteed delivery date for the Materials. Time is of the essence. Unless otherwise excused by the terms of this Contract, Supplier's failure to timely deliver the Materials shall result in the assessment of liquidated damages, to the extent such liquidated damage amounts are set forth in such Purchase Order. In order for liquidated damages to be enforceable, a Purchase Order containing such liquidated damages must be submitted in strict accordance with ARTICLE 3, PURCHASE ORDERS. Supplier may refuse to accept any Purchase Order containing liquidated damages provisions; provided, however that the quantities included within

such Purchase Order shall be included within Company's good faith purchase commitment set forth in ARTICLE 2, DESCRIPTION OF SUPPLY. Where no liquidated damages are specified, Company will have all of the rights and remedies available at law with respect to late delivery. Supplier will provide advance communication to Company on all Purchase Order that will not be delivered in full per the confirmed Purchase Order delivery date.

ARTICLE 5. CONSIDERATION AND PAYMENT

Except as otherwise set forth in the applicable Purchase Order, prices for Materials shall be those set for in Exhibit B. The pricing set forth in Exhibit B does not include any sales and use taxes to be reimbursed by Company pursuant to ARTICLE 6, TAXES. Escalation or other adjustments to pricing shall only be permitted to the extent expressly set forth in Exhibit B.

Except as otherwise set forth in the applicable Purchase Order, Supplier shall invoice Company for Materials upon or after delivery and acceptance by Company. All invoices shall include separate line item charges for each Material purchased by Company, including separate line items for any additional charges under said invoice. Supplier shall furnish reasonable backup detail and documentation supporting each invoice line item charge including, without limitation, receipts, bills of lading, etc. supporting all charges. Company will pay Supplier, as full consideration for the satisfactory performance of Supplier's obligations under this Contract, all amounts due in accordance with the Contract within thirty (30) days of date of invoice(s). All invoices shall reference the applicable Contract number. Supplier shall identify and clearly set forth on the invoice any discount for early payment. To the extent that Supplier must resubmit any invoice for failing to comply with the Company's invoicing requirements, any offer of a discount for early payment shall remain valid until such time as Company has received a proper invoice for payment. The total amount of consideration payable for the Materials will be specified in the Purchase Order.

Each Affiliate shall furnish to Supplier a listing of all contacts necessary at delivery locations for Supplier to follow-up on past due or disputed invoices. Each Affiliate shall make best efforts to update and maintain this listing for accuracy and forward updates thereto to Supplier's Treasury Department via electronic mail or by facsimile to Supplier's designate. Each Affiliate further agrees to supply via the same routing the names, phone and facsimile number of the supervisors within the Affiliate's accounts payable department to whom payment disputes can be escalated. Supplier shall first make requests hereunder directly to the delivery sites and to the personnel as provided by each Affiliate in the listing referred to above. In order to qualify for the payment terms included above, any new Affiliate, not initially identified on Exhibit E, shall have to satisfactorily complete a credit review in accordance with Supplier's credit procedures.

Any Affiliate, which requests Materials from Supplier hereunder, shall be responsible for all obligations associated with the Affiliate's request and purchase of such Materials. It is understood and agreed that each Affiliate participating in this Contract is solely responsible and liable for its obligations related to the purchase and sale of Materials to Supplier. Berkshire Hathaway Energy Company and any other participating Affiliate(s) shall have no obligation or liability, contractually or otherwise, for payment incurred by the specific Affiliate requesting Materials from Supplier hereunder.

All invoices shall be addressed to the Affiliate requesting the Materials at the address shown on the Affiliate Participation Letter. Additional Affiliates, which may elect to participate in and under this Contract after the effective date hereof, shall notify Supplier of the proper billing address for forwarding Supplier invoices.

Company may offset any such payment to reflect amounts owing from Supplier to Company or its Affiliates pursuant to this Contract or any other agreement between the parties. In addition, Company may withhold all payments otherwise due Supplier until such time as Supplier has provided the Default Security, if any, that is required by this Contract.

ARTICLE 6. TAXES

The pricing described in Exhibit B is exclusive of all taxes to be borne by Company arising out of Supplier's performance hereunder, including without limitation sales and use taxes. Except as otherwise set forth in the applicable Purchase Order, local sales and use taxes in all states shall be paid by Supplier and invoiced as a separate line item. Notwithstanding the foregoing, Supplier is solely responsible for all import and export duties and value-added taxes related to the Materials and all applicable parts or supplies. Upon request of Company, Supplier shall promptly provide to Company evidence satisfactory to Company of the payment of all applicable taxes.

ARTICLE 7. ACCOUNTING AND AUDITING

Supplier shall keep accurate and complete accounting records in support of any cost-based billings and claims charged to Company in accordance with generally accepted accounting principles. Company, or its audit representatives, shall have the right at any reasonable time or times to examine, audit, and copy the records, vouchers, and other source documents which relate to any claim for compensation other than pricing elements which are fixed in amount by this Contract. Such documents shall be available for examination, audit, and reproduction for three (3) years after completion or termination of this Contract.

Supplier shall assist Company with preparing necessary audit material and will allow Company to review any work papers prepared by independent auditors as allowed by professional standards. Any over-collections shall be returned within thirty (30) days from date of Notice of overcharge. Audit findings will be considered to be final for the period audited.

ARTICLE 8. CREDIT REQUIREMENTS

Supplier shall meet the requirements of either clause (i) or clause (ii) below: (i) Supplier maintains a senior unsecured debt rating from Standard & Poor's of BBB- or better; or (ii) if Supplier does not maintain a satisfactory debt rating, Supplier meets ALL of the following credit standards: a) tangible net worth ten (10) times the projected maximum liability of Supplier under this Contract; b) no change in the condition of its earnings, net worth, or working capital over the last twenty-four (24) months, which would reasonably be anticipated to impair Supplier's ability to meet its obligations under this Contract; and c) Supplier is not in default under any of its other agreements and is current on all of its financial obligations.

If requested by Company, Supplier shall within thirty (30) days provide Company with copies of its most recent annual and quarterly financial statements prepared in accordance with generally accepted accounting principles.

ARTICLE 9. INTENTIONALLY DELETED

ARTICLE 10. WITHHOLDING PAYMENT

Company may, without limiting any other rights or remedies Company may have, withhold from payment sufficient amounts which reflect the reasonable cost to repair or replace non-conforming or defective Materials or the value of any claim which Company has against Supplier under the Contract.

ARTICLE 11. DESIGNATED REPRESENTATIVES AND NOTICES

Supplier shall designate a representative authorized to receive Purchase Orders and act on its behalf and shall advise Company in writing of the name, address, and telephone number of such designated representative, and shall inform Company of any subsequent change in such designation. All communications to Supplier relating to the day-to-day activities under this Contract and any applicable Purchase Orders shall be communicated to Supplier's designated representative.

In each Purchase Order, Company shall designate a representative authorized to act on its behalf with respect to the Materials ordered pursuant to such Purchase Order, and shall inform Supplier of any subsequent change in such designation. All communications to Company relating to the day-to-day activities under such Purchase Order shall be communicated to Company's designated representative.

Any formal Notice required to be delivered in writing under the terms of this Contract shall be delivered to the representative of the other Party as designated below. In addition to providing formal Notice to Berkshire Hathaway Energy Company, Supplier shall provide the participating Affiliate, about which the formal Notice pertains, a copy of the same addressed to the representative as set forth on Exhibit E, Affiliates List and Principal Business Address. Additional Affiliates, which may elect to participate in and under this Contract after the effective date hereof, shall notify Supplier of the proper representative and address for forwarding formal Notices required hereunder. All formal written Notices shall either be: (i) hand delivered; (ii) deposited in the mail, properly stamped with the required postage; (iii) sent via registered or certified mail; or (iv) sent via recognized overnight courier service. The Parties' addresses for purposes of Notice shall be as set forth below and for Affiliates, as listed on Exhibit E:

If to Company:

Berkshire Hathaway Energy Company

825 NE Multnomah Street, Suite 400

Portland, Oregon 97232

Attention: Manager, Contract Administration

Telephone: 503-813-5605

If to Supplier:

Phillips 66 Company

2000 West Sam Houston Parkway So

One BriarLake Plaza

Attention: Manager Commercial Lubricants

Telephone: 281-293-6600

Either Party may change the name or address of the designated recipient of Notices by delivery of a Notice of such change as provided for in this Article.

ARTICLE 12. DELIVERY

Delivery of the Materials is a substantial and material consideration under this Contract. Unless otherwise set forth in a Purchase Order, delivery of the Materials shall be FOB to the Work Site or other location specified in the Purchase Order, with Supplier retaining all risk, liability and responsibility, financial or otherwise, until Company receives and accepts such Materials, unless otherwise specified in Exhibit B.

Supplier shall deliver Materials according to guaranteed delivery dates (as per the accepted Purchase Order), free of defects, and within a firm Lead Time.

ARTICLE 13. SHIPPING AND HANDLING

Supplier is responsible for ensuring that the Materials furnished under this Contract are suitably packaged to prevent damage under normal handling and transportation methods.

ARTICLE 14. RETURN OF MATERIALS

Supplier shall accept Materials for return to Supplier inventory without charge to Company when the following conditions are met:

- a. The Materials are not unique to Company, are returned in original packaging and in an unused condition, and the return to Supplier by Company was within six (6) months of Company's receipt of the same;
- b. Costs for return logistics to Supplier are to the account of Company; and
- c. Such Materials have been stored by Company in accordance with Supplier provided environmental storage conditions or, in the event Supplier fails to provide environmental storage guidelines, in accordance with generally accepted storage guidelines for such Materials.

ARTICLE 15. [INTENTIONALLY DELETED]

ARTICLE 16. WARRANTY

Supplier warrants that the Materials furnished hereunder shall conform to the Specifications (including all inspection and testing criteria as defined by Company in the Specifications), to any other requirements set forth in the Contract, and to any additional requirements set forth in drawings, samples, descriptions and other Deliverables furnished pursuant to the Contract (to the extent that such additional requirements do not conflict with the Specifications). Supplier further warrants that the Materials shall be free from defects and shall be suitable for the use specified.

THE FOREGOING WARRANTIES ARE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR USE, EXCEPT FOR THE USE AS SPECIFIED IN THIS CONTRACT, IF ANY, AND CONSTITUTES THE ONLY WARRANTIES OF SUPPLIER WITH RESPECT TO THE MATERIALS PURSUANT TO THIS CONTRACT.

Company shall present all warranty claims to the Supplier within a reasonable period of time. Company shall use commercially reasonable efforts to preserve the equipment on which the Materials were used and make them available for Supplier's inspection.

Supplier's liability under this warranty and Company's remedy will be limited to refund of the purchase price by a billing adjustment, or replacement of the Supplier Materials involved, at Company's sole option, provided, however, to the extent damage to equipment or property occur as a result of the Materials, whether because the Materials are defective or because the Materials were incorrectly delivered, specified or recommended by Supplier for use, then Supplier will be liable for the cost of repairs, including component replacement(s). Supplier shall not be responsible pursuant to this provision to the extent: (a) the wrong Materials were used for the application due to an act or omission of Company; (2) the damage arises from use of other competitor's (not Supplier's) lubricants; (c) the damage arises from engine or equipment modification unrelated to the Materials; or (d) Company has failed to operate or maintain the equipment as required by the manufacturer and the failure of the Materials to meet the foregoing warranties were not the cause of the damage.

If Supplier fails to promptly make any repair, replacement or re-performance as required herein, Company may conduct the necessary Work at Supplier's expense. Supplier cannot void the warranty for repair, replacement or re-performance performed under these circumstances. Provided that such repair, replacement or re-performance is conducted in a reasonable manner and with workmanship and care consistent with industry standards, Supplier shall reimburse Company for the cost of any warranty repair, replacement or re-performance self-performed by Company.

If any Materials fail to meet the foregoing warranties, Company shall have the right, at Supplier's cost, to perform Emergency replacements or repairs as Company deems necessary to mitigate risks to persons and property and to minimize on-going production losses. The Company agrees to notify Supplier of these Emergency repairs or replacements as soon as practical. Supplier cannot void the warranty for repairs or replacements performed under these Emergency circumstances. Provided that the Emergency repairs or replacements are performed in a reasonable manner and with workmanship and care measured by the industry standards, Supplier shall reimburse Company for the cost of any warranty replacements or repairs made by Company necessitated by an Emergency.

Supplier shall have no obligation as to any Materials, which have been improperly stored or handled, or which have not been operated or maintained according to written instructions provided to Company by Supplier.

ARTICLE 17. INTENTIONALLY DELETED

ARTICLE 18. CHANGES TO CONTRACT AND PURCHASE ORDERS

Company may at any time in writing direct changes and/or additions within the general scope of a Purchase Order or this Contract, direct the omission of or variation of Materials and/or Work, or alter the delivery schedule. If any such direction results in a material change in the amount or character of the Materials or Work, an equitable adjustment in the Purchase Order price and other such provisions of this Contract or any relevant Purchase Order as may be affected shall be made and this Contract and/or any relevant Purchase Order shall be modified in writing accordingly. Any claim by Supplier for an adjustment under this Article shall be processed in accordance with the provisions of ARTICLE 30, CLAIM NOTICE AND RESOLUTION PROCEDURE.

No change shall be binding upon Company until a change order is executed by an authorized representative of Company which expressly states that it constitutes a change order to this Contract. THE ISSUANCE OF INFORMATION, ADVICE, APPROVALS, OR INSTRUCTIONS BY ANYONE OTHER THAN THE AUTHORIZED COMPANY REPRESENTATIVE SHALL NOT CONSTITUTE AN AUTHORIZED CHANGE ORDER PURSUANT TO THIS ARTICLE.

ARTICLE 19. INSURANCE

Without limiting any liabilities or any other obligations of Supplier, Supplier shall, prior to commencing Work, secure and continuously carry with insurers having an A.M. Best Insurance Reports rating of A-VII or better such insurance as will protect Supplier from liability and claims for injuries and damages which may arise out of or result from Supplier's operations under the Contract and for which Supplier may be legally liable, whether such operations are by Supplier or a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable. Supplier shall insure the risks associated with the Work and this Contract with minimum coverage and limits as set forth below:

Workers' Compensation. Supplier shall comply with all applicable workers' compensation laws and shall furnish proof thereof satisfactory to Company prior to commencing Work. If Work is to be performed in Washington or Wyoming, Supplier will participate in the appropriate state fund(s) to cover all eligible employees and provide a stop gap (employer's liability) endorsement. Coverage should also provide applicable federal regulations (including, without limitation, FELA, USL&H and the Jones Act).

Employers' Liability. Supplier shall maintain employers' liability insurance with a minimum single limit of \$500,000 each accident, \$500,000 disease each employee, and \$500,000 disease policy limit.

Commercial General Liability. Supplier shall maintain commercial general liability insurance on the most recently approved ISO policy form, or its equivalent, written on an occurrence basis, with limits not less than \$1,000,000 per occurrence/\$2,000,000 general aggregate (on a per location and/or per job basis) and shall include the following coverage:

- a. Premises and operations coverage
- b. Independent contractor's coverage
- c. Contractual liability
- d. Products and completed operations coverage
- e. Coverage for explosion, collapse, and underground property damage
- f. Broad form property damage liability
- g. Personal and advertising injury liability, with the contractual exclusion removed
- h. Sudden and accidental pollution liability, as applicable

Business Automobile Liability. Supplier shall maintain business automobile liability insurance on the most recently approved ISO policy form, or its equivalent, with a minimum single limit of \$1,000,000 each accident for bodily injury and property damage including sudden and accidental pollution liability, with respect to Supplier's vehicles whether owned, hired or non-owned, assigned to or used in the performance of the Work. If applicable, the automobile liability policy will include pollution liability coverage equivalent to that provided under the ISO Pollution Liability Broadened Coverage for Covered Autos endorsement (CA9948) and Motor Carrier Act endorsement (MCS90) shall be attached.

Umbrella or Excess Liability. Supplier shall maintain umbrella or excess liability insurance with a minimum limit of \$5,000,000 each occurrence/aggregate where applicable on a following form basis to be excess of the insurance coverage and limits required in employers' liability insurance, commercial general liability insurance and business automobile liability insurance above. Supplier shall provide Notice to Company, if at any time the full umbrella limit required under this Contract is not available, and will purchase additional limits, if requested by Company.

Transit Insurance. Supplier shall maintain transit insurance covering all worldwide air, land and water shipments, and shall include loading and unloading if such Work is conducted by Supplier or any Subcontractor, and offsite storage, if applicable. Transit insurance shall be provided on an all risk basis to include direct physical loss or damage, including but not limited to loss caused by war, terrorism, strike, riot and civil commotion, and fabrication/repairs. Losses resulting from damage during transit shall be provided to cover full replacement cost of the plant, equipment, machinery, components, supplies and materials being shipped and provide valuation of not less than CIF plus 10%. Deductibles shall not be greater than \$100,000 for any loss. Supplier shall have obtained such transit coverage on or prior to the date on which the exposure to the risk arises. Company will be named loss payee or additional named insured for its interest in the covered property.

Company does not represent that the insurance coverage specified herein (whether in scope of coverage or amounts of coverage) are adequate to protect the obligations of Supplier, and Supplier shall be solely responsible for any deficiencies thereof.

Except for workers' compensation, the policies required herein shall include provisions or endorsements naming Berkshire Hathaway Energy Company, its Affiliates, divisions, subsidiary companies, facility co-owners, and the officers, directors, agents, employees, servants and insurers of the same as additional insureds to the extent of Supplier's indemnification obligations of Company herein. In the event additional Affiliates elect to participate in and under this Contract after the effective date hereof, Supplier shall provide Company updated certificates of

insurance evidencing that it has included such Affiliates as additional insureds to the extent of Supplier's indemnification obligations of Company herein in each of the Supplier's insurance policies. The commercial general liability additional insured endorsement shall be ISO Form CG 20 10 or its equivalent.

To the extent of Supplier's negligent acts or omissions, all policies required by this Contract shall include: (i) provisions that such insurance is primary insurance with respect to the interests of Company and that any other insurance maintained by Company is excess and not contributory insurance with the insurance required hereunder (ii) provisions that the policy contain a cross liability or severability of interest clause or endorsement in the commercial general liability and automobile liability coverage; and (iii) provisions that such policies not be canceled or their limits of liability reduced without: (a) ten (10) days prior Notice to Company if canceled for nonpayment of premium; or (b) thirty (30) days prior Notice to Company if canceled for any other reason. Unless prohibited by applicable law, all required insurance policies shall contain provisions that the insurer will have no right of recovery or subrogation against Company, its parent, divisions, Affiliates, subsidiary companies, facility co-owners, agents, directors, officers, employees, servants, and insurers to the extent of Supplier's indemnification obligations of Company herein, it being the intention of the Parties that the insurance as effected shall protect all of the above-referenced entities evidenced by waiver of subrogation wording.

A certificate of insurance shall be furnished to Company confirming the issuance of such insurance prior to commencement of Work by Supplier.

Notwithstanding anything to the contrary in this Article, Supplier may self-insure for the noted insurance requirements subject to the reasonable approval of Company. Supplier shall furnish Company a letter of self-insurance evidencing Supplier's compliance with this Article.

Supplier shall require Subcontractors who perform Work at the Work Site or other designated delivery location to carry liability insurance (auto, commercial general liability and excess) and workers' compensation/employer's liability insurance commensurate with their respective scopes of work. Supplier shall remain responsible for any claims, lawsuits, losses and expenses included defense costs that exceed any of its Subcontractors' insurance limits or for uninsured claims or losses.

ARTICLE 20. INDEMNIFICATION

SUPPLIER SPECIFICALLY AND EXPRESSLY AGREES TO INDEMNIFY, DEFEND, AND HOLD HARMLESS COMPANY, ALL AFFILIATES, AND THEIR OFFICERS, DIRECTORS, EMPLOYEES AND AGENTS (HEREINAFTER COLLECTIVELY "INDEMNITEES") AGAINST AND FROM ANY AND ALL CLAIMS, DEMANDS, SUITS, LOSSES, COSTS AND DAMAGES OF EVERY KIND AND DESCRIPTION, INCLUDING ATTORNEYS' FEES AND/OR LITIGATION EXPENSES, BROUGHT OR MADE AGAINST OR INCURRED BY ANY OF THE INDEMNITEES RESULTING FROM OR ARISING OUT OF THE NEGLIGENT ACTS, ERRORS OR OMISSIONS OF SUPPLIER, ITS EMPLOYEES, AGENTS, REPRESENTATIVES OR SUBCONTRACTORS OF ANY TIER, THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OR NONPERFORMANCE OF SUPPLIER'S OBLIGATIONS UNDER THIS CONTRACT OR IN ANY WAY RELATED TO THIS CONTRACT. THE INDEMNITY OBLIGATIONS UNDER THIS ARTICLE SHALL INCLUDE WITHOUT LIMITATION:

- A. LOSS OF OR DAMAGE TO ANY PROPERTY OF COMPANY, SUPPLIER OR ANY THIRD PARTY;
- B. BODILY INJURY TO, OR DEATH OF ANY PERSON(S), INCLUDING WITHOUT LIMITATION EMPLOYEES OF COMPANY, OR OF SUPPLIER OR ITS SUBCONTRACTORS OF ANY TIER; AND
- C. CLAIMS ARISING OUT OF WORKERS' COMPENSATION, UNEMPLOYMENT COMPENSATION, OR SIMILAR SUCH LAWS OR OBLIGATIONS APPLICABLE TO EMPLOYEES OF SUPPLIER OR ITS SUBCONTRACTORS OF ANY TIER.

SUPPLIER'S INDEMNITY OBLIGATIONS OWING TO INDEMNITEES UNDER THIS ARTICLE ARE NOT LIMITED BY ANY APPLICABLE INSURANCE COVERAGE IDENTIFIED IN ARTICLE 19, INSURANCE. SUPPLIER'S INDEMNITY OBLIGATION UNDER THIS ARTICLE SHALL NOT EXTEND TO ANY LIABILITY CAUSED BY THE NEGLIGENCE OF ANY OF THE INDEMNITEES.

THE INVALIDITY, IN WHOLE OR IN PART, OF ANY OF THE FOREGOING PARAGRAPHS WILL NOT AFFECT THE REMAINDER OF SUCH PARAGRAPH OR ANY OTHER PARAGRAPHS IN THIS ARTICLE.

COMPANY AGREES TO IDEMNIFY, DEFEND AND HOLD HARMLESS SUPPLIER AND ITS OFFICERS, DIRECTORS, EMPLOYEES AND AGENTS (HEREINAFTER COLLECTIVELY "SUPPLIER INDEMNITEES") AGAINST AND FROM ANY AND ALL CLAIMS, DEMANDS, SUITS, LOSSES, COSTS AND DAMAGES, INCLUDING REASONABLE ATTORNEYS' FEES AND/OR LITIGATION EXPENSES, FOR OR ON ACCOUNT OF BODILY INJURY TO, OR DEATH OF ANY PERSON(S), INCLUDING WITHOUT LIMITATION EMPLOYEES OF COMPANY, OR OF SUPPLIER OR ITS SUBCONTRACTORS OF ANY TIER, OR LOSS OF OR DAMAGE TO ANY PROPERTY OF SUPPLIER OR OTHERS RESULTING FROM OR ARISING OUT OF THE NEGLIGENT ACTS OR OMISSIONS OF COMPANY, ITS OFFICERS, DIRECTORS, EMPLOYEES, AGENTS, REPRESENTATIVES OR SUBCONTRACTORS OF ANY TIER, THEIR OFFICERS DIRECTORS, EMPLOYEES, AGENTS OR REPRESENTATIVES.

ARTICLE 21. WAIVER OF CONSEQUENTIAL, INCIDENTAL AND PUNITIVE DAMAGES

EXCEPT WITH RESPECT TO LIQUIDATED DAMAGES INCLUDED WITHIN A PURCHASE ORDER IN ACCORDANCE WITH ARTICLE 4, PERIOD OF PERFORMANCE, BUT NOTWITHSTANDING ANY OTHER PROVISION TO THE CONTRARY IN THE CONTRACT, AND TO THE MAXIMUM EXTENT PERMITTED BY LAW, IN NO EVENT SHALL EITHER COMPANY OR SUPPLIER BE LIABLE TO THE OTHER FOR CONSEQUENTIAL, INCIDENTAL OR PUNITIVE DAMAGES.

ARTICLE 22. [INTENTIONALLY DELETED]

ARTICLE 23. SUPPLIER'S PERSONNEL; DRUGS, ALCOHOL AND FIREARMS

Supplier shall employ in the performance of the Work only persons qualified for the same. Supplier shall at all times enforce strict discipline and good order among its employees and the employees of any Subcontractor of any tier. Supplier shall not permit or allow the introduction or use of any firearms, illegal drugs or intoxicating liquor upon a Company Work Site or any other location where Materials are to be delivered. Supplier shall immediately remove from the Work, whenever requested by Company, any person considered by Company to be incompetent, insubordinate, careless, disorderly, in violation of the above restriction on firearms, illegal drugs or intoxicating liquor, or under the influence of illegal drugs or intoxicating liquor, and such person shall not again be employed in the performance of the Work herein without the written consent of Company.

ARTICLE 24. SUBSTANCE ABUSE; DRUG AND ALCOHOL POLICY

Supplier shall have in place and ensure compliance with a substance abuse/drug and alcohol policy that complies with all applicable federal, state and/or local statutes and regulations. Supplier represents and warrants that Supplier and all Personnel engaged in performing Work for or providing Materials to Company hereunder are in compliance with Supplier's substance abuse/drug and alcohol policy. During the term of this Contract, Supplier shall keep accurate and detailed documentation of its drug policy and all Personnel drug tests, which it shall submit to Company upon request. Supplier shall designate one person to be responsible for compliance with the requirements of this Article and all reporting and inquiries shall be made to a duly authorized representative of Company in a timely manner.

ARTICLE 25. DEPARTMENT OF TRANSPORTATION

Supplier shall ensure Department of Transportation compliance, including but not limited to valid driver's license, equipment inspections, hours of service and all appropriate documentation for any Personnel who may drive while performing Work under this Contract.

ARTICLE 26. BUSINESS ETHICS

Supplier, its employees, officers, agents, representatives and Subcontractors shall at all times maintain the highest ethical standards and avoid conflicts of interest in the performance of Supplier's obligations under this Contract. In conjunction with its performance of the Work, Supplier and its employees, officers, agents and representatives shall comply with, and cause its Subcontractor and its employees, officers, agents and representatives to comply with, all applicable laws, statutes, regulations and codes prohibiting bribery, corruption, kick-backs or similar unethical practices including, without limitation, the United States Foreign Corrupt Practices Act, the United Kingdom Bribery Act 2010, and the Company Code of Business Conduct. Without limiting the generality of the foregoing, Supplier specifically represents and warrants that neither Supplier nor any Subcontractor, employees, officers, representatives or other agents of Supplier have made or will make any

payment, or have given or will give anything of value, in either case to any government official (including any officer or employee of any governmental authority) to influence his, her, or its decision or to gain any other advantage for Company or Supplier in connection with the Work to be performed hereunder. Supplier shall maintain and cause to be maintained effective accounting procedures and internal controls necessary to record all expenditures in connection with this Contract and to verify Supplier's compliance with this Article. Company shall be permitted to audit such records as reasonably necessary to confirm Supplier's compliance with this Article. Supplier shall immediately provide notice to Company of any facts, circumstances or allegations that constitute or might constitute a breach of this Article and shall cooperate with Company's subsequent investigation of such matters. Supplier shall indemnify and hold Company harmless for all fines, penalties, expenses or other losses sustained by Company as a result of Supplier's breach of this provision. The Parties specifically acknowledge that Supplier's failure to comply with the requirements of this Article shall constitute a condition of default under this Contract.

ARTICLE 27. SAFETY AND WORK SITE REGULATIONS

Supplier, when performing any Work or delivering Materials at a Company Work Site or other designated location, shall abide by and adhere to the Company Work Site and safety regulations and requirements, if any, including without limitation environmental protection, loss control, dust control, safety, and security.

Supplier and its Personnel, of any tier, shall maintain accurate and current safety records consistent with industry practice during the performance of Work under this Contract. Supplier and its Personnel, of any tier, shall immediately, and in no event more than twenty-four (24) hours, report to Company all cases of death or injury to any Personnel or any other third-parties during or related to the performance of Work under this Contract. Further, Supplier shall immediately notify, and in no event more than twenty-four (24) hours, report to Company any vehicle accident, OSHA recordable safety incident, or any safety citation issued by any governmental authority. Within forty-eight (48) hours of any safety incident reported to Company, Supplier shall provide Company representative with a preliminary, written accident investigation report detailing the facts of the incident, any known root cause, and action steps being taken by Supplier to further investigate the incident and mitigate future occurrences.

ARTICLE 28. LIENS

Supplier hereby waives its rights to any mechanic's lien, security interest or other lien under any applicable statutes or otherwise for all Materials furnished in connection with this Contract. Prior to Supplier's receipt of each payment under this Contract, Supplier shall (if requested by Company) deliver to Company all affidavits, lien releases, materialmen's certificates and other documents necessary to fully protect Company under the applicable lien laws. If at any time there shall be evidence of the existence of any such lien or claim for Materials furnished by Supplier or any other party in connection with the Contract, Company may use payments then due or to become due under this Contract to discharge such lien or satisfy such claim and may credit such amount against the payment due or to become due to Supplier.

ARTICLE 29. CONFLICTS, ERRORS, OMISSIONS, OR DISCREPANCIES IN CONTRACT DOCUMENTS

Supplier shall advise Company in writing of all conflicts, errors, omissions, or discrepancies among the various documents comprising this Contract immediately upon discovery and prior to Supplier's performing the affected Work. Company shall resolve such conflicts and such resolution shall be final. Anything mentioned in the Specifications and not shown on the drawings, or shown on the drawings and not mentioned in the Specifications, shall be considered as if shown or mentioned in both.

ARTICLE 30. CLAIM NOTICE AND RESOLUTION PROCEDURE

In the event Supplier has a claim or request for a time extension, additional compensation, any other adjustment of the Contract terms, or any dispute arising under the Contract (hereinafter "Claim"), Supplier shall provide Company with Notice of such Claim within thirty (30) calendar Days following the occurrence of the event giving rise to the Claim. Supplier's failure to give Notice as required will constitute a waiver of all of Supplier's rights with respect to the Claim.

As soon as practicable after Claim notification, Supplier shall submit the Claim to Company with all supporting information and documentation. Supplier shall also respond promptly to all Company inquiries about the Claim and its basis.

Any Claim that is not disposed of by mutual agreement between the Parties shall be decided by Company, which shall provide a written decision to Supplier. Such decision shall be final unless Supplier, within thirty (30) days after such receipt of Company's decision, provides to Company a written protest, stating clearly and in detail the basis thereof. Supplier's failure to protest Company's decision within that time period shall constitute a waiver by Supplier of its right to dispute the decision. Even if a Claim arises, Supplier shall continue its performance of this Contract.

ARTICLE 31. SUSPENSION OF WORK

Company may, by written Notice, direct Supplier to suspend deliveries of Materials or performance of any or all of the Work under any Purchase Order for a specified period of time. If such suspension is not caused by the fault or negligence of Supplier, Supplier will be compensated for extra costs in accordance with the provisions set forth in ARTICLE 30, CLAIM NOTICE AND RESOLUTION PROCEDURE. Upon receipt of such Notice to suspend, Supplier shall: (i) discontinue production of the applicable Materials; (ii) place no further orders or subcontracts with respect to the suspended Materials or Work; (iii) suspend all orders and subcontracts with respect to the suspended Materials or Work; (iv) protect and maintain the all Materials for which the suspension applies; and (v) otherwise mitigate Company's costs and liabilities for those Materials or Work suspended; provided, however, that if the suspension is due to Supplier's failure to comply with the Contract or applicable Purchase Order, no such payment shall be made.

ARTICLE 32. TERMINATION FOR CONVENIENCE

Either Party may terminate this Contract, in whole or in part, at any time without cause prior to the expiration of the Term by sending the other Party one hundred and eighty (180) days advance written notice of such termination. Upon such termination Company shall pay Supplier, in full satisfaction and discharge of all liabilities and obligations owed Supplier, an equitable amount for all Materials delivered and received by Company and Work satisfactorily performed by Supplier as of the date of termination.

At any time prior to delivery of the Materials ordered under a particular Purchase Order, Company may, without cause, terminate the Purchase Order in whole or in part by sending to Supplier written electronic notice of such termination. Upon such termination, Company may pay to Supplier an equitable termination fee, to address Subcontractor termination charges and other out-of-pocket costs incurred by Supplier as the result of the termination provided that such costs cannot be reasonably mitigated. Company will not be liable for anticipated profits or overhead based upon Work not yet performed as the date of termination.

ARTICLE 33. TERMINATION FOR CAUSE

Should Supplier fail to promptly or properly perform the Work or any part thereof in accordance with the terms of this Contract, Company may terminate Supplier's right to proceed with the Work. Such termination will be subject to Supplier's receiving forty-eight (48) hour written notice from Company, and Supplier's failure to commence and pursue with due diligence the remedying of any default identified by Company. Additionally, the occurrence of any of the following shall give Company the right to terminate the Contract upon written notice to Supplier : (i) the filing by or against Supplier of a proceeding under any bankruptcy or similar law, unless such proceeding is dismissed within thirty (30) days from the date of filing; (ii) the making by Supplier of any assignment for the benefit of creditors; (iii) the filing by or against Supplier for a proceeding for dissolution or liquidation, unless such proceeding is dismissed within thirty (30) days from the date of filing; (iv) the appointment of or the application for the appointment of a receiver, trustee or custodian for any material part of Supplier's assets unless such appointment is revoked or dismissed within thirty (30) days from the date thereof; (v) the attempt by Supplier to make any adjustment, settlement or extension of its debts with its creditors generally; (vi) the insolvency of Supplier; or (vii) the filing or recording of a notice of lien or the issuance or the obtaining of a levy of execution upon or against a material portion of Supplier's assets, unless such lien or levy of execution is dissolved within thirty (30) days from the date thereof.

Upon the occurrence of any such default, following the applicable process described in this Article, Company shall be entitled to pursue any and all other rights and remedies, including without limitation damages (except to the extent specifically limited by this Contract), that Company may have against Supplier under this Contract or at law or in equity. All rights and remedies provided in this Article are cumulative, and are not exclusive of any other rights or remedies that may be available, whether provided by law, equity, statute or otherwise.

ARTICLE 34. DELAYS

Force Majeure. Neither Party shall be liable for delays caused by a Force Majeure Event; provided, however, that both Parties agree to seek to mitigate the potential impact of any such delay. Any delay attributable to a Force Majeure Event shall not be the basis for a request for additional compensation. In the event of any such delay, the guaranteed delivery date may be extended for a reasonable period not exceeding the time actually lost by reason of the Force Majeure Event. The imposition of any liquidated damages, if applicable, for late delivery of the Materials shall be extended by an amount of time equivalent to the length of time for the Force Majeure Event.

Request for Time Extension. Any request for time extension or additional compensation shall be made in accordance with ARTICLE 30, CLAIM NOTICE AND RESOLUTION PROCEDURE.

ARTICLE 35. COMPLIANCE WITH LAWS

Supplier shall at all times comply with all laws, statutes, regulations, rules, ordinances, codes, and standards applicable to Supplier's performance of the Work including without limitation those governing wages, hours, desegregation, employment discrimination, employment of minors, health and safety.. Supplier confirms that its employees and the employees of all Subcontractors employed under the Contract may legally work in the United States.

Without limiting the generality of the foregoing, Supplier and any Subcontractors shall abide by the requirements of 41 CFR §§60-1.4(a), 60-300.5(a) and 60-741.5(a). These regulations prohibit discrimination against qualified individuals based on their status as protected veterans or individuals with disabilities, and prohibit discrimination against all individuals based on their race, color, religion, sex or national origin. Moreover, these regulations require that covered prime contractors and subcontractors take affirmative action to employ and advance in employment individuals without regard to race, color, religion, sex, national origin, protected veteran status or disability. Supplier and any Subcontractors shall also abide by the requirements of Executive Order 11246, as amended, to develop and maintain a written affirmative action program (AAP) and Executive Orders 11625 and 13170 (utilization of disadvantaged business enterprises) and the Small Business Act.

Supplier shall indemnify, defend and hold harmless Company, all Affiliates and their directors, officers, employees and agents from all losses, costs and damages by reason of any violation thereof and from any liability, including without limitation fines, penalties and other costs arising out of Supplier's failure to so comply.

ARTICLE 36. CONFLICT MINERALS

Supplier shall provide to Company information on the content of products, manufactured or contracted to be manufactured by Supplier for Company, that utilize or contain the "conflict minerals" wolframite, cassiterite, columbite-tantalite (coltan), gold and their derivative metals: tantalum, tin and tungsten. The information will be provided in a form that will allow Company to verify compliance with Section 1502 of the Dodd-Frank Act (the U.S. Conflict Minerals Law) and will include evidence of the origin or sources of the conflict minerals. The information will be submitted at or prior to the time of delivery of products in a form approved and/or designated by Company from time to time.. Supplier shall obtain Company's prior written consent before providing any products to Company that include conflict minerals originated from the Democratic Republic of Congo or the nine adjoining conflict countries; Angola, Burundi, Central African Republic, the Republic of the Congo, Rwanda, South Sudan, Tanzania, Uganda, and Zambia. Supplier shall maintain effective accounting procedures, internal controls and audit procedures necessary to record the country and place of origin of all minerals included in products provided to Company, and to verify compliance with this Article. Company shall be permitted to audit such records as reasonably necessary to confirm Supplier's compliance with this Article. Supplier shall indemnify and hold Company harmless for all fines, penalties, expenses or other losses sustained by Company as a result of Supplier's breach of this Article.

ARTICLE 37. INDEPENDENT CONTRACTOR

Supplier is an independent contractor, and all persons employed by Supplier in connection herewith shall be employees of Supplier and not employees of Company in any respect. Supplier shall maintain complete control over Supplier's employees.

ARTICLE 38. RELEASE OF INFORMATION; ADVERTISING AND PROMOTION

Supplier shall not publish, release, disclose or announce to any member of the public, press, official body or any other third party any information concerning this Contract, a Purchase Order and/or the Work, or any part thereof, except as required by law. Neither the names of Company, nor Company Work Site, nor any other delivery location designated by Company shall be used in any advertising or other promotional context by Supplier.

ARTICLE 39. CONFIDENTIAL INFORMATION; NONDISCLOSURE

Definition of Confidential Information. The term "Confidential Information" means: (i) proprietary information of Company; (ii) information marked or designated by Company as confidential; (iii) Critical Infrastructure Information and Protected Information of Company; (iv) information, whether or not in written form and whether or not designated as confidential, which is known to Supplier as being treated by Company as confidential; (v) information provided to Company by third parties which Company is obligated to keep confidential (including but not limited to information relating to an identified or identifiable natural person, whether or not such information is publicly available); and (vi) information developed by Supplier in connection with the performance of this Contract.

Nondisclosure. Supplier agrees that it will not disclose Confidential Information, directly or indirectly, under any circumstances or by any means, to any third person without the express written consent of Company.

Nonuse. Supplier further agrees that it will not use Confidential Information except as may be necessary to perform the Work called for by this Contract.

Protection. Confidential Information will be made available by Supplier to its employees only on a "need to know" basis and only after notifying such employees of the confidential nature of the information and after having obligated them to the nonuse and nondisclosure obligations of this Contract. Supplier agrees to take all reasonable precautions to protect the confidentiality of Confidential Information and, upon request by Company, to return to Company any documents which contain or reflect such Confidential Information.

Unless waived by Company, Supplier shall require its employees and Subcontractors of any tier to adhere to these confidential information and nondisclosure terms.

ARTICLE 40. OWNERSHIP OF DESIGNS, DRAWINGS AND WORK PRODUCT

To the extent applicable, the Deliverables prepared or developed hereunder, or other documents or information provided to Company, by Supplier or its employees or agents, or Subcontractors or their employees or agents, including without limitation drawings, specifications, manuals, calculations, maps, sketches, designs, tracings, notes, reports, data, computer programs, models and samples, shall become the property of Company when prepared, and shall, together with any documents or information furnished to Supplier and its employees or agents by Company hereunder, shall be delivered to Company upon request, and, in any event, upon termination or final acceptance of the Work. Company shall have full rights and privileges to use and reproduce said items in its operation, maintenance, improvement and replacement of Company's assets, and shall have full rights and privileges to share the same with its contractors, agents, officers, directors, employees, joint owners, affiliates and consultants who are assisting Company with same, without regard to any markings that may denote a confidential or proprietary interest in the said items. To the extent that any Deliverables include or incorporate preexisting intellectual property of Supplier, Supplier hereby grants Company a fully paid, perpetual license to use such intellectual property for Company's operation, maintenance, modification, improvement and replacement of the Company's assets the fullest extent necessary to accomplish those purposes, including the right to share same with Company's contractors, agent, officers, directors, employees, joint owners, affiliates and consultants. Promptly upon Company's request, Supplier shall provide all tools and information (including without limitation applicable passwords and authorization codes) necessary to ensure Company receives the full benefit of the Work.

ARTICLE 41. PATENT AND COPYRIGHT INDEMNITY

Supplier shall indemnify, defend, and hold harmless Company, its directors, officers, employees, and agents against and from all claims, losses, costs, suits, judgments, damages, and expenses, including attorneys' fees, of any kind or nature based on a claim that the Materials and Deliverables constitute an infringement of any patent, copyrighted or uncopyrighted work. If notified promptly in writing and given authority, information and assistance, and contingent upon Company not taking any position adverse to Supplier in connection with such claim, Supplier

shall defend, or may settle at its expense, any suit or proceeding against Company so far as based on a claimed infringement and Supplier shall pay all damages and costs awarded therein against Company due to such breach.

In case any Materials or Deliverables are determined in such suit to constitute such an infringement and the use of said Materials or Deliverables are enjoined, Supplier shall, at its expense and through mutual agreement between Company and Supplier, either procure for Company the right to continue using said Materials or Deliverables, replace same with non-infringing materials or modify the same so it becomes non-infringing.

ARTICLE 42. ELECTRONIC COMMERCE

In addition, Company is open to maximizing the cost effective utilization of standards based electronic commerce technologies, compatible with legacy computer systems, including but not limited to requirements for desk top ordering, cataloging, documentation, payments, and performance monitoring.

In the event Supplier has implemented electronic commerce capabilities, Supplier shall ensure such electronic commerce (e-commerce website) interface shall be available to Company.

Supplier's (and its Subcontractor's) Lead Times for Materials shall be stated in any available e-commerce website. At a minimum, Supplier shall update the Lead Times on a quarterly basis or as changes in Lead Times are known to Supplier. Supplier Lead Times shall be no greater than those agreed in the Contract.

Supplier and its Subcontractors shall provide Company with 24-hour a day access to Supplier web based catalog and electronic documentation library. Supplier's electronic commerce business model shall include: (i) processes for electronic invoicing and payment systems; (ii) development of an electronic inspection library for certificates, test reports, shipment release documents, etc.; (iii) tracking and tracing of Company shipments from its Suppliers; and (iv) electronic links to its Suppliers engineering files, drawings, documentation, installation/operations manuals, and product alerts.

Supplier electronic commerce platform should support a seamless interface with any e-commerce enterprise platform specified by Company. Supplier shall keep an electronic historical file of all transactions executed under this Contract and shall maintain such records for the duration of this Contract plus an additional three (3) years. Supplier shall have a computerized inventory and/or production management system and/or Purchase Order tracking/expediting system, capable of interfacing with Company systems.

ARTICLE 43. ASSIGNMENT

Neither Party shall assign this Contract or any part hereof, or any rights or responsibilities hereunder without the prior written consent of the other Party, and any attempted assignment in violation hereof shall be void.

ARTICLE 44. SUBCONTRACTS

Supplier shall not subcontract any or all of the Work without prior written consent of Company, which shall not be unreasonably withheld. Supplier shall be fully responsible for the acts or omissions of any Subcontractors of any tier and of all persons employed by them, shall maintain complete control over all such Subcontractors, and neither the consent by Company, nor anything contained herein, shall be deemed to create any contractual relation between the Subcontractor of any tier and Company.

ARTICLE 45. NONWAIVER

The failure of either Party to insist upon or enforce strict performance by the other of any of the terms of this Contract, or to exercise any rights herein shall not be construed as a waiver or relinquishment to any extent of the Party's right to enforce such terms or rights on any future occasion.

ARTICLE 46. SEVERABILITY

Any provision of this Contract prohibited or rendered unenforceable by operation of law shall be ineffective only to the extent of such prohibition or unenforceability without invalidating the remaining provisions of this Contract.

ARTICLE 47. APPLICABLE LAW AND VENUE

In the event of any matter or dispute arising out of or related to a Contract, it is agreed between the Parties that such Contract shall be interpreted in accordance with the substantive and procedural laws (including statute of

limitations provisions) of the jurisdiction of the principal business address of the applicable Company. With respect to Affiliates, this shall mean the principal business address of the Affiliate as identified in Exhibit _____. The laws of such jurisdiction will govern the interpretation, validity and effect of this Contract without regard to the place of execution, place of performance thereof, or any conflicts of law provisions. Any litigation between the Parties arising out of or relating to the Contract will be conducted exclusively in appropriate courts of such jurisdiction, and Supplier consents to jurisdiction by such courts.

TO THE FULLEST EXTENT PERMITTED BY LAW, EACH OF THE PARTIES HERETO WAIVES ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN RESPECT OF LITIGATION DIRECTLY OR INDIRECTLY ARISING OUT OF, UNDER OR IN CONNECTION WITH THE CONTRACT. EACH PARTY FURTHER WAIVES ANY RIGHT TO CONSOLIDATE ANY ACTION IN WHICH A JURY TRIAL CANNOT BE OR HAS NOT BEEN WAIVED.

ARTICLE 48. FOR WORK PERFORMED IN CALIFORNIA, THE FOLLOWING JURY TRIAL WAIVER AND ARBITRATION PROVISION APPLIES. TO THE FULLEST EXTENT PERMITTED BY LAW, EACH OF THE PARTIES HERETO WAIVES ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN RESPECT OF LITIGATION DIRECTLY OR INDIRECTLY ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS CONTRACT. EACH PARTY FURTHER WAIVES ANY RIGHT TO CONSOLIDATE ANY ACTION IN WHICH A JURY TRIAL CANNOT BE OR HAS NOT BEEN WAIVED. IF A WAIVER OF JURY TRIAL IS DEEMED BY ANY COURT OF COMPETENT JURISDICTION TO NOT BE ENFORCEABLE FOR ANY REASON, THEN TO THE FULLEST EXTENT PERMITTED BY LAW, EACH OF THE PARTIES HERETO AGREE TO BINDING ARBITRATION. SUCH ARBITRATION SHALL BE IN ACCORDANCE WITH THE RULES AND PROCEDURES OF THE AMERICAN ARBITRATION ASSOCIATION (AAA). NOTWITHSTANDING ANY AAA RULES AND PROCEDURES, OR ANY OTHER PROVISION OF ANY STATE OR FEDERAL LAWS, THE PARTIES AGREE THAT THE ARBITRATORS SHALL NOT CONSIDER OR AWARD PUNITIVE DAMAGES AS A REMEDY. UPON THE COMPANY'S REQUEST, AAA SHALL PROVIDE THE PARTIES A LIST OF ARBITRATORS EACH OF WHOM HAVE EXPERIENCE AND EXPERTISE APPLICABLE TO THE WORK. UPON EACH OF THE PARTIES' RECEIPT OF SUCH LISTS, EACH PARTY SHALL HAVE TEN (10) DAYS TO SELECT AN ARBITRATOR. THE TWO SELECTED ARBITRATORS SHALL THEN SELECT A THIRD ARBITRATOR WITHIN THIRTY (30) DAYS FROM THE DATE THE INITIAL TWO ARBITRATORS WERE SELECTED AND THE MATTER SUBJECT TO ARBITRATION SHALL BE ARBITRATED WITHIN SIXTY (60) DAYS AFTER THE SELECTION OF THE THIRD ARBITRATOR.

ARTICLE 49. EQUIPMENT FUND

As consideration for this Contract, Supplier hereby agrees to provide Company the following:

A one-time \$250,000 equipment fund ("Equipment Fund") to be used solely by Company for improving lubrication best practices. These funds are intended for use for projects such as setting up bulk storage tanks and totes, and lubricant storage room upgrades.

With regard to the funds above, Company shall submit to Supplier: (i) a request for the projects to be implemented by the participating Affiliates for approval prior to initiating any project, such approval not to be unreasonably delayed or denied; and (ii) the receipt or invoice documenting the project expenditure. Reimbursement by Supplier shall be made to Company within thirty (30) days of receiving the written proof of payment. The above funds are available for use during the term of this Contract and are to be used exclusively by the participating Affiliates in accordance herein. Further, the funds cannot be used for purchase of Product. Supplier reserves the right to audit Company's usage of the above fund amounts. Company shall not be entitled to claim and Supplier shall not be liable to convey any unused fund amounts remaining at time of termination or expiration of this Contract. Fund payments hereunder are subject to the amortization schedule attached hereto and incorporated herein as Exhibit B.2. Upon early termination of the Contract, Company shall reimburse Supplier on a pro-rated basis in accordance with the Exhibit B.2 schedule.

ARTICLE 50. ENTIRE CONTRACT; DOCUMENTS INCORPORATED BY REFERENCE

This Contract and any referenced exhibits, appendices, schedules and attachments constitute the complete agreement between the Parties. All understandings, representations, warranties, agreements and any referenced attachments, if any, existing between the Parties regarding the subject matter hereof are merged into and superseded by this Contract, which fully and completely expresses the agreement of the Parties with respect to the subject matter hereof. Any Specifications, drawings, schedules or other exhibits or documents listed in this Contract,

including applicable Purchase Orders issued pursuant to the terms hereof, are incorporated by reference into this Contract.

In the event of a conflict between (i) any Specifications, Deliverables, drawings, schedules or other attachment or exhibit to this Contract, and (ii) the above terms and conditions of this Contract, the above terms and conditions of this Contract shall take precedence and control.

Company assumes no responsibility for any understanding or representation made by any of its employees, officers or agents during or prior to the negotiations and execution of this Contract, unless such understanding or representation is expressly stated in the Contract.

The Parties intend that the terms and conditions of this Contract, its referenced attachments, and any Purchase Order that may be issued relating to this Contract should be complementary with each other; however, in the event of a conflict between the terms and conditions of any Purchase Order and those of the Contract, the terms and conditions of this Contract shall take precedence and control over any Purchase Order; provided, however, that where this Contract indicates commercial terms that may be amended by the Purchase Order, the Purchase Order shall be deemed to govern with respect to such conflicting commercial terms.

ARTICLE 51. EXECUTION AND EFFECTIVE DATE

This Contract has been executed by duly authorized representatives of the Parties and shall be effective as of date of execution by Company.

TL

SUPPLIER:
Phillips 66 Company
By: [Signature]
(Signature)
Name: BEYRON FARIA.
(Type or Print)
Title: UNRECORDED FINISHED.
(Date Executed)

COMPANY:
Berkshire Hathaway Energy Company
By: [Signature]
(Signature)
Name: Maureen E. Sammon
(Type or Print)
Sr. VP and Chief Administrative Officer
Title: 12/23/14
(Date Executed)

**EXHIBIT A
MATERIALS AND SPECIFICATIONS
LUBRICATION SUPPLY**

Supplier shall provide Materials to Company in accordance with Exhibit(s) B and the following.

Company and Supplier Locations

Supplier shall deliver Materials to the Company locations identified in Appendix 4 or to other locations as may be specified by Company. Although Appendix 4 identifies the Supplier office nearest to each Company location, Company shall have the option to work with any Supplier office it so chooses.

Delivery

Standard Order Lead Times – All Stock Items are expected to be delivered within 5 business days, excluding the day the order is placed. All Non-Stock or Specialty Items are expected to be delivered within 7 working days, excluding the day of order placement.

- **Stock Items:** Are considered as all packaged products including drums, totes, pails, and cases.
- **Non-Stock Items (or Specialty Items):** Are considered as bulk turbine oils and bulk Transformer Oil.
- **Emergency Order Fees:** In the instances where Supplier is expected to deliver a Stock Item in less than the standard 5 business days, Supplier reserves the right to add a \$100.00 emergency fee to such orders. In instances where bulk turbine oils are expected to be delivered in less than the required 7 business days, Supplier reserves the right to add a \$1,500.00 emergency fee to such orders. Any special freight or handling charges incurred by Supplier due to emergency procedures shall be relayed to Berkshire Energy for approval prior to shipment.

All deliveries shall occur during normal hours of operation (local time) for the applicable delivery location and be pre-approved and coordinated with the appropriate delivery site prior to delivery. Alternatively, the Parties may agree to coordinate regularly scheduled delivery times or to schedule deliveries outside of normal hours of operation.

Supplier acknowledges that certain Company locations have pre-planned overhauls or major projects that may require greater assistance, support, and more Materials than standard operating needs. Supplier agrees to support such requirements.

The Parties agree and understand that there may be extenuating or emergency circumstances which require delivery requirements outside of the parameters set forth above. The Parties agree to work together to mitigate the impacts of such extenuating or emergency circumstances and shall work together to coordinate all other deliveries.

Communication

Supplier agrees to assign a single and primary point of contact to manage Company's account (includes all Affiliates). Responsibilities of such contact shall include but not be limited to: serving as a point of escalation for problem resolution, co-coordinating reporting efforts, managing broad communication efforts, addressing pricing issues, and general account management duties.

Supplier will be available during normal business hours 0700 to 1700 local time Monday through Friday and will handle all standard work issues during such time. However, Supplier shall also be available twenty four (24) hours a day, seven (7) days a week to provide parts and services to Company under any extenuating or emergency circumstances.

(Refer to Contract Article 3, Purchase Orders of the contract for order confirmation requirements.)

Appendix 3 contains Company and Supplier and contacts for each location. Changes to such contact listing may be updated from time to time by the Parties as necessary and shall not require a formal written notice or change order.

Identification and Cross Reference of Materials

Supplier shall ensure and provide proof, when requested, of ability of Material to be interchangeable with incumbent manufactures.

If requested by Company, Supplier shall provide specific information to Company regarding Materials including country of origin and manufacturing locations.

Supplier shall assist Company in cross referencing existing components at Company locations with approved manufacturers. Supplier shall expedite resolution of compatibility and fit issues on recommended replacement components. Supplier shall adequately assure Company material management and maintenance departments that recommended alternative products can be installed without modification to Company systems.

Meetings

Integrated supply chain meetings shall be held as deemed necessary by the Company, but normally shall not be more than once per quarter. Past and future supply performance will be utilized to review the production and supply schedule and discuss any delays, unusual conditions or critical items, which have affected or could affect production capacity and/or delivery performance.

Reporting

As requested by Company, Supplier shall provide to Company within five (5) business days the following reports:

- a. Total Company or Affiliate spend over a given time period
- b. Total spend by plant or location over a given time period
- c. Total spend by user over a given time period
- d. Total spend by plant or location over a given time period (specified by material)
- e. Total usage by Company or Affiliate (specified by material)
- f. Total usage by plant or location (specified by material)
- g. Total usage by user (specified by material)

Electronic Commerce

Refer to Article 42 of the Contract for electronic commerce requirements.

Material Packaging

Unless otherwise agreed to by the Parties, Company requires the following packaging requirements:

A packing list for materials received by Company must be provided with each shipment. The packing list shall 1) include, at minimum, the information listed below and 2) have such information (except for employee name) encoded in a barcode(s).

- Company material or stock item number
- PO number and/or release number
- PO Line Item Number
- Quantity shipped
- Manufacturer name and catalog number
- Name of Company employee that placed the order

Each carton must be labeled with the following information:

- Company's material item number (barcode and character data)
- Short description of the item
- Quantity (barcode and character data)
- Unit of measure
- P. O. number and/or release number

Each carton or standard package must be identified with the specified barcode material label.

Packaging:

- All Material received at Company locations must be packaged for easy identification and sorting as follows:
- Each product will be packaged separately in individual bags or boxes and marked with Supplier's part number, manufacture part number, size and description, and Company Purchase Order number and stock number (where applicable).
- All orders will be separated and grouped together by Purchase Order number.
- Company and Supplier will agree on items that will require full case quantities.
- Partial order shipments on critical products are encouraged. Supplier shall ship stocked quantities immediately. Supplier shall fill backorders when the additional material arrives. Supplier shall not hold orders until they are complete.
- Supplier shall clearly mark on the exterior of the box what is inside the box. Ideally, the stock number and quantity should be on the exterior of the box.
- Packing sheets shall be clearly identified, and easy to find.
- Supplier shall not place loose or small objects inside large boxes. Supplier shall clearly identify loose material.
- Supplier shall mark fragile materials clearly on the outside of boxes and package accordingly.
- Where possible, Supplier shall use heavy cardboard boxes for shipments.

General

Company shall have the right at any time to change the requirements set forth in Exhibits A as necessary to ensure that all Company requirements are met.

For technical specifications, please refer to the following:

Attachment 1 – PacifiCorp Lube Oil Technical Specification

Attachment 2 – MidAmerican Energy Lube Oil Technical Specification

Appendix 1

to Master Materials Supply Contract

SPECIAL CONDITIONS APPLICABLE TO PACIFICORP CIPS COVERED ASSETS AND CRITICAL INFRASTRUCTURE INFORMATION NERC CIPS REQUIREMENTS

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION (NERC) CRITICAL INFRASTRUCTURE PROTECTION STANDARDS (CIPS)

Capitalized terms used herein shall have the same meaning as set forth in the Contract, unless the context may otherwise require.

Defined Terms:

The terms used in these Special Conditions applicable to PacificCorp shall have the following meaning:

Company's Criteria shall mean applicable requirements used as the baseline for determining whether an individual is a restricted person, as set forth on Schedule 1, "Background Check Criteria."

Company's Facilities shall mean any facilities owned, operated or otherwise controlled by Company, which require Company authorization to obtain access.

Critical Infrastructure Information shall mean information concerning CIPS Covered Assets that: (i) relates to the production, generation or transmission of energy; (ii) could be useful to a person planning an attack on critical infrastructure; and (iii) provides strategic information beyond the geographic location of the critical asset, and which is identified as Critical Infrastructure Information by Company.

Sensitive Personnel shall mean all Personnel with authorized unescorted physical access or authorized cyber access to Company's CIPS Covered Assets.

Unescorted Personnel shall mean all Personnel with authorized unescorted physical access to Company's Facilities.

SECTION 1: ACCESS TO COMPANY'S FACILITIES

1.1 Requirements for Unescorted Personnel and Sensitive Personnel

Company shall specify in the Scope of Work whether or not the Work or Services under this Contract requires: (i) authorized unescorted physical access to Company's Facilities (*i.e.*, use of Unescorted Personnel); or (ii) authorized unescorted physical access or authorized cyber access to Company's CIPS Covered Assets (*i.e.*, use of Sensitive Personnel). For all Personnel who require such access, Supplier shall:

(a) Ensure that Unescorted Personnel and Sensitive Personnel have passed the background checks outlined in subsection 1.3(a) consistent with the Company's Background Check Criteria set forth on Schedule 1 prior to requesting unescorted physical access and/or cyber access to Company's Facilities and/or CIPS Covered Assets, as applicable;

(b) Ensure that Unescorted Personnel and Sensitive Personnel complete Company provided or approved initial CIPS compliance training prior to requesting unescorted physical access and/or cyber access to Company's Facilities and/or CIPS Covered Assets, as applicable;

(c) Ensure that Unescorted Personnel and Sensitive Personnel have passed Supplier's drug and alcohol exam and are in compliance with Supplier's substance abuse/drug and alcohol policy as outlined in Section 2; and

(d) Keep accurate and detailed documentation to confirm completion dates for background checks, all CIPS compliance training (initial and annual training, to the extent applicable), and drug tests,

and certify to Company such documentation by completing a Contractor/Vendor Information Form, attached as Schedule 2 hereto, for each Unescorted Personnel or Sensitive Personnel.

Supplier shall not allow any Unescorted Personnel or Sensitive Personnel who have not met the foregoing requirements of this subsection 1.1 to perform Work or Services, unless Supplier has received prior written consent from Company.

1.2 Additional Access Requirements Specific to Sensitive Personnel

In addition to the access requirements outlined in subsection 1.1, with respect to all Sensitive Personnel, Supplier also shall:

(a) Ensure that Sensitive Personnel (and any Personnel with access to Critical Infrastructure Information) are informed of and comply with Company's Critical Infrastructure Information requirements contained in the Contract, including the additional requirements applicable to Critical Infrastructure Information set forth in Section 4 herein, and any confidentiality agreement previously executed by Supplier, if applicable;

(b) In addition to the initial CIPS compliance training requirement outlined in subsection 1.1(b), ensure that Sensitive Personnel complete Company provided or approved CIPS compliance training within Company's prescribed training window, and not less than on an annual basis; and

(c) Immediately report both (i) Sensitive Personnel terminations for cause and (ii) all other Sensitive Personnel terminations or changes in employment status for those who no longer require access, to the Company's Technology Resource Center (TRC). The TRC is available by calling either (503) 813-5555 or (801) 220-5555.

Supplier shall not allow any Sensitive Personnel who have not met the foregoing requirements of this subsection 1.2 to perform Work or Services, unless Supplier has received prior written consent from Company.

1.3 Personnel Screening/Background Check Requirements for Unescorted Personnel and Sensitive Personnel

For all Unescorted Personnel or Sensitive Personnel, the following requirements must be met by Supplier:

(a) Supplier shall conduct, at Supplier's cost and expense, the requisite background checks for the current and past countries of residence of all Unescorted Personnel and Sensitive Personnel consistent with the Company's Background Check Criteria set forth on Schedule 1. All background checks will be conducted in accordance with federal, state, provincial, and local laws, and subject to existing collective bargaining unit agreements or other agreements, if any.

(b) Following the initial background check to obtain authorization for access, the background checks shall be updated no less frequently than every seven (7) years or upon request by Company, and shall, at a minimum, consist of a social security number identity verification and seven (7) year criminal background check, including all convictions for a crime punishable by imprisonment for a term exceeding one (1) year.

(c) Supplier shall ensure that each of the Unescorted Personnel and Sensitive Personnel sign an appropriate authorization form prior to background checks being conducted, acknowledging that the background check is being conducted, and authorizing the information obtained to be provided to Company.

(d) Company has the right to audit Supplier's records supporting each Contractor/Vendor Information Form, attached as Schedule 2, submitted to Company, including background check results, and to verify that the requisite background checks and drug tests were performed consistent with Company's Background Check Criteria set forth on Schedule 1. Supplier shall provide Company with all requested records supporting Contractor/Vendor Information Forms within a reasonable time after receiving such

request, and in the form requested by Company, but not longer than three (3) business days following the date of such request.

(e) For purposes of this Contract, a background check is considered valid pursuant to the Company's Background Check Criteria, set forth on Schedule 1, if it was completed within two (2) years prior to the date on which the Supplier signed a Contractor/Vendor Information Form for each Unescorted Personnel and Sensitive Personnel. Regardless of when performed, all background checks shall be documented pursuant to the requirements set forth in this subsection 1.3.

(f) In the event Company notifies Supplier of the impending expiration of the background check of any Unescorted Personnel or Sensitive Personnel, Supplier shall provide an updated Contractor/Vendor Information Form reflecting a refreshed background check within twenty (20) days of receipt of the notice, in order to avoid revocation of such person's access.

1.4 Supplier Designee

Supplier shall designate one person to be responsible for compliance with the requirements of this Section 1 and all reporting and inquiries (other than Sensitive Personnel terminations or changes in employment status) shall be made via e-mail to CIPS-Contracting@PacifiCorp.com. Sensitive Personnel terminations or changes in employment status should be reported to the TRC pursuant to subsection 1.2(c).

SECTION 2: SUBSTANCE ABUSE/DRUG AND ALCOHOL POLICY

2.1 Drug Testing

(a) Supplier shall have and ensure compliance with a substance abuse/drug and alcohol policy that complies with all applicable federal, state and/or local statutes and regulations. Supplier shall subject each of the Personnel to a drug test at Supplier's sole cost and expense. Such drug test shall, at a minimum, be a five (5) Panel Drug Test, which should be recognizable at testing labs as a "SamHSA5 panel at 50NG – THC cut-off."

(b) For any Personnel who have had a recent drug test, such recent drug test shall be documented pursuant to the previous paragraph. Supplier warrants that Supplier and the Personnel are in compliance with Supplier's substance abuse/drug and alcohol policy.

(c) During the course of Work or Services performed under this Contract, Supplier shall keep accurate and detailed documentation of its drug policy and all Personnel drug tests, which it shall submit to Company upon request.

(d) Supplier shall designate one (1) person to be responsible for compliance with the requirements of this Section 2 and all reporting and inquiries shall be made to a duly authorized representative of Company in a timely manner.

SECTION 3: DEPARTMENT OF TRANSPORTATION COMPLIANCE

Supplier shall ensure Department of Transportation compliance, including but not limited to valid driver's license, equipment inspections, hours of service and all appropriate documentation for any Personnel who may drive while on assignment to Company.

SECTION 4: ADDITIONAL REQUIREMENTS APPLICABLE TO CRITICAL INFRASTRUCTURE INFORMATION

Confidential Information of Company labeled as Critical Infrastructure Information shall be protected consistent with the following requirements: (a) Critical Infrastructure Information shall be protected at all times, either by appropriate storage or having it under the personal observation and control of a person authorized to receive it; (b) each person who works with protected Critical Infrastructure Information is personally responsible for taking proper precautions to ensure that unauthorized persons do not gain access to it; (c) reasonable steps shall be taken to minimize the risks of access to Critical Infrastructure Information by unauthorized personnel (when not in use, Critical Infrastructure Information shall be secured in a secure container, such as a locked desk, file cabinet or facility where security is provided); (d) documents or material containing Critical Infrastructure Information may be reproduced to

the minimum extent necessary, consistent with the need to carry out the Work or Services, provided that the reproduced material is marked and protected in the same manner as the original material; (e) material containing Critical Infrastructure Information should be disposed of through secured shredding receptacles or other secured document destruction methods; (f) Critical Infrastructure Information shall be transmitted only by the following means: (i) hand delivery; (ii) United States first class, express, certified or registered mail, bonded courier, or through secure electronic means; (iii) e-mail with encrypted file (such as, WinZip with password) (the password should not be included in e-mail, but should be delivered by phone or in an unrelated e-mail not mentioning the document name; password-protected Microsoft Office documents do not meet the encryption requirements); and (g) documents or material containing Critical Infrastructure Information shall be returned to Company or certified destroyed upon completion of the Work or Services.

End of Appendix 1

Schedule 1

SPECIAL CONDITIONS APPLICABLE TO PACIFICORP BACKGROUND CHECK CRITERIA

Company has a policy, "Badge and Access Standards," which outlines Company standards, procedures, compliance policies and workforce responsibilities regarding badges and access to all PacifiCorp controlled areas. Access to Company's Facilities is subject to this policy and requires access to be granted on an as-needed basis after completion of the required background check and training requirements.

In addition, the Company is required to comply with the mandatory Critical Infrastructure Protection Standards (CIPS) issued by the North American Electric Reliability Corporation (NERC) and approved by the Federal Energy Regulatory Commission on January 17, 2008. The CIPS were adopted to ensure that electric utilities, as part of the nation's critical infrastructure, are able to sustain and secure against vulnerabilities that may threaten the electric system and the utilities that operate it. Specifically, Standards CIP-001 through CIP-009 provide a cyber security framework for the identification and protection of assets critical to the reliable operation of the bulk electric system (*i.e.*, CIPS Covered Assets).

In order to ensure compliance with CIPS and the Company's access policy, Company requires that all Personnel who will have authorized unescorted physical access to Company's Facilities (*i.e.*, Unescorted Personnel) and/or authorized unescorted physical access or authorized cyber access to CIPS Covered Assets (including control centers, substations, generation plants, critical cyber assets, etc.) (*i.e.*, Sensitive Personnel) have the appropriate security clearance and security training. A background check of Supplier's Unescorted Personnel or Sensitive Personnel will be considered valid pursuant to these Criteria if it was completed within two (2) years prior to the date the Supplier signed a Contractor/Vendor Information Form for each such person.

Individuals who are considered "restricted persons" may not have unescorted access to Company's Facilities or CIPS Covered Assets. An individual will be considered a "restricted person" if the person meets any of the following criteria:

- Is currently under indictment for a crime punishable by imprisonment for a term exceeding one (1) year;
- Has been convicted (within the past seven (7) years) in any court of a crime punishable by imprisonment for a term exceeding one (1) year;
- Is currently a fugitive from justice; or
- Is an alien illegally or unlawfully in the United States.

If an individual's background check indicates that he/she meets any of the above criteria, the individual will be considered a "restricted person" and unescorted access to Company's Facilities or CIPS Covered Assets will not be authorized.

End of Schedule 1

Schedule 2

SPECIAL CONDITIONS APPLICABLE TO PACIFICORP

Contractor / Vendor Information Form (CIF)

Contractor / Vendor Information

Company Name: _____

Address: _____

Phone: _____ Fax: _____

Contractor / Vendor Name: _____

(Include middle initial, if applicable: First, Middle, Last)

(1) Successfully Passed Employer's Drug and Alcohol Exam? Yes _____ No _____

Date Completed: _____

(Yes - mm/dd/yyyy)

(2) Successfully Passed Employer's Background Check? Yes _____ No _____

Date Completed: _____

(Yes - mm/dd/yyyy)

(3) Successfully Completed PacificCorp's Security trainings? Yes _____ No _____

Date Completed: _____

(Yes - mm/dd/yyyy)

I hereby certify that the information provided regarding the Contractor / Vendor is accurate and documentation to support this information will be retained by Contractor / Vendor employer and provided upon Company's request

Manager Signature of Contractor / Vendor Employer

Date

PacificCorp Approvals

Signature of PacificCorp Hiring Manager

Date

Printed Name of PacificCorp Hiring Manager

If Contractor / Vendor did not pass the Background Check or Drug and Alcohol Exam, but an exception is requested provide reason for exception:

Accepted by PacificCorp Chief Compliance Officer

Date

Contractor / Vendor will not be permitted access to Company controlled areas without the completion of Drug/Alcohol, Background verifications and completion of security training. Send the completed form electronically to Corporate Physical Security at "Access Administrators" (accessadmins@pacificorp.com) for ID badge issuance. The form may be attached to a request for physical access.

End of Schedule 2

Appendix 2

to Master Materials Supply Contract

Special Conditions Applicable to MidAmerican Energy Company CIPS Covered Assets and Protected Information NERC CIPS Requirements

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION (NERC) CRITICAL INFRASTRUCTURE PROTECTION (CIP) STANDARDS

Capitalized terms used herein shall have the same meaning as set forth in the Contract, unless the context may otherwise require.

1. PERSONNEL RISK ASSESSMENTS, TRAINING, SECURITY AWARENESS, INFORMATION PROTECTION, PERSONNEL CHANGES AND DOCUMENTATION

Supplier and all Personnel employed by or otherwise engaged by Supplier with authorized cyber or authorized unescorted physical access to Company's (hereinafter also referred to as "MidAmerican") CIPS Covered Assets and/or Protected Information, shall comply with (a) all requirements of the NERC CIP standards, including and not limited to (b) MidAmerican's Personnel Risk Assessment Program, Training Program, Security Awareness Program, and Information Protection Program, incorporated herein by this reference, or Supplier's programs for personnel risk assessment, training, security awareness and information protection, if MidAmerican has reviewed and verified and approved the same.

In conjunction with the NERC CIP standards, Supplier shall ensure NERC CIP compliance and communicate all requirements to Personnel. Supplier shall (a) conduct personnel risk assessments consisting of an identity verification (at a minimum social security verification of U.S. citizens) and seven (7) year criminal background check and provide written certification as specified in Section 2 of these Special Conditions for all Personnel (except if access is only to non-public CIP sensitivity classification Protected Information); (b) fully inform and train all Personnel on requirements of CIP standards prior to accessing CIPS Covered Assets and/or Protected Information and shall quarterly reinforce security awareness. If Supplier feels any of MidAmerican's training or security awareness materials are inappropriate or desires to use Supplier's training or security awareness materials, Supplier shall provide Notice to MidAmerican, and provide the training and/or security awareness documents and any improved practice to MidAmerican for review, verification and approval; (c) furnish MidAmerican a list that shows by name of Personnel, the completion date of each training course, and what materials were utilized; (d) furnish MidAmerican a list describing the security awareness materials used and dates and how the security materials were distributed; (e) provide MidAmerican with a list of Personnel authorized to handle MidAmerican's protected CIP information that shows Personnel's information sensitivity classification clearance level and assure Personnel adhere to Protected Information handling procedures; (f) report Personnel terminations for cause immediately to MidAmerican but not longer than twelve (12) hours from time of termination and report all other Personnel terminations or changes in employment status for those who no longer require access within twelve (12) hours from time of occurrence; and (g) keep accurate and detailed documentation to confirm compliance with requirements of NERC CIP standards as specified in Section 3 of these Special Conditions.

Supplier shall designate one person to be responsible for compliance with the Contract requirements. Reporting relating to this section shall be to MidAmerican's designated authorized representative.

In case of conflict or inconsistency between MidAmerican's programs and requirements of the NERC CIP standards, the NERC CIP requirements shall govern.

2. CRIMINAL BACKGROUND CHECK, IDENTITY VERIFICATION AND RELATED SCREENING

If requested by MidAmerican, Supplier shall conduct, at its sole cost and expense, criminal background checks for the current and past counties of residence on all Personnel that have cyber or unescorted physical access to MidAmerican facilities or North American Electric Reliability Corporation CIPS Covered Assets or Protected Information. The background checks shall be updated no less frequently than every seven (7) years or for cause. At a minimum, an identity verification (social security number verification for U.S. citizens) and seven (7) year criminal background check including felony or misdemeanor convictions involving: (a) violence to persons/property; (b) theft/fraud; (c) drug/alcohol; or (d) traffic/other are required, employment history, education verification and professional certifications may also be required by MidAmerican. All background checks will be conducted in accordance with federal, state, provincial, and local laws, and subject to existing collective bargaining unit agreements or other agreements, if any. Supplier shall not allow persons who have not met MidAmerican's criteria to perform Work or Services or access CIPS Covered Assets or Protected Information, unless Supplier has received written authorization from MidAmerican. Supplier shall supply a certification that meets MidAmerican's criteria for all Personnel employed or engaged by Supplier. Supplier shall ensure that all Personnel sign an appropriate authorization form prior to criminal background checks being conducted, acknowledging the background check is being conducted and authorizing the information obtained to be provided to MidAmerican.

It is understood and agreed that MidAmerican may review Supplier's policies, background checks and related documentation upon request, subject to applicable federal, state and/or local statutes or regulations. MidAmerican may also request that Supplier provide an ongoing and updated list of persons that have been denied authorization to perform Work or Services for MidAmerican or denied access to MidAmerican assets, information or facilities.

3. AUDIT

Supplier shall keep such full and detailed documentation as may be necessary for substantiation of compliance with this Contract. The method for maintaining documentation shall be satisfactory to MidAmerican. MidAmerican or its designee shall be afforded access to, and allowed to make copies of all Supplier's records, books, correspondence, instructions, drawings, agreements, memoranda and similar data that, in MidAmerican's judgment, relate to this Contract. This documentation will be available at Supplier's regular place of business during normal working hours or provided to MidAmerican in a reasonable alternative manner as may be requested by MidAmerican. Supplier shall preserve all such documentation for a period of three (3) years after completion of the Work or Services or longer where required by law. These requirements shall also apply to all Personnel, of any tier, and to all companies that are wholly or partially owned by or are affiliated with Supplier.

End of Appendix _____

Appendix 3

to Material Supply Contract

Special Conditions Applicable to NV Energy CIPS Covered Assets and Protected Information NERC CIPS Requirements

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION (NERC) CRITICAL INFRASTRUCTURE PROTECTION (CIP) STANDARDS

Capitalized terms used herein shall have the same meaning as set forth in the Contract, unless the context may otherwise require.

1. PERSONNEL RISK ASSESSMENTS, TRAINING, SECURITY AWARENESS, INFORMATION PROTECTION, PERSONNEL CHANGES AND DOCUMENTATION

Supplier and all Personnel employed by or otherwise engaged by Supplier with authorized cyber or authorized unescorted physical access to Company's (hereinafter also referred to as "NV Energy") CIPS Covered Assets and/or Protected Information, shall comply with (a) all requirements of the NERC CIP standards, including and not limited to (b) NV Energy's Personnel Risk Assessment review and NERC/CIP Training Program, incorporated herein by this reference, or Supplier's programs for personnel risk assessment, training, security awareness and information protection, if NV Energy has reviewed and verified and approved the same.

In conjunction with the NERC CIP standards, Supplier shall ensure NERC CIP compliance and communicate all requirements to Personnel. Supplier shall (a) conduct personnel risk assessments consisting of an identity verification (at a minimum social security verification of U.S. citizens) and seven (7) year criminal background check and provide written certification as specified in Section 2 of these Special Conditions for all Personnel (except if access is only to non-public CIP sensitivity classification Protected Information); (b) fully inform and train all Personnel on requirements of CIP standards prior to accessing CIP Covered Assets and/or Protected Information and shall quarterly reinforce security awareness. If Supplier feels any of NV Energy's training or security awareness materials are inappropriate or desires to use Supplier's training or security awareness materials, Supplier shall provide Notice to NV Energy, and provide the training and/or security awareness documents and any improved practice to NV Energy for review, verification and approval; (c) furnish NV Energy a list that shows by name of Personnel, the completion date of each training course, and what materials were utilized; (d) furnish NV Energy a list describing the security awareness materials used and dates and how the security materials were distributed; (e) provide NV Energy with a list of Personnel authorized to handle NV Energy's protected CIP information that shows Personnel's information sensitivity classification clearance level and assure Personnel adhere to Protected Information handling procedures; (f) report Personnel terminations for cause immediately to NV Energy but not longer than twelve (12) hours from time of termination and report all other Personnel terminations or changes in employment status for those who no longer require access within twelve (12) hours from time of occurrence; and (g) keep accurate and detailed documentation to confirm compliance with requirements of NERC CIP standards as specified in Section 3 of these Special Conditions.

Supplier shall designate one person to be responsible for compliance with the Contract requirements. Reporting relating to this section shall be to NV Energy's designated authorized representative.

In case of conflict or inconsistency between NV Energy's programs and requirements of the NERC CIP standards, the NERC CIP requirements shall govern.

2. CRIMINAL BACKGROUND CHECK, IDENTITY VERIFICATION AND RELATED SCREENING

If requested by NV Energy, Supplier shall conduct, at its sole cost and expense, criminal background checks for the current and past counties of residence on all Personnel that have cyber or unescorted physical access to NV Energy facilities or North American Electric Reliability Corporation CIP Covered Assets or Protected Information. The background checks shall be updated for cause but no less frequently than every seven (7) years or for cause. At a minimum, an identity verification (social security number verification for U.S. citizens) and seven (7) year criminal background check including felony or misdemeanor convictions involving: (a) violence to persons/property; (b) theft/fraud; (c) drug/alcohol; or (d) traffic/other are required, employment history, education verification and professional certifications may also be required by NV Energy. All background checks will be conducted in accordance with federal, state, provincial, and local laws, and subject to existing collective bargaining unit agreements or other agreements, if any. Supplier shall not allow persons who have not met NV Energy's criteria to perform Work or Services or access CIP Covered Assets or Protected Information, unless Supplier has received written authorization from NV Energy. Supplier shall supply a certification that meets NV Energy's criteria for all Personnel employed or engaged by Supplier. Supplier shall ensure that all Personnel sign an appropriate authorization form prior to criminal background checks being conducted, acknowledging the background check is being conducted and authorizing the information obtained to be provided to NV Energy.

It is understood and agreed that NV Energy may review Supplier's policies, background checks and related documentation upon request, subject to applicable federal, state and/or local statutes or regulations. NV Energy may also request that Supplier provide an ongoing and updated list of persons that have been denied authorization to perform Work or Services for NV Energy or denied access to NV Energy assets, information or facilities.

3. AUDIT

Supplier shall keep such full and detailed documentation as may be necessary for substantiation of compliance with this Contract. The method for maintaining documentation shall be satisfactory to NV Energy. NV Energy or its designee shall be afforded access to, and allowed to make copies of all Supplier's records, books, correspondence, instructions, drawings, agreements, memoranda and similar data that, in NV Energy's judgment, relate to this Contract. This documentation will be available at Supplier's regular place of business during normal working hours or provided to NV Energy in a reasonable alternative manner as may be requested by NV Energy. Supplier shall preserve all such documentation for a period of four (4) years after completion of the Work or Services or longer where required by law. These requirements shall also apply to all Personnel, of any tier, and to all companies that are wholly or partially owned by or are affiliated with Supplier.

End of Appendix3

Appendix 4 - Company Locations
CalEnergy

Division	Location Name	Physical Address	Identify your fiscal office closest to Company location	Will standard delivery occur via your truck or common carrier?
CalEnergy Operating Corporation	Warehouse/Auto Shop/ MAC	7030 Gentry Road, Calipatria CA, 92233	Kenny Strickland Inc./Coachella, CA	Distributor's truck
Yuma Cogeneration Associates	Yuma Cogeneration Associates	280 North 27th Drive, Yuma, AZ 85964	Union Distributing/Phoenix AZ	Distributor's truck
Cordova Energy Center	Cordova Energy Center	24712 182 Avenue N, Cordova, IL 61242	MOLO Oil/Eldridge, IA	Distributor's truck
Saranac Power	Saranac Power	99 Weed Street Extension, Plattsburgh, NY 12901	Farrell Oil Co./Wilton, NY	Distributor's truck
Power Resources	Power Resources	500 Revindry Road, Big Spring, TX 79720	Pilot Logistics/Odessa, TX	Distributor's truck

Appendix 4 - Company Locations
MidAmerican Energy

Company	Location Name	Physical Address	Mailing Address	City	State	Zip Code	Identify your local office closest to Company location	Will standard delivery occur via your truck or common carrier?
MidAmerican Energy Company	Walter Scott Energy Center	7215 Navajo Street	Council Bluffs	IA	51501	Nebraska Iowa Supply, Omaha NE	Distributor's truck	
MidAmerican Energy Company	Neal Energy Center (Neal South)	2761 Port Neal Circle	Salix	IA	51052	Nebraska Iowa Supply, Omaha NE	Distributor's truck	
MidAmerican Energy Company	Neal Energy Center (Neal North)	1051 260 th Street	Sergeant Bluff	IA	51054	Nebraska Iowa Supply, Omaha NE	Distributor's truck	
MidAmerican Energy Company	Riverside Generating Station	6001 State Street	Bettendorf	IA	52722	MOE.O. Eldridge IA	Distributor's truck	
MidAmerican Energy Company	Louisa Generating Station	8602 172 nd Street	Muscatine	IA	52761	MOE.O. Eldridge IA	Distributor's truck	
MidAmerican Energy Company	Greater Des Moines Energy Center	4403 Cardale Road	Pleasant Hill	IA	50327	Boyer Petroleum, Des Moines IA	Distributor's truck	
MidAmerican Energy Company	Avoca Service Center	361 South Elm	Avoca	IA	51521	Nebraska Iowa Supply, Omaha NE	Distributor's truck	
MidAmerican Energy Company	Bettendorf Service Center	5955 Fenno Road	Bettendorf	IA	52722	MOE.O. Eldridge IA	Distributor's truck	
MidAmerican Energy Company	Cedar Rapids Service Center	602 D Avenue NW	Cedar Rapids	IA	52405	MOE.O. Eldridge IA	Distributor's truck	
MidAmerican Energy Company	Clarksville	212 S Main Street	Clarksville	IA	50619	Boyer Petroleum, Des Moines IA	Distributor's truck	
MidAmerican Energy Company	Council Bluffs Service Center	3003 South 11th Street	Council Bluffs	IA	51501	Nebraska Iowa Supply, Omaha NE	Distributor's truck	
MidAmerican Energy Company	Delaware Service Center	4845 NE 22nd Street	Des Moines	IA	51303	Boyer Petroleum, Des Moines IA	Distributor's truck	
MidAmerican Energy Company	Des Moines Gas LNG-LPG Plant	4845 NE 17th Court	Des Moines	IA	50313	Boyer Petroleum, Des Moines IA	Distributor's truck	
MidAmerican Energy Company	Greenfield Service Center	2351 E County Line Road	Des Moines	IA	50320	Boyer Petroleum, Des Moines IA	Distributor's truck	
MidAmerican Energy Company	Pleasant Hill Energy Center	3191 SE 45th Street	Pleasant Hill	IA	50317	Boyer Petroleum, Des Moines IA	Distributor's truck	
MidAmerican Energy Company	River Hills Energy Center	105 Watson Powell Way	Des Moines	IA	50309	Boyer Petroleum, Des Moines IA	Distributor's truck	
MidAmerican Energy Company	Sycamore Energy Center	6141 NW Beaver Drive	Johnston	IA	50131	Boyer Petroleum, Des Moines IA	Distributor's truck	
MidAmerican Energy Company	Walnut Ridge Service Center	10510 Douglas Avenue	Urbandale	IA	50322	Boyer Petroleum, Des Moines IA	Distributor's truck	
MidAmerican Energy Company	Two Rivers Service Center	201 SE 1st Street	Des Moines	IA	50309	Boyer Petroleum, Des Moines IA	Distributor's truck	
MidAmerican Energy Company	Fort Dodge Service Center	637 S 22nd Street	Fort Dodge	IA	50501	Boyer Petroleum, Des Moines IA	Distributor's truck	
MidAmerican Energy Company	Iowa City Service Center	1630 Lower Muscatine Road	Iowa City	IA	52240	MOE.O. Eldridge IA	Distributor's truck	
MidAmerican Energy Company	LeMars	1171 Prospect Street SW	Le Mars	IA	51031	Nebraska Iowa Supply, Omaha NE	Distributor's truck	
MidAmerican Energy Company	Oskaloosa Service Center	2411 North Market Street	Oskaloosa	IA	52577-1855	Boyer Petroleum, Des Moines IA	Distributor's truck	
MidAmerican Energy Company	Ottumwa Service Center	302 S Vine Street	Ottumwa	IA	52501	Boyer Petroleum, Des Moines IA	Distributor's truck	
MidAmerican Energy Company	Red Oak	311 Alix	Red Oak	IA	51566	Nebraska Iowa Supply, Omaha NE	Distributor's truck	
MidAmerican Energy Company	Rock Island Service Building & Garage	2811 8th Avenue	Rock Island	IL	61201	MOE.O. Eldridge IA	Distributor's truck	
MidAmerican Energy Company	Rock Valley Energy Center	1700 HWY 18	Rock Valley	IA	51247	Nebraska Iowa Supply, Omaha NE	Distributor's truck	
MidAmerican Energy Company	Schaller Wind Farm	506 W 2nd Street	Schaller	IA	51053	Boyer Petroleum, Des Moines IA	Distributor's truck	
MidAmerican Energy Company	Shenandoah	900 W Ferguson Road	Shenandoah	IA	51601	Nebraska Iowa Supply, Omaha NE	Distributor's truck	
MidAmerican Energy Company	Sioux City Service Center	223 S Iowa Street	Sioux City	IA	51101	Nebraska Iowa Supply, Omaha NE	Distributor's truck	
MidAmerican Energy Company	Sioux City Fleet Maintenance Center	3990 Southgate Drive	Sioux City	IA	51106	Nebraska Iowa Supply, Omaha NE	Distributor's truck	
MidAmerican Energy Company	Sioux Falls Service Center	1200 S Blauvelt	Sioux Falls	SD	57105	Nebraska Iowa Supply, Omaha NE	Distributor's truck	
MidAmerican Energy Company	Storm Lake Service Center	1018 N Vestal Street	Storm Lake	IA	50588	Boyer Petroleum, Des Moines IA	Distributor's truck	
MidAmerican Energy Company	Urbandale Business Center	4299 Northwest Urbandale Dr	Urbandale	IA	50322-7916	Boyer Petroleum, Des Moines IA	Distributor's truck	
MidAmerican Energy Company	Vermillion	1103 317th Street	Vermillion	SD	57069	Nebraska Iowa Supply, Omaha NE	Distributor's truck	
MidAmerican Energy Company	Waterloo Service Center	260 Fairview Avenue	Waterloo	IA	50703	Boyer Petroleum, Des Moines IA	Distributor's truck	

Appendix 4 - Company Locations
Northern Natural Gas

Location Name	Location Address	City	State	Zip Code	Identify your local office closest to Company location	Will standard delivery occur via your truck or common carrier?
NNG2 GARNER	2315 YALE AVE	Garner	IA	50438	Boyer Petroleum, Des Moines IA	Common Carrier/Distributor Truck
NNG2 VENTURA	2415 270TH STREET	Garner	IA	50438	Boyer Petroleum, Des Moines IA	Common Carrier/Distributor Truck
NNG2 GUTHRIE CENTER	2421 DOGWOOD AVENUE	GUTHRIE CENTER	IA	50115	Boyer Petroleum, Des Moines IA	Common Carrier/Distributor Truck
NNG2 HUBBARD	21497 290TH STREET	HUBBARD	IA	50122	Boyer Petroleum, Des Moines IA	Common Carrier/Distributor Truck
NNG2 OAKLAND	46299 U.S. HIGHWAY 6	Oakland	IA	51560-4557	Boyer Petroleum, Des Moines IA	Common Carrier/Distributor Truck
NNG2 OGDEN	608 210TH STREET	Ogden	IA	50212	Boyer Petroleum, Des Moines IA	Common Carrier/Distributor Truck
NNG2 PAULINA	4213 J AVE	Paullina	IA	51046	Boyer Petroleum, Des Moines IA	Common Carrier/Distributor Truck
NNG2 REDFIELD	24282 G AVENUE	Redfield	IA	50233	Boyer Petroleum, Des Moines IA	Common Carrier/Distributor Truck
NNG2 WATERLOO CDC	1508 E SCHROCK RD.	Waterloo	IA	50701	Boyer Petroleum, Des Moines IA	Common Carrier/Distributor Truck
NNG2 BUSHTON	785 STATE RD. 4	Bushton	KS	67427	Parker Oil, Wichita KS	Common Carrier/Distributor Truck
NNG2 CLIFTON	2930 GAS CITY ROAD	Clifton	KS	66937-0160	Parker Oil, Wichita KS	Common Carrier/Distributor Truck
NNG2 CUNNINGHAM	20307 NE 150TH AVE	Cunningham	KS	67035	Parker Oil, Wichita KS	Common Carrier/Distributor Truck
NNG2 HOLCOMB	9480 W HWY 50	Holcomb	KS	67851	Parker Oil, Wichita KS	Common Carrier/Distributor Truck
NNG2 SUBLETTE	21947 HWY 83	Kismet	KS	67859	Parker Oil, Wichita KS	Common Carrier/Distributor Truck
NNG2 LYONS	1420 17TH ROAD	Lyons	KS	67554	Parker Oil, Wichita KS	Common Carrier/Distributor Truck
NNG2 MACKSVILLE	145 F ROAD	Macksville	KS	67557-5808	Parker Oil, Wichita KS	Common Carrier/Distributor Truck
NNG2 MULLINVILLE	14049 17TH AVENUE	Mullinville	KS	67109	Parker Oil, Wichita KS	Common Carrier/Distributor Truck
NNG2 TESCOTT	685 NORTH 40TH ROAD	Tescott	KS	67484-0156	Parker Oil, Wichita KS	Common Carrier/Distributor Truck
NNG2 NEGAUNEE	118 US HWY 41 E	NEGAUNEE	MI	49866	Northern Energy, Gaylord MI	Common Carrier/Distributor Truck
NNG2 CARLTON	1995 NORTHERN NATURAL GAS	Carlton	MN	55718-9147	Northern Energy, Gaylord MI	Common Carrier/Distributor Truck
NNG2 FARMINGTON CDC	4685 212TH STREET WEST	Farmington	MN	55024	Northern Energy, Gaylord MI	Common Carrier/Distributor Truck
NNG2 ST. CLOUD	241 4TH AVENUE N - SUITE 120	Foley	MN	56329	Northern Energy, Gaylord MI	Common Carrier/Distributor Truck
NNG2 NORTH BRANCH	6579 420TH STREET	Harris	MN	55032-2116	Northern Energy, Gaylord MI	Common Carrier/Distributor Truck
NNG2 OWATONNA	2586 SE 28TH STREET	Owatonna	MN	55060	Northern Energy, Gaylord MI	Common Carrier/Distributor Truck
NNG2 WELCOME	1186 HIGHWAY 263	Welcome	MN	56181	Northern Energy, Gaylord MI	Common Carrier/Distributor Truck
NNG2 WILLMAR	605 23RD STREET SW	WILLMAR	MN	56201	Northern Energy, Gaylord MI	Common Carrier/Distributor Truck
NNG2 WRENSHALL	2301 COUNTY ROAD #1	Wrenshall	MN	55797	Northern Energy, Gaylord MI	Common Carrier/Distributor Truck
NNG2 BEATRICE	30694 US HWY 77	Beatrice	NE	68310-7709	Boyer Petroleum, Des Moines IA	Common Carrier/Distributor Truck
NNG2 SOUTH OMAHA	8300 CEDAR ISLAND ROAD	Bellevue	NE	68147	Boyer Petroleum, Des Moines IA	Common Carrier/Distributor Truck
NNG2 PALMYRA	1170 NORTH 10TH ROAD	Palmyra	NE	68418-9795	Boyer Petroleum, Des Moines IA	Common Carrier/Distributor Truck

Appendix 4 - Company Locations
Northern Natural Gas

NING2 S. SIOUX CITY	5111 DAKOTA AVE	S. Sioux City	NE	68776	Boyer Petroleum, Des Moines IA	Common Carrier/Distributor Truck
NING2 BEAVER	5 MI E of ELMWOOD ON HWY 27	Beaver	OK	73932	Pilot Logistics, Oklahoma City OK	Common Carrier/Distributor Truck
NING2 CHEYENNE	17 MI NW OF ELK CITY	CHEYENNE	OK	73628	Pilot Logistics, Oklahoma City OK	Common Carrier/Distributor Truck
NING2 ROGER MILLS	17 MI NW OF ELK CITY ON RAND	Cheyenne	OK	73628	Pilot Logistics, Oklahoma City OK	Common Carrier/Distributor Truck
NING2 CLARK	1025 1ST AVE W	CLARK	SD	57225	Homax Oil, Gillette WY	Common Carrier/Distributor Truck
NING2 HARRISBURG	47493 272ND STREET	Harrisburg	SD	57032	Homax Oil, Gillette WY	Common Carrier/Distributor Truck
NING2 ANDREWS	915 NW MUSTANG DRIVE	ANDREWS	TX	79714	Pilot Logistics, Odessa TX	Common Carrier/Distributor Truck
NING2 BIG LAKE	104 N PLAZA AVENUE	Big Lake	TX	76932	Pilot Logistics, Odessa TX	Common Carrier/Distributor Truck
NING2 CANADIAN	10910 SOUTH US HWY 83	Canadian	TX	79014	Pilot Logistics, Odessa TX	Common Carrier/Distributor Truck
NING2 KERMIT	2 MI S of KERMIT ON HWY 18	KERMIT	TX	79745	Pilot Logistics, Odessa TX	Common Carrier/Distributor Truck
NING2 SPRABERRY	13401 COUNTY ROAD 230 EAST	Midland	TX	79706	Pilot Logistics, Odessa TX	Common Carrier/Distributor Truck
NING2 SKELLYTOWN	1000 1ST STREET	Skellytown	TX	79080	Pilot Logistics, Odessa TX	Common Carrier/Distributor Truck
NING2 SPEARMAN	8 MI S of SPEARMAN ON FM 760	Spearman	TX	79081	Pilot Logistics, Odessa TX	Common Carrier/Distributor Truck
NING2 SUNRAY	7174 FM 119	Sunray	TX	79086	Pilot Logistics, Odessa TX	Common Carrier/Distributor Truck
NING2 PLATTEVILLE	5557 COUNTY ROAD D	Platteville	WI	53818	Northern Energy, Gaylord MI	Common Carrier/Distributor Truck

Appendix 4 - Company Locations
PacifiCorp

Division	Location Name	Physical Address	Mailing Address	City	State	Zip Code	Identify your local office closest to Company location	Will standard delivery occur via your truck or common carrier?
PacifiCorp Energy	Jim Bridger Plant	8 MI NE Point of Point of Rocks	P.O. Box 158	Point of Rocks	WY	82942	Hornax, Rock Springs WY	Distributor's truck/Common Carrier
PacifiCorp Energy	Dave Johnston Plant	1591 Tank Farm Road	1591 Tank Farm Road	Glenrock	WY	82637	Hornax, Casper WY	Distributor's truck/Common Carrier
PacifiCorp Energy	Wyodak Plant	48 Wyodak Road	48 Wyodak Road	Gillette	WY	82716	Hornax, Gillette WY	Distributor's truck/Common Carrier
PacifiCorp Energy	Navigation Plant	Hwy 189 S of Kaimoser	Hwy 189 S of Kaimoser	Kaimoser	WY	83101	Hornax, Rock Springs WY	Distributor's truck/Common Carrier
PacifiCorp Energy	Gadsby Plant	1359 West North Temple	1359 West North Temple	Salt Lake City	UT	84116	Thomas Petroleum, No. Salt Lake, UT	Distributor's truck
PacifiCorp Energy	Carbon Plant	Intersection 6 & 191	P.O. Box 839	Helper	UT	84526	Thomas Petroleum, Price UT	Distributor's truck
PacifiCorp Energy	Huntington Plant	Hwy 31 W of Huntington	P.O. Box 689	Huntington	UT	84528	Thomas Petroleum, Price UT	Distributor's truck/Common Carrier
PacifiCorp Energy	Hunker Plant	Hwy 10 S of Castle Dale	P.O. Box 569	Castle Dale	UT	84513	Thomas Petroleum, Price UT	Distributor's truck/Common Carrier
PacifiCorp Energy	Blunsdell Geothermal Plant	Roosevelt Hot Springs Rd	P.O. Box 769	Milford	UT	84751	Thomas Petroleum, No. Salt Lake, UT	Distributor's truck
PacifiCorp Energy	Current Creek Plant	2096 W. 300 N	2096 W. 2300 N.	Alma	UT	84645	Thomas Petroleum, No. Salt Lake, UT	Distributor's truck
PacifiCorp Energy	Lake Side Plant	1825 N Pioneer Lane	1825 N Pioneer Lane	Vineyard	UT	84058	Thomas Petroleum, No. Salt Lake, UT	Distributor's truck
PacifiCorp Energy	Chehalis Plant	1813 Bishop Road	1813 Bishop Road	Chehalis	WA	98532	Small & Sons, Auburn WA	Distributor's truck/Common Carrier
Pacific Power	Walla Walla	650 E. Douglas	650 E. Douglas	Walla Walla	WA	99362	Small & Sons, Auburn WA	Distributor's truck
Pacific Power	Walla Walla Tech Ops	75 Duncan Lane	75 Duncan Lane	Walla Walla	WA	99362	Small & Sons, Auburn WA	Distributor's truck
Pacific Power	Yakima Hub Warehouse	500 North Keys Road	500 North Keys Road	Walla Walla	WA	99362	Small & Sons, Auburn WA	Distributor's truck/Common Carrier
Pacific Power	Bend	328 NE Webster	328 NE Webster	Yakima	WA	98901	Small & Sons, Auburn WA	Distributor's truck
Pacific Power	Bend Tech Op's	201 SW Columbia	201 SW Columbia	Bend	OR	97701	Small & Sons, Auburn WA	Distributor's truck
Pacific Power	Albany Hub Warehouse	830 Old Salem Road	830 Old Salem Road	Bend	OR	97702	Small & Sons, Auburn WA	Distributor's truck/Common Carrier
Pacific Power	Grants Pass	1420 Williams Hwy	1420 Williams Hwy	Albany	OR	97321	Small & Sons, Auburn WA	Distributor's truck
Pacific Power	Medford Hub Warehouse	925 S. Grape Street	925 S. Grape Street	Grants Pass	OR	97527	Small & Sons, Auburn WA	Distributor's truck
Pacific Power	Yreka Warehouse	300 S. Main	P.O. Box 248	Medford	OR	97501	Small & Sons, Auburn WA	Distributor's truck
Rocky Mountain Power	Casper Hub Warehouse	2840 E Yellowstone Hwy	2840 E Yellowstone Hwy	Yreka	CA	96097	Small & Sons, Auburn WA	Distributor's truck
Rocky Mountain Power	Buffalo	62 T W Road	125 S. Main	Casper	WY	82602	Hornax, Casper WY	Distributor's truck
Rocky Mountain Power	Cody	226 W Yellowstone Avenue	226 W Yellowstone Avenue	Buffalo	WY	82834	Hornax, Gillette WY	Distributor's truck
Rocky Mountain Power	Evanston	305 Commerce Dr	105 Commerce Dr	Cody	WY	82414	Hornax, Casper WY	Distributor's truck
Rocky Mountain Power	Rock Springs Warehouse	415 N Street	415 N Street	Evanston	WY	82930	Hornax, Rock Springs WY	Distributor's truck
Rocky Mountain Power	Praetion Hub Warehouse	508 S. 280 E.	P.O. Box 433	Rock Springs	WY	82901	Hornax, Rock Springs WY	Distributor's truck
Rocky Mountain Power	Montpelier	425 City Street	425 City Street	Praetion	ID	83263	Thomas Petroleum, No. Salt Lake, UT	Distributor's truck
Rocky Mountain Power	Smithfield	780 North Main Street	780 North Main Street	Montpelier	ID	83254	Thomas Petroleum, No. Salt Lake, UT	Distributor's truck
Rocky Mountain Power	Layton	635 North 1200 West	635 North 1200 West	Smithfield	UT	84041	Thomas Petroleum, No. Salt Lake, UT	Distributor's truck
Rocky Mountain Power	Salt Lake Metro	1569 West North Temple	1569 West North Temple	Layton	UT	84041	Thomas Petroleum, No. Salt Lake, UT	Distributor's truck
Rocky Mountain Power	Salt Lake Tech Ops	1359 West North Temple	1559 West North Temple	Salt Lake City	UT	84116	Thomas Petroleum, No. Salt Lake, UT	Distributor's truck
Rocky Mountain Power	Salt Lake Toolroom	1569 West North Temple	1569 West North Temple	Salt Lake City	UT	84116	Thomas Petroleum, No. Salt Lake, UT	Distributor's truck
Rocky Mountain Power	Salt Lake Hub Warehouse	1569 West North Temple	1569 West North Temple	Salt Lake City	UT	84116	Thomas Petroleum, No. Salt Lake, UT	Distributor's truck
Rocky Mountain Power	Jordan Valley	12840 Pony Express Road	12840 Pony Express Road	Salt Lake City	UT	84116	Thomas Petroleum, No. Salt Lake, UT	Distributor's truck
Rocky Mountain Power	Park City	6280 Silver Creek Road	Park City	Draper	UT	84020	Thomas Petroleum, No. Salt Lake, UT	Distributor's truck
Rocky Mountain Power	Santaquin	355 West 200 North	355 West 200 North	Park City	UT	84060	Thomas Petroleum, No. Salt Lake, UT	Distributor's truck
Rocky Mountain Power	Moab	326 North 1st West	320 North 1st West	Santaquin	UT	84655	Thomas Petroleum, Cedar City UT	Distributor's truck
Rocky Mountain Power	Richfield Hub	710 North Main	710 North Main	Moab	UT	84032	Thomas Petroleum, Price UT	Distributor's truck
Rocky Mountain Power	Deer Creek Mine	3 Miles N. of Huntington Plant	Huntington Plant	Richfield	UT	84701	Thomas Petroleum, No. Salt Lake, UT	Distributor's truck
Energy West Mining Co.	Coal Prep Plant	3.5 Miles S of Castle Dale	Huntington Plant	Richfield	UT	84528	Thomas Petroleum, Price UT	Distributor's truck
Bridger Coal Co.	Bridger Mine	9.5 Miles NE of Point of Rocks	P.O. Box 68	Castle Dale	UT	84523	Thomas Petroleum, Price UT	Distributor's truck
				Point of Rocks	WY	82942	Hornax, Rock Springs WY	Distributor's truck

Appendix 4 - Company Locations
NV Energy

NV ENERGY				
Company Facilities				
Facility Name	Street Address	City	State	Zip Code
Harry Allen	14601 North Las Vegas Boulevard	Las Vegas	Nevada	89124
Chuck Lenzie	13605 Chuck Lenzie Court	North Las Vegas	Nevada	89165
Walter M. Higgins	1275 Primm Boulevard	Primm	Nevada	89019
Goodsprings	1.5 Miles Southeast of Goodsprings	Jean	Nevada	89019
Reid Gardner	501 Wally Kay Way	Moapa	Nevada	89025
North Valmy	I-80 Stonehouse Exit	Valmy	Nevada	89438
Fort Churchill	1000 Sierra Way	Yerington	Nevada	89447
Frank A. Tracy	1799 Waltham Way	Sparks	Nevada	89343

Lube Oil Technical Specifications

Oil Item ID	Generic Lubricant Specifications	Grade/Rate	ConocoPhillips Product Name	Kinematic Viscosity @ 40°C (ASTM D468) (cSt)	Kinematic Viscosity @ 100°C (ASTM D468) (cSt)	Viscosity Index	Pour Point °F (ASTM D97)	Flash Point °F (ASTM D92)	Elemental	Color (ASTM D153)	Neutralization Number (SOS) (mg KOH/g)	NPVT (ASTM D2272) (minutes)	Water Separability Test (ASTM D1401) (minutes)	Foaming Tendency (ASTM D7093) (Seq 1) (ml-cc)	Oil Swell Test (D180)	Rust Test (D2654)	Comments
Engine Oils	P-100	Oil, Mineral, Engine, SAE 15W40 API CJ-4, CH-4 PLUS, CH-4, CH-4, SM	Current API specification as of January 2012.	Fleet Supreme EC 15W-40	114	15.2	137	-38F	441F (COG)	Calcium 2100 - 2680 PPM, Phosphorus 970 - 1160 PPM, Sulfon 8 PPM, Sulfur 3850 PPM, Zinc 1090 - 1330 PPM	4.0	8.4 by ASTM D2678					
	P-102	Oil, Mineral, Engine, SAE 15W40 API CJ-4, CH-4, SM	Current API specification as of January 2012.	Fleet Supreme EC 10W-30	80	12	146	-49	441 (COG)	Barium 10 - 30 PPM, Calcium 2100 - 2680 PPM, Phosphorus 970 - 1160 PPM, Sulfur 3850 PPM, Zinc 1090 - 1330 PPM, Sulfon 8 PPM	4.0						
	P-103	Oil, Mineral, Engine, SAE 15W40 API CJ-4 PLUS, CH-4, CH-4, SM	Current API specification as of January 2012.	HC Power D 15W-40	115	15.2	138	-40	437 (COG)	Barium 3 PPM, Calcium 3170 - 4050 PPM, Phosphorus 1180 - 1440 PPM, Sulfon 8 PPM, Sulfur 4800 PPM, Zinc 1310 - 1570 PPM							
	P-104	Oil, Mineral, Engine, SAE 10W40, API SN / Does not meet ILSAC GF-5	Current API specification as of January 2012.	Kendall GT-1 HP Motor Oil 10W-40	108	15.4	150	<-33F	448F (COG)	Calcium 2200 - 2810 PPM, Molybdenum 80 PPM, Phosphorus 700 - 800 PPM, Sulfur 3800 PPM, Zinc 770 - 830 PPM, Titanium 64 - 117 PPM	3.0	8.5 ASTM D2678					
	P-105	Oil, Full Synthetic, Engine, SAE 5W30, API SN / ILSAC GF-5	Current API specification as of January 2012.	Kendall GT-1 Full Synthetic Motor Oil 5W-30	85	11.1	167	<-48	435 (COG)	Calcium 2200 - 2810 PPM, Molybdenum 80 PPM, Phosphorus 700 - 800 PPM, Sulfur 3800 PPM, Zinc 770 - 860 PPM, Titanium 64 - 117 PPM	3.0						
	P-106	Oil, Mineral or Synthetic or Synthetic Blend, Engine, SAE 5W20, API SN / ILSAC GF-5	Current API specification as of January 2012.	Super All Season Synthetic 5W-20	47	8.5	151	<-44	424 (COG)	Barium 10 - 30 PPM, Calcium 1930 - 2480 PPM, Molybdenum 80 PPM, Phosphorus 700 - 800 PPM, Sulfur 3900 PPM, Zinc 770 - 860 PPM	3.5						
	P-107	Oil, Mineral or Synthetic or Synthetic Blend, Engine, SAE 5W30, API SN / ILSAC GF-5	Current API specification as of January 2012.	Super All Season Synthetic 5W-30	87	10.8	182	<-44	421 (COG)	Barium 10 - 30 PPM, Calcium 1930 - 2480 PPM, Molybdenum 80 PPM, Phosphorus 700 - 800 PPM, Sulfur 3900 PPM, Zinc 770 - 860 PPM	3.0						
	P-108	Oil, Mineral or Synthetic or Synthetic Blend, Engine, SAE 10W30, API SN / ILSAC GF-5	Current API specification as of January 2012.	Super All Season Synthetic 10W-30	88	10.4	182	<-44F	444F (COG)	Barium 10 - 30 PPM, Calcium 1930 - 2480 PPM, Molybdenum 80 PPM, Phosphorus 700 - 800 PPM, Sulfur 3900 PPM, Zinc 770 - 830 PPM	3.5	7.8 ASTM D2695					
	P-109	Oil, Mineral, Hydraulic, SAE 10, Minimum VI 105	N of use in engines, hydraulic transmitters only.	TSX Heavy Duty Motor Oil 10W	48	7.5	122	-98F	424F (COG)	Calcium 2100 - 2680 PPM, Phosphorus 800 - 1010 PPM, Sulfur 800 PPM, Zinc 385 - 430 PPM	12.5	7.5 by ASTM D2695					
	P-110	Oil, Mineral, Engine, SAE 30 API CF, CF-2, CD	Current API specification as of January 2012.	TSX Heavy Duty Motor Oil 30	113	11	108	-27F	464F (COG)	Calcium 2280 - 2910 PPM, Phosphorus 800 - 1100 PPM, Sulfur 3800 PPM, Zinc 1000 - 1260 PPM	4.0	8.1					
P-111	Oil, Mineral, Engine, SAE 30 API CF, CF-2, CD	Commonly used in Detroit Diesel 2-cycle diesel engines	TSX Heavy Duty Motor Oil 40	148	15.4	108	-27F	464F (COG)	Calcium 2280 - 2910 PPM, Phosphorus 800 - 1100 PPM, Sulfur 3800 PPM, Zinc 1000 - 1260 PPM	4.0	8.1 by ASTM D2695						
Hydraulic Oils	P-201	Oil, Mineral, Hydraulic & General Purpose, Antwear, R&O, ISO VG 22, Minimum VI 135, Wide Temperature Range, Pour Point <-45 F	Low temperature applications.	Megaflo AW HVI Hydraulic Oil 22	20.8	4.8	144	-68F	379F (COG)	Calcium 50 PPM, Phosphorus 340 PPM, Sulfur 600 PPM, Zinc 385 - 430 PPM	0.5	>280	15 minutes to pass	pass	1a	pass	
	P-202	Oil, Mineral, Hydraulic & General Purpose, Antwear, R&O, ISO VG 32, Minimum VI 135, Wide Temperature Range, Pour Point <-45 F	Low temperature applications.	Megaflo AW HVI Hydraulic Oil 32	32.7	8.4	145	-48F	388F (COG)	Calcium 50 PPM, Phosphorus 340 PPM, Sulfur 600 PPM, Zinc 385 - 430 PPM	0.5	>280	15 minutes to pass	pass	1a	pass	
	P-203	Oil, Mineral, Hydraulic & General Purpose, Antwear, R&O, ISO VG 46, Minimum VI 135, Wide Temperature Range, Pour Point <-45 F	Low temperature applications.	Megaflo AW HVI Hydraulic Oil 46	48	7.7	135	-48F	416F (COG)	Calcium 50 PPM, Phosphorus 340 PPM, Sulfur 600 PPM, Zinc 385 - 430 PPM	0.5	>280	15 minutes to pass	pass	1a	pass	
	P-204	Oil, Mineral, Hydraulic & General Purpose, Antwear, R&O, ISO VG 150, Minimum VI 95	Antwear applications, hydraulic pumps and motors.	Megaflo AW Hydraulic Oil 150	149	14.7	133	-6	525 (COG)	Calcium 50 PPM, Phosphorus 340 PPM, Sulfur 700 PPM, Zinc 385 - 430 PPM	3	>250	10 minutes to pass	Pass	1a	Pass	
	P-205	Oil, Mineral, Hydraulic & General Purpose, Antwear, R&O, ISO VG 100, Minimum VI 95	Antwear applications, hydraulic pumps and motors.	Megaflo AW Hydraulic Oil 100	100	11	113	-25F	463F (COG)	Calcium 50 PPM, Phosphorus 340 PPM, Sulfur 600 PPM, Zinc 385 - 430 PPM	0.5	>270	10 minutes to pass	pass	1a	pass	
	P-206	Oil, Mineral, Hydraulic & General Purpose, Antwear, R&O, ISO VG 68, Minimum VI 95	Antwear applications, hydraulic pumps and motors.	Megaflo AW Hydraulic Oil 68	63	8.7	98	-27F	483F (COG)	Calcium 50 PPM, Phosphorus 340 PPM, Sulfur 600 PPM, Zinc 385 - 430 PPM	0.5	>270	10 minutes to pass	pass	1a	pass	
	P-207	Oil, Mineral, Hydraulic & General Purpose, Antwear, R&O, ISO VG 22, Minimum VI 95	Antwear applications, hydraulic pumps and motors.	Megaflo AW Hydraulic Oil 22	20.8	4.8	144	-68	441 (COG)	Calcium 50 PPM, Phosphorus 340 PPM, Sulfur 600 PPM, Zinc 385 - 430 PPM	0.5	>270	10 minutes to pass	pass	1a	pass	
	P-208	Oil, Mineral, Hydraulic & General Purpose, Antwear, R&O, ISO VG 32, Minimum VI 95	Antwear applications, hydraulic pumps and motors.	Megaflo AW Hydraulic Oil 32	31	5.4	104	-35	421 (COG)	Calcium 50 PPM, Phosphorus 340 PPM, Sulfur 600 PPM, Zinc 385 - 430 PPM	0.5	>270	10 minutes to pass	pass	1a	pass	
	P-209	Oil, Mineral, Hydraulic & General Purpose, Antwear, R&O, ISO VG 46, Minimum VI 95	Antwear applications, hydraulic pumps and motors.	Megaflo AW Hydraulic Oil 46	22	4.3	104	-40	385 (COG)	Calcium 50 PPM, Phosphorus 340 PPM, Sulfur 600 PPM, Zinc 385 - 430 PPM	0.5	>270	10 minutes to pass	pass	1a	pass	
P-300	Oil, Mineral, Drive Train & Transmission, SAE 10, Allison C-4, Caterpillar TO-4, Euclid equipment, Kenworth equipment, Vickers (Eaton) M-2620-S, ZF TE-ML 03 C for torque converter transmissions	Commonly used as a hydraulic oil in mobile equipment.	Power Plus 10W	43	8.8	105	-38F	415F (COG)	Calcium 2190 - 2880 PPM, Phosphorus 830 - 1010 PPM, Zinc 850 - 1210 PPM	2.0	7.6 ASTM D2695						

Lube Oil Technical Specifications

Oil Spec ID	Generic Lubricant Specification	Grade/Type	ConocoPhillips Product Name	Kinematic Viscosity @ 100°C (ASTM D445) (cSt)	Kinematic Viscosity @ 180°C (ASTM D445) (cSt)	Viscosity Index	Pour Point °F (ASTM D97)	Flash point °F (ASTM D92)	Elemental	Color (ASTM D153)	Neutralization Number (ISO 6818) mg KOH/g	RPVOT (ASTM D2272) (minutes)	Water Separability Test (ASTM D1401) ml/ml (minutes)	Foaming Tendency (ASTM D153 Req 5) (ml-cb)	Ox Strip Test (D191)	Rust Test (D665A)	Comments
Transmission Oils	P-301	Oil, Mineral, Gear, Drive Train and Transmission, SAE 30, Allison C-4, Caterpillar TO-4, Euclid equipment, Komatsu equipment, Volvo (Eaton) M-250-S, ZF TE-M. ODC for torque converter transmissions.	Powerdrive 30	86	11.1	100	-37F	451F (COG)	Calcium 2180 - 2680 PPM, Phosphorus 830 - 1010 PPM, Zinc 800 - 1210 PPM	2.0	7.8 by ASTM D2896						
	P-302	Oil, Mineral, Gear, Drive Train and Transmission, SAE 50, Caterpillar TO-4, Euclid equipment, Komatsu equipment, Volvo (Eaton) M-250-S	Powerdrive 50	227	19.1	94	-18F	468F (COG)	Calcium 2180 - 2680 PPM, Phosphorus 830 - 1010 PPM, Zinc 800 - 1210 PPM	4.0	7.8 by ASTM D2896						
	P-303	Oil, Mineral, Multipurpose, Transmission & Hydraulic, Tractor Final Drive - See OEM Specification Requirements	Powertrain Fluid	61	9.3	148	-5F	410F (COG)	Boron 110 PPM, Calcium 3240 - 4140 PPM, Molybdenum 80 PPM, Phosphorus 1070 - 1310 PPM, Silicon 10 PPM, Sulfur 3280 PPM, Zinc 1350 - 1720 PPM	3.5	9.8 ASTM D2896	NA					
	P-304	Oil, Synthetic, SAE 50, Transmission, Heavy Duty Heavy, API Service GL-1, MT-1	Tribon synthetic Trans-oil 50	132	17.5	148	-40	430 (COG)	Boron 280 PPM, Calcium 40 PPM, Phosphorus 1050 - 1350 PPM	Amber, visual							
	P-305	Fluid, Automatic Transmission, Mercon & Dexon III	Super ATF	32.1	7	188	<-40F	414F (COG)	Boron 89 - 121 PPM, Calcium 82 - 79 PPM, Phosphorus 205 - 254 PPM, Sulfur 1094 - 1586 PPM	Red Visual							
	P-308	Fluid, Automatic Transmission, Type F, Ford ESW-M2C233-F	ATF Type F	43	7.6	180	<-40	410 (COG)	Boron 100 PPM, Zinc 430 - 530 PPM, Phosphorus 400 - 500 PPM, Sulfur 2100 PPM	Red Visual							
	P-307	Fluid, Automatic Transmission, Mercon V, Allison C4	Mercon V ATF	34	7.5	200	<-40	385 (COG)	Boron 83 - 110 PPM, Phosphorus 178 - 228 PPM, Silicon 10 PPM, Sulfur 34 - 1223 PPM	Red Visual							
Diesel Oils	Oil, Mineral, Hydraulic & General Purpose, Non-Zinc Antwear, R&O, ISO VG 32, Minimum VI 85	Centrifugal air compressors, circulating systems requiring light antwear (non-zinc)	Multipurpose R&O 32	32.5	5.4	101	-40	460 (COG)	Phosphorus 25 PPM	L0.5	750	20 minutes to pass	pass	1a	pass		
	Oil, Mineral, Hydraulic & General Purpose, Non-Zinc Antwear, R&O, ISO VG 46, Minimum VI 85	Centrifugal air compressors, circulating systems requiring light antwear (non-zinc)	Multipurpose R&O 46	45	6.7	102	-40	460 (COG)	Phosphorus 25 PPM	L0.5	750	20 minutes to pass	pass	1a	pass		
	Oil, Mineral, Hydraulic & General Purpose, Non-Zinc Antwear, R&O, ISO VG 68, Minimum VI 85	Centrifugal air compressors, circulating systems requiring light antwear (non-zinc)	Multipurpose R&O 68	68.2	8.8	100	-28	469 (COG)	Phosphorus 25 PPM	L0.5	750	20 minutes to pass	pass	1a	pass		
	Oil, Mineral, Hydraulic & General Purpose, Non-Zinc Antwear, R&O, ISO VG 100, Minimum VI 85	Lightly loaded gearboxes requiring non-EP oil, circulating systems requiring light antwear (non-zinc)	Multipurpose R&O 100	101	11.3	97	-20F	514F (COG)	Phosphorus 25 PPM	L0.6	700	20 minutes to pass	pass	1a	pass		
	Oil, Mineral, Hydraulic & General Purpose, Non-Zinc Antwear, non-EP, R&O, ISO VG 150, Minimum VI 85	Lightly loaded gearboxes requiring non-EP oil, circulating systems requiring light antwear (non-zinc)	Multipurpose R&O 150	158	15.5	97	1F	531F (COG)	Phosphorus 25 PPM	2.6	700	20 minutes to pass	pass	1a	pass		
	Oil, Mineral, Hydraulic & General Purpose, Non-Zinc Antwear, Non-EP, R&O, ISO VG 220, Minimum VI 85	Lightly loaded gearboxes requiring non-EP oil, circulating systems requiring light antwear (non-zinc)	Multipurpose R&O 220	220	18.9	97	0F	546F (COG)	Phosphorus 25 PPM	3.5	700	20 minutes to pass	pass	1a	pass		
	Oil, Mineral, Hydraulic & General Purpose, Non-Zinc Antwear, non-EP, R&O, ISO VG 320, Minimum VI 85	Lightly loaded gearboxes requiring non-EP oil, circulating systems requiring light antwear (non-zinc)	Multipurpose R&O 320	318	23.9	95	5F	579F (COG)	Phosphorus 25 PPM	4.5	700	20 minutes to pass	pass	1a	pass		
	Oil, Mineral, Turbine, Steam, R&O, ISO VG 68, Minimum VI 100	Commonly used in lightly to moderately loaded plain and rolling-element bearings	Turbine Oil 68	68	8.8	100	-17F	461F (COG)	No metal additives	0.5	>1200	20 minutes to pass	pass	1a	pass		
	Oil, Mineral, Turbine, Steam, R&O, ISO VG 46, Minimum VI 100	Industrial steam turbines, many lightly loaded plain and rolling-element bearings, such as those in electric motors, pumps and blowers	Turbine Oil 46	46	6.7	102	-27F	450F (COG)	No metal additives	0.5	>1200	20 minutes to pass	pass	1a	pass		
Oil, Mineral, Turbine, Steam, R&O, ISO VG 32, Minimum VI 100, minimum RPVOT 800 hrs., minimum TOST 12,000 hrs.	Industrial steam turbines, many lightly loaded plain and rolling-element bearings, such as those in electric motors, pumps and blowers	Turbine Oil 32	31.8	5.4	102	-35F	428F (COG)	No metal additives	0.5	>1200	20 minutes to pass	pass	1a	pass			

Lube Oil Technical Specifications

Oil Spec ID	Generic Lubricant Specification	Guidelines	ConocoPhillips Product Name	Kinematic Viscosity @ 40°C (ASTM D445) (cSt)	Kinematic Viscosity at 100°C (ASTM D445) (cSt)	Viscosity Index	Pour Point °F (ASTM D97)	Flash point °F (ASTM D32)	Elemental	Color (ASTM D153)	Neutralization Number (ISO 6468) mg KOH/g	RPVOT (ASTM D2272) (minutes)	Water Separability Test (ASTM D1401) ml-water/100ml-oil	Foaming Tendency (ASTM D472 Seq 3) (ml-m)	Cu Strip Test (DIN 51)	Rust Test (DIN 51)	Comments
Turbine Oils	Oil, Mineral, Turbine, Steam, R&O, ISO VG 32, Minimum VI 100, minimum RPVOT 1700 hrs., minimum TOST 25,000 hrs., meets ISO cleanliness 18/19/13.	Long life steam and gas turbine applications	Diamond Class Turbine Oil 32	31.7	5.4	103	-40	426 (COC)	No metallic additives	0.5		>1,700	20 minutes to pass	pass	1a	pass	
	Oil, Mineral, Turbine, Steam, R&O, ISO VG 68, Minimum VI 100, minimum RPVOT 1700 hrs., minimum TOST 25,000 hrs., meets ISO cleanliness 18/19/13.	Long life steam and gas turbine applications	Diamond Class Turbine Oil 68	68	8.8	102	-22	469 (COC)	No metallic additives	0.5		>1,700	20 minutes to pass	pass	1a	pass	
	Oil, Synthetic PAO, Bearing & Gear, AGMA 7, ISO VG 460, Minimum VI 150	Light to medium loaded gearboxes requiring non-EP oil	Syncon R&O 400	480	37.2	123	-20F	470F (COC)	Phosphorus 1500-2100PPM	L1.0		650		pass	1b	pass	
	Oil, Synthetic PAO, Bearing & Gear, Non-EP, AGMA 5, ISO VG 220	Light to medium loaded gearboxes requiring non-EP oil	Syncon R&O 220	220	22.8	127	-37F	475F (COC)	Phosphorus 1600-2100PPM	L1.0		650		pass	1b	pass	
	Oil, Synthetic PAO, Bearing & Gear, Non-EP, ISO VG 150	Lightly loaded gearboxes requiring non-EP oil, circulating systems.	Syncon R&O 150	150	17.5	128	-40F	475F (COC)	Phosphorus 360 - 570 PPM	L1.0		850		pass	1b	pass	
	Oil, Synthetic PAO, Bearing & Gear, Non-EP, R&O, ISO VG 100, Minimum VI 130	Lightly loaded gearboxes requiring non-EP oil, circulating systems.	Syncon R&O 100	93	12.5	130	-38F	527F (COC)	Phosphorus 360 - 570 PPM	L0.5		2400	10 minutes to pass	pass	1a	pass	
	Oil, Synthetic PAO, Air Compressor, ISO VG 68, Minimum VI 140	Rotary air compressors, electric motor bearings, circulating systems.	Syncon R&O L3	68	9.8	132	-35F	527F (COC)	Phosphorus 360 - 570 PPM	L0.5		2400	10 minutes to pass	pass	1a	pass	
	Oil, Synthetic PAO, Air Compressor, ISO VG 48	Rotary air compressors, electric motor bearings, circulating systems.	Syncon R&O 48	44	7.4	130	-38F	518F (COC)	Phosphorus 360 - 570 PPM	L0.5		2400	10 minutes to pass	pass	1a	pass	
	Oil, Synthetic PAO, Air Compressor, ISO VG 32	Rotary air compressors, electric motor bearings, circulating systems.	Syncon R&O 32	32	5.8	164	-60F	473F (COC)	Phosphorus 360 - 570 PPM	L0.5		2400	10 minutes to pass	pass	1a	pass	
	Oil, Synthetic poly ester, ISO 22/32, VI 130, Industrial Gas Turbine Lubricant	For zero-derivative gas turbines.	Synustrial Turbine Oil 22/32	25.5	5.1	131	-78	511 (COC)	Phosphorus 2100 PPM, Sulfur 2 PPM	L 4.0					1a	pass	
	Oil, Synthetic (PAO) Polyethylene Glycol, Air Compressor, Rotary Screw, ISO VG 32/46, Minimum VI 150	Drop in replacement for OEM-branded polyglycol-based compressor oils.	Synustrial Rotary Compressor Oil 32/46	35.9	7.3	158	-71F	494F (COC)	Phosphorus 25 PPM,	0.5		>1800	10 minutes to pass	pass	1a	pass	
	Gear Oils	P-601 Oil, Mineral, Gear, EP, AGMA 2EP, ISO VG L3, Minimum VI 95	Commonly used in lightly loaded and/or high speed gearboxes requiring EP oil	Extra Duty Gear Oil 68	68	8.7	99	-27F	495F (COC)	Phosphorus 220 - 400 PPM, Sulfur 5000 PPM,	3.0					1a	
P-602 Oil, Mineral, Gear, EP, AGMA 4EP, ISO VG 100, Minimum VI 95		Commonly used in lightly to moderately loaded or gearboxes requiring EP oil	Extra Duty Gear Oil 150	150	14.4	97	-27F	495F (COC)	Phosphorus 220 - 400 PPM, Sulfur 5000 PPM,	4.0					1a		
P-603 Oil, Mineral, Gear, EP, AGMA 5EP, ISO VG VG 220, Minimum VI 95		Commonly used in moderately loaded gearboxes requiring EP oil	Extra Duty Gear Oil 220	220	18.4	83	-17F	485F (COC)	Phosphorus 220 - 400 PPM, Sulfur 5000 PPM,	4.5					1a		
P-604 Oil, Mineral, Gear, EP, AGMA 8EP, ISO VG 320		Commonly used in heavily loaded and/or slow speed gearboxes requiring EP oil	Extra Duty Gear Oil 320	320	23.7	96	0F	467F (COC)	Phosphorus 220 - 400 PPM, Sulfur 5300 PPM,	5.0					1a		
P-605 Oil, Mineral, Gear, EP, AGMA 7EP, ISO VG 460, Minimum VI 95		Commonly used in very heavily loaded and/or slow speed gearboxes requiring EP oil	Extra Duty Gear Oil 460	460	30.5	98	0F	489F (COC)	Phosphorus 220 - 400 PPM, Sulfur 5300 PPM,	5.5					1a		
P-606 Oil, Mineral, Gear, EP, AGMA 8EP, ISO VG 680, Minimum VI 95		Commonly used in very heavily loaded and/or slow speed gearboxes requiring EP oil	Extra Duty Gear Oil 680	630	32.2	70	27F	>572F (COC)	Phosphorus 220 - 400 PPM, Sulfur 5300 PPM,	8.0					1b		
P-607 Oil, Mineral, Gear, EP, SAE 80W-90, API GL-5		Commonly used in passenger car and truck axles with hypoid gear sets.	Universal Gear Lube 80W-90	140	14.3	99	-22F	414F (COC)	Phosphorus 250-330 PPM, Sulfur 13000-18000 PPM,	3.0							
P-608 Oil, Synthetic PAO, Gear, EP, SAE 75W/90, API GL-5		Commonly used in passenger car and truck axles with hypoid gear sets in extreme temperatures or under severe driving conditions	Triton Synthetic Gear Lube 75W-90	122	16.6	147	-51F	3E7F (COC)	Phosphorus 1200-1300 PPM	8.0							
P-609 Oil, Synthetic PAO, Gear, EP, SAE 90W/140, API GL-5		Commonly used in passenger car and truck axles with hypoid gear sets in extreme temperatures or under severe driving conditions	Triton Synthetic Gear Lube 90W-140	284	30.6	146	-40	352 (COC)	Phosphorus 1000 PPM	8.0							
P-610 Oil, Synthetic PAO, Gear, EP, AGMA 4EP, ISO VG 150		Commonly used in lightly to moderately loaded or gearboxes operating in temperature extremes and requiring EP oil	Syncon EP Plus Gear Oil 150	151	21.7	171	-48F	464F (COC)	Phosphorus 2E3 - 4E3 PPM, Sulfur 5000 - 8400 PPM, Zinc 5 PPM	1				pass	1b	pass	

Lube Oil Technical Specifications

Oil Spec ID	General Lubricant Specifications	Description	ConocoPhillips Product Name	Kinematic Viscosity @ 40°C (ASTM D445) (cSt)	Kinematic Viscosity @ 100°C (ASTM D445) (cSt)	Viscosity Index	Pour Point °F (ASTM D97)	Flash point °F (ASTM D92)	Elemental	Color (ASTM D153)	Neutralization Number @ 60°F (91°F) mg KOH/g	RPVOT (ASTM D2272) (minutes)	Water Separability Test (ASTM D1401) (ml/ml) (minutes)	Foaming Tendency (ASTM D882) (Seq 1) (ml-m)	Die Strip Test (D155)	Rust Test (D154)	Comments
P-811	Oil, Synthetic PAO, Gear, EP,AGMA SEP, ISO VG 220	Commonly used in moderately loaded gearboxes operating in temperature extremes and requiring EP oil	Syncom EP Plus Gear Oil 220	218	29.0	173	-8F	464F (JOC)	Phosphorus 288 - 432 PPM, Sulfur 5600 - 8400 PPM, Zinc 5 PPM	1.0				pass	1b	pass	
P-812	Oil, Synthetic PAO, EP,AGMA SEP, ISO VG 320	Commonly used in heavily loaded and/or slow speed gearboxes operating in temperature extremes and requiring EP oil	Syncom EP Plus Gear Oil 320	319	29.0	173	-44F	464F (JOC)	Phosphorus 288 - 432 PPM, Sulfur 5600 - 8400 PPM, Zinc 5 PPM	1.0				pass	1b	pass	
P-813	Oil, Synthetic PAO, Gear, EP,AGMA TEP, ISO VG 460	Commonly used in very heavily loaded and/or slow speed gearboxes operating in temperature extremes and requiring EP oil	Syncom EP Plus Gear Oil 460	463	46.9	108	-36F	464F (JOC)	Phosphorus 283 - 462 PPM, Sulfur 5900 - 8400 PPM, Zinc 5 PPM	1.0				pass	1b	pass	
P-814	Oil, Synthetic PAO, Gear, EP,AGMA TEP, ISO VG L30	Commonly used in very heavily loaded and/or slow speed gearboxes operating in temperature extremes and requiring EP oil	Syncom EP Plus Gear Oil L30	829	53.3	182	-33F	464F (JOC)	Phosphorus 263 - 432 PPM, Sulfur 5900 - 8400 PPM, Zinc 5 PPM	1.0				pass	1b	pass	
P-401	Grease, Mineral Oil Base, Minimum ISO VG 3000 (with Polymer), Lithium Soap or Lithium Complex Thickener, Multipurpose Grease, EP, R&O, NLGI 0/1	For medium and high speed couplings.	Coupling Grease	>3200 with polymer	142		not applicable			Dark Amber Visual	not applicable	not applicable	not applicable	not applicable		pass ASTM D1743	
P-401	Grease, Mineral Oil Base, Minimum ISO VG 100, Lithium 12-Hydroxysebacate Thickener, Multipurpose, EP, R&O, NLGI 000	Commonly used in gear boxes where oil leakage is a problem	Dynaflo L-EP 6000 Grease	195	18.3	80	not applicable			Amber Visual	not applicable	not applicable	not applicable	not applicable		pass ASTM D1743	
P-402	Grease, Mineral Oil Base, Minimum ISO VG 180, Minimum VI 80, Lithium 12-Hydroxysebacate Thickener, Multipurpose, EP, R&O, NLGI 2	Commonly used in plain and rolling-element bearings and other industrial equipment where operating temperature's and loads are moderate	Dynaflo L-EP #2 Grease	195	18.5	80	not applicable			Amber Visual	not applicable	not applicable	not applicable	not applicable		pass ASTM D1743	
P-403	Grease, Mineral Oil Base, Minimum ISO VG 575 (with polymer), Minimum VI 80, Lithium Complex Thickener, Multipurpose, EP, R&O, NLGI 2, GC-LB certified	Commonly used in heavily loaded plain and rolling-element bearings operating at moderate to high temperatures	Dynaflo HT #2 Grease	625	40	104	not applicable			Red Visual	not applicable	not applicable	not applicable	not applicable		pass ASTM D1743	
P-404	Grease, Mineral Oil Base, Minimum ISO VG 180, Minimum VI 85, Lithium 12-Hydroxysebacate Thickener, Multipurpose, EP, R&O, NLGI 0	Commonly used in moderately loaded plain and rolling-element bearings in industrial equipment	Super-GTA #2 Grease	180	17	95	not applicable			Amber Visual	not applicable	not applicable	not applicable	not applicable		pass ASTM D1743	
P-405	Grease, Mineral Oil Base, Minimum ISO VG 180, Minimum VI 85, Lithium 12-Hydroxysebacate Thickener, Multipurpose, EP, R&O, 1% molybdenum disulfide, NLGI 2	Commonly used in moderately loaded plain and rolling-element bearings in industrial equipment subjected to heavy or shock loading	Super-GTA M #2 Grease	190	17	95	not applicable			Grey-Black Visual	not applicable	not applicable	not applicable	not applicable		pass ASTM D1743	
P-406	Grease, Mineral Oil Base, Minimum ISO VG 400, Minimum VI 80, Lithium Complex Thickener, Multipurpose, EP, R&O, NLGI 2	Commonly used in heavily loaded, slow-to medium-speed bearings	Tecna HD	400	28	85	not applicable			Red Visual	not applicable	not applicable	not applicable	not applicable		pass ASTM D1743	
P-407	Grease, Mineral Oil Base, Minimum ISO VG 180, Calcium Sulfonate Thickener, High Temperature Grease, EP, R&O, NLGI 2, GC-LB certified	Commonly used in industrial and automotive equipment operating in wet or corrosive environments	OmniGuard #2 Grease	218	18.8	95	not applicable			Tan Visual	not applicable	not applicable	not applicable	not applicable		pass ASTM D1743	
P-408	Grease, Mineral Oil Base, Minimum ISO VG 100, Minimum VI 85, Polyurea Thickener, High Temperature Grease (Range -20 to 400F), Ball & Roller Bearing Grease, Non-EP, R&O, NLGI 2	Compatibility check required on any replacement grease.	Polytac #2 grease	110	12.1	88	not applicable			Red Visual	not applicable	not applicable	not applicable	not applicable		pass ASTM D1743	
P-409	Grease, Mineral Oil Base, Minimum ISO VG 100, Minimum VI 70, Polyurea Thickener, EP, R&O, NLGI 2, GC-LB certified	Compatibility check required on any replacement grease.	Polytac EP #2 grease	129	11.8	71	not applicable			Green Visual	not applicable	not applicable	not applicable	not applicable		pass ASTM D1743	
P-410	Grease, Synthetic Oil Base, PAO, Minimum ISO VG 400, Minimum VI 140, Lithium Complex Thickener, Low temperature grease (Range -50 to 275F) EP, R&O, NLGI # 00	Commonly used in industrial gearboxes operating at high temperatures where oil leakage is a problem	Tifton ELL Grease	420	44	155	not applicable			Emerald Green Visual	not applicable	not applicable	not applicable	not applicable		pass ASTM D1743	
P-411	Grease, Synthetic Oil Base, PAO, Minimum ISO VG 180, Minimum VI 130, EP, R&O, Wide Temperature Range, Lithium Complex Thickener, NLGI 2	Commonly used in medium-speed bearings in industrial equipment operating in extreme temperatures or over a wide temperature range	Tifton 220 #2 Grease	220	24.8	140	not applicable			Purple Visual	not applicable	not applicable	not applicable	not applicable		pass ASTM D1743	

Lube Oil Technical Specifications

Oil Spec ID	Generic Lubricant Specification	Guidelines	Corrosion/Type Product Name	Kinematic Viscosity @ 40°C (ASTM D445) (cSt)	Kinematic Viscosity @ 100°C (ASTM D445) (cSt)	Viscosity Index	Pour Point °F (ASTM D97)	Flash point °F (ASTM D92)	Elemental	Color (ASTM D153)	Neutralization Number (SFO 691) mg KOH/g	NPVT (ASTM D2272) (minutes)	Water Separability Test (ASTM D1401) ml-water/ml-oil (minutes)	Foaming Tendency (ASTM D672 Req 5) (ml-min)	Cu Strip Test (D190)	Rust Test (D665)	Comments
P-612	Grease, Synthetic Oil Base, PAO, Minimum ISO VG 400, Minimum W 130, EP, RAO, Wide Temperature Range, Lithium Complex Thickener, NLGI 1.5	Commonly used for lubrication of low to medium speed bearings in industrial and mobile equipment operating under heavy loads and/or wet conditions	Titan 480 #1.5 Grease	460	44.3	150	not applicable			Purple/Violet	not applicable	not applicable	not applicable	not applicable			pass ASTM D1743
P-617	Grease, Mineral Oil and Asphaltic Base, Asphaltic VG 5000-10,000 @ US Gr 100, Open Gear Lubricant, RAO, Antwear, EP - Specification Without Solvent but to contain Non-Chlorinated Evaporative Solvent, usable low temp. range to 32F.	Primarily for the lubrication of open and semi-enclosed gears or for guides and sliding surfaces with large clearances	Gear Shield NC	4000-8000 with solvent	1000-2200 w/o solvent	not applicable	not applicable	>250F with solvent		Black visual	not applicable	not applicable	not applicable	not applicable	4b		pass
P-614	Grease, Mineral Oil and Asphaltic Base, Asphaltic VG 5000-10,000 @ US Gr 100, Open Gear Lubricant, RAO, Antwear, EP - Specification Without Solvent but to contain Non-Chlorinated Evaporative Solvent, usable low temp. range to 0F (winter grade).	Primarily for the lubrication of open and semi-enclosed gears or for guides and sliding surfaces with large clearances	Gear Shield NCW	500-1800 with solvent	1000-2200 w/o solvent	not applicable	not applicable	>180F with solvent		Black visual	not applicable	not applicable	not applicable	not applicable	4b		pass
P-615	Oil, Soluble, Chlorine-free, Crystallinity, 3-10% min rate oil in water, ISO VG 46.	Light-duty metalworking fluid for light-to medium-duty cutting and grinding of ferrous and non-ferrous metals	Soluble Oil	34.2	5	51	-45	365 (PMCC)		3.5							pass
P-616	Oil, Dielectric, Transformer, ANSI/ASTM D3487-06 Type II Inhibited Oil, GE A13A3A2 (10CA), Windinghouse Specification PDG 55822AG, Non-corrosive by ASTM D1275B	Electrical insulating oil for use in oil immersed transformers, capacitors, tap changers and circuit breakers	Transformer Oil	9.8	2.3	19	-56F	300F (COC)	No metallic additives	10.5		200					pass

This Specification is to be used for all MidAmerican Energy materials
 Attachment 2 - MidAmerican Energy Lubricant Technical Specification
 MidAmerican Energy short specification

MEC Oil Specification Number	Status	Generic Lubricant Specification	Relevant OEM Endorsements or Specifications	ASTM or ISO Specs
MEC-001	Active	Oil, Mineral, Hydraulic, Fluid Power Transmission, Antiwear, R&O, ISO VG 32, High Viscosity Index, Minimum VI 133, Low Pour Point < -39 F	Denison (HF-O HF-1 HF-2) Cincinnati Machine P-43 (ISO 32) Eaton Vickers I-263-S Eaton Vickers M-2950-S	ASTM 6156 - Hydraulic Oil Type - HV ISO 11156:2008 Family H (Hydraulic Systems), Type HV ISO 4408 2/11/16 class ASTM D 1421 - Demulsibility Test - < 15 minutes to pass ASTM D 672 - Foam Test - pass ASTM D 132 - Copper Corrosion - 1a ASTM D 155A/B/S - Rust Test - Pass ASTM D843-D4a - Oxidation Stability - TOBT - > 5000 hours to 2.0 mg KOH/kg ASTM D2722 - Oxidation Stability - RPVOT - > 250 minutes ASTM D 877 - Dielectric Strength - > 35kV ASTM D674 - Acid Number - < 0.56 mg KOH/g ASTM D5909 - Pour Point - < -39 F Zinc - < 450 ppm (if antiwear additive contains zinc)
MEC-002	Active	Oil, Mineral, Hydraulic, Fluid Power Transmission, Antiwear, R&O, ISO VG 32, Minimum VI 95, Pour Point < -20 F	Denison (HF-O HF-1 HF-2) Cincinnati Machine P-43 Eaton Vickers I-263-S & M-2950-S Eaton Vickers M-2950-S	ASTM 6156 - Hydraulic Oil Type - HM (mineral mineral oil with R&O and AW) ISO 11154:2006 - Family H (Hydraulic Systems), Type HM ASTM D 1421 - Demulsibility Test - < 10 minutes to pass ASTM D682 - Foam Test - pass ASTM D 130 - Copper Corrosion - 1a ASTM D 155A/B/S - Rust Test - Pass ASTM D843-D4a - Oxidation Stability - TOBT - > 5000 hours to 2.0 mg KOH/kg ASTM D2722 - Oxidation Stability - RPVOT - > 270 minutes ASTM D674 - Acid Number - < 0.56 mg KOH/g ASTM D5909 - Pour Point - < -20 F Zinc - < 450 ppm (if antiwear additive contains zinc)
MEC-003	Active	Grease, Mineral Oil Base, ISO VG 220, Minimum VI 80, Lithium Complex Thickener, Multipurpose, EP, R&O, NLGI 2 - (This specification duplicated MEC-110, so MEC-110 was consolidated into it to make MEC-110 an open specification.)		ASTM D 4950 Classification GC-LB for Automotive Service; Pass - ASTM D 1743 - Rust Protection; 1b - ASTM D 4048 - Copper Corrosion; >95 hours - ASTM D 3527 - Wheel Bearing Life; <5% - ASTM D 1254 - Water Washout, % loss @ 175°F; 45 lbs - ASTM D 2509 - Timken OK Load, lbs; 250 kgf - ASTM D 2598 - Four-Ball EP, Weld Load, kgf 0.45 mm - ASTM D 2288 - Four-Ball Wear, mm, Thr. 75°C, 1200 rpm, 40kgf
MEC-004	Active	Oil, Mineral, General Purpose, Gear, AGMA 7, Non-EP, Antiwear, R&O, ISO VG 460, Minimum VI 95	NA	<20 °F - D 6950 - Pour Point, °F; 1b - ASTM D 130 - Copper Corrosion, 3 hrs @ 212°F; Pass - ASTM D 8958 - Rust Test; >100 hours - ASTM D 843 - Oxidation Stability Hours to 2.0 mg KOH/g acid number; >82 minutes - ASTM D 1401 - Emulsion Test, minutes; 60 - ASTM D 632 - Foam Test, Sequence 5; no foam @ 0/10 minutes
MEC-005	Active	Oil, Mineral, Gear, EP, AGMA SEP, ISO VG 220, Minimum VI 95	Boach Rexroth (Listing); Boston Gear (Listing); David Brown (Approval); Denison (Listing); FAG (Listing); Felt (Listing); GM LS-S, Lemco AG (Approval); Ingersoll Rand (Approval); Morgan Construction (Listing); Mueller Wirtgenstein (Listing); Raymond-Stephen (Approval); Wartsila (Approval); US Steel 224	Pass - ASTM D 8958 - Rust Test; 70 lbs - ASTM D 2782 - Timken OK Load, lbs; 45 kgf and 220 kgf - ASTM D 2763 - Four-Ball EP Load Wear Index, kgf and Weld Point, kgf
MEC-006	Active	Oil, Mineral, Gear, EP, AGMA 7EP, ISO VG 460 Minimum VI 95		
MEC-007	Active	Oil, Mineral, Gear, EP, AGMA SEP, ISO VG 32, Minimum VI 95		
MEC-008	Active	Oil, Mineral, Turbine and General Purpose, R&O, ISO VG 32, Minimum VI 100, Filtered to meet ISO 4406 cleanliness code 18/10/12. Lubricants that meet MEC-008 will meet this specification only if the the oil is filtered to meet ISO 4406 18/10/12.	General Electric GEK 28143A; General Electric GEK 4650B; General Electric GEK 5250JF; Vikinghouse 21 T0591; Solar Turbine ES & 234L; ISO 8002; Siemens/Mitsubishi Daimler B09 037 98; Man Turbo BP 07F304 D0000 EP	ASTM D 4304, Type I (non-EP); DIN 51515 Part 1; ISO 6263;
MEC-009	Active	Oil, Mineral, Hydraulic, SAE 10W-EP ISO VG 32, Minimum VI 105 (This specification duplicated MEC-092, so MEC-092 was consolidated into it making MEC-092 an open specification.)	Mack EO-K2 & EO-K; Detroit Diesel Corp. Two Cycle; Caterpillar TO-2	
MEC-010	Active	Oil, Mineral, Engine, SAE 30 API CF, CF-2, CD, CE, CD-II -SG-SH-SJ (MEC-024 was consolidated into MEC-010.)	API CF: MIL-L-2104 B, C, D, E, F; MIL-L-46152E; Allison D-4, C-3; CAT TO-2; Vickers 20V-0225 MIL-L-2104F/G; DOD C1DA-A-82308 Cummins NTC-400; Mack EO-K2 and EO-K; Allison Type C-4 Fluid; Caterpillar TO-2	
MEC-011	Active	Oil, Mineral, Engine, SAE 15W/40 API CG-4, CE, CD-ILCF-4, CF-2, CF, SH, SG-EC-SJ	MIL-L-2104F/G; MIL-L-46152E; DOD C1DA-A-82308 Mack EO-K2 & EO-K; EO-L; Cummins NTC 400; Caterpillar TO-2; Allison Type C-4 Fluid; DEXRON-III; MERCON	
MEC-012	Active	Fluid, Automatic Transmission, Mercon II		
MEC-013	Active	Grease, Mineral Oil Base, ISO VG 220, Minimum VI 80, Lithium Complex Thickener, Multipurpose, EP, R&O, High Temperature, Minimum Dropping Point 450 F, NLGI 1		
MEC-014	Active	Grease, Mineral Oil Base, ISO VG 180, Minimum VI 80, Lithium Complex Thickener, Multipurpose, EP, R&O, NLGI 0		
MEC-015	Active	(Same as MEC-124, except for thickener and AWI) Grease, Synthetic Oil Base, PAO, ISO VG 220, Minimum VI 108, Aluminum Complex Thickener, Food-Grade NSF H-1, 40 F to 320 F, EP, R&O, NLGI 2		
MEC-016	Active	Oil, Mineral, Gear, ISO VG 150, Minimum VI 95, EP, AGMA SEP, SAE 80 (see Oil, Mineral, Gear, EP, AGMA SEP, SAE 80W/90) (MEC-076 was consolidated into MEC-016.)	MIL-L-2105D; API GL-4; Mack GO-H; PG-2; Rootolow G-78-C; AMGA 4EP MIL-PRF-2105E; API GL-5	
MEC-017	Active	Oil, Mineral, Gear, EP, AGMA SEP, SAE 80W/140, API GL-5	MIL-PRF-2105E; API GL-5; MT-1; Mack GO-J, GO-H, GO-S; Arden/Ingersoll Rand A-1; AMGA SEP	
MEC-018	Active	Oil, Mineral, Air Compressor, Antiwear, R&O, Demulsifying, ISO VG 100, Minimum VI 75 (This specification is almost identical to MEC-036 and they should be combined.)	Alas Corp., Dresser Rand, Sulair. Compare requirements for rotary screw and vane compressors. Coupling Grease must meet the requirements of the following industry specifications: ANSI/AGMA Standard 8001-1B7, Type CG-1 and CG-3 for medium- and high-speed couplings.	
MEC-019	Active	Grease, Mineral Oil Base, ISO VG 3200, Minimum VI 150, Lithium Soap or Lithium Complex Thickener, Coupling Grease, NLGI 0/1		
MEC-020	Active	Grease, Synthetic Oil Base, PAO, ISO VG 400, Minimum VI 120, Lithium Complex Thickener, Multipurpose, Wide Temperature Range, EP, R&O, NLGI 1.5 to 2		
MEC-021	Active	This specification is a duplication of MEC-121.		
MEC-022	Active	Oil, Synthetic PAO, Gear, EP, AGMA SEP, SAE 70W/90, API GL-5	MIL-L-2106D-API GL-5; Mack GO-G/S and GO-H/S-GE; 1050E/C; Rootolow 079E and 079S	
MEC-023	Active	Oil, Synthetic, PAO, Air Compressor, non-EP, ISO VG 63, Minimum VI 140 (MEC-082 was consolidated into MEC-023)	Performance and specifications must equal or exceed Mobil SHC-625.	
MEC-025	Active	Grease, Mineral Oil and Asphaltic Base, Asphaltic VG 900 SUS @ 210F, Mineral Oil ISO VG 620 (200 SUS @ 210 F), Open Gear Lubricant, R&O, Antiwear, EP - Specification Without Solvent but to contain Non-Chlorinated Evaporative Solvent		
MEC-026	Active	Oil, Synthetic, PAO, Gear, AGMA 7, ISO VG 460, Minimum VI 150	Performance and specifications must equal or exceed Mobil SHC-634.	
MEC-027	Active	Oil, Mineral, General Purpose, Antiwear, R&O, ISO VG 220, Minimum VI 95	Denison HF-1 & HF-2A; TB-C; Vickers I-263-S & M-2950-S; Cincinnati Machine P-68, P-79 & P-70	
MEC-028	Active	Grease, Synthetic Oil Base, Silicone, ISO VG 216, Minimum VI (ENTER), Carbon Black Thickener, Sealing, Extreme High Temperature Service, Service Temp Range -18 to 288 C (0 to 550 F), R&O, NLGI 2		
MEC-029	Active	Oil, Synthetic, Tri-Aryl Phosphate Ester, Hydraulic, Fire-Retardant, EHC - (See also MEC-146.)	GE Spec D5G12B-61	
MEC-030	Active	Oil, Synthetic, PAO, Sealing & Gas, Non-EP, ISO VG 32, Minimum VI (not yet specified)	Performance and specifications must equal or exceed Mobil SHC-624.	
MEC-031	Active	Oil, Mineral, Gear, EP, AGMA SEP, ISO VG 220, Minimum VI 95		
MEC-032	Active	Grease, Mineral Oil Base, ISO VG 220, Multipurpose, Lithium Complex Thickener, High Temperature, Auto-Luber, EP, R&O, NLGI 1 (Must be same grease as MEC-013)		
MEC-033	Active	Oil, Synthetic (PAO) Polyethylene Glycol/Ester Blend, Air Compressor, Rotary Screw, ISO VG 63, Minimum VI 200	Performance and specifications must equal or exceed Ingersoll Rand IR Ultra Coolant.	
MEC-034	Active	Oil, Mineral, Straight Paraffinic, Flashing, ISO VG 150/22, Minimum VI 80 (MEC-044 was consolidated into MEC-034.)		

This Specification is to be used for all MidAmerican Energy materials

Attachment 2 - MidAmerican Energy Lube Oil Technical Specification
MidAmerican Energy short specification

Item #	Grade	Description	Notes	References
MEC-035	Active	Oil, Synthetic Polyol Ester, Hydraulic, Fire-Resistant, ISO VG 46, Minimum VI 140	Performance and specifications must equal or exceed Shellfire Quintrafire 822-226 or 836-46, which has replaced 822-226.	ASTM D 82 Flash Point - > 825 F ASTM D 82 Fire Point - > 615 F CIN 61704 Auto Ignition Temperature - > 640 F (Fire resistance properties certified by Factory Mutual)
MEC-038	Active	Oil, Synthetic, PAO or Hydrocarbon and Ester Blend, Gear,AGMA 5, Non-EP, R&O, Minimum VI 152, ISO VG 220		
MEC-040	Active	Grease, Mineral Oil Base, ISO VG 150, For Low Speed Bearings, Heat, Steam, and Water Washout Resistant, High Temperature, Aluminum Complex, EP, R&O, NLGI 2		
MEC-043	Active	Oil, Mineral, Hydraulic & General Purpose, Non-Antiwear, R&O, ISO VG 32, Minimum VI 85 (MEC-008 Turbine Oil may be used to meet this specification.)		
MEC-039	Active	Oil, Mineral, General Purpose, Antiwear, R&O, ISO VG 100, Minimum VI 85 (This specification is almost identical to MEC-018 and they should be combined.)		
MEC-040	Active	Oil, Mineral, Chain & Cable Lubricant, ISO VG 22-92, EP, -10 F to 300 F Operating Temperature, > 250 F Flash Point		
MEC-041	Active	Oil, Mineral, Hydraulic & General Purpose, Non-Antiwear, R&O, ISO VG 320, Minimum VI 85		
MEC-042	Active	Oil, Synthetic, Diester, Air Compressor, Reciprocating, ISO VG 68, Minimum VI 94	[Must be equivalent to Atlas Copco Robo Z Compressor Oil]	
MEC-043	Active	Oil, Mineral, Hydraulic & General Purpose, Non-Antiwear, R&O, ISO VG 68, Minimum VI 105		
MEC-045	Active	Oil, Mineral, Straight Naphthenic, Bearing & Light Gear, Flashing, ISO VG 150, Minimum VI (not yet specified)		
MEC-047	Active	Oil, Mineral, Gear, ISO VG 150, Minimum VI 85, EP,AGMA 4EP, SAE 90 (This spec appears to be a duplicate of MEC-014.)		
MEC-047	Active	Grease, Mineral Oil Base, ISO VG 220 to 460, Minimum VI 80, Lithium Soap Thickener, Plus 3% Molybdenum Disulfide, EP, R&O, NLGI 2		
MEC-048	Active	Grease, Mineral Oil Base, ISO VG 46, Minimum VI (ENTER), Lithium Soap Thickener, Multipurpose Grease, Electric Motor Bearing Grease, Low-Noise Grease, Non-EP, R&O, NLGI 2		
MEC-049	Active	Oil, Mineral, Gear, Drive Train and Transmission, SAE 30W	Caterpillar TD-4; Allison C-4	
MEC-050	Active	Grease, Mineral Oil Base, ISO VG 22, Minimum VI (ENTER), Calcium Soap w/ Graphite Thickener, Rail Curves & Wheel Flange, NLGI 1/2	Graphite content must equal or exceed 12 %.	
MEC-051	Active	Oil, Synthetic, PAO, Bearing & Gear, Non-EP, ISO VG 150, Minimum VI (not yet specified)	Performance and specifications must equal or exceed Mobil SHC-628.	
MEC-052	Active	Grease, Mineral Oil Base, ISO VG 120, Minimum VI 85, Synthetic Polyurea & PTFE Thickener, EP, R&O, NLGI 2, High Temperature Performance + Force at 500 hours - 10,000 RPM @ 450°F, Water Washout, % base @ 175°F, (typical) ASTM D 1254 <6%		
MEC-054	Active	Oil, Mineral, Turbine, General Purpose, Non-Antiwear, R&O, ISO VG 100, Minimum VI 100 (Duplicate of MEC-125)		
MEC-055	Active	Oil, Mineral, Hydraulic & General Purpose, Non-Antiwear, R&O, ISO VG 150, Minimum VI 85 (MEC-052 was consolidated into MEC-055)	Denison HF-1; Victors 288-S; Cincinnati Milacron P-36, P-34, and P-55.	
MEC-056	Active	Oil, Synthetic, PAO,AGMA SEP, ISO VG 320, Minimum VI 170		
MEC-057	Active	Oil, Synthetic, PAO,AGMA BA, ISO VG 1000		
MEC-058	Active	Oil, Synthetic, (TYPE), Gear,AGMA B, Minimum VI 11, ISO VG 680		
MEC-059	Active	Oil, Mineral, Hydraulic & General Purpose, Antiwear, R&O, ISO VG 46, Minimum VI 135, Wide Temperature Range	Denison HF-Q & HF-Z; Victors 1-288-S and M-2850-S; Rexnord Model S; and, Cincinnati Milacron P-63, P-66, and P-73 for vane, piston or gear type pumps.	
MEC-060	Active	Oil, Mineral, Hydraulic & General Purpose, Non-Antiwear, R&O, ISO VG 220, Minimum VI 90		
MEC-061	Active	Oil, Mineral, Hydraulic & General Purpose, Non-Antiwear, R&O, ISO VG 460, Minimum VI 90		
MEC-064	Active	Oil, Mineral, Hydraulic & General Purpose, Non-Antiwear, R&O, ISO VG 46, Minimum VI 105 (Duplicates: MEC-064, MEC-069 and MEC-119.)	Denison HF-1; Victors 288-S; Cincinnati Milacron P-36, P-34, and P-55. GE, GEK-69508A; SAE-ARP Class 8 & NAS 1336 Class 9 w/ LR Pump; SAE-ARP Class 4 & NAS 1636 Class 7 w/ LR Pump	
MEC-065	Active	Oil, Mineral, Engine, SAE 40, U.S. Military MIL-PRF-2104G, CF-2, CG4, G1		
MEC-066	Active	Oil, Synthetic, PAO, Gear,AGMA SEP, R&O, Minimum VI 150, ISO VG 220		
MEC-067	Active	(MEC-103 was consolidated into MEC-067) Oil, Synthetic PAO, Air Compressor, Gear, Non-EP, R&O, ISO VG 100, Minimum VI 100 (Duplicate MEC-103)		
MEC-069	Active	Oil, Synthetic, PAO, Hydraulic, Non-Zinc Antiwear, R&O, ISO VG 22, Minimum VI 130	Denison HF-1 & HF-2A; Victors 1-288-S and M-2850-S; Cincinnati Milacron P-69, P-67, and P-70.	
MEC-070	Active	Oil, Mineral, Compounded, Low Speed Bearing & Gear, Steam Cylinder,AGMA 7, ISO VG 460	Performance and specifications must equal or exceed Dow Corning Inco Oil 460.	
MEC-071	Active	Oil, Mineral, Low Speed Bearing & Gear, Steam Cylinder,AGMA 8, ISO VG 680	Performance and specifications must equal or exceed Dow Corning Inco Oil 680.	
MEC-072	Active	Grease, Synthetic Oil Base, PAO, ISO VG 22, Minimum VI 120, Lithium Soap or Lithium Complex Thickener, EP, R&O, NLGI 1		
MEC-073	Active	Grease, Synthetic Oil Base, PAO, ISO VG 460, Minimum VI (ENTER), Lithium Complex Thickener, EP, R&O, NLGI 00		
MEC-074	Active	Grease, Mineral Oil Base, ISO VG 460, Minimum VI 85, Bentonite Clay Thickener, High Temperature Dry-use, EP, NLGI 2 (Except for NLGI Grade, this grease is the same as MEC-122.)		
MEC-075	Active	Grease, Mineral Oil Base, ISO VG 460, Minimum VI 85, Calcium Sulfonate Thickener, High Temperature Grease, Water Washout Resistant Grease, EP, R&O, NLGI 1		
MEC-078	Active	Grease, Mineral Oil Base, ISO VG 460, Minimum VI 85, Calcium Sulfonate Thickener, High Temperature Grease, Water Washout Resistant Grease, EP, R&O, NLGI 2		
MEC-077	Active	Grease, Synthetic Oil Base, Silicone, ISO VG (ENTER BASE OIL GRADE), Minimum VI (ENTER), Extreme High Temperature, NLGI 0	Performance and specifications must equal or exceed Dow Corning 111 Valve Lubricant.	
MEC-079	Active	Oil, Mineral, Hydraulic & Fluid Power Transmission, ISO Oil Type HM, Non-Zinc Antiwear, R&O, ISO VG 68, Minimum VI 85	Denison HF-1; Victors 288-S; Cincinnati Milacron P-36, P-34, and P-55.	
MEC-080	Active	Grease, Synthetic Oil Base, Polyketone Glycol, ISO VG 150, Minimum VI (ENTER), Gear, Lithium Soap Thickener, Shellbald, NLGI 00	Performance and specifications must equal or exceed Shell Trade Compound A Lubricant.	
MEC-081	Active	Oil, Mineral or Synthetic or Synthetic Blend, Engine, SAE 10W30, ILIAC GF-5, CF-2, Chrysler MS-6393 (Rev. T)		
MEC-082	Active	Oil, Synthetic, PAO, Gear,AGMA 7EP, Minimum VI 11, ISO VG 460		
MEC-083	Active	Grease, Synthetic Oil Base, PAO, ISO VG 32, Minimum VI 140, Organic Clay Thickener, Wide Temperature Range (-60 C to 180 C), NLGI 1.5	Performance and specifications must equal or exceed Mobil Temp SHC 32.	
MEC-084	Active	Oil, Mineral, Multipurpose, Transmission & Hydraulic, Tractor Final Drive, ISO VG 62, Minimum VI 145 - See OEM Specification Requirements	<ul style="list-style-type: none"> *AGCO Power Fluid 821XL, Q-1636, Q-1802 (Type 85 Fluid), Q-1713 *Case IH M81210, M81209, M81207, M81206 *Case New Holland (CNH) MAT3325 (194-C Fluid), MAT3305, MAT3303 *Caterpillar TD-2 (obsolete) *Denison Hydraulic HF-Q, HF-1, HF-2 *Ford ESN-M2C134-D, ESN-M2C86-C, ESN-M2C63-B, ESN-M2C41-B *Ford-New Holland FNHA-3-C-201,00 *John Deere JDM J200, J202 ("Low Viscosity" grade), J14C (Type 303 Fluid) *Kubota UOJ Fluid *Lundell Tractor II Hydraulic Fluid *Massey Ferguson CMS M1145/M1143, M1141, M1135, M1125A *Sunstrand Hydraulic Transmission Fluid *Victors (Easton) M-2850-S, 1285-S *Victors VAG 148 101 (VCC 1279,15) *ZF TE-ML 03E, 05F, 17E 	
MEC-086	Active	Grease, Mineral Oil Base, ISO VG 100, Minimum VI (ENTER), Lithium Soap Thickener, Electric Motor Bearing Grease, NLGI 3	Performance and specifications must equal or exceed Shell Dyrane RA Grease.	

This Specification to be used for all MidAmerican Energy materials

Attachment 2 - MidAmerican Energy Lube Oil Technical Specification
MidAmerican Energy short specifications

MEC-086	Active	Grease, Mineral Oil Base, ISO VG 100, Minimum VI (ISO cSt @ 40, 37 cSt @ 100), Sodium Soap Thickener, Bearing Grease, NLGI 1	
MEC-087	Active	Oil, Synthetic, PAD, Air Compressor, ISO VG 48	
MEC-088	Active	Oil, Synthetic, Diester, Air Compressor, ISO VG 100, Minimum VI 86	
MEC-089	Active	Grease, Soy Oil Base, ISO VG 86, Minimum VI 200, Rail Curve & Wheel Flange, NLGI 1 (Conforms to State of Iowa Senate File - SF 2185 and SF 2348 Purchasing Preference for Bio-based Lubricants)	
MEC-100	Active	Oil, Mineral, Hydraulic & Fluid Power Transmission, ISO Oil Type HM, Zinc-Free Antwear, R&O, ISO VG 46, Minimum VI 100 (MEC-122 was consolidated into MEC-100)	Denson 20-VG, 35-VG, and 104G vane pump tests.
MEC-101	Active	Grease, Mineral Oil Base, ISO VG 100, Minimum VI 80, Synthetic Polyurea Thickener, High Temperature Grease, Ball & Roller Bearing Grease, NLGI 2. MUST MEET LUBRICANT REQUIREMENTS OF GSK 4836HF (MEC-101 is a near duplicate of MEC-117 and 136)	GIE ISEK 46302F
MEC-102	Active	Grease, Synthetic Oil Base, Silicone, ISO VG (ENTER BASE OIL GRADE), Minimum VI (ENTER), Coupling Grease	
MEC-104	Active	Oil, Synthetic, PAD, Hydraulic, Non-Zinc Antwear, ISO VG 32, Minimum VI 125, Wide Temperature Range	
MEC-105	Active	Oil, Synthetic, Diester, Air Compressor, ISO VG 100, Minimum VI 85	
MEC-107	Active	Oil, Mineral, Drive Train & Transmission, SAE 1B, Allam C-4, Caterpillar TO-4, Euclid equipment, Komatsu equipment, Vickers (Eaton) M-285D-S, ZF TE-ML D9C for torque converter transmissions	
MEC-108	Active	Grease, Synthetic Oil Base, Diester, ISO VG 48 (3.1-3.4 @ 100 C), Minimum VI (-100 F to +300 F), Inorganic Gel Thickener of Lithium Soap, Low Temperature, NLGI 2	
MEC-109	Active	Oil, Mineral, Engine, SAE 10W40, API SF/SAE GF-5	
MEC-111	Active	Grease, Mineral Oil Base, ISO VG 86-100, Minimum VI 100, Aluminum Complex Thickener, Multipurpose, High Temperature Grease, EP, R&O, NLGI 2	
MEC-112	Active	Grease, Synthetic Oil Base, PAD, ISO VG 1.3, Minimum VI 80, Aluminum Complex Thickener, Bearing Grease, EP, R&O, NLGI 2	
MEC-113	Active	Grease, Synthetic Oil Base, PAD, ISO VG 1200, For Heavily-Loaded Low-Speed Bearings, Lithium Complex Thickener, EP, R&O, Antwear, NLGI 1	Performance and specifications must equal or exceed Mobilith SHC 1800.
MEC-114	Active	Grease, Mineral Oil Base, ISO VG 100, Minimum VI (ENTER), Lithium Soap Thickener, Multipurpose Grease, Electric Motor Bearing Grease, Low-Noise Grease, Non-EP, R&O, NLGI 3	
MEC-115	Active	Oil, Mineral, Gear, EP, AGMA SEP, ISO VG 68, Minimum VI 85	
MEC-118	Active	Grease, Synthetic Oil Base, PAC, ISO VG 100, Minimum VI 105, Synthetic Polyurea Thickener, Ball & Roller Bearing, Non-EP, R&O, NLGI 2	
MEC-118	Active	Oil, Synthetic, PAD, Hydrocarbon, Gear, AGMA SEP, ISO VG 150, Minimum VI 130	
MEC-120	Active	Oil, Mineral, Hydraulic & General Purpose, Antwear, EP, R&O, ISO VG 100, Minimum VI 85	Denson HF-0 & HF-0A; Vickers 288-S & M-2250-S; Cinchmat Miboron P-63, P-61, & P-70
MEC-122	Active	Grease, Synthetic Oil Base, PAD, ISO VG 220, Minimum VI 130, EP, R&O, Wide Temperature Range, Lithium Complex Thickener, NLGI 2	
MEC-124	Active	Grease, Mineral Oil Base, ISO VG 160, Minimum VI 80, Lithium 12-Hydroxysebacate Thickener, Multipurpose, EP, AW, R&O, NLGI 0 (Same as MEC-014, except for thickener and AW)	
MEC-126	Active	Grease, Mineral Oil Base, ISO VG 220, Minimum VI 80, Lithium 12-Hydroxysebacate Thickener, Multipurpose, EP, R&O, NLGI 2	
MEC-127	Active	Oil, Mineral, Dielectric, Insulating, Transformer, ANBUAGTM D3487-08 Type II inhibited Oil, GE A13ABA2 (10CA), Westinghouse Specification PCB 35222AG	
MEC-128	Active	Oil, Mineral, Refrigeration Compressor, ISO VG 32-32.8 (SUB @ 100F = 150)	
MEC-128	Active	Oil, Mineral, Refrigeration Compressor, ISO VG 300	
MEC-130	Active	Oil, Synthetic, Polyurea Glycol, Gear, ISO VG 680, Minimum VI 220, Wide Service Temperature Range: -25 to 160 C, Seal Compatibility: Nitril (NBR) & Viton, OEM Approval: Fawcett AG	
MEC-131	Active	Grease, Synthetic Oil Base, (ENTER TYPE), ISO VG 320, Bentonite Thickener, High Temperature Grease, Food-Grade NSF Class HT, EP, R&O, NLGI 2	
MEC-133	Active	Oil, Synthetic, PAD, Industrial Gas Turbine Lubricant, ISO VG 32, Minimum VI 130	Allison Gas Turbine Division EMS-45, Cooper Industrial Gas Turbines, General Electric Company Gas Turbines, Solar Turbines EB 9-224, Westinghouse Gas Turbines
MEC-134	Active	Oil, Synthetic, Polyurea Glycol, Gear, AGMA SEP, ISO VG 320, Minimum VI 225, Wide Service Temperature Range: -25 to 160 C, Seal Compatibility: Nitrile	
MEC-135	Active	Grease, Synthetic Oil Base, Perfluoropolyether, ISO VG 1000 cSt @ 40, 85 cSt @ 100, PTFE Thickener, High Temp > 550F (Wait an open spec - duplicate MEC-117 and MEC-101. Asked Joesse to make MEC-155 an open spec on 1/25/2012 and keep MEC-101.)	
MEC-136	Active	Grease, Mineral Oil Base, ISO VG 100, Minimum VI (11.5 cSt at 100F), High Speed Bearing Grease, Lithium Complex Thickener, R&O, NLGI 2	
MEC-137	Active	Grease, Synthetic Oil Base, PAC, ISO VG (ENTER), Minimum VI 120, Gel Thickener, High Temperature Grease, NLGI 2	
MEC-138	Active	Oil, Synthetic, Ester or Synthetic Organophosphate Ester, Non-EP, No Friction Reducing Additives, Wide Temp Range, MIL-L7808, MIL-L-22879, ISO VG 30 (Normal)	
MEC-138	Active	Oil, Synthetic, Diester, Air Compressor, ISO VG 32, Minimum VI 130, Flash Point 450 F, Pour Point -80 F	
MEC-140	Active	Grease, Synthetic Oil Base, PAC, ISO VG 100, Minimum VI 100, Lithium Complex Thickener, AW, R&O, non-EP, NLGI 2	
MEC-141	Active	Grease, Mineral Oil Base, ISO VG 100, Minimum VI 11, Barium Complex Thickener, Service Temp Range -20 to 140 C, EP, NLGI 2	
MEC-142	Active	Grease, Synthetic Oil Base, Silicone, ISO VG 100, Lithium Soap Thickener, Extreme Low Temperature Service, Service Temp Range -75 to 204 C (-100 to 400 F), R&O, NLGI 1	
MEC-145	Active	Grease, Synthetic Oil Base, PAC, ISO VG 125, Minimum VI 190, Lithium Soap Thickener, EP, NLGI 0, Special Tribotopic Grease for Stack Coal Feeder Operations	
MEC-144	Active	Oil, Bio-Based, Dielectric, Insulating, Transformer	Equivalent requirements to MEC-127
MEC-145	Active	Grease, Synthetic Oil Base, Silicone, ISO VG 125, Lithium Soap Thickener, High Temperature Service, Service Temp Range -40C to 204 C (-40F to 400 F), R&O, NLGI 2	
MEC-148	Active	Oil, Synthetic, Tri-Aryl Phosphate Ester, Hydraulic, Fire-Resistant, EHC Fluid - Must Contain <4% TPP - (Same as MEC-028, except for the limitation on TPP concentration)	GIE Specifications 4035F and D50A12B Siemens (formerly Westinghouse) steam turbine EH control fluid specification 53740AL

This Specification to be used for all MidAmerican Energy materials

Attachment 2 - MidAmerican Energy Lube Oil Technical Specification
MidAmerican Energy long specification

Item #	Description	Product	Viscosity @ 100°F	Viscosity @ 210°F	Viscosity @ 230°F	Viscosity @ 250°F	Viscosity @ 270°F	Viscosity @ 290°F	Phosphorus (COO)	Phosphorus (COO) M	Zinc	Other Additives	Test Method	Pass/Fail	Notes			
MEC-027	Oil, Mineral, General Purpose, Antifester, R&D, ISO VG 220, Minimum VI 85	Diabase HP-1, & HP-2A, T-6 requirements, Vickers I-289-B & M-289-D, and Castrollet Multigrade P-68, P-68 & P-70,	Multipurpose R&D 220	220	18.9	97	5F	545F (COO)	Phosphorus 25 PPM	3.5	700	20 minutes to pass	pass	pass				
MEC-028	Grease, Synthetic Oil Base, SAE, Minimum VI (ENTER), Carbon Black Thickener, Bearing, Extreme High Temperature, NLGI 2	No Product																
MEC-029	Hydraulic, Fire-Resistant, EP, GE 8 spec D004128-81	No Product																
MEC-030	Oil, Synthetic PAC, Bearing & Gear, Non-EP, ISO VG 32	Dynalac RAO 32	32	3.8	184	-54F	47M (COO)	Phosphorus 300 - 570 PPM	10.5	2400	10 minutes to pass	pass	1a	pass				
MEC-031	Oil, Mineral, Gear, EP,AGMA SEP, ISO VG 320	Extra Duty Gear Oil 320	320	24.7	88	0F	410F (COO)	Phosphorus 220 - 400 PPM, Sulfur 300 PPM	5.0		not applicable	pass	1a	pass				
MEC-032	Grease, Mineral Oil Base, ISO VG 220, Polyurethane, High Temperature, Anti-Lubric, EP, R&D, NLGI 1 (Must be same grease as MEC-015)	Multipurpose R&D 1	170	15.8	85	not applicable						Dark Red Visual	not applicable	not applicable	not applicable	not applicable	pass ASTM D1743	
MEC-033	Oil, Synthetic (PAG) Polyglycol Glycol, Air Compressor, Heavy-Duty, ISO VG 46, Minimum VI 200	Synthetic Heavy Duty Compressor Oil 46 (Product not currently available in ISO 46)																
MEC-034	Oil, Mineral, Straight Paraffinic, Fire-Resistant, ISO VG 150, Minimum VI 80	Industrial Oil 115	115	4.4	101	0F	455F (COO)	No metallic additives	10.5									
MEC-035	Oil, Synthetic Polyol Ester, Hydraulic, Fire-Resistant, ISO VG 46, Minimum VI 140	Flacke Mineral Group II, Type HFDL, Less Flammable Hydraulic Fluid, Most inert or neutral flammable hydraulic fluids 102-220 and 68-140 specifications and performance.	Synthetic PM Hydraulic Fluid 46	46	10.0	230	-4F	51M (COO)	Phosphorus 180 - 300 PPM, Sulfur 200 PPM	Light Amber, Visual			pass	1b	pass			
MEC-036	Oil, Synthetic PAC, Gear,AGMA 5, ISO VG 220	System RAO 220	220	22.8	137	-37F	470F (COO)	Phosphorus 1500 - 2100 PPM	11.0	850			pass	1b	pass			
MEC-037	Grease, Mineral Oil Base, ISO VG 680, For Low Speed Bearings, Hot, Steam, and Water Washed Bearings, High Temperature, Aluminum Complex, EP, R&D, NLGI 2	Food Machinery Grease	220	18.5	100	not applicable				White Visual	not applicable	not applicable	not applicable			pass ASTM D1743		
MEC-038	Oil, Mineral, General Purpose, Non-Antifester, R&D, ISO VG 32, Minimum VI 85	Diabase HP-42, & HP-3 requirements and Vickers I-285-B & M-370-B, Radco Model 8 and Castrollet Multigrade P-68, P-68 & P-70 For use, piston or gear type systems.	Turbine Oil 32	31.8	5.4	103	-42F	42M (COO)	No metallic additives	0.5	not applicable	>1200	20 minutes to pass	pass	not applicable	1a	pass	not applicable
MEC-039	Oil, Mineral, Hydraulic & General Purpose, Antifester, R&D, ISO VG 100, Minimum VI 85 - DUPLICATER SPEC MEC-100	Multipurpose RAO 100	101	11.3	87	-54F	514F (COO)	Phosphorus 25 PPM	10.5	700	20 minutes to pass	pass	1a	pass				
MEC-040	Oil, Fire-Resistant, Grease & Grease, Aircraft	No Product																
MEC-041	Oil, Mineral, Hydraulic & General Purpose, Non-Antifester, R&D, ISO VG 320, Minimum VI 85	Multipurpose RAO 320	318	24.9	85	5F	575F (COO)	Phosphorus 25 PPM	4.5	750	20 minutes to pass	pass	1a	pass				
MEC-042	Oil, Synthetic Diester, Air Compressor, Refrigerating, ISO VG 68, Minimum VI 85	Synthetic RAO 68	68	8.4	94	-44F	484 F (COO)	No metallic additives	0.5	>1700	10 minutes to pass	pass	1a	pass				
MEC-043	Oil, Mineral, Hydraulic & General Purpose, Non-Antifester, R&D, ISO VG 68	Turbine Oil 68	63	8.8	100	-17F	484F (COO)	No metallic additives	0.5	>1200	20 minutes to pass	pass	1a	pass				
MEC-044	Oil, Mineral, Gear, EP,AGMA SEP, ISO VG 150, Minimum VI 85	Extra Duty Gear Oil 150	150	14.4	87	-27F	465F (COO)	Phosphorus 220 - 400 PPM, Sulfur 300 PPM	4.0					1a	pass			
MEC-047	Grease, Mineral Oil Base, ISO VG 220-480, Minimum VI 80, Lithium Soap Thickener, Plus 3% Molybdenum Disulfide, EP, R&D, NLGI 2	Multipurpose RAO 220	480	25.0	82	not applicable				Dark Black Visual	not applicable	not applicable	not applicable	not applicable		pass ASTM D1743		
MEC-048	Multipurpose Grease, Electric Motor Bearing Grease, Low-Temperature, Non-EP, R&D, NLGI 2	No Product	220	40	104	not applicable				Red Visual	not applicable	not applicable	not applicable		pass ASTM D1743			
MEC-049	Oil, Mineral, Gear, Drive Train and Transmission, SAE 30, Allison C-4, Caterpillar TO-4, Excellent antiwear, Mineral oil equivalent, Vickers (Castrol) M-289-B, ZP TEAL, CSC for torque converter transmission	Powertrax 30	88	11.1	100	-27F	451F (COO)	Zinc 2100 - 2000 PPM, Phosphorus 800 - 1000 PPM, Zinc 800 - 1210 PPM	2.0	7.5 by ASTM D2999	not applicable	not applicable	not applicable					
MEC-050	Grease, Mineral Oil Base, ISO VG 22, Minimum VI (ENTER), Calcium Soap of Olefinic Thickener, Roll Coils & Wheel Flange, NLGI 1/2	No Product																
MEC-051	Oil, Synthetic PAC, Bearing & Gear, Non-EP, ISO VG 150	System RAO 150	150	17.5	126	-60F	470F (COO)	Phosphorus 300 - 570 PPM	11.0	850			pass	1b	pass			
MEC-052	Grease, Mineral Oil Base, ISO VG 100, Minimum VI 80, Synthetic Polyurethane Thickener, EP, R&D, NLGI 2	Polytec EP 2 Grease	128	11.6	71	not applicable				Green Visual	not applicable	not applicable	not applicable	not applicable		pass ASTM D1743		
MEC-054	Oil, Mineral, Hydraulic & General Purpose, Non-Antifester, R&D, ISO VG 100, Minimum VI 85	Turbine Oil 100	100	11.5	100	-11F	511F (COO)	No metallic additives	0.5	>1200	20 minutes to pass	pass	1a	pass				
MEC-055	Grease (Flow MEC-055)	N/A																
MEC-056	Oil, Synthetic PAC, EP,AGMA SEP, ISO VG 320	Dynalac EP Plus Gear Oil 320	318	28.0	173	-44F	484F (COO)	Phosphorus 200 - 400 PPM, Sulfur 300 - 400 PPM, Zinc 5 PPM	1.0				pass	1b	pass			
MEC-057	Oil, Synthetic, Gear, ISO VG 1000	No Product																
MEC-058	Oil, Synthetic, Gear,AGMA, ISO VG 680	System RAO 680	630	47.8	121	-19F	470F (COO)	Phosphorus 1500 - 2100 PPM	11.0	850			pass	1b	pass			
MEC-059	Oil, Mineral, Hydraulic & General Purpose, Antifester, R&D, ISO VG 46, Minimum VI 180, Wide Temperature Range, Pour Point < -30	Multipurpose RAO 46	46	7.7	135	-48F	470F (COO)	Calcium 60 PPM, Phosphorus 345 PPM, Sulfur 300 PPM, Zinc 380 - 430 PPM	0.5	>250	18 minutes to pass	pass	1a	pass				
MEC-060	Oil, Mineral, Hydraulic & General Purpose, Non-Antifester, R&D, ISO VG 150, Minimum VI 80	Multipurpose RAO 150	150	15.8	87	5F	545F (COO)	Phosphorus 25 PPM	3.5	700	20 minutes to pass	pass	1a	pass				
MEC-061	Oil, Mineral, Hydraulic & General Purpose, Non-Antifester, R&D, ISO VG 480, Minimum VI (ENTER)	Multipurpose RAO 480	484	33.8	86	5F	585F (COO)	Phosphorus 25 PPM	5.0	700	20 minutes to pass	pass	1a	pass				
MEC-062	Oil, Mineral, Hydraulic & General Purpose, Non-Antifester, R&D, ISO VG 150, Minimum VI 85	Multipurpose RAO 150	158	15.5	87	1F	511F (COO)	Phosphorus 25 PPM	2.5	700	20 minutes to pass	pass	1a	pass				
MEC-064	Oil, Mineral, Hydraulic & General Purpose, Non-Antifester, R&D, ISO VG 48, Minimum VI 100	Turbine Oil 48	48	5.7	102	-27F	485F (COO)	No metallic additives	0.5	>1200	20 minutes to pass	pass	1a	pass				

This Specification to be used for all MidAmerican Energy materials

Attachment 2 - MidAmerican Energy Lube Oil Technical Specification
Branched Lubricants

MEC Oil Specification Number	Manufacturer	Lubricant Name	Status	Deviation From Specification
MEC-001	Conoco	Conoco Megaflow AW HV Hydraulic Oil S2	Meets Specifications	
MEC-001	Shell	Shell Tellus S2 V 32 (Formerly Shell Tellus Oils T 92)	Meets Specifications	
MEC-001	Texaco	Texaco Rando HD 32	Meets Specifications	
MEC-002	Conoco	Conoco Megaflow AW Hydraulic Oil S3	Meets Specifications	
MEC-002	Lubriplate	Lubriplate HC-2	Acceptable - Qualified	The product data sheet for this product does not list any OEM endorsements.
MEC-002	Shell	Shell Tellus S2 M 68 (Formerly Shell Tellus Oils T 68)	Meets Specifications	
MEC-002	Texaco	Texaco Rando HD 68	Meets Specifications	
MEC-003	Conoco	Conoco Multiplex Red No. 2	Meets Specifications	
MEC-003	Shell	Shell Retimax LX 2 Grease	Acceptable - Qualified	The base oil viscosity of this product is 180 vs 220 specified.
MEC-004	Conoco	Conoco Multipurpose R&O 460	Meets Specifications	
MEC-004	Shell	Shell Morlina Oils 460 (See Spec MEC-001)	Meets Specifications	
MEC-005	Conoco	Conoco Extra Duty Gear Oil 220	Meets Specifications	
MEC-005	Mobil	Mobilgear 680 XP 220 (Formerly Mobilgear 680 - Discontinued 12/1/04)	Meets Specifications	
MEC-005	Shell	Shell Omala S2 G 220 (Formerly Shell Omala Oil 220)	Meets Specifications	
MEC-005	Texaco	Texaco Meropa 220	Meets Specifications	
MEC-006	Conoco	Conoco Extra Duty Gear Oil 460	Meets Specifications	
MEC-006	Mobil	Mobilgear 680 XP 460 (Formerly Mobilgear 680 - Discontinued 12/1/04)	Meets Specifications	
MEC-006	Shell	Shell Omala S2 G 460 (Formerly Shell Omala Oil 460)	Meets Specifications	
MEC-006	Texaco	Texaco Meropa 460	Meets Specifications	
MEC-007	Amsoil	Amsoil Parmgear 680	Unacceptable	
MEC-007	Conoco	Conoco Extra Duty Gear Oil 680	Acceptable - Qualified	Does not meet the VI specification.
MEC-007	Mobil	Mobilgear 680 XP 680	Acceptable - Qualified	The VI (lowest) index of this product is 98 vs 95 specified.
MEC-007	Shell	Shell Omala S2 G 680 (Formerly Shell Omala Oil 680)	Meets Specifications	
MEC-007	Texaco	Texaco Meropa 680	Meets Specifications	
MEC-008	Chevron	Chevron GST 32 (Filtered)	Meets Specifications	
MEC-008	Conoco	Conoco Turbine Oil 32 (Filtered to Diamond Class)	Meets Specifications	
MEC-008	Shell	Shell Turbo Oil T 32 (Filtered)	Meets Specifications	
MEC-008	Conoco	Conoco TSK Heavy Duty Motor Oil 10W	Meets Specifications	
MEC-008	Shell	Shell Rotella T Single Grade Oil 10W	Meets Specifications	
MEC-008	Texaco	Texaco Uras Super Plus SP Single Grade Motor Oil 10W	Meets Specifications	
MEC-009	Amsoil	Amsoil 300 30	Unacceptable	
MEC-010	Conoco	Conoco TSK Heavy Duty Motor Oil 30	Meets Specifications	
MEC-010	Shell	Shell Rotella T Single Grade Oils 30 Oil	Meets Specifications	
MEC-010	Texaco	Texaco Uras Super Plus SP 30	Meets Specifications	
MEC-011	Conoco	Conoco HD Fleet Supreme EC 15W40	Meets Specifications	
MEC-011	John Deere	John Deere Toro-Guard 15W40	Acceptable - Qualified	
MEC-011	Mobil	Mobil Delvac 1 15W-40	Acceptable - Qualified	
MEC-011	Pennzoil	Pennzoil Long Life Heavy Duty Engine Oil 15W40	Acceptable - Qualified	
MEC-011	Shell	Shell Rotella T MultiGrade 15W-40 Oil	Meets Specifications	
MEC-011	Texaco	Texaco Uras Super Plus SP 15W40	Meets Specifications	
MEC-012	Conoco	Conoco Super ATF	Meets Specifications	
MEC-012	Shell	Shell Spirax S5 ATF MWS (Formerly Formula Shell ATF Dexron III - Mercon)	Meets Specifications	
MEC-013	Conoco	Conoco Multiplex Red No. 1	Acceptable - Qualified	Base oil viscosity of this product is 170 vs 220 specified.
MEC-013	Shell	Shell Gadus S5 V220C 1 (Formerly Shell Albida EP 1)	Acceptable - Qualified	
MEC-013	Shell	Shell Retimax CMX 1	Acceptable - Qualified	The base oil viscosity of this product is 180 vs 220 specified.
MEC-014	Chevron	Chevron Dale Grease EP 0	Acceptable - Qualified	The base oil viscosity of this product is 220 vs the 160 specified.
MEC-014	Conoco	Conoco Multiplex Red No. 0	Meets Specifications	
MEC-014	Shell	Shell Gadus S5 V220 D (Formerly Shell Alvania Grease EP (L.F) 0)	Acceptable - Qualified	This product contains a lithium soap thickener vs the lithium complex specified.
MEC-014	Texaco	Texaco MultiPak EP 0	Acceptable - Qualified	This product (apparently) contains a lithium soap thickener vs the lithium complex specified.
MEC-015	Conoco	Conoco Food Machinery Grease No. 2	Unacceptable	Product is not synthetic and does not meet the required temperature range.
MEC-015	Lubriplate	Lubriplate SFL Grease 2	Acceptable - Qualified	The lower operating temperature limit of this product is listed as -25 F vs the specification of -40 F.
MEC-015	Shell	Shell Comella EP S 2	Acceptable - Qualified	The operating temperature range of this product is listed as -31 F to 248 F vs -40 to 320 F specified.
MEC-016	Conoco	Conoco Universal Gear Lube 68W-90 (Name Assoc MEC-078)	Meets Specifications	
MEC-017	Conoco	Conoco Universal Gear Lube 85W-140	Meets Specifications	
MEC-017	Shell	Shell Spirax HD 85W-140	Meets Specifications	
MEC-018	Conoco	Conoco Multipurpose R&O 100	Meets Specifications	
MEC-018	Shell	Shell Corena Oil P 100	Meets Specifications	
MEC-018	Conoco	Conoco Coupling Grease	Meets Specifications	
MEC-018	Shell	Shell Alvania Grease CO #1	Meets Specifications	
MEC-018	Chevron	Chevron LHS-Plus Synthetic Grease EP	Meets Specifications	
MEC-018	Conoco	Conoco Tribax 460 No. 1.5 Grease	Meets Specifications	
MEC-020	Mobil	Mobil Mobilith SHC Series 460 No. 1.5 Grease	Acceptable - Qualified	The product does not contain an EP additive. An EP additive is specified.
MEC-020	Shell	NO PRODUCT IDENTIFIED	Unacceptable	
MEC-021	Conoco	Conoco Triton Synthetic Gear Lube 75W90	Meets Specifications	
MEC-021	Shell	Shell Spirax ADR SAE 75W-90	Meets Specifications	
MEC-022	Conoco	Conoco Extra Duty Gear Oil 100	Meets Specifications	
MEC-022	Shell	Shell Omala S2 G 100 (Formerly Shell Omala Oil 100)	Meets Specifications	
MEC-023	Conoco	Conoco Syncon R&O 68	Acceptable - Qualified	Does not meet the VI specification.
MEC-023	Shell	Shell Corena S4 R 68 (Formerly Shell Corena AS 68)	Meets Specifications	
MEC-023	Texaco	Texaco Calumet PAO 68	Meets Specifications	
MEC-025	Amsoil	Amsoil BK Heavy Gear Lube	Unacceptable	
MEC-025	Chevron	Chevron Open Gear Grease	Unacceptable - Not Established for N4 Mills	Base oil viscosity in this product is much higher than specified and product does not come with diluent added.
MEC-025	Conoco	Conoco Gear Shield HC	Unacceptable	Significant deviation from VI specification. Rejected by Mark Jerzowski.
MEC-025	Mobil	Mobil Gear Lube 375NC	Unacceptable - Not Established for N4 Mills	Check PDS
MEC-025	Whitmore	Whitmore Everinake Heavy MEG Grease W350	Meets Specifications	
MEC-025	Conoco	Conoco Syncon R&O 460	Meets Specifications	
MEC-026	Mobil	Mobil SHC 68	Meets Specifications	
MEC-026	Shell	Shell Morlina S4 R 460 (Formerly Shell Omala Fluid IL 460)	Meets Specifications	
MEC-026	Texaco	Texaco Pinnacle 460	Meets Specifications	
MEC-027	Chevron	Chevron A/D 220	Meets Specifications	
MEC-027	Conoco	Conoco Multipurpose R&O 220	Meets Specifications	
MEC-027	Shell	Shell Morlina Oil S2 220 (DOES NOT MEET MEC SPEC - CONTAINS NO ANTIWEAR)	Meets Specifications	
MEC-027	Texaco	Texaco Rando HD 220	Meets Specifications	
MEC-028	Dow Corning	Dow Corning Molyzote 41	Meets Specifications	
MEC-028	Conoco	No Product Proposed	Unacceptable	
MEC-028	ICI	Pyroval EHC	Unacceptable	
MEC-028	Conoco	No Product Proposed	Unacceptable	
MEC-028	Shell	Shell Turbo Fluid OR 46	Meets Specifications	
MEC-028	Conoco	Conoco Syncon R&O 33	Meets Specifications	
MEC-028	Shell	Shell Corena S4 R 32 (Formerly Shell Corena AS 32)	Meets Specifications	
MEC-028	Texaco	Texaco Pinnacle 32	Meets Specifications	
MEC-028	Conoco	Conoco Extra Duty Gear Oil 32	Meets Specifications	

This Specification to be used for all Mid-American Energy materials
 Attachment 2 - Mid-American Energy Lube Oil Technical Specification
 Branded Lubricants

MEC-031	Mobil	Mobilgear 800 XP 320 (Formerly Mobilgear #32 - Discontinued 12/1/06)		
MEC-031	Shell	Shell Omala S2 G 320 (Formerly Shell Omala Oil 320)		
MEC-031	Texaco	Texaco Meropa 320		
MEC-032	Shell	Shell Gadus S3 V22DC1		
MEC-032	Shell	Shell Rotax CMX 1 (CONTAINS MOLY EP ADDITIVE) (DOES NOT MEET SPEC-VISCOSTYIS TOO HIGH)		
MEC-032	Shell	Shell Reliave LX 1 (Not Moly) (DOES NOT MEET SPEC - VISCOSITY IS TOO LOW)		
MEC-032	Texaco	Texaco Starplex 1 EP Auto-Luber (Texaco Starplex Moly 1 FC 3231944 - Discontinued 12/09/08)		
MEC-033	Conoco	Conoco Syndustrial Rotary Compressor Oil (Product not currently available from Conoco In ISO 68)	Meets Specifications	
MEC-033	Shell	Shell Corena Fluid PGE 68		
MEC-034	Conoco	Conoco Industrial Oil 115 (ISO 22) (Same spec as MEC-044)	Meets Specifications	
MEC-035	Conoco	Conoco Syndustrial FR Hydraulic Fluid 46	Meets Specifications	
MEC-035	Dasco	DASCO FR 355-2		
MEC-036	Conoco	Conoco Syncon R&O 200	Acceptable - Qualified	Does not meet the VI specification.
MEC-036	Shell	Shell Marfina SA 6 120 (Formerly Shell Omala Fluid RL 120)		
MEC-037	Conoco	Conoco Feed Machinery Grease No. 2	Unacceptable	Product is not a synthetic oil and does not meet base oil viscosity specification.
MEC-037	Lubriplate	Lubriplate 1-44		
MEC-038	Conoco	Conoco Turbine Oil 32	Meets Specifications	
MEC-038	Shell	Shell Turbo Oil T32		
MEC-038	Texaco	Texaco Regal RB 32		
MEC-039	Conoco	Conoco Multipurpose R&O 100	Acceptable - Qualified	Product data sheet does not list all required OEM endorsements.
MEC-039	Lubriplate	Lubriplate ZF 100 (ZINC FREE) Hydraulic Oil		
MEC-039	Pulsafeeder	Pulsafeeder #1		
MEC-039	Shell	Shell Circulating Oil 100		
MEC-039	Texaco	Texaco Regal AW 100		
MEC-040	Chesterton	Chesterton 601 Chain Drive and Bushing Lubricant	Meets Specifications	
MEC-040	Lubriplate	Lubriplate Penetrating Chains and Cable Fluid	Acceptable - Qualified	Does not contain an EP additive.
MEC-040	Conoco	No Product Proposed		
MEC-041	Conoco	Conoco Multipurpose R&O 320	Acceptable - Qualified	Conoco product data sheet shows that the product contains a zinc antiwear additive.
MEC-041	Shell	Shell Marfina S3 BA 320 (Formerly Shell P&W Drive Oil SD 320)		
MEC-041	Texaco	Texaco Regal AW 320		
MEC-042	Conoco	Conoco Syndustrial R&O 68	Meets Specifications	
MEC-042	Shell	Shell Turbula Fluid DE 68		
MEC-042	Texaco	Texaco Cutrol DE 68		
MEC-042	Chevron	Chevron CST 68		
MEC-043	Conoco	Conoco Turbine Oil 68	Meets Specifications	
MEC-043	Shell	Shell Turbo Oil T 68		
MEC-043	Texaco	Texaco Regal RB 68		
MEC-043	Chevron	Chevron Utility Oil LV150		
MEC-043	Conoco	No Product Proposed		
MEC-043	Shell	Shell Corsea Oil E 150		
MEC-043	Texaco	Texaco Alcan 150		
MEC-043	Conoco	Conoco Extra Duty Gear Oil 150	Meets Specifications	
MEC-043	Mobil	Mobilgear 680 XP 150 (Formerly Mobilgear 628 - Discontinued 12/1/06)		
MEC-046	Shell	Shell Omala S2 G 150 (Formerly Shell Omala Oil 150)		
MEC-046	Texaco	Texaco Meropa 150		
MEC-047	Conoco	Conoco Megaplex XDB Grease No. 2	Meets Specifications	
MEC-047	Shell	Shell Rotax CMX 2 Grease (CONTAINS MOLY EP ADDITIVE)		
MEC-047	Texaco	Texaco Starplex Moly MPPGM 2		
MEC-048	Conoco	No Product Proposed		
MEC-048	Shell	Shell Gadus S2 V100 2 (Formerly Shell Alvanra RL 2 Grease)		
MEC-048	Conoco	Conoco Powerdrive Fluid 30	Meets Specifications	
MEC-049	Shell	Shell Spirax SA CX 30 (Formerly Shell Donax TC 30)		
MEC-050	Conoco	No Product Proposed		
MEC-050	Amoco	Rykolite 1487		
MEC-050	Texaco	Texaco 904 Grease W NLGI 1/2		
MEC-051	Conoco	Conoco Syncon R&O 150	Meets Specifications	
MEC-051	Mobil	Mobil SHC 625		
MEC-051	Shell	Shell Marfina SA 6 150 (Formerly Shell Omala Fluid RL 150)		
MEC-051	Texaco	Texaco Pinnacle 150		
MEC-052	Chevron	Chevron Shock Protector 2 (Only in 14 oz cartridge on 7/7/11)	Acceptable - Does Not Meet Spec	
MEC-053	Chevron	Chevron Syton EP2 Premium (Discontinued) (Reinstated on 7/7/11)		
MEC-053	Conoco	Conoco Polytac EP Grease No. 2	Acceptable - Qualified	Does not meet the viscosity, VI, or PTFE thickener specification.
MEC-053	Shell	Name Available		
MEC-054	Conoco	Conoco Turbine Oil 100	Meets Specifications	
MEC-054	Mobil	Mobil TEHVY		
MEC-054	Shell	Shell Marfina S3 BA 100 (Formerly Shell Marfina Oil SD 100)		
MEC-054	Texaco	Texaco Regal R&O 100		
MEC-055	None - Obsolete Spec	Name - Obsolete Spec		
MEC-056	Amsoil	Amsoil PTH 320	Meets Specifications	
MEC-056	Conoco	Conoco Syncon EP Plus Gear Oil 320	Meets Specifications	
MEC-056	Mobil	Mobil SHC 320		
MEC-056	Shell	Shell Omala S4 GX 320 (Formerly Shell Omala HD 320)		
MEC-056	Texaco	Texaco Pinnacle EP 320		
MEC-057	Lubriplate	Lubriplate SPSDUltra 1000		
MEC-057	Mobil	Mobil SHC 639	Acceptable - Qualified	Product does not meet viscosity specification.
MEC-057	Conoco	No Product Proposed		
MEC-057	Texaco	Texaco Pinnacle EP 1000		
MEC-058	Conoco	Conoco Syncon R&O 680	Meets Specifications	
MEC-058	Mobil	Mobil SHC 638		
MEC-058	Shell	Shell Marfina SA 6 600 (Formerly Shell Omala Fluid RL 600)		
MEC-058	Texaco	Texaco Pinnacle 680		
MEC-058	Conoco	Conoco Megaflow AW HVI Hydraulic Oil 46	Meets Specifications	
MEC-058	Mobil	Mobil DTE 15M		
MEC-058	Shell	Shell Tellus S2 V 46 (Formerly Shell Tellus Oil S T 46)		
MEC-058	Texaco	Texaco Rania HB 2 46		
MEC-060	Conoco	Conoco Multipurpose R&O 200	Unacceptable	Product contains zinc-free antiwear, but specification calls for no antiwear.
MEC-060	Shell	Shell Marfina S3 BA 220 (Formerly Shell Marfina Oil SD 220)		
MEC-060	Texaco	Texaco Regal H&O 220		
MEC-062	Conoco	Conoco Multipurpose R&O 460	Unacceptable	Product contains zinc-free antiwear, but specification calls for no antiwear.
MEC-062	Shell	Shell Marfina S3 BA 460 (Formerly Shell Marfina Oil SD 460)		
MEC-062	Texaco	Texaco Regal R&O 460		
MEC-064	Conoco	Conoco Turbine Oil 46	Meets Specifications	
MEC-064	Shell	Shell Turbo Oil T 46		
MEC-064	Texaco	Texaco Regal P&O 46		
MEC-065	Conoco	Conoco TSX Heavy Duty Motor Oil 40	Meets Specifications	
MEC-065	Shell	Shell Rotella T 40		

Attachment 2 - MidAmerican Energy Lube Oil Technical Specification
Branded Lubricants

MEC-085	Texaco	Texaco Ultra Super Plus 40			
MEC-086	Conoco	Conoco Synchron EP Plus Gear Oil 220	Meets Specifications		
MEC-086	Shell	Shell Omala S4 GX 220 (Formerly Shell Omala Fluid HD 220)			
MEC-086	Texaco	Texaco Pinnacle EP 220			
MEC-087	Conoco	Conoco Synchron R&O 180	Meets Specifications		
MEC-087	Texaco	Texaco Pinnacle 100			
MEC-089	Conoco	Conoco Synchron AW Hydraulic Fluid 22	Meets Specifications		
MEC-070	Conoco	Conoco Compounded Gear Oil 480	Meets Specifications		
MEC-070	Shell	Shell Omala S1 W 480 (Formerly Shell Valveta J 480)			
MEC-070	Texaco	Texaco Vanguard 480			
MEC-071	Conoco	Conoco Compounded Gear Oil 680	Meets Specifications		
MEC-071	Shell	Shell Omala S1 W 680 (Formerly Shell Valveta J 680)			
MEC-072	Conoco	Conoco Triton Low Temp Grease No. 1	Meets Specifications		
MEC-073	Conoco	Conoco Triton ELI Grease No. 10	Meets Specifications		
MEC-073	Mobil	Mobilith SHC 007			
MEC-073	Shell	Shell Relinas TL 00 Grease			
MEC-074	Conoco	Conoco Triton Grease No. 2	Meets Specifications		
MEC-074	Lubriplate	Lubriplate High Temp			
MEC-075	Conoco	Conoco Omnigard Grease No. 1	Acceptable - Qualified		Product does not meet base oil viscosity. Qualified based on past use.
MEC-076	Conoco	Conoco Omnigard Grease No. 2	Acceptable - Qualified		Product does not meet base oil viscosity. Qualified based on past use.
MEC-077	Dow Corning	Dow Corning 111 Valen Lube & Sealant			
MEC-077	Conoco	No Product Proposed			
MEC-078	Conoco	Conoco Forterra Hydraulic Oil 68	Meets Specifications		
MEC-079	Shell	Shell Tellus S3 M 68 (Formerly Shell Tellus S Oil 68)			
MEC-079	Texaco	Texaco Rando HD Ashless 68			
MEC-080	Andaral	Andaral Royal 68			
MEC-080	Diamond Power	Diamond Power 607135-1007			The Product Data Sheet for this product has not been reviewed to verify that specs are met.
MEC-080	Conoco	No Product Proposed			
MEC-080	Shell	Shell Tivela W9 (Formerly Shell Tivela Compound A)			
MEC-087	Conoco	Conoco Super All Season Symbend 10W-80	Meets Specifications		
MEC-087	Shell	Shell Formula Shell 10W-80			
MEC-087	Texaco	Texaco Havoline Motor Oil 10W-80			
MEC-088	None - Obsolete Spec	None - Obsolete Spec			
MEC-088	Conoco	Conoco Synchron EP Plus Gear Oil 460	Meets Specifications		
MEC-088	Shell	Shell Omala S4 GX 460 (Formerly Shell Omala Fluid HD 460)			
MEC-088	Texaco	Texaco Pinnacle EP 460			
MEC-088	Mobil	Mobil SHC Mobiltemp 52			
MEC-088	Conoco	No Product Proposed			
MEC-088	Conoco	Conoco Powertrain Fluid	Meets Specifications		
MEC-088	Conoco	No Product Proposed			
MEC-088	Shell	Shell Omala R4			
MEC-088	Shell	(Shell spreadsheet of 7/7/11 gives the same product as for MEC-088 - Check this out)			
MEC-088	Conoco	No Product Proposed			
MEC-087	Conoco	Conoco Synchron R&O 46	Meets Specifications		
MEC-087	Shell	Shell Corona S4 R 46 (Formerly Shell Corona AS 46)			
MEC-087	Texaco	Texaco Calus PAC 46			
MEC-088	Conoco	Conoco Industrial R&O 150	Meets Specifications		
MEC-088	Shell	Shell Corona AP 150 9yn			
MEC-088	ELM Industrial	ELM Industrial Soy Trak # 1			
MEC-088	Conoco	No Product Proposed			
MEC-180	Conoco	Conoco Ecoviva Hydraulic Oil 46	Acceptable - Qualified		Product is not a bio-based oil, but it meets environmental requirements.
MEC-180	ELM Industrial	ELM Industrial Hydraulic Snow Grade 46			
MEC-181	Chevron	Chevron SHC Grease 2	Acceptable - Qualified		Product data sheet does not have the GEK 46802F endorsement.
MEC-101	Conoco	Conoco Polytec Grease No. 2	Acceptable - Qualified		Product data sheet does not have the GEK 46802F endorsement.
MEC-102	Unilub	Unilub 200.77 DMS-Silicone Fluid			
MEC-102	Conoco	No Product Proposed			
MEC-104	Conoco	Conoco Synchron AW Hydraulic Fluid 32	Meets Specification		
MEC-104	Shell	Shell Tellus HD 32			
MEC-105	Conoco	Conoco Syn Industrial R&O 100	Meets Specification		
MEC-105	Shell	Shell Corona S4 P 100 (Formerly Shell Corona AP 100)			
MEC-107	Conoco	Conoco Powerdrive 10W	Meets Specification		
MEC-107	Shell	Shell Spirax S4 CX 10W (Formerly Shell Conax TC 10W)			
MEC-108	Conoco	No Product Proposed			
MEC-108	Shell	Shell AeroShell Grease 7			
MEC-108	Conoco	Conoco Ketal G1-1 HP Motor Oil 10W-40	Meets Specification		
MEC-108	Shell	Shell Formula Shell 10W-40			
MEC-111	Conoco	Conoco Feed Machinery Grease No. 2	Acceptable - Qualified		Product does not meet the viscosity specification.
MEC-111	Lubriplate	Lubriplate 750 Series No. 2 Grease			Product does not meet the viscosity specification. VI has not been validated.
MEC-112	Conoco	Conoco Feed Machinery Grease No. 1	Unacceptable		Product does not meet the viscosity specification and does not have a synthetic base oil, as specified.
MEC-112	Royal Purple	Royal Purple 68			Product does not meet the viscosity specification or the NLGI grade specification.
MEC-113	Conoco	Conoco Triton Grease 220 No. 2	Unacceptable		
MEC-113	Shell	Shell Alvia Grease S05 1			
MEC-114	Conoco	No Product Proposed			
MEC-114	Shell	Shell Gadus S2 V100 3 (Formerly Shell Alvanis Grease RL 3)			
MEC-115	Conoco	Conoco Extra Duty Gear Oil # 1	Meets Specification		
MEC-115	Shell	Shell Omala S2 G 68 (Formerly Shell Omala Oil 68)			
MEC-116	Conoco	Conoco Polytec Grease No. 2	Unacceptable		Product does not contain the synthetic base oil specified.
MEC-116	Shell	Shell Stamina RLS 2			
MEC-116	Conoco	Conoco Synchron EP Plus Gear Oil 150	Meets Specification		
MEC-116	Shell	Shell Omala HD S4 GX 150 (Formerly Shell Omala Fluid HD 150)			
MEC-116	Conoco	Conoco Magallow AW Hydraulic Oil 100	Meets Specification		
MEC-116	Lubriplate	Lubriplate HQ-2A			
MEC-120	Shell	Shell Tellus S2 M 100 (Formerly Shell Tellus Oil 100)			
MEC-123	Conoco	Conoco Triton Grease 220 No. 2	Meets Specification		
MEC-123	Shell	Shell Albida Grease SLC 220			
MEC-124	Conoco	Conoco Dynalife L-EP Grease No. 0	Meets Specification		
MEC-124	Shell	Shell Gadus S2 V220 0 (Formerly Shell Alvanis Grease EP(LF) 0	(Same as MEC-114)		
MEC-124	Conoco	Conoco Dynalife L-EP Grease No. 2	Meets Specification		
MEC-125	Shell	Shell Gadus S2 V220 2 (Formerly Shell Alvanis Grease EP(LF) 2)			
MEC-127	Conoco	Conoco Transfermer 08	Meets Specification		
MEC-127	Ergon Refining	Ergon Refining Hyvac H			
MEC-127	Shell	Shell Oils AN Oil			
MEC-128	Conoco	Conoco Refrigerant Compressor Oil 22	Meets Specification		
MEC-128	None	None			
MEC-128	Conoco	No Product Proposed			
MEC-128	None	None			
MEC-130	KlüberNorth America	Klüber North America Klüber synth GHS-680			
MEC-130	Lubriplate	Lubriplate - PG O 680	Meets Specification		
MEC-130	Conoco	No Product Proposed			

This Specification to be used for all MidAmerican Energy materials
 Attachment 2 - MidAmerican Energy Lube Oil Technical Specifications
 Selected Lubricants

MEC-130	Shell	Shell Turbia S-680	This product is no longer available from Shell (Allied) as of 11/26/2012.	
MEC-131	Fuchs	Fuchs Gerayn G-SW 2	No Product Proposed	
MEC-131	Conoco	No Product Proposed		
MEC-131	Shell	Shell Comella Grease HTS 2		
MEC-133	Conoco	Conoco Syncon Turbine Oil 32	Meets Specification	
MEC-133	Shell	Shell Turbo SG 32		
MEC-134	Lubriplate	Lubriplate P80 320		
MEC-134	Conoco	No Product Proposed		
MEC-135	Shell	Discontinued - Shell Dolium Grease 388 2		
MEC-135	OpenSpec	Open Spec as of 2/25/2012		
MEC-135	Dow Corning	Discontinued - Dow Corning Molykote G-0301		
MEC-135	Conoco	No Product Proposed		
MEC-135	None	None		
MEC-137	Conoco	No Product Proposed		
MEC-137	Term-Pac	Term-Pac #2557 Industrial Grease		
MEC-138	Shell	Aerashell Turbine Oil 380 (Corrected to Shell SOW Ester Oil on 7/7/11)		
MEC-138	Conoco	No Product Proposed		
MEC-139	Conoco	Conoco Synthetic RMO 32	Acceptable - Qualified	Product does not meet VI specification (130 specified vs 84).
MEC-139	Chevron	DISCONTINUED - Chevron Synthetic Compressor Oil 32		
MEC-139	Lubriplate	Lubriplate SYNAC-3E	Acceptable - Qualified	Pour Point and flash Point are both slightly off specification.
MEC-140	Shell	Added Albida EMS-2 on 7/7/11		
MEC-140	Mobil	Mobil SHC 300		
MEC-140	Conoco	No Product Proposed		
MEC-141	KlüberStraburgs	KlüberStraburgs HBU 3 EP		
MEC-141	Conoco	No Product Proposed		
MEC-142	Dow Corning	Dow Molykote 29L		
MEC-142	Conoco	No Product Proposed		
MEC-143	Fuchs	Fuchs Renolit LSTO EP 0		
MEC-143	Conoco	No Product Proposed		
MEC-144	Cooper Power Systems	Cooper Endurotemp FR3		
MEC-144	Conoco	No Product Proposed		
MEC-145	Dow Corning	Dow Molykote 44M		
MEC-146	Supresta (ILC)	Fyropet Plus		

CONFIDENTIAL EXHIBIT B

THIS EXHIBIT IS CONFIDENTIAL IN ITS ENTIRETY AND WILL BE PROVIDED IN ACCORDANCE WITH WAC 480-07-160.

CONFIDENTIAL EXHIBIT B.1

**THIS EXHIBIT IS CONFIDENTIAL IN ITS ENTIRETY AND WILL BE
PROVIDED IN ACCORDANCE WITH WAC 480-07-160.**

CONFIDENTIAL EXHIBIT B.2

**THIS EXHIBIT IS CONFIDENTIAL IN ITS ENTIRETY AND WILL BE
PROVIDED IN ACCORDANCE WITH WAC 480-07-160.**



PacificCorp
Procurement
 525 NE Multnomah Street, Suite 940
 Portland, Oregon 97232

Sample Release

Page 1 of 2
 01/01/2011 14:46:12
 version 1

Purchase Order

Shipping Address

Vendor Address

CONTRACTOR DALLAS, TX 97854 USA Vendor Phone: Vendor Fax:

Billing Address

PacificCorp Accounts Payable Department P. Box 3040 Portland, OR 97208 - 3040
--

Information

P.O. Number	
Date	01/01/2011
Vendor No.	
Payment Terms Description	NET 30
Buyer	
Phone	
Fax	
Delivery Date	01/01/2011
Inco Terms Description	N/A
Inco Terms (Part X)	N/A
Show the Purchase Order Number on all packages, invoices, bills of lading and correspondence. Send invoices to Accounts Payable Department. Notify buyer immediately: (1) if unable to ship or deliver on dates specified below or (2) when description is incorrect or superseded.	

ALL TERMS AND CONDITIONS OF THIS PURCHASE ORDER WORK RELEASE WILL BE GOVERNED BY THE GENERAL SERVICES CONTRACT EXECUTED BETWEEN PACIFICORP AND CONTRACTOR.

This Work Release is entered into by and between ("Contractor") and PACIFICORP ("Company").

Reference Exhibit A, Scope of Work or the applicable Scope of Work referenced herein for definition of work to be performed.

Reference Exhibit C of the General Services Contract or the applicable pricing schedule referenced herein for pricing applicable to this Release.

To facilitate prompt payment, ensure all invoices list the Purchase Order Work Release Number and are addressed and/or mailed to:

PacificCorp Energy
 c/o _____

Currency: USD
 Valid From: 01/01/2011 To: 12/31/2011

Item	Material/Description	Quantity	UM	Net Price	Per	UM	Net Amount
10	General Services Release Order Against Contract: 460000XXXX	1.00	SVC	0.00	1	SVC	0.00

PacifiCorp
Procurement
825 NE Multnomah Street, Suite 940
Portland, Oregon 97232

Purchase Order

- 05/14/2009

Total Net Value	USD 0.00
<p>Vendor shall furnish the Goods and Services specified above in accordance with this Purchase Order, including the provisions set forth on the face hereof and any other provisions attached to, incorporated into, or otherwise made a part of this Purchase Order.</p> <p>This Purchase Order shall be governed by the terms and conditions of the Master Agreement executed by the parties to this Purchase Order and to which the items in this Purchase Order are identified.</p>	

Exhibit C2

**FORM OF PURCHASE ORDER
MIDAMERICAN ENERGY COMPANY**



MidAmerican Energy
 CONSCIOUSLY, RELIABLY, AT YOUR SERVICE.
 SUPPLY COMPANY INC
 1234 MAIN STREET
 PO BOX 4567
 ANYTOWN, IA 12345-4567

VENDOR PLEASE NOTE:
 PLEASE ENTER THIS PURCHASE ORDER SUBJECT
 TO THE ACCOMPANYING TERMS AND CONDITIONS.

BILL TO:
 PO BOX 3008
 SIOUX CITY, IA 51102

PURCHASE ORDER
 PURCHASE ORDER NO. REV PAGE
388196 0 1

THIS PO NUMBER MUST APPEAR ON ALL
 INVOICES, PACKING LISTS, CARTONS AND
 CORRESPONDENCE RELATED TO THIS ORDER.

SHIP TO:
 MIDAMERICAN ENERGY COMPANY
 URBANDALE BUSINESS CENTER
 4299 NW URBANDALE DR
 URBANDALE, IA 50322-7916

DATE OF ORDER 30-JAN-12 DATE OF REVISION

VENDOR # 112745 PAYMENT TERMS NET 30 DAYS FREIGHT TERMS PREPAID/ALLOWED F.O.B. DESTINATION
 CURRENCY US Dollar VENDOR CONTACT/CONFIRM TO JANE DOE TELEPHONE NUMBER (800) 123-4567 FAX NUMBER () REQUESTOR DICKMAN, DOUGLAS D
 SHIP VIA BEST WAY

LINE	DESCRIPTION OF GOODS OR SERVICES TO BE PURCHASED	PART NUMBER / DESCRIPTION	DELIVERY DATE	QUANTITY	UOM	UNIT PRICE	EXTENDED PRICE	TAX
1			01-MAR-12	1	EA	100.00	100.00	7%

BUYER M STANWOOD PHONE NUMBER 515-281-2524 FAX NUMBER 515-242-4231 EMAIL ADDRESS M.J.Stanwood@midamerican.com
 AUTHORIZED SIGNATURE Approved Electronically
 TOTAL: 100.00
 MARION STANWOOD Date: 30-JAN-12 16:37 CT

Exhibit C.3

**FORM OF PURCHASE ORDER
NV ENERGY**



PURCHASE ORDER

Sierra Pacific Power Company d/b/a NV Energy (NVE)

Send Invoice To:
NV Energy, Accounts Payable
PO BOX 10100
RENO NV 89520-0024

Purchase Order : #014651SR00008
Revision : Release : 0008
Date Printed : 11/22/13
Page Number : 1

Counterparty:
ATTN SALES
PO BOX 7900
SAN FRANCISCO CA 94120

Please Direct Inquiries to:
LISA TOY
Title : PURCHASING AGENT I
Dept : Procurement
Phone: (702) 402-5415 Ext:
Fax : (702) 402-0526
ltoy@nvenergy.com

BLANKET ORDER RELEASE

Payment Terms : % Days Net 30 Days ERS: N Ref Contract:

Primary Ship To: SIERRA PACIFIC POWER COMPANY
Deliver 6:30am - 1pm, M-F only
Valmy Power Station
I-80, Stonehouse Exit 212,
North Valmy NV 89438
ATTN:Receiving

Trunk type : BEST WAY - SHIPPERS OPTION
FOB : DESTINATION, FREIGHT PREPAID CHARGED

Carrier Name :
FOB Point : DESTINATION

Instructions & Notes

This Blanket Purchase Order is written
as an invoice and funding reference.
Please Reference PO and RELEASE
on all invoices.

PLEASE NOTE: MAY CONTAIN MULTIPLE
'SHIP TO' ADDRESSES

Purchasing POC:
Lisa Toy 702.402.5415

Table with columns: Line, Qty, UP, Catalog ID, Unit Price, Extension, TAXABLE. Row 0001, Qty 2, EA, 0000133189,,, TAXABLE

Qty: 2 Delivery Date: 11/22/13

Description:

.....



PURCHASE ORDER

Sierra Pacific Power Company d/b/a NV Energy (NVE)

Send Invoice To:
NV Energy, Accounts Payable
PO BOX 10100
RENO NV 89520-0004

Purchase Order : 00146515R00000
Revision : Release : 00006
Date Printed : 11/22/13
Page Number : 2

Mfr/Vendor : * * * * *
Model :
Part : 97000-030/9156BNWF

Purchase Order Total Amount

TOTAL THIS PO: *****

*** End of Purchase Order ***

Counterparty's written acceptance, delivery of goods or services, or performance of this Purchase Order creates a contract. NV Energy's Standard Purchase Order Terms and Conditions apply.

This Purchase Order may be used to accept formal offers submitted in response to a Request for Proposal (RFP), or to bind bilaterally executed contracts. In such cases, the terms and conditions of the RFP or the Contract apply and take precedence over NV Energy's Standard Purchase Order Terms and Conditions.

LISA TOY
Designated Buyer

The parties agree that this Purchase Order shall be governed by the Terms and Conditions located at:
<http://www.nvenergy.com/company/doingbusiness/suppliers/index.htm>
which are incorporated herein by reference. Seller represents by its execution hereof or performance hereunder that it has read and agrees to be bound by such terms and conditions.

Exhibit C.4

**FORM OF PURCHASE ORDER
CAL ENERGY OPERATING CORPORATION**



VERIFIED
ABC COMPANY
123 MAIN STREET
SANTA MONICA, CA 98765
United States

VENDOR PLEASE NOTE:

PLEASE ENTER THIS PURCHASE ORDER SUBJECT TO THE ACCOMPANYING TERMS AND CONDITIONS.

CALENERGY OPERATING CORP.
ATTN: ACCOUNTS PAYABLE
7030 GENTRY ROAD
CALIPATRIA, CA 92233
EMAIL: PAYABLES@CALENERGY.COM

PURCHASE ORDER
PURCHASE ORDER NO. **01**
IWH-97000

THIS PO NUMBER MUST APPEAR ON ALL INVOICES, PACKING SLIPS, CARTONS AND CORRESPONDENCE RELATED TO THIS ORDER.

DATE OF ORDER **16-JAN-13** DATE OF REVISION

VENDOR # 119330	PAYMENT TERMS NET 30 DAYS	FREIGHT TERMS PREPAID/ALLOWED	FOR DESTINATION	SHIP VIA BEST WAY
CURRENCY US Dollar	VENDOR CONTACT/CONFIRM TO	TELEPHONE NUMBER (555) 555-5555	FAX NUMBER (555) 555-6666	REGISTRAR SMITH, Mr. BRIAN C (BRIAN)

THIS PURCHASE ORDER IS SUBJECT TO SALES & USE TAX AS FOLLOWS: STATE OF CALIFORNIA: 7.25%; IMPERIAL COUNTY: 1/2%

ALL INVOICES SHALL INCLUDE PURCHASE ORDER NUMBER AND LINE ITEM NUMBER(S) TO AID IN PROCESSING OF PAYMENTS. FAILURE TO INCLUDE THESE NUMBERS WILL RESULT IN THE RETURN OF INVOICES FOR CORRECTION BY THE CONTRACTOR OR VENDOR WITHOUT COST TO CALENERGY OPERATING CORPORATION.

VENDOR OR CONTRACTOR TO PROVIDE AN ALL INCLUSIVE BILLING SO AS TO MINIMIZE THE POSSIBILITY OF RESIDUAL INVOICES BEING RECEIVED BY CALENERGY OPERATING CORPORATION. THE PURCHASE ORDER AMOUNT IS "NOT TO EXCEED" WITHOUT PRIOR WRITTEN AUTHORIZATION FROM A CALENERGY PURCHASING REPRESENTATIVE.

VENDOR ACCEPTS THIS PURCHASE ORDER BY ELECTRONIC SIGNATURE, BY ACCEPTING OR FILLING THIS ORDER OR ANY PART THEREOF, VENDOR AGREES TO CONDUCT THIS TRANSACTION VIA ELECTRONIC MEANS AND TO BE BOUND BY THE ACCOMPANYING TERMS AND CONDITIONS.

PLEASE EMAIL ALL INVOICES TO:
PAYABLES@CALENERGY.COM

DELIVERY DATE	QUANTITY	UOM	UNIT PRICE	EXTENDED PRICE
15-FEB-13	1.00	EA	1	1.00

LINE	PART NUMBER / DESCRIPTION
1	DESCRIPTION OF GOODS OR SERVICES

BUYER N ANDRADE	PHONE NUMBER	FAX NUMBER	EMAIL ADDRESS	AUTHORIZED SIGNATURE Approved Electronically NANCY ANDRADE	TOTAL: 1.00
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Date: 16-JAN-13 13:59 CT

Exhibit E

AFFILIATES LIST AND PRINCIPAL BUSINESS ADDRESS

Berkshire Hathaway Energy
666 Grand Avenue, Suite 500
Des Moines, IA 50309-2580

CalEnergy Generation
7030 Gentry Road
Calipatria, CA 92233

CalEnergy Philippines
24 Floor, 6750 Building
6750 Ayala Avenue
Makati, Metro Manila
Philippines 1226

HomeServices of America, Inc.
333 South 7th Street, Suite 2700
Minneapolis, MN 55402

Intelligent Energy Solutions, LLC
980 Birmingham Road, Suite 501
Milton, GA 30004

Kern River Gas Transmission Company
2755 East Cottonwood Parkway, Suite 300
Salt Lake City, UT 84121

Metalogic Inspection Services
400, 10525-170 Street
NW Edmonton Alberta
Canada, T5P 047

MidAmerican Energy Company
666 Grand Avenue, Suite 500
Des Moines, IA 50309-2580

MidAmerican Renewables, LLC
666 Grand Avenue, Suite 500
Des Moines, IA 50309-2580

MidAmerican Transmission
825 NE Multnomah Street, Suite 1600
Portland, OR 97232

Nevada Power Company
dba NV Energy
6226 West Sahara Avenue
Las Vegas, Nevada 89146

Northern Natural Gas Company
1111 South 103rd Street
Omaha, NE 68124-1000

Northern Powergrid
Lloyds Court
Newcastle
United Kingdom
50322-7916

PacifiCorp
825 NE Multnomah Street, Suite 400
Portland, OR 97232

Sierra Pacific Power Company
dba NV Energy
6100 Neil Road
Reno, Nevada 89511

2014 Berkshire Hathaway Energy Company

Affiliate Participation Letter

TO:
Phillips 66 Company

This letter confirms the intent of PacifiCorp to participate in and utilize the contract documents of the lubrication supply contract (the "Contract") between Berkshire Hathaway Energy Company and Phillips 66 Company that became effective December 23, 2014. We have reviewed the terms and conditions of the Contract in detail and agree to abide by them. It is understood and agreed that each Affiliate participating in this Contract is solely responsible and liable for its own purchases and payment to the appropriate entity for products or services provided to that Affiliate. Berkshire Hathaway Energy Company and the other Affiliate companies shall have no liability for payment or other obligations, contractual or otherwise, incurred by the specific Affiliate.

Further, we agree and acknowledge that the terms, conditions, and applicable appendices or exhibits set forth in the Contract will apply to Phillips 66 Company and PacifiCorp. As a participating majority-owned Affiliate, in return for Phillips 66 Company's commitments, it is our intention to purchase material, equipment, or work in accordance with the Contract. It is understood and agreed that material, equipment, or work will be provided in accordance with this Contract.

All invoices for material, equipment, or work for PacifiCorp shall be addressed as follows:

PacifiCorp
Attn: Accounts Payable Department
P.O. Box 3040
Portland, OR 97208-3040

Sincerely, PacifiCorp

By  _____

Printed: Micheal G. Dunn

Title: President and Chief Executive Officer

Date: 1/5/15

WASHINGTON AFFILIATED INTEREST FILING

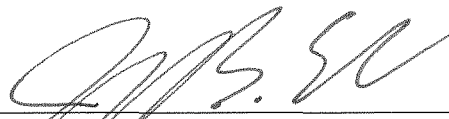
VERIFICATION

VERIFICATION

I, Jeffery B. Erb, am Assistant General Counsel of Pacific Power and am authorized to make this verification on its behalf. Based on my personal knowledge about the attached Master Materials Supply Contract, I verify that the Master Materials Supply Contract is a true and accurate copy of the original.

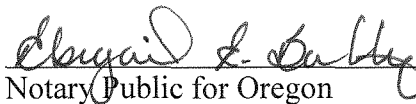
I declare upon the penalty of perjury, that the foregoing is true and correct.

Executed on SEPTEMBER 10 2015 at Portland, Oregon.



Jeffery B. Erb
Assistant General Counsel
Pacific Power

Subscribed and sworn to me on this 10th day of September, 2015.



Notary Public for Oregon

My Commission expires: November 12, 2018

