Revision Indication

UOP A Honeywell Company

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PRV DOCUMENTATION REQUESTS FOR SCHEDULE A PROJECTS

Procedure Number TEC-807-08 Page 1 of 7 **Revised**

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0	15JUL10	WHC	DAL				
1	12OCT10	WHC	DAL				
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1. Purpose

This procedure contains guidance for responding to requests from customers and contractors for documentation supporting Engineering Specification 807. The procedure applies to project managers, team leaders, and project/design engineers. The procedure also references the minimum standards for internal PRV calculation files.

2. Policy

2.1 UOP does not provide a documentation package for the content in the 807 specification. The rationale for this policy is included in Attachment 1.

2.2 Only requests that originate from the UOP Schedule A customer will be considered. Requests by other parties (e.g. contractor) are to be refused directly.

2.3 The Project Engineer shall create and maintain a PRV section in the General Calculation folder for each project.

2.4 The only basis for exception to the non-disclosure policy is when documentation of relief loads is required at an early stage for the customer to secure governmental approval for a project.

3. Background

UOP does not release design calculations for any Schedule A equipment items, including pressure relief devices. Historically, requests for PRV calculations have been infrequent. Some of the requests have been made casually, and in other instances it was apparent that the request was made to save the contractor time and effort. While the contractor may act in good faith with the calculations, UOP has no control over how the calculations will be used, and will not accept any liability associated with misuse.

Process safety standards in the refining and chemical industries require the process user to have the design basis for installed relief systems documented and available. The nature of typical Schedule A relief calculations makes them unsuitable for the documentation required by the standards. The engineering design contractor is the right party to prepare this package for the user.

4. Procedure for Responding to Requests for PRV Documentation

The Engineering Sales Support person, Project Manager, or Project Team Leader shall notify the PRV Specialist of any formal request for PRV documentation from a customer. The initial response should be directed by Table 1, “Actions for All Requests”.

Casual inquiries can be handled by paraphrasing the UOP Philosophy statement (See

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Attachment 1). The purpose of the philosophy statement is to provide background information for customers. If a formal response is appropriate, the content of Attachment 1 can be copied and transmitted. Attachment 2 provides a form letter for transmittal of the philosophy.

When the Customer explicitly requests a copy of the calculations supporting the 807 or related specification, refer to Table 1, "Supplemental Actions".

Once the Schedule A has been delivered, the customer can see the essential UOP position in Project Specifications 000 (section 5) and 807 (General Notes). Directing the customer and contractor to these items may forestall or prevent a request for calculations.

Before deciding to fulfill a customer's request, the following items shall be addressed.

- Approval for release of PRV documentation must be obtained from all Center Managers whose technologies comprise the units in the affected project or complex.
- Include the customer's requirement and the adjustment in project price in an Engineering Agreement.

5. Preparing PRV Calculation Files for Release

The content of PRV calculation files is defined in Procedure QUA-01, "Engineering Quality Records and Filing Procedures.doc". Conformance with this procedure will minimize the effort needed to generate the final transmittal.

Field Code Changed

Calc files shall be reviewed and approved before transmittal to the customer. The reviewers shall include the PRV Specialist.

The information which can be released is limited to:

- Copies of PRV calculation sheets
- Printouts from Documentation System tools (Tool reports that provide inputs and outputs are acceptable to transmit. Under no circumstances shall tool files be released outside of UOP).

Hardcopy or pdf files are the only acceptable forms for transmitting PRV calculations. A consistent format and appearance is desired, especially when the request involves multiple UOP units.

6. Transmittal of Information to Customer

All PRV documentation packages shall be covered with a letter which includes an appropriate confidentiality notice.

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Table 1 – Response to Requests for Documentation of PRV Design Calculations

Actions for All Requests
Determine whether the request is driven by (a) a general need for understanding, (b) use by the customer or contractor during or after the project, or (c) to obtain government approval for the project. * a. If the customer is seeking understanding of UOP's practice, consider providing Attachment 1 as the response. ~~a.~~b. If the request is driven by project considerations, explain that UOP policy prevents release of any calculations. ~~b.~~c. If the request is driven by governmental approval, the request will be considered further. The customer shall put the request in writing, and shall include a copy of the official government documentation containing the permitting requirement (i.e. a customer document paraphrasing the requirement is not sufficient).

Supplemental Actions	
Project Phase when Customer Request for Documentation is made	**Action to be taken**
Before execution of the Engineering Agreement	Transmit copy of Philosophy (Attachment 1) if appropriate. If UOP agrees to comply, modify the agreement to include price and schedule adjustments for clerical and engineering effort to prepare the information for transmittal. ** Notify project manager and/ or Process Specialist(s) of issue so that it can be discussed during Design Basis Meeting.
After execution of the Engineering Agreement, but before project completion	If UOP accepts the request, execute a paid change order. Consider the man-hours required to prepare the calc files for release in setting the price. **
Post-Schedule A	Refer the customer to Project Specification 000 and 807 Specification General Notes, where the basic philosophy regarding UOP not providing calculations is documented. A decision to fulfill a request may require a new agreement See "Before execution of the Engineering Agreement", above.

Form QUA-01-5

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Table 1 - continued

(*) The request could be general (e.g. background/philosophy only), or explicit (PRV calcs as part of the Schedule A package, or Customer asks for details behind each PRV specification). UOP will not comply with requests for such calculation details.

(**) When the request comes before 807 work has begun, the cost to prepare documentation should be less than at a later stage when more review/rework is anticipated.

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Attachment 1
UOP Overpressure Protection Philosophy

UOP utilizes three distinct approaches to protect equipment from overpressure: venting, containment, and prevention. Venting (with a pressure-relief device) is used for most services as the least expensive alternative. Containment (e.g. by raising design pressure) and prevention (e.g. with safety instrumented systems) are employed in specific cases where the consequences of venting impose very significant constraints.

UOP provides overpressure protection in accordance with the ASME Boiler and Pressure Vessel Code Sections I and VIII. UOP specifies pressure relieving devices that are designed in conformance with the following API practices: Standards 520, 521(ISO 23251), 526 and 2000(ISO 28300).

The pressure relief device specifications are based on the best available information at the time of the Schedule A. Many equipment parameters are not final until the detailed design phase. Therefore, UOP applies assumptions in its calculation methodology to develop a realistic set of relief loads and device specifications. The calculation methods that define the relief rates are based on API guidance and enhanced with UOP experience and insight. The methods are reviewed and updated in accordance with an internal quality assurance process. The details of the calculation methods are proprietary.

Key Design Practices

- UOP prefers to raise the design pressure of equipment to at least the shut-in pressure of upstream pumps to prevent large liquid relief flows.
- UOP specifies shell-and-tube exchanger design pressures to contain the effects of a tube leak or rupture. Where some or all of the low pressure side equipment is not designed for containment, a pressure relief device is provided.
- Partial loss of electrical power is analyzed on a case-by-case basis. A limited number of possible scenarios are considered. Other partial-power-loss scenarios are left to the discretion of the contractor in the detailed design phase. The intent is to identify a reasonable case which may produce a relief load for a particular service that is greater than the general power failure.
- Where liquid discharge to a relief header may occur incidental to an overpressure event, the rate and volume are reported.
- Effective operator intervention during relief emergencies is normally ignored for calculating relief rates.
- UOP does not address relief protection for activities which may occur when the protected equipment is not in normal operation, such as purging or steaming out prior to vessel entry.

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- UOP specifies pilot-operated relief valves whenever the unique features offer an advantage.
- UOP technologies only require rupture disks for a limited number of equipment services.
- UOP does not specify a rupture disk in series with a pressure relief valve except in special situations, or at Customer request.

General Design Assumptions

- General (plant-wide) electrical power failure assumes that cooling water is lost and plant steam flow continues indefinitely.
- When the fuel to a fired heater stops, UOP assumes that a significant fraction of the normal heat input will continue due to the heat stored in the refractory.
- Loss of cooling medium to an exchanger results in the following residual cooling duty, as a percentage of design performance: un-flooded air-cooled exchangers, 20%; cooling water exchangers, zero; process cooling media, zero.
- When the inlet control valve is assumed to fail wide open, allowance is made for a partially-open bypass valve.
- Credit is normally not taken for insulation in calculating fire-case heat input.
- Grading, drainage and fire-fighting response are sufficient to justify the lower design heat input to process vessels (per API 521) for the external fire case.
- The Customer has an effective system for administrative controls, such as the management of locked or car-sealed valves.

The notes on the 807 project specification (“Pressure Relief Valves”) provide other explanatory information as required.

Customer requests for deviation from UOP philosophy are considered on a case-by-case basis. The Basic Engineering Design Questionnaire is the preferred means to initiate such requests.

The UOP Pressure Relief Valve Deliverable

The UOP relief loads and relief device specifications per the Schedule A agreement are subject to change during detailed engineering when important details are fixed such as equipment dimensions, pump characteristics and valve capacities, and plot locations. In addition, the engineering design contractor (EDC) must analyze the system for additional relief cases that are mandated by its design decisions. The EDC, being responsible for the design of installed equipment, should prepare the relief device documentation package as required by the customer, using final design information.

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Attachment 2
Transmittal Letter Format for PRV Design Philosophy.

(Copy and paste to a template form letter or e-mail.)

(date)

(customer representative)
(company)
(address)

Dear (name):

Pursuant to your request concerning relief system design practice, attached is the UOP Overpressure Protection Philosophy. Your detailed engineering contractor may also find this useful in assessing the information contained in the pressure relief specifications.

Please note that it is UOP policy not to release design calculations pertaining to equipment specifications in a Schedule A design package. As noted in the attachment, the design contractor is in the best position to develop and provide you with the documentation package for the pressure relief systems.

(closing)

(UOP representative)