

# LUBRICATION PROGRAM DEVELOPMENT



## PREVENT MECHANICAL FAILURE —

Train Personnel — Maximize Efficiency... All In One Comprehensive Program



## Why a Lubrication Program?

Mechanical wear and corrosion (chemical degradation) make up approximately 70 percent of industrial machine failures, costing companies millions of dollars each year. Unfortunately, many companies don't realize their mechanical problems can be traced back to poor lubrication practices, even though lubrication represents one of the easiest cost categories to streamline and control. Both wear and corrosion can be mitigated or prevented by proper lubrication practices.

Most organizations conduct maintenance that includes lubrication, but few recognize the serious potential of comprehensive analysis, training and implementation of excellent lubrication practices – particularly those that are proactive.

Noria can give your organization an individualized lubrication system, personnel training on best practices and continued access to a network of industry experts – all in one comprehensive program.

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**... Without Noria, to get where we are now, it would take us years.** We implemented so much so fast, and the continued support has helped us stay on track ... It wouldn't have been possible for us to get through it as quickly or as efficiently without Noria."

**– Matt King, Mechanical Maintenance Lead,  
Ingredion Winston-Salem**

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## Lubrication Program Development

Achieving lubrication excellence translates into major benefits for your company, but it can be an overwhelming endeavor for busy plants that need effective, sustainable solutions you can use immediately. With Noria's Lubrication Program Development (LPD), we deliver just that.

Real change requires specialists who understand how a lubrication program should function. Our LPD services begin with framing the need, the transformation plan and the priorities to get started. During the **Ascend Phase**, we bring an experienced professional to your facility to define a practical path forward to transform your lubrication program.

Combining decades of proven expertise and specialized applications, we then design a sound lubrication program during the **Engineering Phase**, using Noria's methodology to optimize the fundamental lubrication requirements for each oil- and grease-lubricated component within your plant.

To transform a lubrication program into a world-class operation, it is vital to take the procedures, guidelines and practices developed in the Ascend and Engineering Phases and integrate them into your lubrication program. With the **Implementation Phase**, we help execute and optimize every step of the way. Simply put, we give our customers the confidence to pursue an effective path forward, then we help them make that happen.



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## Program Results

**Significant Cost Savings:** Operational costs decrease, fewer necessary repairs, less downtime, more profit

**Greater Efficiency:** Achieve ROI ahead of schedule, increase life and functionality of plant machinery

**More Knowledgeable Staff:** More skilled maintenance staff, more organized lubrication tasks, personnel able to handle lubrication issues in-house, major cultural shift to better performance

## The “Rights of Lubrication”

### Right Lubricant

Right viscosity, additives, type, grade, thickener, for every machine

### Right Place

Every lube point – don’t miss any

### Right Amount

Precise calculated volume for greases and oils

### Right Time

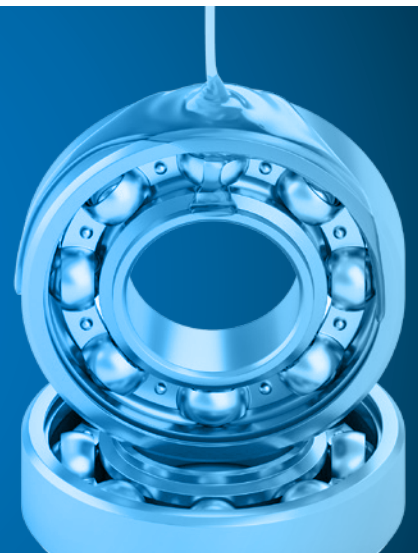
Precise calculated interval and condition-based

### Right Tools

Inspection, sampling, contamination control, procedures, etc.

### Right People

Background, skills, training, ownership



## Ascend Phase

Getting your lubrication program off to the right start has never been easier. The ascend phase of Noria's Lubrication Program Development will help you achieve best practice while avoiding pitfalls and wasted resources. You'll receive a customized roadmap in line with your priorities and budget which is designed to rapidly deliver value and "quick wins" with each phase. The ascend phase includes:

**540-point Onsite Assessment** - This onsite assessment is an important step in evaluating the health of your lubrication program. A Noria expert spends a full day assessing your current lubrication practices. The assessment serves as a baseline to measure program improvements.

**SWOT Analysis** - Once the current lubrication program's strengths, weaknesses, opportunities and threats are identified, an accurate map for the future is created. You will gain an understanding of what you are doing well, where you can and should immediately improve, and where there might be low-hanging fruit that you can take advantage of immediately.

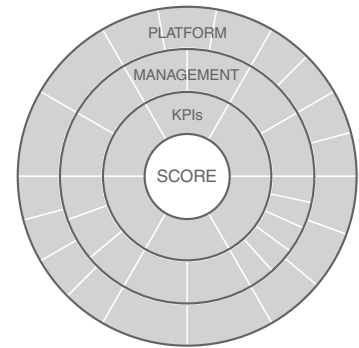
**Analysis of 40 Program Elements** - There are 40 critical elements to lubrication program success. A score is assigned to each of these elements, comparing your program's current state to best practice. The result is a clearly defined overview of your program's strengths and areas of opportunity.

**28 Priority Next Steps** - The 40 critical elements are weighted and prioritized to determine which actions should be performed first to maximize your investments and make the biggest reliability and ROI impacts. These 28 priorities provide a roadmap and answer "What's next?" along the way.

**Financial Cost Justification** - It is inevitable that improving your lubrication practices will require a financial investment. To help maintenance and plant management understand the financial benefits, the costs of the plant's current lubrication practices will be evaluated. Based on the plant size and program maturity, the investment can be accurately calculated. Comparing the opportunity costs versus the investment provides the payback and the internal rate of return (IRR) of a 5-year net present value.

**Audit and Review Recommendations** - To keep a lubrication excellence program operating at a high level, the 40 program elements must be reviewed and monitored regularly. Noria supplies the information you need to perform periodic audits and review each of these elements so your program will remain on track.

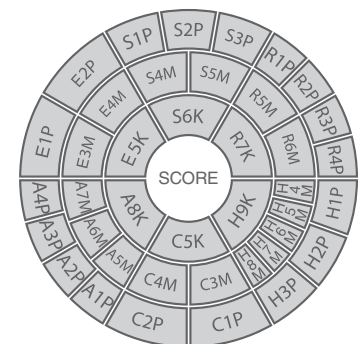
**Metrics and KPI Recommendations** - Measuring progress and compliance with your program goals will be critical to program success, as what gets measured gets done. Dozens of KPI recommendations will be provided for everything from lubricant storage and handling to contamination control.



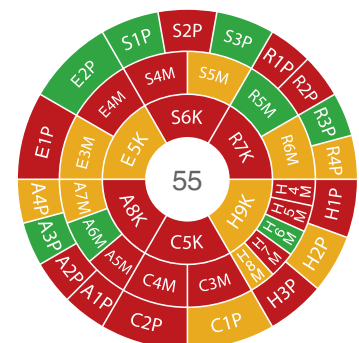
Management Levels



Program Stages



Elements



LPD Sample Chart



## Ascend Phase Deliverables

### Formal Presentation and Report

We will make a formal presentation to plant leadership and management that discusses the customized roadmap to achieve lubrication excellence. This presentation and report will include the 540-point onsite assessment, SWOT analysis, analysis of 40 program elements, 28 priority next steps, financial cost justification, audit and review recommendations and metrics and KPI recommendations.

### Lubrication Awareness Training

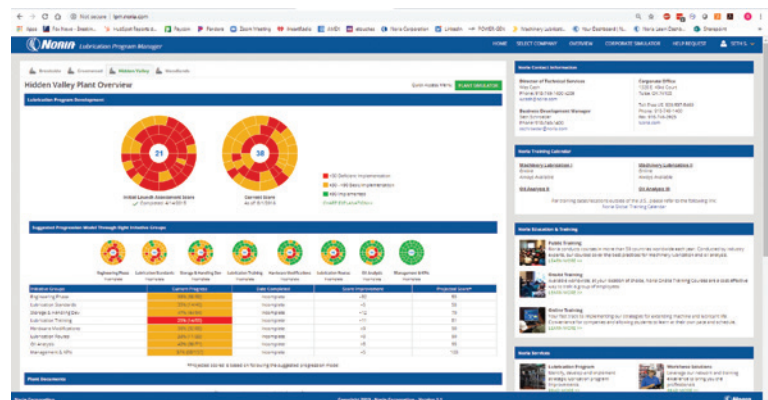
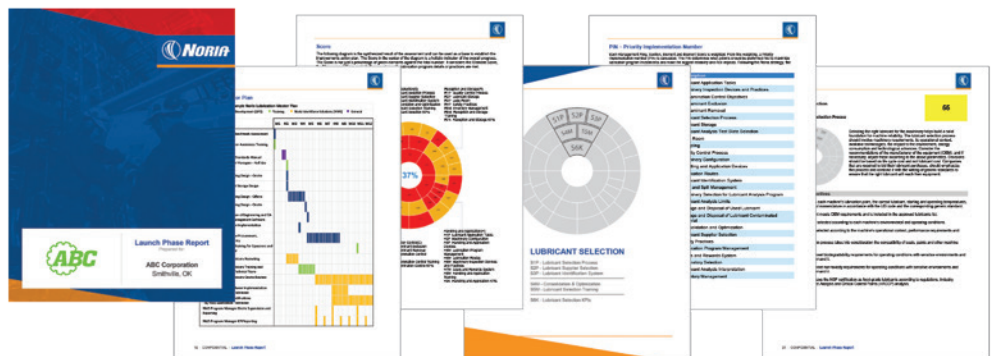
The process of transforming a lubrication program to best practice requires a high level of communication. This half-day training ensures those involved in the program are aware of their roles and responsibilities as well as management's expectations for deployment. In addition, it focuses on the importance of lubrication excellence and contamination control to help get your team on the same page.

### Lubrication Program Manager

Planning and tracking progress is key to a successful lubrication program transformation. The online lubrication program manager will support you throughout your journey, providing plant and corporate-level planning boards and priority next steps.

### LPD Engineering Phase Proposal

We will present a formal proposal for moving into the Engineering Phase of LPD, which will optimize the fundamental lubrication requirements for each oil- and grease-lubricated component within your plant.



Lubrication Program Manager Overview

## Engineering Phase

During the Engineering Phase, a team of Noria experts will survey all your lubricated assets to collect information needed to engineer an optimized lubrication program. From this data, we strategically engineer every procedure from a proactive maintenance mindset, seeking to eliminate the root causes of machine failure that stem from poor practices, such as filling with the wrong lubricant or adding too much grease.

Each procedure includes a job plan and full procedure for each task. The full procedure is a complete “how-to” guide with step-by-step instructions for each lubrication task. Using the procedures, technicians can quickly and efficiently learn how each task should be performed and expand their knowledge of specific machine components. Empowered with these tools, tasks will be completed with confidence, and employees will know precisely what to do.

### Importance of Procedures

**Work Scope.** Procedures clearly scope the work an individual is expected to perform. Specific lubrication tasks should be detailed to exact specifications for lubrication excellence.

**Consistency.** Documented procedures bring uniformity into the lubrication task while keeping everyone on the same page.

**Best Practices.** A procedure creates the framework for standardizing best practice. It serves as the container in which to pour the experience of employees, consultants, vendors and others into a single document.

**Training.** One of the most important aspects of procedures is that they form the basis for training lubrication personnel. A good set of procedures serves as a natural curriculum for task-based training and evaluating an individual’s ability to carry out the assigned tasks.



**On-Condition**

**1AP-13 Top-up using a container equipped with a manual pump and quick connector**

**Purpose:** To top up industrial machinery using a container equipped with manual pump and quick connector.

**Scope:** Oil lubricated machinery fitted with a quick connector on the fill port.

**Summary:** Top up all machinery with Noria 46-HV-42 (ISOVG 46) using a container equipped with a manual pump and quick connector.

**Materials and Tools:**

- Noria
- Handbook
- Oil Fill Gun
- Lubricant container equipped with manual pump and quick connector

**Preparation:**

1. Verify that the container's ID code matches the machinery's ID code.
2. Remove the dust cap and clean the quick connector on the fill port and manual pump.
3. Clean the sight glass and verify the current oil level and correct level mark.

**Step-up:**

1. Attach the manual pump's quick connector to the fill port's quick connector.
2. Using the manual pump, add oil to the fill port (ISOVG 46) while checking the level at the oil sight glass.
3. Stop filling when the oil level reaches the correct level mark on the oil sight glass.

**Assembly:**

Record the volume of lubricant added.

**Cleaning:**

1. Using a hot thin industrial towel, wipe up any oil spill.
2. Clean the quick connector and replace the dust cap.
3. Collect all waste used during the procedure.
4. Collect and dispose of all consumables used during the procedure.





## Engineering Phase Deliverables

# Pre-Implementation Lubrication Program Workbook

This workbook contains all procedures to continue managing a lubrication program with the current state of a machine's configurations and lubricants.

## Lubricant Identification and Consolidation Workbook

This workbook contains all details about current lubricants in use or in storage, as well as our recommended consolidations to optimize lubricant selection facility-wide. The workbook is used to facilitate joint discussions between us and the customer in an effort to finalize practices for implementation.

## Equipment Hardware Modification Workbook

This workbook contains all requirements to modify machines to optimize practices for lubrication excellence throughout the facility. It is used to facilitate joint discussions between us and the customer in an effort to finalize required modifications during implementation.

## Post-Implementation Lubrication Program Workbook

This workbook will be delivered once all lubricant consolidation and machine modification decisions are finalized. It contains all one-off procedures to validate and change lubricants to meet consolidation efforts and complete machine modifications for lubrication best practices. The workbook also contains all routine and on-condition procedures to manage a lubrication program after full implementation.

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## Lubricant Selection Workbook

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## Hardware Modifications





## Implementation Phase

Implementation involves taking the procedures, guidelines and practices developed in the Ascend and Engineering Phases and integrating them into your plant's lubrication program. Noria can support you with integrating procedures and pertinent data into your plant's CMMS or scheduling software, scoping and installing lubrication hardware and accessories, safely changing lubricants where needed, building lubrication routes, managing an oil analysis program, coaching and developing your team, and establishing key performance indicators (KPIs) and metrics for sustainable program success.

Noria can also assist you in selecting products for asset implementation, lubricant storage and handling, and onsite laboratory equipment. We have performed technical reviews of all products to assure they meet our rigorous standards of best or good practice. Detailed Noria notes are included to educate you on any limitations or special requirements.

### Engineered Product Consolidation

Complete asset implementation parts lists and certain storage and handling products are derived from the Engineering Phase. This eliminates lengthy shopping, research, expensive over-buying, under-buying and buying products that will not perform to the levels to reach your lubrication reliability goals.

### Supplier Consolidation

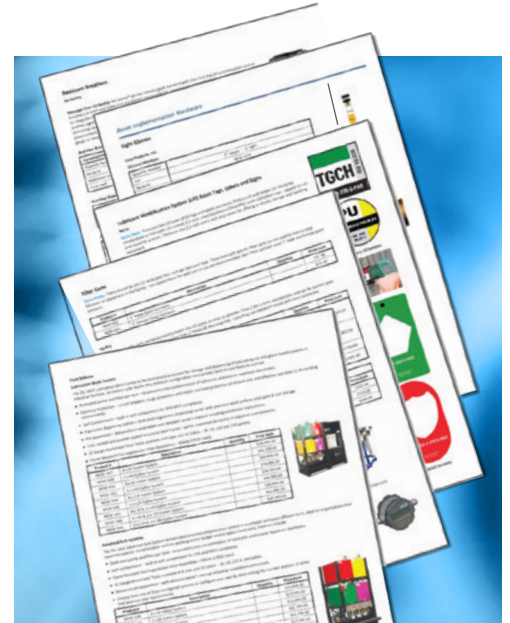
Utilizing Noria to facilitate procurement can save enormously on supplier registration, ordering, logistics, tracking, invoicing and management of numerous suppliers of specialty products that may be one-time purchases.

### Supplier Relationships and Purchasing Strength

Noria has very close relationships with many of these product suppliers, as they may advertise in *Machinery Lubrication* magazine and exhibit at our annual Reliable Plant and Machinery Lubrication conferences. We utilize these relationships and volume buying power to be able to arrange evaluation samples, potentially provide project discounts off list prices, and act as a liaison if any issues were to arise.

### Customer Support and Partnership

Noria has a procurement specialist dedicated solely to managing the ordering, logistics and delivery of your implementation. Ongoing complimentary email, telephone and web conference implementation support with our technical team can be provided for products procured through us.





## Case Studies from Customers

### Lubrication Program Enables **Simmons Feed** to Cut Downtime by 50 Percent

The Simmons Feed Ingredients plant in Southwest City, Missouri, brought in Noria consultants to develop a roadmap for lubrication excellence. After implementing Noria's Lubrication Program Development and training, the facility was able to achieve cleaner oil, prevent machine failures, avoid lost production and save up to \$1 million a year.



### Lubrication Training Leads to Success at **Kimberly-Clark** Mill in Fullerton, California

Noria's machinery lubrication training enabled Kimberly-Clark's Fullerton Mill to achieve significant increases in machine reliability. With Noria's help, the mill's lubricant consumption has been reduced dramatically and oil losses have dropped by 30 percent. Machine delays have also decreased, and the mill now experiences fewer equipment breakdowns.

### **Sinclair Wyoming Refinery** Impacts Bottom Line with a Proactive Maintenance Approach

Noria's onsite training and Lubrication Program Development helped transform the Sinclair Wyoming Refinery into an industry leader for machinery lubrication. With guidance from Noria, the refinery was able to shift to a proactive maintenance approach and adopt best practices, significantly impacting its operations and bottom line.



**For More Case Studies Visit** [noria.com/serv/customers/](https://noria.com/serv/customers/)



## Training Matters

Training is vitally important to the success of your facility's Lubrication Program Development journey. To help prepare you – and your team – for the journey, we offer a variety of training courses on the topics of machinery lubrication, contamination control and oil analysis.

### CERTIFICATION SERIES

**Machinery Lubrication I**

**Machinery Lubrication II**

**Machinery Lubrication Engineering**

**Oil Analysis II**

**Oil Analysis III**

### WORKFORCE DEVELOPMENT

**Industrial Lubrication Fundamentals**

**Reliability Skills Series Online**

**Hands-on Excellence in Lubrication Program (HELP) Training**

**Lubrication Awareness**

### SPECIAL TOPICS FOR PROFESSIONAL DEVELOPMENT

**Oil Analysis Report Interpretation Workshop**

**Food Processing Equipment Lubrication**

**Noria Workforce Solutions** is a short-term solution that provides a combination of onsite and offsite support for various projects. Noria technicians are deployed at your site, providing laser focus to critical tasks and the unceasing perseverance needed to prevent costly machine repairs and downtime. Whether your facility needs help with routes, onboarding and/or verification of best practices, tasks and procedures, we can help.







## About Noria

Since 1997, Noria has been delivering world-class lubrication programs for a wide variety of customers and industries, including power generation, food and beverage, heavy manufacturing, mining, etc. Major lubricant manufacturers turn to Noria to train their teams, design world-class lubrication programs and solve lubrication problems.

As a trusted advisor to the world's leading organizations, Noria has a staff of technical specialists dedicated to consulting, training and publishing in the core competencies of tribology, lubrication, oil analysis, contamination control and machine reliability. Our services are disseminated through top-quality training courses, consulting services, publications, webinars, videos and books.

Our mission is to inspire change through education by providing tools, resources and expertise so the industrial world can realize the tremendous potential that lubrication excellence has to offer.





## Customer List

Many of Noria's customers view our services as a competitive advantage, so we can't provide a complete list of everyone with whom we've worked. Here's a small sample of the companies we've helped, which include several winners of the John R. Battle Award:



*John R. Battle Award winners*



[www.noria.com/LPD](http://www.noria.com/LPD)