

# **MINUTES - NORTH DAKOTA ATMOSPHERIC RESOURCE BOARD**

**OCTOBER 29, 2014**

Chairman Henry Bodmer called the meeting of the North Dakota Atmospheric Resource Board (ARB) to order at 1:34 p.m., October 29, 2014 in the Lower Level Conference Room, State Office Building, Bismarck, ND.

## ***ROLL CALL***

Roll call was taken. Members present were Henry Bodmer, Monte Hininger, Tom Tupa, Bobb Brewer, Todd Sando, Rob White and Malinda Weninger for Kyle Wanner.

Others present were Darin Langerud, Director; Mark Schneider, Chief Meteorologist; Kelli Schroeder, Business Manager; Dan Brothers, Meteorologist; and Hans Ahlness, Weather Modification, Inc. (WMI).

## ***MINUTES***

**IT WAS MOVED BY MR. HININGER, SECONDED BY MR. TUPA TO APPROVE THE MINUTES OF THE JUNE 30, 2014 MEETING AS DISTRIBUTED. THE MOTION CARRIED UNANIMOUSLY.**

## ***FINANCIAL UPDATES***

### **Financial Status Report**

Ms. Schroeder reviewed the financial status report for the period ending September 30, 2014.

In response to a question, Mr. Langerud indicated we have biennial budgets. We recently finished the budgeting process for the 2015-17 biennium.

There were no further questions.

## ***2014 NORTH DAKOTA CLOUD MODIFICATION PROJECT (NDCMP)***

### **Project Overview**

Mr. Langerud provided the Board with an overview of the 2014 NDCMP project.

In response to a question regarding extension, Mr. Langerud noted that each county was asked about their intention to extend. The extension was paid for fully by excess county funds on the books due to being under budget from previous project years. We have been allocating some of the excess funds toward base funding each year. This has helped keep new county revenue down in the last few years.

This year, since all counties except McKenzie wanted to extend, we worked our county fund pool back to individual county fund "pots" based on percentage contribution to the

project. This way, we were able to extend in all the other counties without asking for additional funds. At the same time, McKenzie County then does not pay for any extension costs.

In response to a question regarding the cost per day for extension, Mr. Langerud noted that there are costs associated with the aircraft lease. These costs are based on an 8-day period based on the contract. Flight hour costs remain the same.

### **Cost Summary**

Ms. Schroeder reviewed the cost report for the 2014 NDCMP. District I was \$5,992 under budget. District II was \$27,101 under budget, primarily due to limited flight hours flown.

### **Seeding agent usage / inventory**

Mr. Schneider reviewed the ending chemical inventory and usage for the 2014 NDCMP. Of note, Laboratorios Argenol of Spain was able to bid this year and was awarded the silver iodide bid. This dropped the price of silver iodide bottles from \$302.50 per 309.1 gram bottle last year to \$155.00 this year.

We used 1,332 ejectable flares this season, which was fairly high. The average over the last 12 years is 993 units per year. On the other hand, we only used 189 burn-in-place flares compared to the 12-year average of 466.

We used 2,754 pounds of dry ice. The 12-year average is 3,587 pounds.

The acetone price increased nearly 14%. In 2013, we paid \$469 per drum. In 2014, we paid \$534 per drum.

In response to a question, Mr. Schneider explained that the 20-gram ejectable WMG-1 flares are all duds from a company we used many years ago that has gone out of business. All of the flares following that on the inventory sheet are old flares that can no longer be used.

In response to a question, Mr. Langerud does not believe there is a danger in storing the old flares that can no longer be used. They are stored in metal ammunition boxes, according to manufacturer recommendations.

In response to a question, Mr. Langerud does not know if the dud flares would be considered hazardous waste. But being a pyrotechnic, they are in the same shipping category as fireworks. You cannot just throw them in the landfill.

### **Generator performance**

Mr. Schneider reviewed generator performance. In 2014, there was 2.9% failure rate, which is determined as anytime a generator was needed and wouldn't function correctly. The 5-year average failure rate is 3.2%. This year's low rate can be attributed

to the 99.85 hours of aircraft maintenance that WMI pilots flew this season. For example, in Kenmare this summer there were about 8 burner maintenance flights done in one afternoon.

### **Intern Programs**

Ms. Schroeder reviewed the intern program. At the end of this project, we have trained a total of 343 pilots and 47 meteorologists. She also reviewed suggestions that the intern pilots and intern meteorologists gave regarding their internships.

In response to a question, Ms. Schroeder noted that the intern pilots are paid for flight hours, any work they do on the aircraft or equipment, mixing chemical, chemical inventory, recordkeeping, public relations opportunities, keeping the airport grounds mowed, etc.

Mr. Ahlness noted that 2 of the 8 pilots in command (PIC) had previously been interns. When they graduate from UND, they usually don't have enough flight hours to qualify for the PIC jobs. They usually take flight instructor jobs to build hours faster. Additionally, the airlines now are hiring based on bulk hours rather than multi-engine time. Generally, he requires 500 hours with 50 hours multi-engine.

In response to a question, Mr. Ahlness noted that the intern couldn't log time as PIC unless they are in the left seat. The right seat is not a required crewmember position. As soon as the PICs are comfortable after the first couple of flights, they are encouraged to get the intern into the left seat every other flight. Since there are so many new PICs, sometimes it takes longer for them to get comfortable allowing the intern to fly left seat.

The exception to this is the King Air, where the interns have to be in the right seat.

Mr. Langerud noted that we put aside money in the 2015-17 budget to do some pre-project ground school and flight training with the interns. This will provide the students with more opportunity to familiarize themselves with project aircraft and equipment.

### **UND Weather Research and Forecasting (WRF) numerical modeling support**

Mr. Langerud reviewed the Weather Research and Forecasting (WRF) numerical modeling project that the University of North Dakota (UND) provided us. We provided them with a second grant this past fall to upgrade their computer equipment to improve the timeline for them to produce their numerical forecasts for us. This allowed a full 24-hour forecast from the model by noon briefing time, whereas they previously only had a few hours of forecast available at that time.

We are also funding a graduate student to do some analysis of how well the model is forecasting. This student is defending his thesis on this topic at UND on November 14<sup>th</sup>. Mr. Langerud will be present for his thesis defense. There will also be a poster at the American Meteorological Society (AMS) annual meeting in Phoenix. If he's still available, we're hoping to have that presentation given at the Weather Modification Association annual meeting in Fargo in April 2015.

### **Aircraft Operations**

Mr. Langerud reviewed the contract clause, which requires aircraft to be operational. There were three incidents this year where aircraft were unable to launch due to various reasons. Those were reviewed with surrounding circumstances and Mr. Langerud recommended one penalty be applied to the final contract payment for Seed 1, \$1,514.10.

**IT WAS MOVED BY MR. HININGER AND SECONDED BY MR. TUPA TO APPROVE THE DIRECTOR'S RECOMMENDATION TO APPLY THE ONE-DAY PENALTY TO THE FINAL CONTRACT PAYMENT. THE MOTION CARRIED UNANIMOUSLY.**

Mr. Sando stepped out of the meeting for a phone call.

### **Contractor's Final Report**

Mr. Ahlness reviewed the contractor's Final Operations Report for the 2014 project.

In response to a question, Mr. Ahlness noted that the Watford City aircraft filled fuel in Stanley when fuel ran out in Watford City. Mr. Langerud noted that both Stanley and Watford City have been having trouble keeping their fuel tanks stocked the last couple of years.

In response to a question, Mr. Ahlness stated that the cheapest fuel was usually in Watford City.

**IT WAS MOVED BY MR. HININGER AND SECONDED BY MR. BREWER TO APPROVE THE FINAL CONTRACT PAYMENT TO WEATHER MODIFICATION, INC. THE MOTION CARRIED UNANIMOUSLY, WITH MR. SANDO ABSENT.**

Mr. Sando returned.

Mr. Brewer had to leave the meeting at 3:03 p.m.

### ***ISSUES FOR NDCMP 2015***

#### ***Availability of housing***

Mr. Schneider reviewed housing issues expected for 2015. The more certain places for staff to live in Bowman are at Bart Fisher and Josh Buchmann's homes and in Stanley at our apartment.

#### ***Burke County interest***

Mr. Langerud noted that on October 7<sup>th</sup> Burke County had their public hearing regarding setting up a temporary weather modification authority. They approved the temporary

weather modification authority for up to four years. They are expected to participate in the 2015 NDCMP project and have budgeted \$45,000 for it. Flight hours and chemical will be added to the budget. Additional aircraft will not be required.

### ***LEGISLATIVE SESSION***

In response to a question, Mr. Langerud noted that the meeting minutes of the Governor's Property Tax Reform task force indicate the task force is proposing to take the weather modification authority levy and roll it into the county general fund. The participating counties will then be paying for their portion of the project through the county general fund. As of today, it appears not to have a significant impact on weather modification authorities.

Mr. Langerud will be following the property tax reform issue closely in the legislative session. Our office has not been asked for input yet. As the session goes on, we will testify at hearings if necessary.

### ***ISSUES FOR NDCMP 2015 (continued)***

#### ***Airport Construction***

Mr. Langerud reviewed airport issues expected for the 2015 project. We are hoping to be able to put Seed 6 back in Watford City provided we can find housing. Also, the new Bowman airport is expected to be open in May. If that holds to schedule, the aircraft will be operating out of the new airport while the radar will remain at the old site until fall. At that time, we will move the radar to the new airport.

In response to a question, Mr. Langerud noted that we have not heard any more regarding the potential Powder River Training Complex expansion. The last we heard was that there were some accommodations made in Montana and east of Hettinger relating to low air space.

Mr. Sando had to leave the meeting at 3:36 p.m.

### ***2015-17 BUDGET***

Mr. Langerud reviewed the 2015-17 budget, which the agency submitted to the Office of Management & Budget (OMB) on October 15<sup>th</sup>. We included funds for capital improvements, which will include the cost to move the Bowman radar to the new airport. It also includes the purchase of a new magnetron and radome for the radar.

### ***ARB RESEARCH & EVALUATION PROGRAM***

#### ***Polarimetric Cloud Analysis and Seeding Test 5 (POLCAST5)***

Mr. Langerud reviewed the research experiment on hygroscopic seeding that has been ongoing every two years since 2006. Instead of doing another summer field campaign in

2014, we will be doing a comprehensive analysis of the dataset collected from 2008, 2010 and 2012. Scientists at University of North Dakota and National Center for Atmospheric Research will be doing the work. When the analysis is complete, we will determine where to go from there.

## ***RADAR OPERATIONS***

### **Year-round Bowman radar operations**

Mr. Langerud reviewed the year-round Bowman radar operations project that has been running through support from eight counties: six in southwest North Dakota, Fallon County in Montana, and Harding County in South Dakota. We are expecting to continue this service.

### ***Bowman airport construction, radar relocation***

Mr. Langerud reported that the move of the Bowman radar is expected to happen in September and October of 2015. The radar will be down for at least a month during the move.

## ***2014 ARB COOPERATIVE OBSERVER NETWORK (ARBCON) REPORT***

### **Status report**

Mr. Brothers reported that we had 550 active observers reporting precipitation. Of those, approximately 300 report rainfall from April through September. 240 observers report year-round, rain and snow. 170 observers are reporting online.

### **Growing season rainfall totals and grid maps**

Mr. Brothers provided the Board with a 2014 April through September percent of normal precipitation map. He noted that monthly maps are online as well as data in multiple formats.

### **GPS-based snow reporting**

Mr. Langerud reported that a professor at University of Colorado in Boulder is using GPS-base station data to determine snow depth on the ground. The professor indicated that she had used this technique in the mountains but would also like to try it in the Great Plains.

Precision Ag has about 140 of these stations from the northern Red River Valley through western Minnesota and eastern South Dakota. We are trying to help her get access to the data so that she can demonstrate the ability of this technique to be used to measure snow depth. Snow data measurement problems are some of the big issues the National Weather Service (NWS) has in making river flood forecasts, including quality and location of measurements. If this GPS-based method can be demonstrated

effective, it could be a real improvement in a dataset that could be made available to NWS modelers running water runoff models.

At this point, they've identified a half dozen towers for data that she is going to start reviewing and testing the algorithm on. Once done, she will likely hand over the algorithm to another entity to enter data and run the program.

### ***WEATHER MODIFICATION ASSOCIATION MEETING – FARGO, APRIL 2015***

Mr. Langerud reported that the Weather Modification Association (WMA) would be holding a meeting in Fargo April 22-24, 2015 at the Radisson Hotel. WMI will host a social and give tours one evening. There will probably be a trip to Ice Crystal Engineering near Kindred. There will also be a day and a half of technical presentations. This will be open to the public with a registration fee. Mr. Langerud mentioned that we would pay registration for our board members.

Mr. Bodmer asked for a reminder about the meeting in March.

### ***2015 MEETING SCHEDULE***

The Board directed the staff to set a tentative schedule for 2015 Board meetings. Mr. Tupa suggested coordinating the spring meeting with the WMA meeting in April. The staff will review timing relating to NDCMP requirements and will schedule the spring meeting sometime between April 14<sup>th</sup> and 16<sup>th</sup> or work a meeting time into the WMA meeting schedule the following week. The fall meeting will be tentatively scheduled between October 27<sup>th</sup> and 29<sup>th</sup>.

Mr. White noted that he has a standing meeting on the 3<sup>rd</sup> Tuesday of each month, so Wednesday would work better for him.

### ***ELECTION OF OFFICERS***

The current officers include Mr. Bodmer is Chair, Mr. Brewer is Vice Chair and Mr. Myrdal is Secretary. Mr. Bodmer called for nominations for offices.

**IT WAS MOVED BY MR. HININGER AND SECONDED BY MR. TUPA TO NOMINATE UNANIMOUSLY THE EXISTING SLATE OF OFFICERS (MR. BODMER AS CHAIR; MR. BREWER AS VICE CHAIR; AND MR. MYRDAL AS SECRETARY). THE MOTION CARRIED UNANIMOUSLY.**

The meeting adjourned at 4:02 p.m.



HENRY BODMER  
CHAIRMAN

Transcribed by Kelli Schroeder

