

Nuclear Buzz

Remembering Earworms

By Margaret Harding, Columnist

I presume everyone knows what an “earworm” is. A song, or part of one, gets stuck in your head and keeps going around and around. This song, “Remember,” became an earworm for me a few weeks ago after a brief exchange with a friend in social media.

*Try to remember the kind of September
When life was slow and oh, so mellow.
Try to remember the kind of September
When grass was green and grain was yellow...*

I grew up singing that song, because my father loved to sing snatches of show tunes and silly pop songs from his youth. I never knew much about “Remember” except that line or two.

The song is about lost loves, growing up and changing seasons, and remembering the lingering warmth of September when it’s cold and dark in December.

It came up in that conversation and has been an earworm in my head ever since. Here’s **Jerry Orbach**—yep, *that* Jerry Orbach—singing it. Turns out he was the first person to sing it in the musical “The Fantasticks” in the 1960s. There, now you, too, can have an earworm.

Okay, Margaret, but what does “Remember” have to do with nuclear energy?

There’s another earworm in the heads of

Rosatom Jumps Gun

South Africa Still Laying Groundwork For 9.6GW Nuclear Procurement

By Andrea Jenetta, Publisher

Since Monday’s misleading announcement that Rosatom had been awarded a \$50 billion tender to build eight reactors in South Africa, South African energy ministry officials have scrambled to clarify that Pretoria had signed only a cooperation agreement with Russia, a document that lays the groundwork for Rosatom to bid on any future procurement.

“Similar agreements are foreseen with other vendor countries that have expressed an interest in supporting South Africa in this massive program,” the country’s energy ministry said on Tuesday.

“If chosen all nuclear vendor countries have technologies of their choice that they would want to deploy,” the Sept. 23 statement continued.

The communiqué was issued at the end of a visit by energy minister Tina Joemat-Pettersson to Vienna, where she led South Africa’s delegation at the 58th session of the IAEA’s general conference.

The ministry reported that Joemat-Pettersson met with officials of other countries’ nuclear power agencies, not just Rosatom chief Sergey Kirienko.

During talks with Bernard Bigot, who headed the French delegation, she agreed to “visit France where bilateral discussions will culminate with the signing of a cooperation agreement between the two countries to support South Africa’s new nuclear build program.”

The Sept. 23 communiqué also noted that Pretoria is “in discussions towards concluding an intergovernmental agreement with the Chinese government also aimed at finding ways of supporting South Africa’s nuclear new build program.”

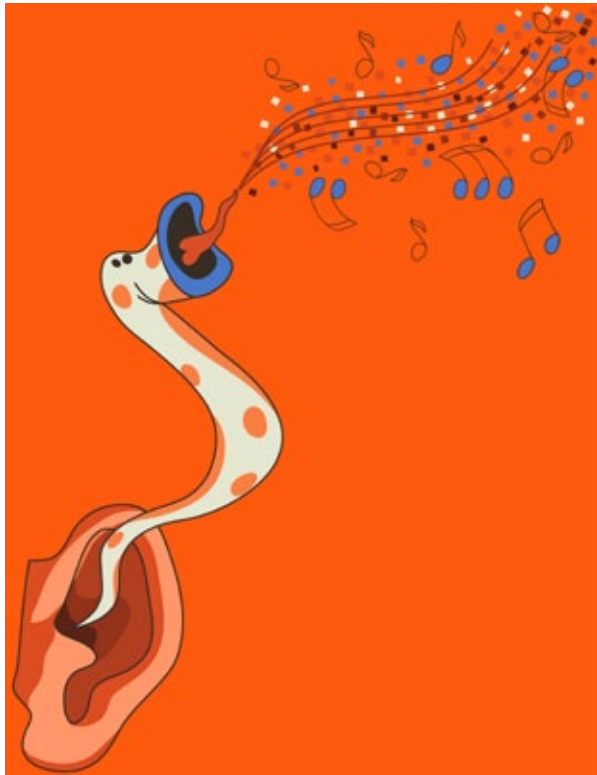
Reuters, in an article published Tuesday, quoted an anonymous senior South African government source, who said Rosatom “jumped the gun.”

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EU Hints at Okay of Hinkley Aid Package

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the average Joe and Jane regarding nuclear: “Nuclear power is really expensive to build.”

Along with that earworm is another one that anti-nuclear folks like to repeat: “Nuclear costs, unlike everything else, keep getting more and more expensive. They can’t control those costs.”


It sure sounds true. We in the industry keep arguing that it’s all the fault of the nuclear regulators and our flawed regulatory system. For anti-nukes, that’s just another earworm: “Nukes don’t care about safety.”

So what’s the truth about capital costs and economics?

Construction costs for Vogtle 3 and 4, the first units to be built in the U.S. this century, are estimated at a whopping \$10 billion, or \$4,476/KWe. According to the World Nuclear Association, construction costs in the 1960s were roughly \$1,500/KWe.

It looks like the anti-nuclear people with all of their rhetoric about the ever escalating costs of reactor construction are spot on.

“Damn the regulators and their glacial pace, the price tag has tripled!” That’s the favorite earworm of many pro-nukes out there, right?

|  Uranium Prices Term: October 2014 cob September 24, 2014 | | |
|--|----------|----------|
| | BID | OFFER |
| U3O8 (physical) | \$35.75 | \$36.25 |
| U3O8 (financial) | \$35.75 | \$36.25 |
| UF6 (physical) | \$101.00 | \$103.00 |

Source: Evolution Markets Inc. +1 914.323.0252
www.evomarkets.com [Disclaimer](#)

The cost of almost everything has increased since 1965. Remember that almost always, historic building costs are equated to “today’s dollars.” What’s the real cost differential? Using a **historical construction cost index** to correct the 1965 costs to today’s construction costs, the cost would have been a bit over \$14,000/KWe.

Whoa, wait...did you read that right? Yep, the cost of building a normal building in 2014 costs almost 10 times what it cost to build that same building in 1965. I double checked this against census data on the cost of home building and got roughly the same numbers.

The reality is nuclear power plants have done quite well in keeping total construction costs in check. Today’s reactors cost about 1/3 of what reactors cost in 1965 per KWe, when inflation is properly acknowledged.

Still, \$5 billion for a single nuclear power plant is not chump change and for most utilities is a company busting bet. Even for some of the biggest corporations in the world, such a price tag requires careful thought. BUT it isn’t an indication that nuclear is out of control in its relative construction costs.

We have failed to communicate this clearly, causing the public, and more importantly rate-payers and public utility commissions, to balk at the idea of new nuclear because of it.

It’s time to stop ceding this economic conversation to others and start having a rational conversation with the public.

Nuclear is clean, reliable, and inexpensive. For all other forms of electricity generation, pick two (at most). Let’s start telling PUCs, rate-payers and the public the truth. Time for a new earworm. ●



AFRICAN PROJECTS

Heap Leach Demo at Etango; U-grade Funding in 2015

By Roger Murray, Global Correspondent

Bannerman Resources (ASX:BMN) has moved ahead rapidly with getting the heap leach demonstration plant at its Etango project announced earlier this year off the ground ([FCW #564, April 10](#)).

It seems clear the highly professional Bannerman team is eager to get going with the plant, which will provide results likely to enhance project economics and Etango's attraction to project financiers.

In a Sept. 22 market update, the firm said it had awarded the major contracts to construct and operate the plant, for which the capital cost is an estimated A\$1.4 million (\$1.3 million). Work was due to start by end-September expected for completion by early 2015.

Bannerman noted that the major contract awards followed the completion of a competitive tendering process, as well environmental clearance from the Ministry of Environment and Tourism.

Bannerman expects the plant to operate for at least 12 months, at a cost of around A\$50,000.00 per month, to enable demonstration of the heap leach design on a larger scale. It will also provide input data for detailed engineering of the processing plant.

The plant has been constructed to confirm the processing assumptions from the 2012 Etango definitive feasibility study (DFS), and should contribute to further derisking the project.

The DFS validated open pit mining, a simple, conventional process flow-sheet involving three-stage crushing and sulfuric acid heap leaching with a 50 day on/off cycle.

The plant's four heap leach cribs will each handle 40-45 tonnes of crushed material loaded by conveyor from an agglomerator. The first results are expected in the second quarter of 2015.

The plant cost, along with working capital requirements, has been funded from a further A\$4 million (\$3.7 million) convertible note with Resource Capital Fund VI (RCFVI),

Bannerman CEO Len Jubber commented: "The commitment to the Etango heap leach demonstration plant program, with the support of our major shareholder RCF...will enable maintaining our early mover advantage and ability to fast track" the Etango project in a rising uranium price environment.

He added that Etango "remains one of the very few globally significant uranium projects that can realistically be brought into production in the medium term."

U-grade Funding Early Next Year

Marenica Energy (ASX:MEY) chairman and CEO Murray Hill expects funding for construction of a pilot plant to test its proprietary U-grade beneficiation process to be available "early in 2015." This will be a key step in commercializing the technology,

In his introduction to Marenica's recently-published annual report, Hill said that the applicability of the process "to a broad range of surficial uranium deposits around the world, in addition to the Marenica resource for which it was initially developed," had been confirmed.

He added that for deposits where U-grade works "we expect operating costs to be less than half those of conventional heap leach operations." The capital cost of an U-grade processing plant could be "almost half those for a conventional uranium processing plant."

In Hill's view, this had opened the door to applying U-grade to other uranium producers for the profitable utilization of their waste/low grade ore, providing a substantial revenue stream to the firm.

Having transferred the technology to a wholly owned subsidiary, Uranium Beneficiation, investment is being sought to fund a pilot plant "and conduct trials on at least three separate ore sources."

MOUs with Three Firms

He disclosed Marenica had signed memoranda of understanding with three uranium firms on providing ore from their deposits for processing in the pilot plant.

Two are known to be GoviEx Uranium, which owns the Madaouela project in Niger, and Deep Yellow, which is advancing the Omahola/Tubas Sand projects in Namibia.

Using U-pgrade for the currently on-hold Marenica deposit “remains an objective” once uranium prices become more attractive.

The Marenica technical steering committee continues to prepare for pilot plant construction and operation so that it is ready to move quickly once the Uranium Beneficiation subsidiary is funded.

China’s Sichuan Hanlong Group remains Marenica’s largest shareholder with a 27% equity stake but does not presently intend to contribute further funding.

Namibia Leads Exploration Spending

Among the plethora of statistics contained in the recently published OECD-IAEA Red Book one number is particularly striking. Exploration and development expenditures in Namibia were an estimated \$522 million last year, up from \$77 million in 2012. This was second to Canada (\$873 million), and ahead of China (\$128 million), Kazakhstan (\$111 million) and Australia (\$93 million).

The over half a billion bucks spend was virtually all accounted for by the Husab mega-project. But if prices do recover in the next year or two and several new Namibian mines come back into contention, expect spending levels to remain impressive.

Elsewhere in Africa, where no other uranium mines are under construction, \$35 million was spent in South Africa, \$21 million in Niger, \$8 million in Tanzania, \$4 million in Zambia and \$1 million in Botswana.

Collectively African countries accounted for 30% of the \$2 billion spent on exploration and development, with Namibia alone marking up 26% of the total. ●

Namibia Preparing to Buy AREVA’s Water Desal Plant

By Roger Murray, Global Correspondent

In what could be a game changer in providing secure water supply to Namibian uranium mines, the Namibian government is preparing to table an offer to purchase the water desalination plant owned by AREVA Resources Namibia at Wlotzkasbaken, just north of Swakopmund.

Bloomberg reported on Sept. 19 the government would put in a bid to acquire the plant outright, which cost French parent group AREVA some \$270 million to build four years ago.

Ministry of Agriculture, Water and Forestry permanent secretary Joseph Iita told Bloomberg that the “cabinet has made a decision for us to acquire that plant, we are busy with technicalities before we make an offer.”

With a capacity to produce 20 million cubic meters per year of fresh water, the plant was intended to supply AREVA’s Trekkopje

mine at full production of some 3,000 tonnes U3O8 per year.

But the plant was built with a capacity four times Trekkopje’s requirements and AREVA decided last year to mothball the project.

After much haggling over the terms, AREVA then agreed to state-owned utility Namibia Water Corp. (Namwater) supplying water from the plant to the country’s uranium projects, Langer Heinrich, Rössing and the under-construction Husab.

The water is being supplied by Namwater under short-term offtake agreements, with about 10 million cubic meters per year going to the three mines ([FCW #581, Aug. 14](#)).

Rössing Uranium complained earlier this year that the price being charged was excessive, although whether this was due to AREVA or Namwater was not wholly clear. It said it was looking into the option of building its own desalination plant at the coast.

For its part, the Chinese-owned Husab mine developer Swakop Uranium said it would continue to source its processed water requirements via Namwater and would not at this stage look to build its own plant.

Long-Term Requirements

But it has always been evident that the temporary solution of using AREVA's plant did not provide the long-term solution to the mines' processed water requirements.

This is not even to take into account the growing demand from the expanding coastal towns and industries of Swakopmund and Walvis Bay, which local aquifers cannot meet. The coastal area is not connected by pipeline to the north-south bulk water distribution network.

Husab process water requirements are expected to be some 8-10 million cubic meters per year at full production. This is where a government acquisition of the plant would help as the current capacity could be expanded to 24 million cubic meters by modular increases.

Iita told Bloomberg that "the plant has a provision for expansion and if we buy it, we can expand the capacity to above 20 million cubic meters."

That would certainly be preferable to Swakop and the other members of the Erongo Miners' Water Users group than leaving the decision as to whether to expand plant capacity to AREVA.

The alternative option, for Namwater to finance and build its own desalination plant as had been the original plan, seems to be off the table. Early in 2014, the government was evaluating three bids to build a \$135 million desalination plant, with construction set to start this year.

It would in any case now take too long to build it by the time Husab comes into operation by the end of 2015 and ramps up to full capacity output during 2016-17.

Namwater would also have need to raise funding for the project for which it would almost certainly have required a government guarantee.

Swakop seems to favor an acquisition by the government.

"It appears to be a very logical step in the evolution of the desalination saga at the coast and I thought this would have been the only proposal that would make sense," Swakop communications director Grant Marais told *FCW*.



AREVA's water desalination plant in Namibia

Source: AREVA

"The commercial reality is that the solution at the right purchase price will suit all parties," he continued. "Let's see what comes of this."

Not A Done Deal

But there will be tough negotiations between the government and AREVA, which has yet to disclose its own position on a buy-out.

Iita said a negotiating team is being set up and the plant will be handed over to Namwater once the deal is completed.

AREVA said it will only comment once the offer is made official. "Once we know what they want, when we have seen the offer, we will be able to comment" said ARN managing director Hilifa Mbako.

The government made no provision in the 2014/15 budget for a purchase of the plant so may have to increase borrowing to fund it.

FCW believes that AREVA would expect to be paid a price sufficient to recoup its investment, which would put a \$300 million price tag on a deal.

Intriguingly, AREVA was reported early this year to have offered to sell the plant to the government. At the time, Bloomberg reported that the firm wanted to retain a 10-20% minority equity interest in the plant to guarantee a future supply to Trekkopje. It may still try and hold out for this. ●

EU Reverses Course, Hints at Approval of Hinkley C Deal

By Roger Murray, Global Correspondent

Hopes that the European Commission, the executive body of the European Union, will approve the U.K. government's financial incentive package for EDF Energy's Hinkley Point C as compatible with its state aid rules are rising.

The optimism has been fed by the comments of a spokesperson for competition commissioner Joaquin Almunia as reported last week by The Guardian newspaper.

The spokesperson said Almunia would "propose to the college of commissioners to take a positive decision and in principle the decision should be taken during this mandate of the commission in October."

Other media reports pointed to an agreement in principle already having been agreed between Almunia and the U.K. government to allow the package, which includes the controversial contracts for difference (CfD) strike price, to stand.

Brussels-watchers drew attention to the spokesperson's use of the words "positive decision," rather than "conditional decision," which was seen as indicating the package could go through virtually unchanged.

This would represent a significant reversal of the EC's initial position last December when it began the investigation.

A 70-page letter sent to the British government inviting it to state its case for the HPC package expressed doubts as to whether nuclear investment in the U.K. was justifiable as a "service of general economic interest."

The EU executive body was also skeptical about "the structure of the (contract for difference) for nuclear which, by its design, duration and scope, has the potential for distorting competitive conditions."

At that point the EC added that it was unconvinced "whether the combination of aid measures, and in particular of a CfD with inflation indexation and a credit guarantee, is proportional to the potential benefits."

The CfD for Hinkley C would involve the government topping

up the generator's market-based income to a certain amount per MWh. Conversely, the generator has to pay back if the wholesale market price is higher.

EDF is guaranteed £92.50 (\$151.70) per MWh generated, and £89.50 (\$146.78) if a second plant (Sizewell C) is built, for 35 years. The new Hinkley plant has also been offered loan guarantees under the U.K.'s large infrastructure projects scheme by the government.

These CfD arrangements apply to all low-carbon technologies, and the strike price has been set much higher for renewables, generally over £100 (\$164) per MWh.

But while EC rules allow state aid for renewables, there is no such general exemption for nuclear power. Because of this, support for nuclear projects must be agreed on a case-by-case basis.

There is still a way to go, as when officially announced, Almunia's recommendation must be adopted by a decision of the entire college of 28 commissioners presided over by Portugal's José Manuel Barroso. Some, almost certainly the Dutch and German commissioners, are thought likely to object.

Barroso and the other commissioners will be replaced by a new team in November, so a decision during October will be crucial to avoiding a further, protracted delay which could kill off HPC for good.

Over to EDF Energy

The French-owned U.K. nuclear generator has welcomed the news of Almunia's expected recommendation in favor of the existing package.

"We expect that the full, final decision should be made within the term of this commission which ends at the end of October, which is the timetable that we were anticipating initially."

EDF Energy added: "Hinkley Point C is an important project which will deliver Europe-wide objectives, offering the prospect of reliable, secure and low-carbon electricity for many decades to come as well as boosting jobs and skills."

A positive recommendation will have a generally galvanizing effect on the British nuclear industry, including supply chain firms which are ready to bid for contracts.

Endorsement of the CfD mechanism as acceptable under state-aid rules will enable the U.K. government to start negotiating similar

deals with the two other new builders, Hitachi-owned Horizon Nuclear Power and Toshiba/GDF Suez-owned NuGeneration.

Westinghouse Geared Up, Too

Westinghouse, which will supply three AP1000 reactors for NuGen's Moorside site, is already looking ahead (*FCW* #585, Sept. 18). President and CEO Danny Roderick told journalists in London two weeks ago that "we are all anxiously awaiting the EU ruling on the CfD," adding that a definitive answer was expected in early October.

He noted that arriving at a strike price "involved a complex set of discussions," but expressed confidence that "our construction costs (at Moorside) should be lower than HPC."

Roderick added that after the AP1000 clears the final generic design assessment phase and receives a final design acceptance confirmation, engineering design work would take until 2018.

At that point, a final investment decision would be made to go forward with construction at Moorside. ●

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"These kinds of inter-governmental agreements are standard with nuclear vendor countries," said the official, a member of Pretoria's delegation in Vienna. "We foresee that similar agreements will be signed with other nuclear vendor countries, France, China, Korea, the U.S. and Japan."

The confusion stemmed from a Sept. 22 press release from Rosatom that said the Russian government-owned entity signed a \$10 billion deal with Pretoria for 9.6 GW of nuclear electricity. Both it and a Sept. 22 statement from South Africa's energy ministry use the same misleading text to present the agreement as being more than a simple cooperation arrangement:

"The agreement lays the foundation for the large-scale nuclear power plants (NPP) procurement and development program of South Africa based on the construction in RSA of new nuclear power plants with Russian VVER reactors with total installed capacity of up to 9.6 GW (up to 8 NPP units).

"These will be the first NPPs based on the Russian technology to be built on the African continent. The signed agreement, besides the actual joint construction of NPPs, provides for comprehensive collaboration in other areas of the nuclear power industry..."

"But from the very start this cooperation will be guided at providing the conditions for creation of thousands of new jobs and placing of a considerable order to local industrial enterprises worth at least 10 billion U.S. dollars." (*emphasis added*).

Financing Ability Is Key

Clearly, whoever ends up winning any future procurement for new reactors in South Africa must be able to finance the construction.

That's one of the reasons Rosatom may have been willing to jump

the gun, said Ed Kee, owner and principal consultant of Nuclear Economics Consulting Group.

"The Russians have different business models for new reactors: selling nuclear power plants, selling nuclear power plants linked to government-to-government loans as in Belarus, Hungary, Vietnam and Bangladesh, and the build-own-operate approach in Turkey," Kee explained.

The problem with the BOO model, he continued, is that there's no electricity market in South Africa. Any BOO projects would likely be based on long-term power purchase agreements (PPAs) with the state-owned utility, Eskom.

Eskom's financial capability take on such PPAs is suspect and its efforts to add new capacity have been limited. In fact, the country experiences power shortages every summer, and is always on the verge of brownouts, blackouts and rationing, a situation that illustrates South Africa's desperate need for more baseload power generation.

Another reason is President Jacob Zuma's love for Moscow. The Mail and Guardian newspaper called it "a whirlwind political romance" with Russian leader Vladimir Putin.

In 2013 Zuma exchanged working visits with Putin, "marking out the Russians as South Africa's priority partner" in the BRIC political bloc. "Nuclear cooperation has been high on the agenda," the newspaper said.

After Russia, the next obvious candidate for helping South Africa sort out the financing challenge is China.

In late February Chinese officials met with Ben Martins, Joemat-Pettersson's predecessor at the energy ministry, to discuss a draft agreement on the construction and funding of new reactors.

State-owned enterprises China General Nuclear Corp. and State Nuclear Power Technology Corp. have already signed an agreement with the Nuclear Energy Corp. of South Africa, which would see the Chinese funding skills development for South Africans at Chinese universities and institutions in nuclear.

Both Russia and China have promised localization programs as well as skills capacity training for South Africans.

Eskom on the Sidelines

Just as thorny as financing is the issue of exactly who would own and operate the new reactors.

Eskom runs the two-unit Koeberg plant, but has been purposefully excluded from the 9.6 GW procurement process.

Some blame this exclusion on the botched Nuclear One tender in 2008, which was eventually canceled due to Eskom's inability to finance the new reactors, as well as the prevailing distrust of the utility by South African citizens and the energy ministry.

Eskom's funding difficulties stem from what Kee called "the unusual relationship between Eskom and the government."

Although Pretoria owns the utility, it doesn't provide any funding, forcing Eskom to look to financial markets for capital, just as privately held companies do.

The independent utility regulator, meanwhile, has denied several rate increases needed by Eskom, leading to the brink of bankruptcy six years ago and again in the last year.

Kee also pointed to Eskom's uncertain financial health, the government's refusal to bail out the utility with funding and the troubled Medupi and Kusile coal plants that will, when completed, partially fill the electricity gap until the new reactors are built.

After 2008, South Africa embarked on integrated national resource planning, which resulted in the 9.6 GW target for nuclear capacity additions, with nuclear procurement to be overseen by a new high-level entity, the National Nuclear Energy Executive Coordination Committee.

President Zuma heads that body, and is thought to be pushing the nuclear deal as a way to deliver on African National Congress promises of adding new jobs. ●

DAHER-TLI has opened a **new fabrication plant** in southwestern Virginia. The 90,000 square foot facility makes 7A Type A Containers, a full line of industrial packages, overpacks, liners, storage systems, machined components, and other containers used in the nuclear industry.

The company said in a Sept. 23 press release that the investment is part of parent company DAHER's strategy for expanding its North American operations, which generated \$200 million in revenue in 2013.

TradeTech has published **Issue 3 of its Uranium Market Study 2014**. In a Sept. 18 press release, company president Treva Klingbiel said that today's oversupply situation has "resulted in soft demand, which, in turn, has put pressure on producers to preserve margins."

Central to the report's evaluation is a feature analysis of oversupply and the practice used to place the material into forward-looking contracts. TradeTech called the opportunistic contracting practice "demand drift," which suggests that "excess uranium will find a home in spite of relative need in the marketplace."

"Opportunistic buying has emerged as an economical option due to discounts available in today's spot and mid-term markets coupled with low interest rates," Klingbiel said. As a complement to the uranium study, TradeTech has also released its annual **Enrichment Market Study 2014**. The report features a long-term SWU price forecast through 2030.

Denison Mines Corp. (TSX:DML) (NYSE:DNN) is reporting "the successful extension" of the **Gryphon zone** of high grade basement hosted uranium mineralization at the **Wheeler River property** in Saskatchewan's Athabasca Basin.

In a Sept. 24 press release Denison said that highlights from the drill program include WR-573D1, which intersected 15.8% eU3O8 over 2.3 meters, and WR-574, which intersected 7.0% eU3O8 over 2.0 meters, followed by 9.8% eU3O8 over 2.5 meters.

The last holes completed in Gryphon's up-plunge (WR-580) and down-plunge (WR-573D1) directions intersected 1.8% eU3O8 over 2.0 meters and 15.8% eU3O8 over 2.3 meters, respectively.

As the drill holes are angled steeply to the northwest and the mineralization is interpreted to dip moderately to the southeast,

the true thickness is expected to be approximately 75% of the intersection length, Denison said.



Cauldron Energy (ASX:CXU) has drilled eight diamond core holes to lift the uranium resources and confidence level at its wholly-owned **Bennet Well** deposit in Western Australia. The junior said this week that with 29% of the resource now in the indicated category, further upgrading is likely with the upcoming drill program.

Previous metallurgical studies completed on core show uranium recoveries of 94%-96%, which Cauldron said "places the project squarely on the project development pathway."

Drilling was undertaken for metallurgical testwork increasing the resource by 18% to 18.6 million pounds contained within 32.40Mt eU3O8 using a 150ppm eU3O8 cut-off. Beginning this month and continuing through December, CXU is drilling over 100 holes to define in situ leach characteristics at Bennet Well, with the target of leach trials in 2015.

Alpha Exploration Inc. (TSX-V:AEX) said this week that it has completed and filed on SEDAR a technical report that outlines the results of recent exploration programs at its **Middle Lake project** located in the Cluff Lake mine camp of the western Athabasca Basin in Saskatchewan.

The technical report recommended a suite of further work, including expansion of existing radon and gravity surveys; follow-up diamond drilling based on integration of the radon and gravity work; and targeting the potential up-ice source of high grade boulder fans on and southwest of the property.

Five areas were prioritized for the 2014 winter drill program, based on coincident radon and helium anomalies, with or without VTEM conductors, and most associated with gravity low features.

Drill holes ML14-019, -021, and -024 to -029 all intersected sporadic anomalous gamma radioactivity (>500 cps) at the Donna zone in the northern grid area.

Anomalous U values, up to 254 ppm, were obtained in holes ML14-021, ML-025 and ML-029 associated with intervals of Cluff Breccia. The prospective zone strikes grid south, and warrants follow-up drilling to the north, along-strike from the Donna Zone. ●



OPEN URANIUM DEALS (9/18/2014 - 9/24/2014)

| Company Name | Offer Size | Price Per Share | Discount Premium | Security Type | Warrant @ Share | Market Cap | Underwriters | Financing Basis | Open Date, Updated |
|------------------------------------|------------|-----------------|------------------|---------------|-----------------|------------|--------------|-----------------|--------------------|
| Ultra Resources Corp. (TSX-V:ULT) | \$0.1m | \$0.05 | 11.11% | Common | 1@ \$0.05 | \$0.90m | – | Best Efforts | 9/18/14 |
| Alpha Exploration Inc. (TSX-V:AEX) | \$0.5m | \$0.18 | 12.50% | Flow-Through | 1/2 @ \$0.25 | \$4.19m | – | Best Efforts | 9/19/14 |

RECENTLY CLOSED URANIUM DEALS (9/18/2014 - 9/24/2014)

| Company Name | Offer Size | Price Per Share | Discount Premium | Security Type | Warrant @ Share | Market Cap | Underwriters | Financing Basis | Open Date, Close Date |
|-----------------------------------|------------|-----------------|------------------|---------------|-----------------|------------|--------------|-----------------|-----------------------|
| Fission Uranium Corp. (TSX-V:FCU) | \$14.4m | \$1.50 | 17.19% | Flow-Through | – | \$451m | Dundee, BMO | Bought Deal | 8/18/14, 9/23/14 |

Source: Oreninc.com

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