M E M O

TO: Menno Dam File

FROM: Tim Schaal

DATE: June 15, 1984

Our office received notice at 11:oo am on June 12, 1984 that Menno Dam had breached and damaged a downstream farmstead. Lee Baron from the Water Quality Office and myself arrived at the Leonard Heer farm at approximately 8:00 pm. I talked to Flynn ~~Herr~~ Heer to get information on the amount of water and time involved. He said he noticed more water flowing in the creek and stepped outside the house and saw a wall of water 1 to 2 feet high coming down the valley. He and his family jumped in their car and drove away just in time. He said the flood hit at 7:30 am and thought the high water lasted 20 to 30 minutes. A list of their damages would include their home and contents, a confinement hog barn and several hundred hogs, storage shed and contents, 2 grain bins, grain auger, damage to several cars, numerous bags of seed and farm chemicals, etc.

Before looking at the dam, I asked several people if they could give me any information on the condition of the dam or the duration of overtopping. The only information I received was from Ed Auch an Olivet resident who was fishing in Lake Menno on Sunday night. He said both spillways were flowing then and it appeared to him that the crest of the embankment had settled several inches near the center. After investigating the dam, it appeared to me that the breached section of the embankment was overtopped and in combination with the steep downstream embankment slope and sparce grass cover the toe of the embankment eroded away enough to where the pressure caused by the elevated lake level "blew out" the breached section releasing the entire contents of the lake. I estimated that approximately the center one-third of the embankment was gone amounting to

approximately 20,000 cubic yards of fill. The official rain fall reported for Monday night was 2.72 inches. The capacity of the lake at crest of dam elevation was 630 acre feet.

SOUTH Dakota Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

November 17, 1987

Russell LaForce
Oklahoma Water Resources Board
PO Box 53585
Oklahoma City, OK 73152

Dear Mr. LaForce:

I am writing to provide you with information concerning the breach of Menno Dam and the Dam Safety Program in South Dakota. You requested this information from Mr. John Hatch, Chief Engineer.

Menno Dam failed during the early morning hours of June 12, 1984 after a 2.7 inch rainfall that night; however, the area had received over 8 inches of rainfall during the previous few days. It is assumed that the failure was caused by overtopping of the embankment. Menno Dam was an earthfill embankment 660 feet long and 38 feet high with a maximum storage capacity of 630 acre-feet. The embankment crest elevation varied from elevation 106 to 109 with the secondary spillway elevation of 104. Menno Dam had a total spillway capacity of approximately 15% of the PMF.

Menno Dam was a State-owned dam and the failure resulted in a lawsuit against the state with a settlement of approximately $650,000. This settlement is currently under appeal by the downstream landowner.

We have been involved in Dam Safety since the beginning of the Corps of Engineers National Dam Safety Program. We have maintained an inventory of approximately 2000 dams and are currently upgrading approximately 20 state-owned category 1 high hazard dams to have a spillway capacity of at least 50% of the PMF. We have set up a schedule to inspect at least once every 3 years approximately 70 category category 1 high hazard dams and approximately 150 state-owned category 2 & 3 dams.

Enclosed is a news article concerning the failure of Menno Dam. If you have any questions, please let me know.

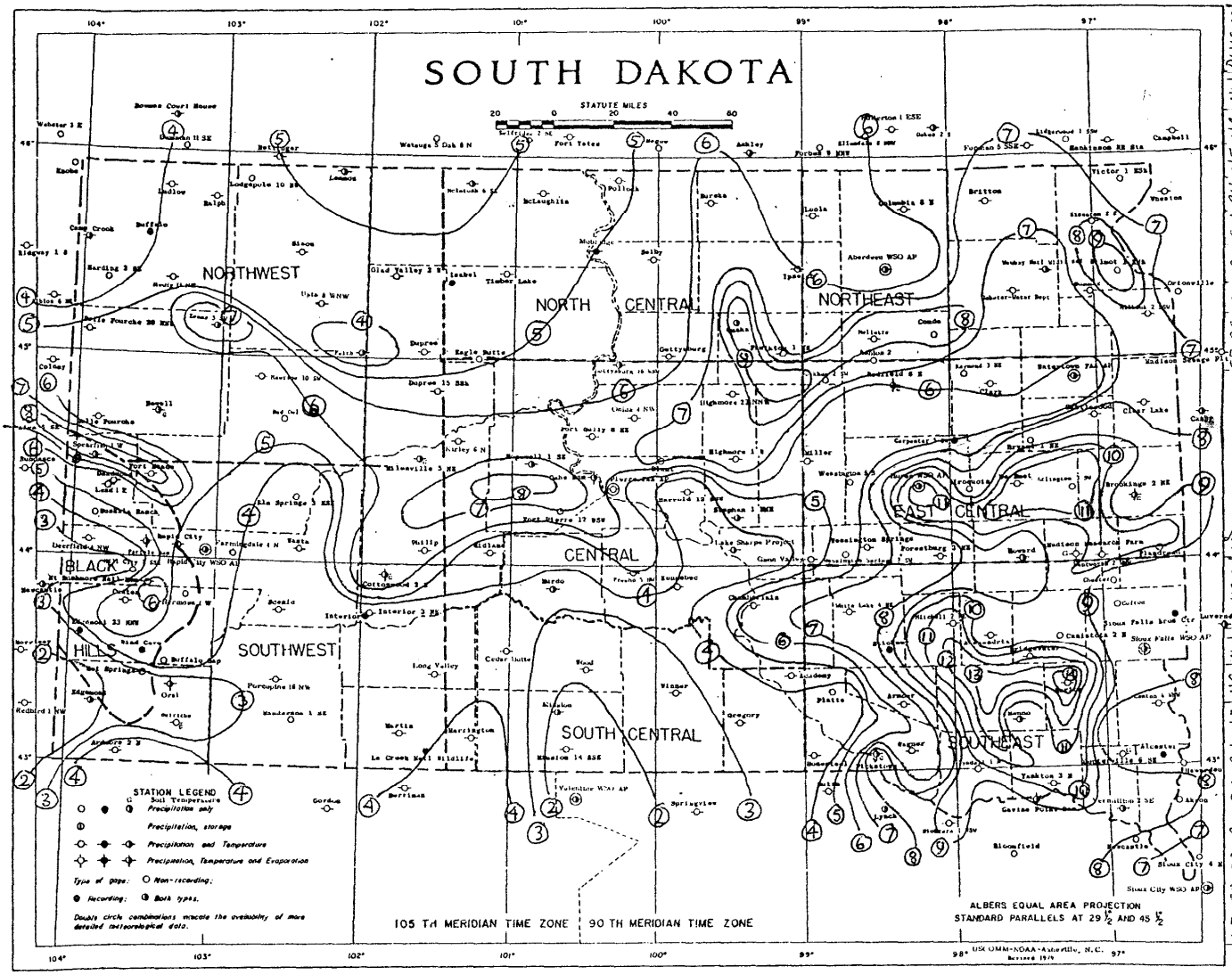
Sincerely,

Timothy G Schaal

TIMOTHY G SCHAAL
Natural Resources Engineer
605 773-3352

enclosure

TOTAL PRECIPITATION - INCHES - JUNE 1984

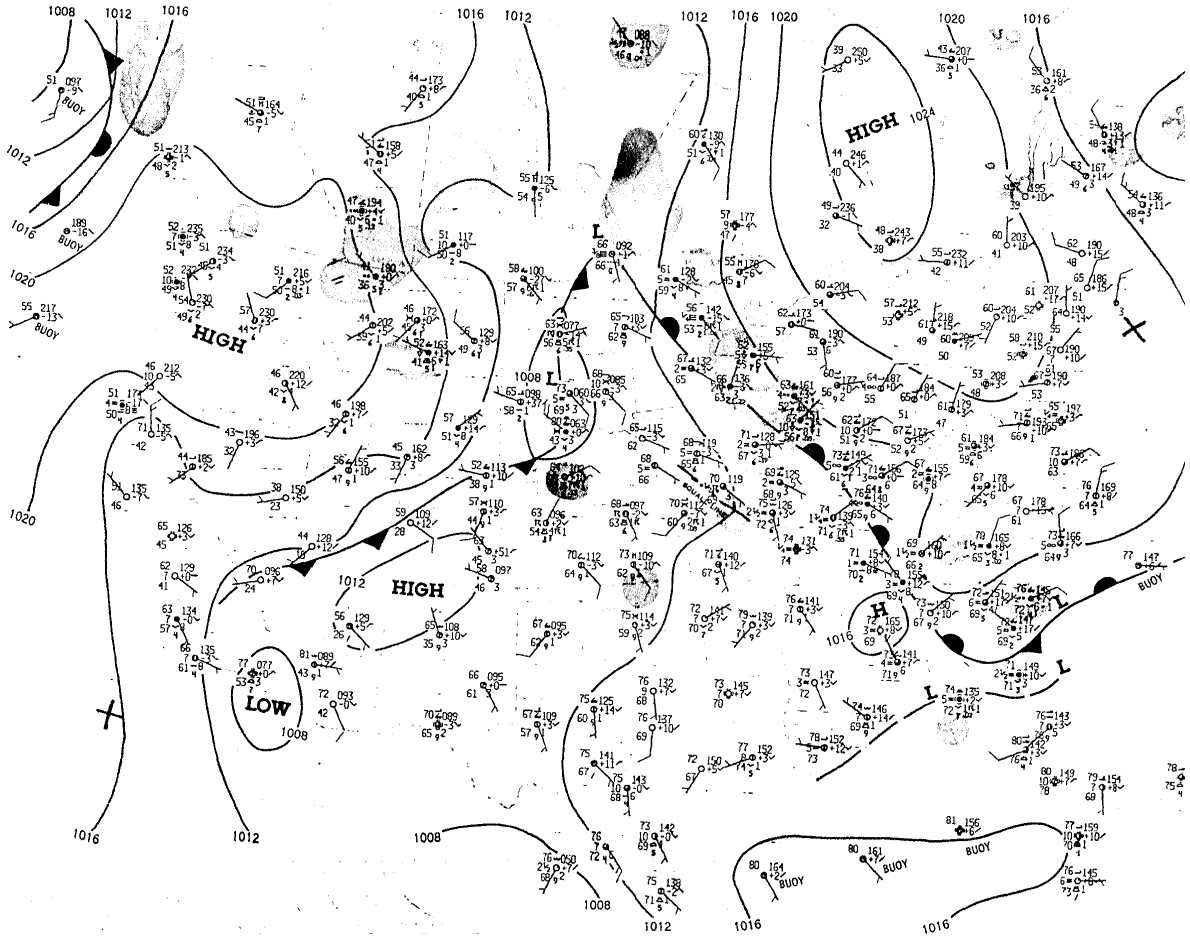


JUNE 1984

DIVISION	DIV. AVG. JUN '84	JUNE NORMAL	% OF NORMAL
NW	523	323	162
NC	5.77	340	170
NE	707	363	195
BH	5.04	3.88	150
SW	3.97	3.22	123
C	5.79	3.14	184
EC	7.98	3.72	215
SC	3.25	3.59	91
SE	8.70	3.78	230

JAN-JUNE 1984

DIVISION	JAN-JUN '84 PRCP	'51-'80 NORMAL	% OF NORMAL
NW	10.81	8.94	121
NC	11.95	9.18	122
NE	14.05	10.59	133
BH	12.48	12.61	99
SW	10.24	9.83	104
C	12.83	9.50	135
EC	16.60	11.10	150
SC	12.27	11.41	108
SE	21.85	11.98	182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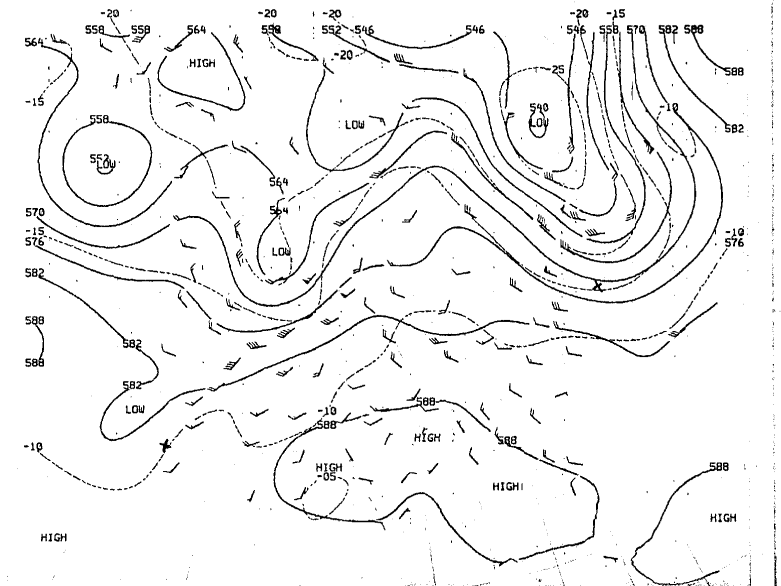
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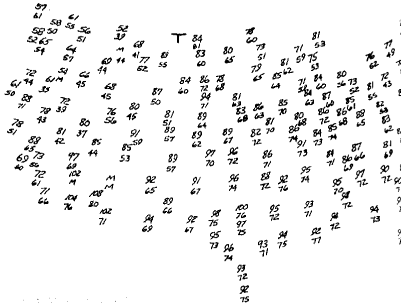

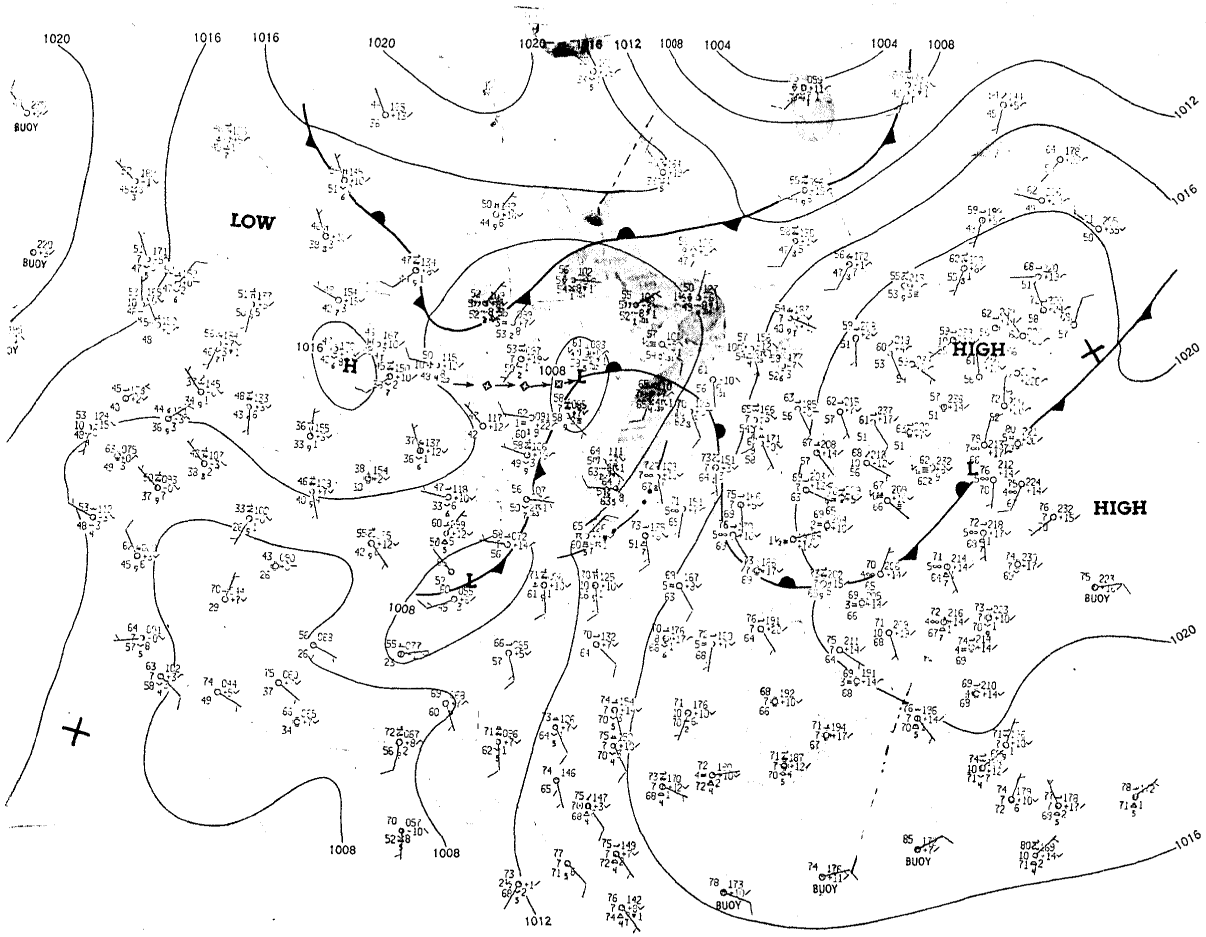
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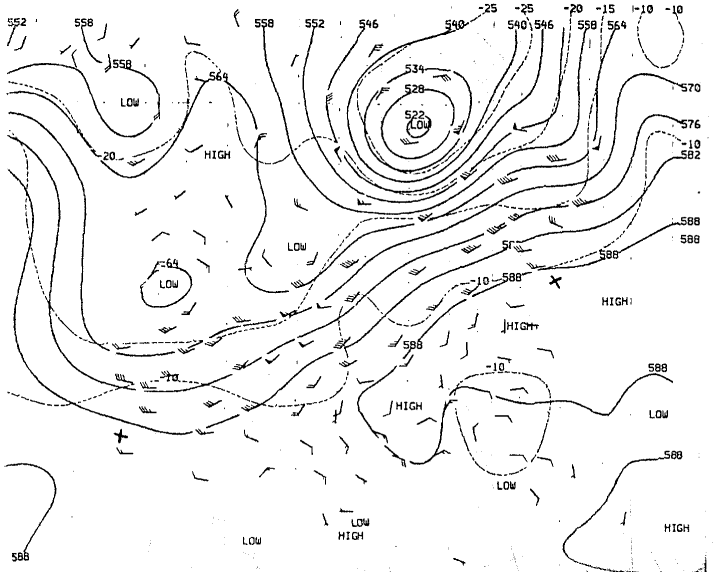
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