- **Eliminated the depot north of Watford City which would be near water suppliers in that region and moved it to Johnson Corners.**

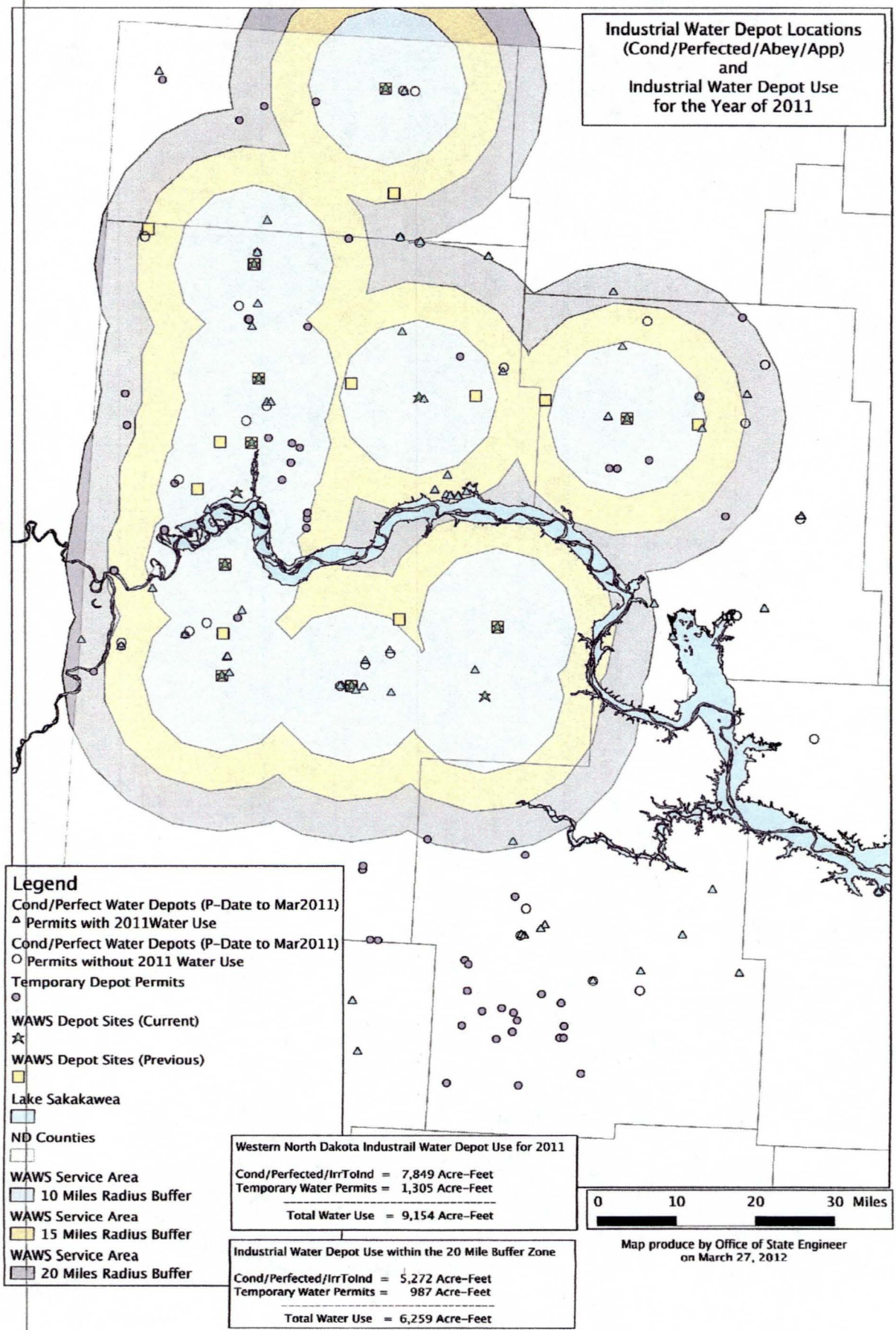
The most recent recommendations would reduce the total number of water depots constructed as part of the WAWSP to 11. It would consolidate them in areas where there is capacity in the water system to adequately serve the facilities and takes into consideration the private water supplies. The following Table and Figure summarizes the locations and capacities of each of the proposed water depots, and includes capacity for direct connection to a frac water pipeline owned by an oil company (Oasis) at water depot F-2.

Water Depots	Fill Ports	Capacity (Barrels /Month)*
F-1: Existing Williston Fill Station	5	1.0 million
F-2: North Williston Fill Station	6	1.2 million
F-2: Oasis Supply/North Williston	1	0.45 million
F-3/F-4: 13-Mile Corner Fill Station	6	1.2 million
F-5: Tioga High Point Fill Station/R&T WTP	6	1.2 million
F-6: Stanley High Point Fill Station/Ross	2	0.4 million
F-7/F-8: Wildrose/Crosby Fill Station	4	0.8 million
F-9: Highway 50 &85 Fill Station	delayed	0
F-10: Indian Hill Water Depot	6	1.2 million
F-11/F-12: Alexander Fill Station	3	0.6 million
F-13: Keene Fill Station	1	0.2 million
F-14: Watford City Fill Station	5	1.0 million
F-15: Johnsons Corner	2	0.4 million
Totals	47	9.65 million

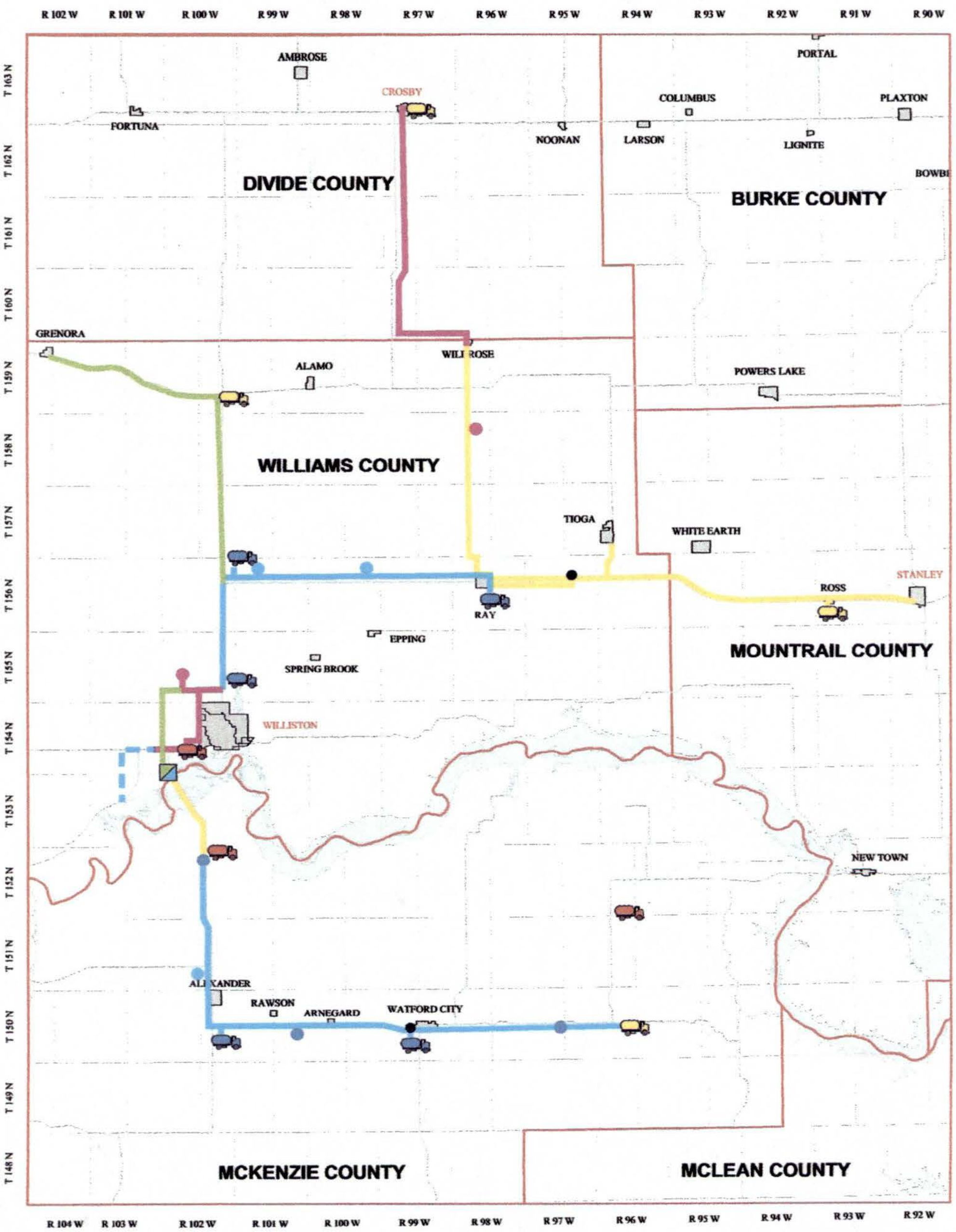
9.65 x 12 = 115.8 million Barrels p/yr

58,500 barrels p/Frac

capacity to Frac - 1980 wells p/year


Industrial Water Depot Locations
(Cond/Perfected/Abey/App)
and
Industrial Water Depot Use
for the Year of 2011
Legend
Cond/Perfect Water Depots (P-Date to Mar2011)
Permits with 2011Water Use
Cond/Perfect Water Depots (P-Date to Mar2011)
Permits without 2011 Water Use
Temporary Depot Permits
WAWS Depot Sites (Current)
WAWS Depot Sites (Previous)
Lake Sakakawea
ND Counties
WAWS Service Area
10 Miles Radius Buffer
WAWS Service Area
15 Miles Radius Buffer
WAWS Service Area
20 Miles Radius Buffer
Western North Dakota Industrail Water Depot Use for 2011
Cond/Perfected/IrrToInd = 7,849 Acre-Feet
Temporary Water Permits = 1,305 Acre-Feet
Total Water Use = 9,154 Acre-Feet
Industrial Water Depot Use within the 20 Mile Buffer Zone
Cond/Perfected/IrrToInd = 5,272 Acre-Feet
Temporary Water Permits = 987 Acre-Feet
Total Water Use = 6,259 Acre-Feet
0 10 20 30 Miles
Map produce by Office of State Engineer
on March 27, 2012

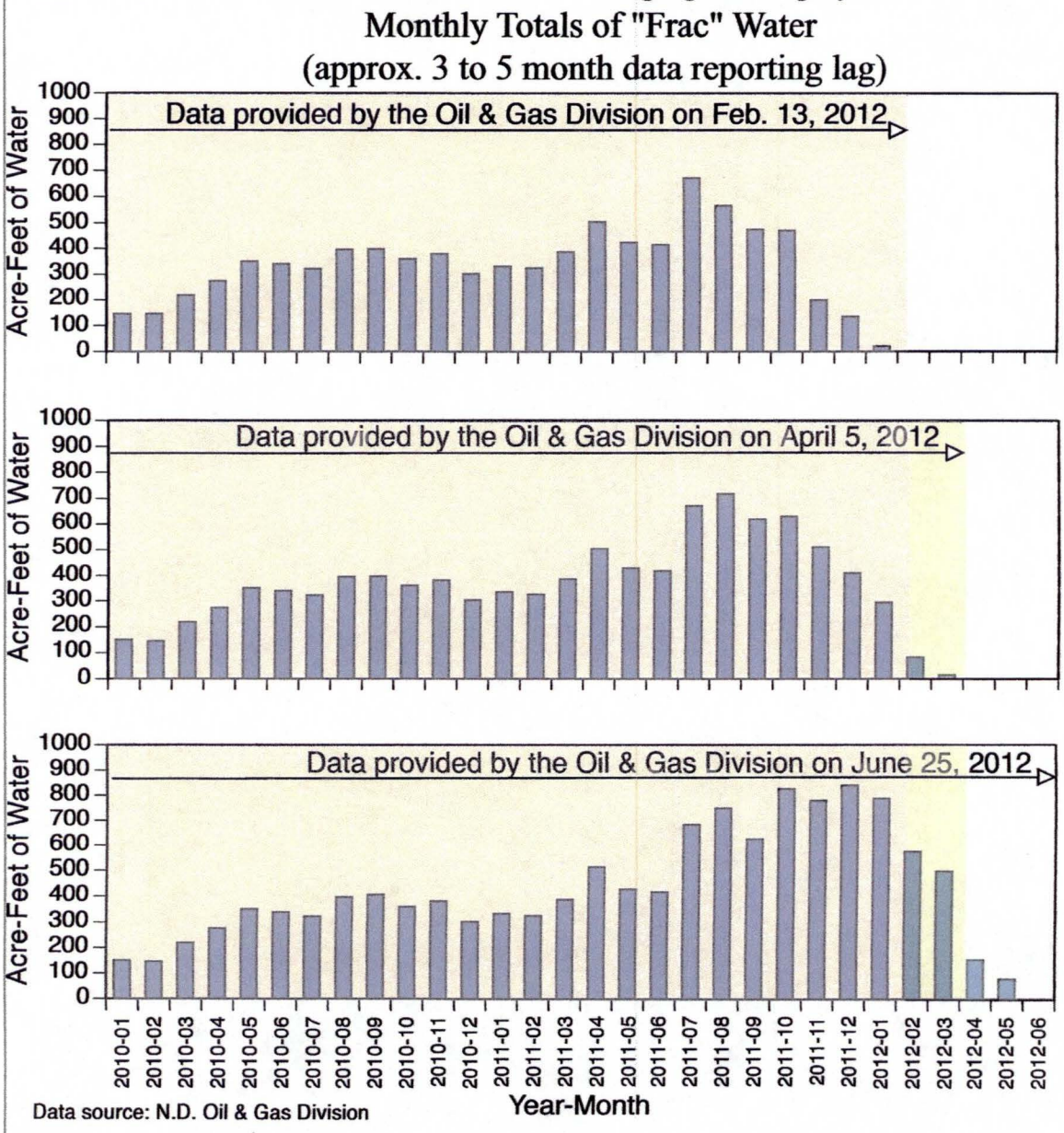
WESTERN AREA WATER SUPPLY PROJECT
PROPOSED BULK FILL DEPOT LOCATIONS
VERSION 6



- EXISTING/FUNDED TRANSMISSION LINES
- 2011 IMPROVEMENTS
- 2012 IMPROVEMENTS
- 2013-2014 IMPROVEMENTS
- WTP/INTAKE EXPANSION/IMPROVEMENTS
- PROPOSED RESERVOIR
- DEPOTS OPERATIONAL/UNDER CONSTRUCTION (BY OTHERS)
- 2012 CONSTRUCTION/OPERATION
- PROPOSED BULK FILL - DELAYED CONSTRUCTION/OPERATION

The lag in the reporting process of the hydraulic fracturing data is demonstrated in the 3 charts shown below. All bar charts start in January 2010 and end on June 2012. Each of the three bar charts were created from three different data pulls over the course of five months. The first chart shows the monthly totals of "Frac" water as of February 13, 2012. The second chart shows the monthly totals of "Frac" water as of April 5, 2012. The third chart shows the monthly totals of "Frac" water as of June 25, 2012.

The April chart data is similar to the February chart data, until August 2011 when additional data became available. The additional 2 months in the April chart are highlighted in light green. The June chart data is similar to the April chart, until October 2011 when additional data became available. The additional 3 months in the June chart are highlighted in light yellow.

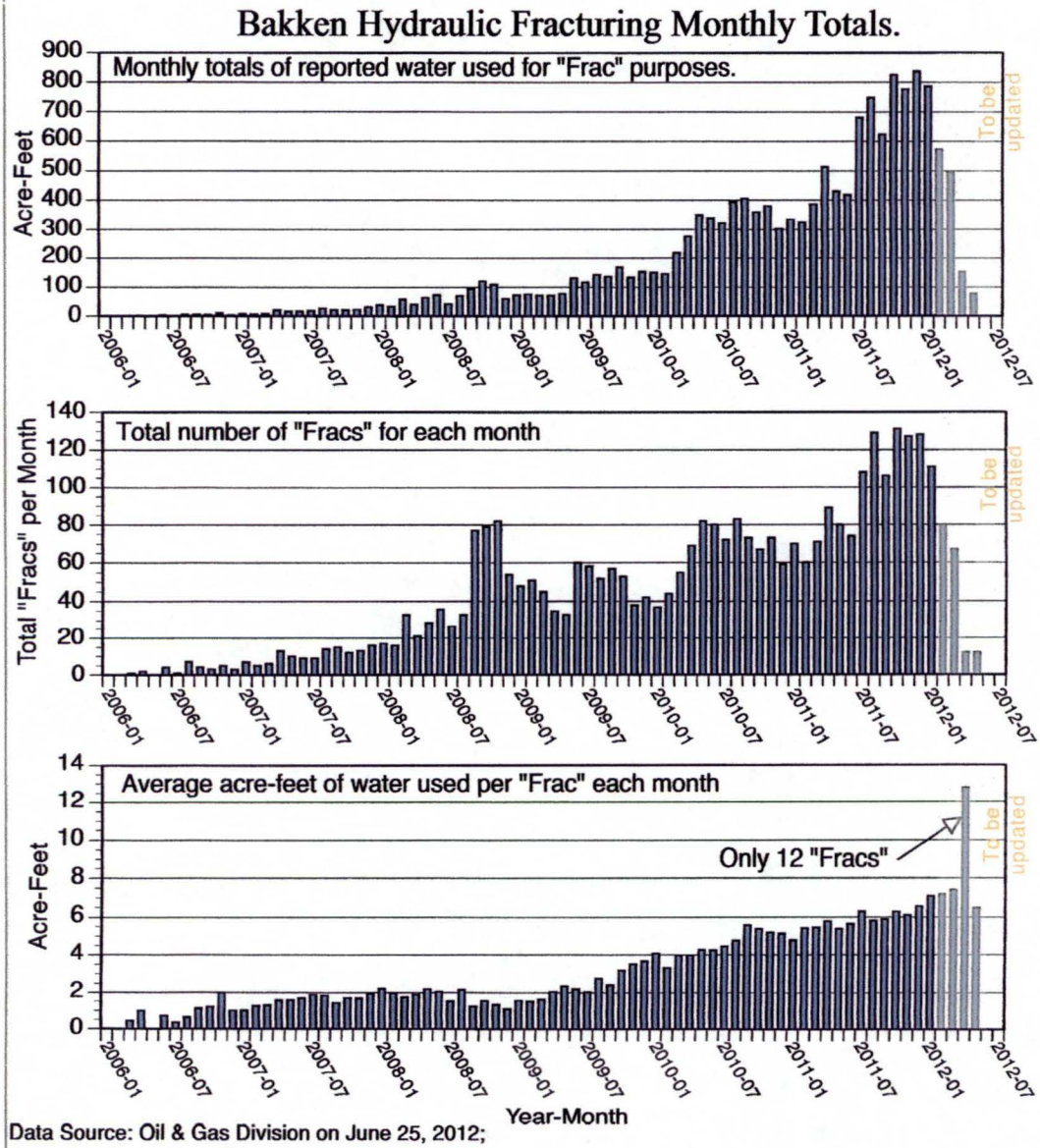


The State Engineer Water Use Program, tabulated annually, showed the water depots in Western North Dakota used 5,700 acre-feet of water in 2010 and 9,300 acre-feet of water in 2011. The 2010 "Frac" water total was 3,641 acre-feet, which is 64% of the 2010 water depot total. The 2011 "Frac" water total was 6,899 acre-feet, which is 74% of the 2011 water depot total.

The following data summary is from the North Dakota Office of the State Engineer on 6/29/2012. The North Dakota Oil & Gas Division provided the data on June 25, 2012. For more information about these charts & data, contact the Appropriations Division at 701-328-4288.

During the end of 2011 and the beginning of 2012, hydraulic fracturing reached a record high. The total amount of water used per month during this time frame was approximately 800 acre-feet. The total number of "Fracs" during this same time frame averaged about 125 "Frac Jobs" per month. The amount of water used per "Frac" was between 6 to 7 acre-feet.

The charts shown below graphically depict the changes in the hydraulic fracturing monthly totals from January 2006 to June 2012. The last five months of each chart are highlighted in yellow, to show the portions of the chart which will be updated over the course of the next 3 to 5 months as data becomes available. There is an approximate 3 to 5 month lag in the data reporting process.



Data Source: Oil & Gas Division on June 25, 2012;
Areas highlighted in yellow will be updated over the course of 3 to 5 months.