OIL Credit Management using SAP

Applies to:

SAP ECC; Sales and Distribution; Credit management; FSCM, SAP R3 Enterprise 4.7 with SAP IS-Oil & Gas/ Mining solution. For more information, visit the Business Process Expert homepage.

Summary

Credit is a very sensitive area and links to the customer and organizational reputation while doing business. During SAP Oil & Gas implementations and subsequent support, there could be several challenges with scenarios and postings to credit management - This white paper aims to provide a good summary of the unique industry requirements and integrating IS-OIL and credit management. It's aimed to document the "must knows" and help point key issues and solutions to the IT and Business consultant community involved.

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Created on: 15, January 2011

(Version 2.0 on 17th April 2011)

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Introduction

Long outstanding or uncollectible receivables are generally a risk to any successful business. Planning and budgeting for future is difficult without availability of funds to plan actions. At the same time the operational costs to get customers to settle those outstanding dues can be high. These situations typically result in loss of trust and a volatile business environment and possibly end of business with that customer.
Businesses however big, look for a mechanism to mitigate such risks, within a reasonable risk horizon.

SAP Credit Management functionality enables minimizing the credit risk by specifying a specific credit limit for your customers. Thus you can take the financial pulse of a customer or group of customers, identify early warning signs, and enhance credit-related decision-making. This is particularly useful if your customers are in financially unstable industries or companies, or if you conduct business with countries that are politically unstable or that employ a restrictive exchange rate policy. With SD (sales and distribution) and FI (financial) credit management, a big portion of your sales process could be integrated into the credit management. For instance it's possible to verify credit at the time of ordering, delivery and invoicing along with keeping track of the customer's credit with your organization.

While SD and FI credit management are pretty much existing and being used, the current whitepaper is to provide an overview of the challenges and ways to achieve a smoother implementation of R/3 credit management in the Oil and Gas arena.

The SAP FSCM product is not in the scope of this white paper

Most Oil & Gas products are subject to volume expansion and contraction due to prevailing temperature and density at loading or discharge. While being physically measured in the gross unit of measures, the financials could be incorrect if such units are used in pricing and credit calculations. This is due to the conversions in each case being different between the parallel inventories. To overcome this problem the business usually measures financials in Net units of measure instead of the Gross units of measure. Net units of measure are temperature and density applied units such as Liters at 15Celcius or US Gallons at 60Farenheit. Gross units are those which are physically measurable on equipments – these are Liters, Metric cube etc. Goods movement and returns post to credit under these principles. During an IS Oil & Gas implementation with SD credit management, there can be several structural questions arising around why certain things have to be done in a certain way and what benefits it brings – this whitepaper can be used as a reference in such scenarios.

In a typical organization there is a lot of follow up when a sales order is credit blocked. During a conversation with a customer, Credit block is generally more representative to the reputation and credibility of the customer than just an absolute value. So it needs a careful handling and customers can get upset quite quickly if the reliability of credit data is not accurate before to the conversation. Credit block generally involves internal work flow escalation and follow up. Therefore it's vital to have the exposure right.

For a good implementation within credit exposure issues, a deep amount of understanding is required on what SAP offers in this area. There are several restrictions and they need to be followed so the postings to the credit exposure database structures are consistent and correct. In some instances, a process solution is required to change the way certain transactions are made and it also requires a bit of change management within the organization (we will come to this in a moment, but just to give a indication that, for instance, you cannot offer your distribution roles in your organization a chance to delivery split while on IS-OIL solution and if credit management is active)

Architecture

Customers and Credit Limits

Within R/3 there is no tool that allows you to design and determine the credit limit that you need to setup for each customer. SAP offers a new design from ECC onwards where you can manage the entire credit operations on a separate box called FSCM (Financial Supply Chain Management). FSCM provides tools to determine credit limits for customers. Within R/3 releases, you need to do this step manually based on inputs from your business. FSCM is however not in scope of discussions of this whitepaper.

Risk category is an important factor to discuss and agree within your business context. For instance you may have low risk, medium risk and high risk customers or may have situations to move customers across. Risk category plays a key role in designing the way system should react when a customer credit check fails or the way the customer credit exposure is updated into the system database. From a business perspective, it only mentions how much risk (of not paying back the receivables) does this customer brings-in to our business.

Organizational Structure

Imagine a scenario where your business operates in several countries and the customer is global too. There is every chance you would like to give the customer the global coverage i.e. supply to him in every country where you or he operates. In this scenario, the SAP customer master design is to extend the customer to several of your sales areas and manage the transactions either locally as an intercompany transaction where sourcing comes from a plant belonging to a different company code.

However the customer is one and the same. The usual preference is to manage credit limit globally as a single instance, as a single entity instead of a local credit decision. Therefore SAP manages the credit at an organizational level called “credit control area” which is a level above the company code level. Several company codes can be assigned to a credit control area.

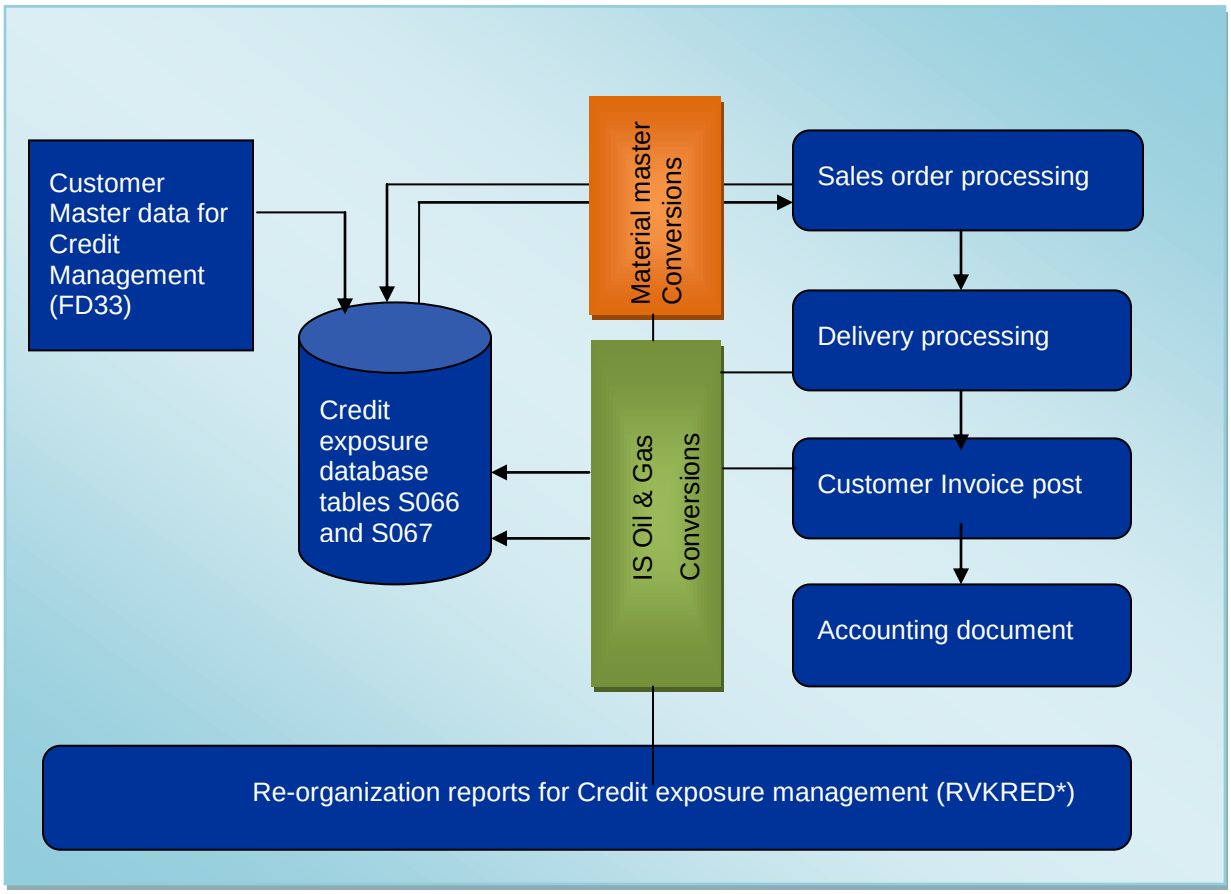
Here you define the credit limit of a customer, the risk category, and also can get an overview of the sales exposure and receivables. The currency in which you like to track the credit exposure is defined here.

Where possible an organization should adapt to managing several company codes via a single credit control area. This allows your organization a good chance to streamline the organizational structure for outsourcing and process and cost efficiency. For instance credit monitoring can be a global team in that sense for major activities around credit, while the local credit business must still exist for managing customer callbacks when orders are blocked and not ready for delivery and to also manage customer local credit worthiness.

Most often this is the case for Oil & Gas businesses where the sales in the marine line of business (i.e. selling lubricants and fuels for transportation ferries or carrier ships) at several ports. These customers need to be managed globally under one credit control area which internally represents (or keeps track of sales occurring under) several company codes. While the local fishing boat companies don’t really require such a global scale of managing and local level could be well sufficient.

Overview

For Oil & Gas products the overall credit management system architecture could be depicted as below



The biggest and most marked difference between standard credit management and Oil credit management is the quantity conversions that occur at the delivery processing or receipt processing. Products are subject to temperature and density based contractions or expansions. These converted volumes are in-turn influencing what will be invoiced to the customer. Most often the order value is tentative and the invoice value is bound to be different to that. That's the nature of the business.

Another influencing factor is the fact that Oil price changes are quite often and volatile. Therefore the Oil companies tend to hedge the impact due to lower future prices and higher selling prices via the benchmark formula average pricing. This almost definitively results in different pricing at the invoice when compared to the order. Also considering the fact that the delivery could take weeks to complete and the price of the product is very different now than to before i.e. at the order placing time.

Therefore the Oil & Gas solution tends to rely on the volume conversions available at the delivery stage as the primary source of credit value calculations – since this is the closest to what we subsequently invoice to the customer

Inconsistencies can occur and can be reorganized with the available tools RVKRED77 report from standard. These are adapted to Oil & Gas behavior via several OSS notes design, described later on this paper

Understanding & Challenges on the Oil & Gas implementations

SAP is a market leader in providing industry solution software for Oil & Gas industry with its IS-OIL solution. Majority of the typical Oil & Gas downstream products are Fuels, Lubricants, Bitumen, and Base oils. In the service stations car care and wash services are provided additionally. Some of the products above are sold as packed more commonly, such variants are not as subject to volume and temperature conversion as the bulk versions; the latter being measured for temperature and density while loading and at discharge.

Sales exposure comprises of three components.

One can see sales exposure on the transaction FD33, but need to remember this is only the exposure as per the credit horizon window. Open order value reflects un-delivered order items, Open delivery value reflects un-invoiced delivery items and Open invoice value represents value of deliveries or orders posted but invoice not yet to release to accounting. S066 holds Open order value; S067 holds Open delivery and Open invoice value.

Quantity and Volume Conversions

IS-Oil offers special screens during delivery processing to store the temperature and density measured at the time of loading a truck for instance and also the ambient temperature along with the loading unit of measure. These are then sent off to a remote server containing software that computes volumes in all additional units of measure belonging to that unit of measure (UoM) group plus any other UoMs necessary. The conversion mechanism follows the ASTM standards (http://www.astm.org/) to convert between the parallel UOMs.

Such parallel UoMs most often result in the value of the delivery being slightly higher of lower than the value authorized at the time of the sales order. For instance you order 100 L15 (liters at 15Celcius) and the price of each L15 is 1 Euro, so this converts to 100 Euros. However, during delivery 100 Liters could be anywhere between 98 L15 of 102 L15 depending on the loading temperature and volume expansion. This volume correction results in either the delivery value being between 98 Euros to 102 Euros. The delivery document posts credit exposure updates based on the Oil quantities of measure as this is more accurate.

SD credit management is based on a decision to manage the credit exposure based on sales UoM. This is ideal for products which do not change volumes while delivery due to contractions and expansions. However, this is unsuitable for Oil & Gas products. Therefore a design decision was made about a few years ago to manage the whole credit exposure based on Pricing Unit of measure of the sales order. The pricing UoM is determined based on the gross price condition of the sales order. This design applies only when Oil & Gas conversions are available and is fully documented under OSS note **1059038** and acts as a pre-requisite while working with Oil & Gas implementations.

Pricing & Formulas; Invoice Cycles & Differential and Split Invoicing

When product pricing based on formula & average pricing is activated you are expecting a invoice which is typically provisionally priced and subsequently followed by a differential invoice for the difference as the price condition now matures to determine the final price of sale. This means while credit postings at the time of delivery planning and invoice are also provisional and need to be rectified when pricing is final at the time of differential invoicing. Not all Oil companies use the concept of differential invoicing. Some companies can decide to wait for the price to be final before invoicing the customer and they don't see a need for differential invoices.

Split invoicing is a different concept which allows companies to invoice fees and taxes separately on an invoice and the product prices on a different invoice. It does so by mapping the price conditions onto several cycles (1, 2, and 3 through to 9) and the invoice type configured to pickup these cycles. Each cycle has a status maintained (VBUP) and for formula pricing until provisional is marked with a new specific status called P (provisionally ready for invoicing) under invoice cycle 9.

One of the important factors for Oil & Gas implementations is to **mark all price conditions** to an invoice cycle, inorder to have the credit exposure consistent. An essential OSS note that defines this requirement is the OSS note **1249789**. Quite often this mapping is missed out due to lack of knowledge of such prerequisites & alignment to existing design at the customer invoicing model at each company. It's also essential that all invoice cycles are billed. Serious data inconsistencies can be caused without this design intact.

Taxes and Relevant Conditions

At times the tax conditions are defined independently and the configuration overwrites the standard pricing configuration for invoice cycles and therefore causes additional issues. This needs additional configuration as documented on OSS note **1104208** and aims to keep the invoice cycles design intact.

Features not Supported by QCI are can Cause Inconsistencies for Credit Exposure

There are several situations where QCI is not supported in the Oil & Gas solutions. Seasoned Oil & Gas consultants are usually aware of such limitations and make sure the processes at the customer are generally designed to avoid such SAP unsupported transactions.

Typical example is to handle delivery splitting. Consider a situation where the delivery scheduler realizes he does not have the truck capacity to handle a scheduled delivery into one truck, the most obvious reaction is to use delivery split this into two deliveries (via standard transaction VLSP) and create two deliveries out of this one delivery at suitable volumes. Unfortunately this transaction VLSP is not designed to capture the QCI quantities arising out of the delivery processing. Therefore cannot be a source to supply the right quantities for the exposure calculations. This eventually leads to inconsistent credit exposure.

A reasonably detailed list of such limitations is documented on the OSS note **530125.** This is usually considered as a reliable source of documentation inside SAP as well and can be subject to updates from time to time.

Backorder Processing

Organizations would like to maintain back order processing inorder to pleasantly surprise customers with more earlier deliveries than expected (improvement) and to capture any potential delays due to supply or production disruptions (deterioration). Backorder processing essentially goes out and looks for all the open sales order items and performs Availability to promise ATP check to determine and assign the latest stock situation for those items. Backorder processing has a special impact to orders which were credit blocked earlier. In case the customer's credit situation is better now the backorder processing releases the credit block automatically overnight and the order is confirmed to the customer. There is also another side to this, i.e. the earlier credit released order can be re-blocked for credit incase the customer's credit situation is back to red. This prevents companies delivering although promised, with due consideration to the latest credit situation of the customer. Typically companies go for the rules like don't modify the credit status of a released order unless there is a % change to the order value OR up-to X days of initial credit release of an order. SAP allows such maintenance. This is an organizational decision and design. Credit exposure is updated accordingly.

Credit Exposure Updates for always Available Products & the Famous Misconception around Credit:

Organizations typically identify certain class of products they sell into always available in stock. The stock can be replenished either by network-to-stock NS model or always stocked. In NS model, the product is replenished with a stock transfer between plants to the local plant..

For Oil & Gas companies this is typical to fuels. Refinery capacity is always a key KPI and each refinery almost runs with a zero down time. This means fuels are ideally always available. However the case is not common for lubricants and specialty products. Lubricants are managed as make-to-stock MS model and at times also as made-to-order MO Model as well. This means the lubricant is really produced if customer places a confirmed order in the MO model. In the MS model the stock is always ready for consumption including due to permanent means of procurement. For fuels, the ATP check is generally turned off and for lubricants it's typically switched ON.

There is a credit side to this picture. When ATP is turned off, the system confirms scheduled lines on the order item always i.e. you place an order and it's confirmed automatically. Credit exposure is designed to calculate credit values from the confirmed schedule lines. Therefore even if the customer order is credit blocked, the system still goes ahead and updates the credit exposure tables with this value. This is usually considered incorrect at the first look, but later on accepted OK after realizing the standard SAP design. When ATP is ON, SAP deletes the confirmed schedule line when credit checks result on credit block, with the understanding that a re-ATP run during credit release will cause the new confirmed schedule line to be created.

Batch Managed Products and Oil Bills of Material

Produced products are usually assigned with production batches. During distribution, the stock is run down from these batches. QCI parameters and quantity conversions are stored at batch level on the delivery document during the actual goods movement. During credit exposure calculations, IS Oil is designed to pick up the QCI converted quantities from the batch level where applicable.

However in a real world scenario, planning the delivery and assigning which batch to be used, are two different activities that occur anywhere between 4 hours to 2 or 3 days depending on how big the distribution model is and the complexities involved. There were some issues around how the credit exposure gets updated – the system used to update credit exposure with zero value when batches are not entered manually (or determined automatically); which leads the system to open up a gap where customer can place orders virtually for the additional value of that delivery, although his credit limit is lower. However when batches are applied the system updates back the exposure correctly. This was sorted on OSS note **1350949** which has a subsequent correction via note **1432840**.

Oil Bill of Material is an interesting functionality. This applies to situations where Order is on header, Item is delivered and QCI quantities are recorded on item level followed by Invoicing at header level. This is activated by marking Oil BOM indicator on the sales item category. In case the BOM items are maintained using batches, this scenario is not supported for credit exposure in Oil & Gas solution. If this is configured, this will lead to incorrect credit exposure for the customer. This is a known limitation to keep in mind and is documented on the OSS note **1249789.** It is recommended the consultants design the distribution keeping this limitation in mind, else request SAP for further advices including a possible custom development.

Technical Issues can Cause Wrong Exposure:

Internally inside SAP programs credit exposure updating and release is tightly linked to several statuses and index tables. Implementations need to keep in mind the limitations of updating SAP tables via SD user exits and factors to consider for credit exposure updating.

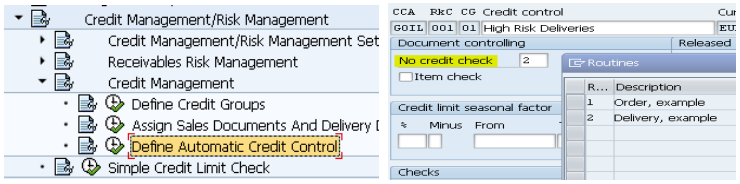
Working with touch less payments process (Credit cards)

Several businesses prefer usage of credit cards for payment towards a sale.
For an organization it's a much easier incoming mode of payment due to the following advantages

a) The payment risk is hedged (i.e. card guaranteeing the sale)
b) The process is touch less and is secured (i.e. operations efficiency)
c) It's a 24/7 payment mode. (i.e. more flexibility to the customer)

Aligning an organization towards the latest standards from PCI Data Security Standards (DSS) is itself a complex implementation project on its own; in this context, the other whitepaper that I published on the BPX community of SDN can be referred to: **"Enabling secure credit card payments on SAP environment**".

Customers can be offered to make payment using several methods. With credit cards payment organizations would typically "not" dynamic credit check a customer when a sale is placed using an approved credit card that guarantees the payment. Normally this can be built and configured into the system via a simple user-exit code under the "No credit check" field; which is accessible in the credit configuration transaction for defining automatic credit control (transaction OVA8; also accessible via SPRO>SD>Basic functions>Credit/Risk management>Credit Management>Define automatic credit control).



SAP standard table T691F is read into this routine and available, the buffer entry should programmatically marked with the bypass indicators for all the checks after validating the credit card authorization status on the order header.

Housekeeping the Credit Exposure for Correctness

In an ideal world the exposure should always be right and fully automatic.
But it is hardly the case in real world, with so many design decisions usually taken without awareness of what SAP offers and what SAP treats as missing or un-integrated functionality, the exposure updating with incorrect values on Open delivery value is very common. Technically incorrect code written on customer-user-exits is also a major contributor to incorrect credit exposure during order taking. As this is included in the sales exposure, the credit worthiness of the customer is often judged incorrectly during sales transactions.

SAP offers two reports: RVKRED88 for monitoring and simulation of post corrected exposure. RVKRED77 is really updating the exposure tables with the reorganized credit data. One needs to remember that the credit exposure reports lock out the sales tables completely and therefore no ordering can occur at this time. This can be a major issue on production to find a right slot when business does not occur. There is no change to SAP's position on this, the reports still remain the same with full locks, except a note was provided to enable running this report in parallel but logically dividing the customer set into proportions and setting up the report as variants.

Summary

One of the important KPI of any organization is to enable new sales with the right credit worthiness data of the customer. This simply makes the order taking much faster and involves lesser organizational elements. This also simplifies the level upto which customer is contacted post order taking. Therefore the roles like credit representative would be involved in genuine cases thereby smoother approvals of customer orders.

Any seasoned SAP Oil & Gas consultants working with credit management need to understand the limitations around the product design and recommendations to overcome such recommendations. Such solutions can either be a process or technical based work around. A good feedback cycle to SAP is essential to provide replicable errors so SAP can react quickly and fix the errors on standard. Involving a seasoned SAP consultant usually is the best way to reduce escalations exist at the business.

The above document in summary is a short document explaining the key pain points and the solutions.

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