

Insights Into Base Metals Licensing

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Proper application of technology being licensed is most critical item in negotiation

Cominco Ltd. is one of the world's largest producers of lead and zinc, accounting for about 10% of mine production of each in the western world. The company also produces copper concentrate, silver, gold, molybdenum, cadmium, bismuth, indium, and fabricated metals. We also are a major producer of fertilizers, most of which are marketed in Canada and the United States.

Our principal products are zinc, cadmium, iron, arsenic, stibnite, antimony phosphate, antimony sulphate and pentoxide. The company produces sulphuric acid and sulphur dioxide. And it operates mines and processing plants in Australia, Canada, India, Japan, Spain, and the United States, including 40 links.

In establishing mines, smelters and refineries for these metals, we have developed a number of proprietary processes, which I have the pleasure of licensing throughout the world through our engineering subsidiary Cominco Engineering Services Ltd.

The specific technology covers a fairly wide range of metal smelting and refining processes. Much of it is covered by patents, but a good deal is associated with processes involving expired patents and the accompanying know-how.

Some of the processes we sell are:

1. Lubster cells for lead flotation.

2. A complete electrolytic zinc cellhouse that includes cells, electrical contacts, plated metal stripping machines, etc. About 20 patents are involved.

3. Cyanide removal from zinc sulphate solutions.

4. Removal of fluorine and chlor-

ine from sulphate systems by decomposition.

5. Zinc pressure leaching in conjunction with Sherwin Gooden Limited.

6. Bipolar electrolytic refining of lead.

7. Ammonia absorption for SO₂ removal from waste gases.

We are marketing these technologies throughout the world. In the Pacific Rim, we are involved in Australia, China, Indonesia, Japan, Korea, Mexico, New Zealand, Peru, the Philippines, and Thailand.

■ Need for Technology ■

Why do our customers need our technology? To answer this, we need to examine the structure of the non-ferrous metal industry today. In the 1950s, 1960s and early 1970s, a number of new plants were established to meet the rising consumption of non-ferrous metals. The OPEC oil shock put an end to this rapid rise and has had a major influence on industry worldwide. The slow pricing of automobiles and the general curbing of energy use has meant slower market growth for copper, lead, and zinc. The result is that our industry is being consolidated into several very large producing blocks. Also, the economies mean that establishment of new plants has given way to modernization and expansion of existing facilities, utilizing the existing infrastructure.

Thus, the answer to the question is that new technology is needed to reduce operating costs so producers can survive in the difficult market of the 1980s and 1990s. The U.S. copper industry is a good case in point. In the early 1980s, the whole industry was in trouble. However, by restructing and consolidating, and by using new technology, such as in-pit crushing, heap leaching

and solvent extraction/electrowinning, the industry has reduced its operating costs significantly. Coupled with these lower costs and improved copper prices, the major producers are now very healthy.

What are some of the pertinent features of the licensing agreements being executed in the frontier of technology in the base metal industry?

1. The first major change is that, contrary to most commodity manufacturers, lead and zinc producers like to avoid a continuing royalty. They prefer a lump-sum payment.

2. Because most technology is being sold to existing producers, you deal with knowledgeable and highly expert people. This makes the sale both easier and harder — easier because the customer understands almost immediately what you are talking about, harder, because his knowledge allows him to strike a tougher bargain.

3. Because most agreements are between people who are capable plant operators and innovators, the "grant-back" provisions are important and need to be examined carefully.

4. The ever-increasing cost of capital projects has brought into play another factor — risk sharing. Several of the processes we market involve huge and equipment that have not been fully operated commercially. There are a number of ways of sharing the risk, but one that we have used is sharing future licensing fees from third parties with the first customer who helps

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develop the process as a production mode. This must be carefully structured so that control of the technology remains with the licensee.

• Marketing Technology •

Marketing technology in the Pacific Rim is very different from marketing technology in North America, and far that matter in Europe. The rich diversity in cultures and customs is bewildering. It also can be frustrating to cope with. There are a number of factors that should be considered in planning your Pacific Rim license marketing:

1. **Research the Country.** You should know as much as possible about the customs and culture of the country. This will help you understand the approach and actions of your prospective customer, and also will allow you to "customize" your approach.

2. **Know the Customer.** The more information you have on the operations, credit rating, expansion plans, etc. of the company you are visiting, the better you will be able to discuss his situation intelligently. It will also help you assess the value of your technology to his operations and thus your license fee.

3. **Language.** The needs in each country will vary. We have found that it normally is not necessary to have your own interpreter in Japan and that, in fact, this may be preferred by your potential licensee. On the other hand, having an interpreter who is familiar with the business area is almost mandatory in China so that technical points can be clarified quickly. (An interpreter is sometimes needed in Australia.) Having a Spanish-speaking member of your team can be useful in South America.

4. **Law.** You need to be familiar with the laws of the country that affect your business. For example, all foreign companies doing business in Indonesia must have a local agent by law. He may perform a multitude of different tasks for his 5%.

5. **Payment.** In controlled economies, the local currency values are worthless outside the country. Great care needs to be taken in ensuring that you can get paid both for the technology and the engineering work associated with it. We make it a

hard-and-fast rule not to start work until the contract has been signed and the initial payment has been made, or at least a letter of credit opened.

6. **Control of Technology.** This has been a contentious area for a number of years, but a lot of work is being done to limit the danger. However, when a country can control where you can go and where you can visit there it also can control your technology after the first plant is built.

7. **Travel and Communication.** Our experience is that finding the project, negotiating the deal and then carrying out the work can be very costly because of the distances involved. Here in Hawaii, we are only a third of the way from Los Angeles to Australia. Another major difficulty over the years has been the availability of information back and forth. The "tele-revolution" has gone a long way to reducing this, but you need a reliable telephone system at both ends to support a "lan" system.

8. **Nationalism.** A number of countries do not allow the foreign provisions to be longer than five years, or the length of the contract. This can be completely unacceptable for the protection of one's know-how.

9. **Dispute Settlement.** This can be a difficult and hazardous area, especially where local government regulations may preclude arrangements that are normal in North America.

10. **Scope of Work.** Most important of all, in our experience, is this one. It is where more difficulties and misunderstandings arise than in any other. By scope of work, I mean all the activities that the licensee supplies to translate a particular technology into an operating plant. This usually includes basic engineering (including process details), detailed design, installation-supervision, commissioning and start-up, and performance testing. The problem is in the understanding of what is included in each of these areas.

In North America, basic engineering means all the process and equipment information required to raise money for the capital cost and to obtain budget equipment quotations. The detailed design is required to determine the equipment specifications

necessary to place firm orders. In many other countries, the basic engineering is much more extensive, and often is used to purchase equipment.

As an example, we recently supplied the basic engineering for an electrolytic lead refinery to a country very close to the Pacific Rim. Included was a joint specification for various portions of the plant. This specification ran 28 pages long, and they still asked for more information! In fact, we are still answering questions a year and a half after the work was completed.

In preparing a bid for countries that have a culture different from yours, you must be meticulous in the definition of the terms used, such as basic engineering, detailed design, etc. With every bid we prepare, we list the items that we will deliver to the client — the "deliverables." This includes a drawing list, an example of the equipment specifications sheet, a description of the start-up with responsibilities and the number of man-months to be provided, etc. I can't emphasize too strongly the importance of this area. It will make you or break you in the international sale of technology.

All this leads to what items should be included in a licensing agreement. Through bitter experience we have learned that you should set on the side of providing too much information rather than too little. This information, of course, should be paid for over and above the license fee. For example, we license a process for gypsum removal from zinc sulfate solutions. The process has been installed in Canada, Norway, Korea and Australia. In every case in which we did not supply the basic engineering, the process was installed incorrectly, and it didn't work.

As a result, all our licensing agreements now include clauses to ensure:

1. Basic engineering is supplied by us at the client's cost.
2. Detailed design is carried out by us, or at the least is reviewed to ensure that it conforms to the basic engineering.
3. Installation is reviewed and supervised by us.
4. Start-up and performance testing conforms to our requirements.

Although all these points raise the initial cost to the licensee, they ensure a properly designed and operating process.

With all of these difficulties to overcome, why do we persist? The obvious answer is that there are huge and growing sales opportunities in the Pacific Rim. The con-

sumption of almost all consumer goods is growing faster in the Pacific Rim (faster than anywhere else) in the world. As an example, although it is a somewhat spiced market, China remains the largest potential market in the world.

In conclusion, we have found that, while the usual factors included in

licensing agreements are important, the most critical area is the proper application of the technology being licensed. Thus, we must ensure that the engineering design, installation, start-up and performance tests are carried out so that the process will work, which after all is what everyone wants.