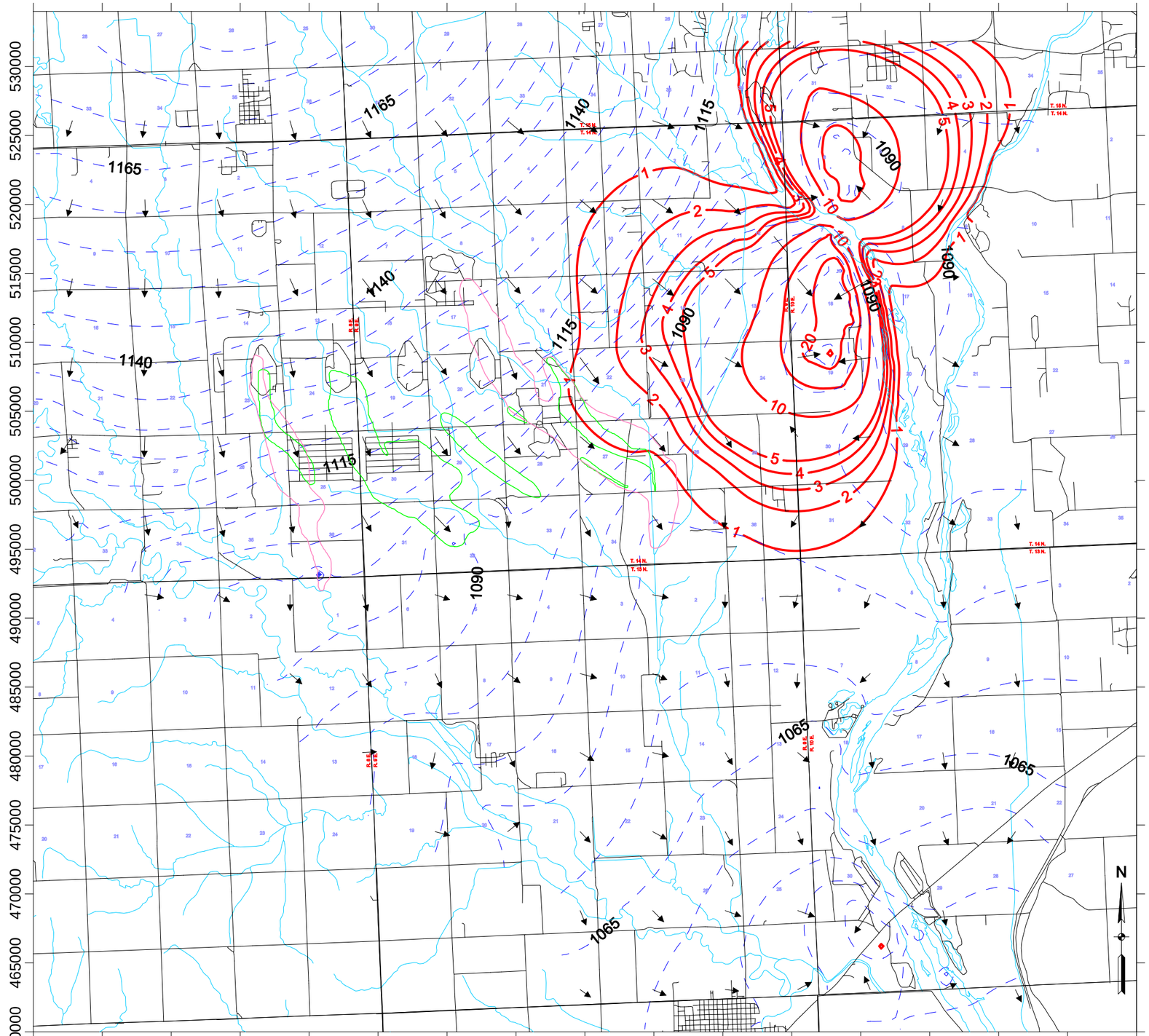
DRAWDOWN FROM 54 MGD ANNUAL AVERAGE M.U.D. PUMPING



NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

Groundwater Elevations

Groundwater Flow Vectors

Drawdown from MUD Pumping

TCE Plume

RDX Plume

URS

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: M.E.W.
Drawn by: M.E.W.
Checked by:
Submitted by:

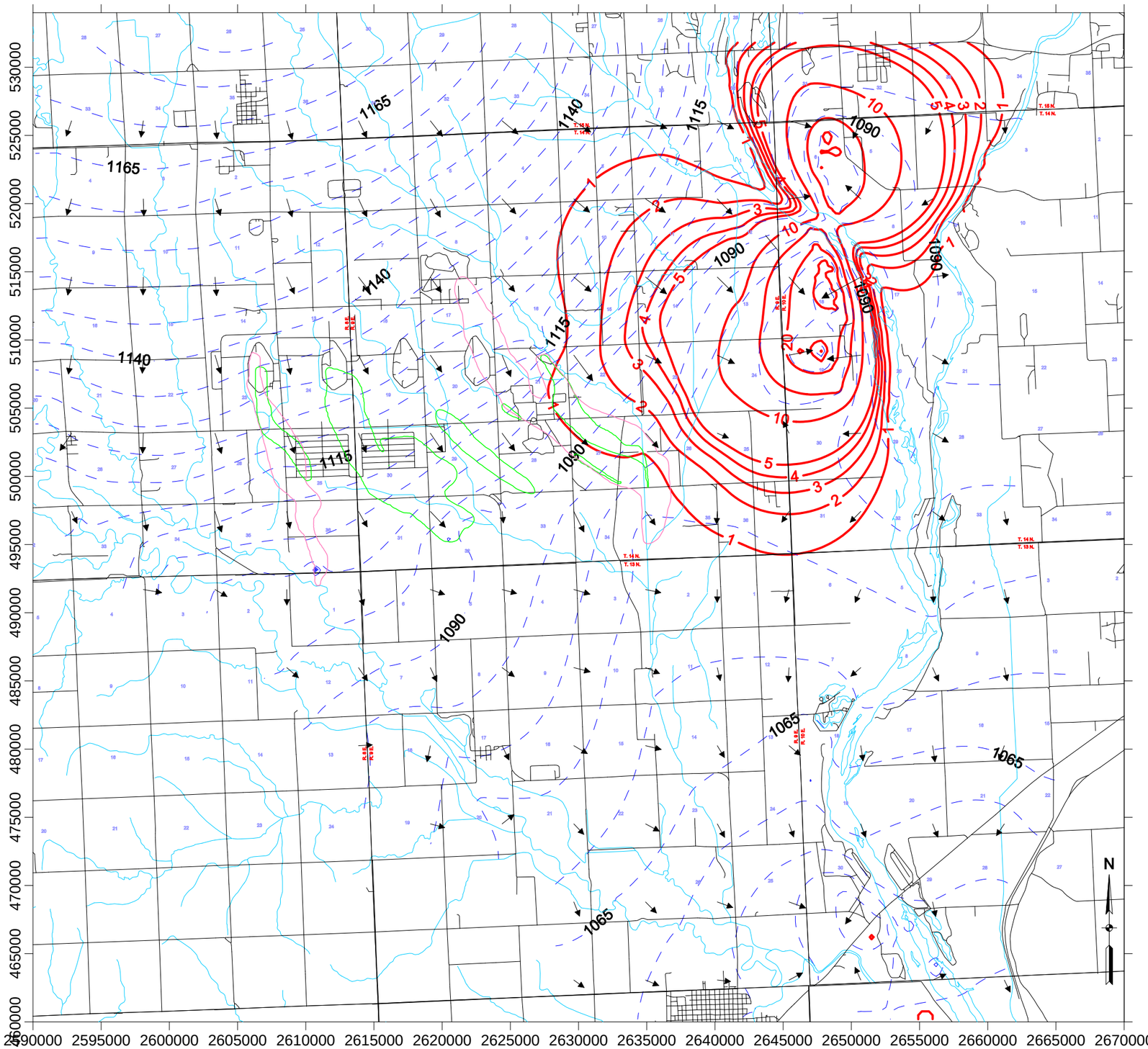
OPERABLE UNIT NO. 2
FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE

U.S. Army Corps of Engineers

MUD 54 MGD ANNUAL AVERAGE

Scale: 1" = 8,000'
Date: August 2007
Fig. No.: 1
Figure Number: 1

DRAWDOWN FROM 59 MGD ANNUAL AVERAGE M.U.D. PUMPING



NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

Groundwater Elevations

Groundwater Flow Vectors

Drawdown from MUD Pumping

TCE Plume

RDX Plume

URS

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CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: M.E.W.
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Checked by:
Submitted by:

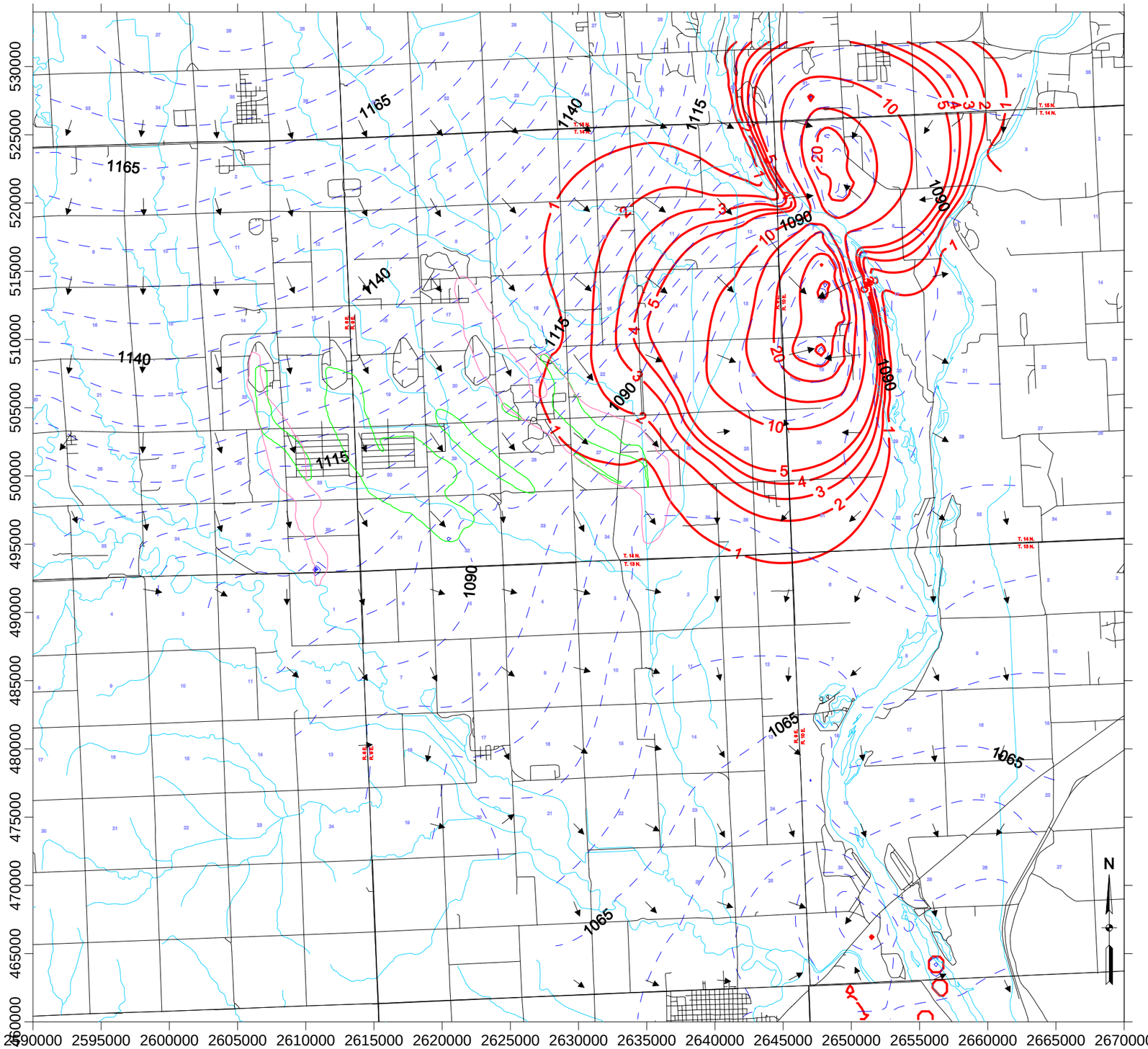
U.S. Army Corps of Engineers

OPERABLE UNIT NO. 2
FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE

MUD 59 MGD ANNUAL AVERAGE

Scale: 1" = 8,000'
Date: August 2007
Fig. No.: 2
Figure Number: 2

DRAWDOWN FROM 64 MGD ANNUAL AVERAGE M.U.D. PUMPING



NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

Groundwater Elevations

Groundwater Flow Vectors

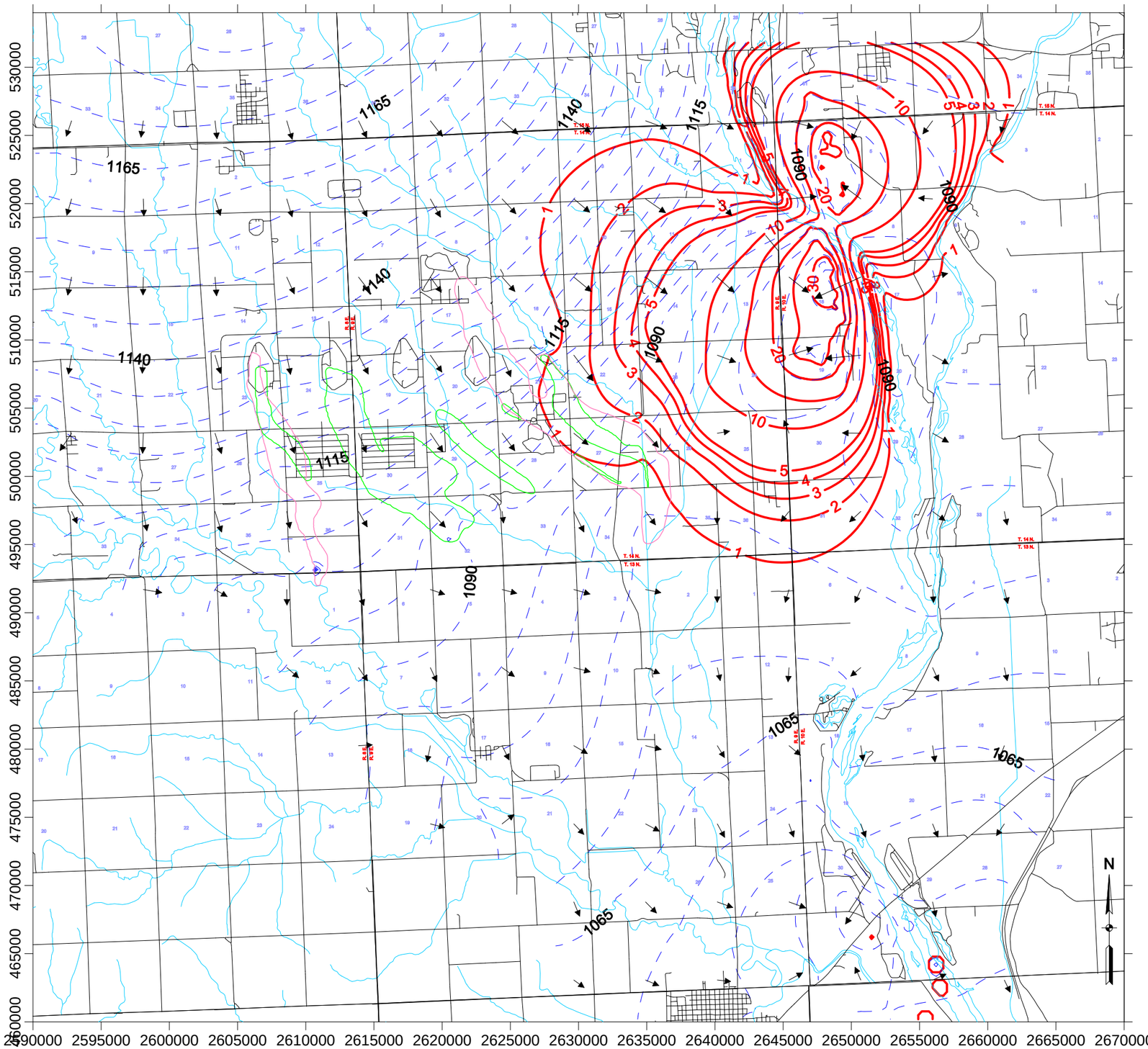
Drawdown from MUD Pumping

TCE Plume

RDX Plume

URS	U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI
Designed by: M.E.W.	OPERABLE UNIT NO. 2 FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE
Drawn by: M.E.W.	U.S. Army Corps of Engineers **MUD 64 MGD ANNUAL AVERAGE**
Checked by:	Scale: 1" = 8,000'
Submitted by:	Date: August 2007
	Fig. No.: 3
	Figure Number: 3

DRAWDOWN FROM 69 MGD ANNUAL AVERAGE M.U.D. PUMPING



NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

Groundwater Elevations

Groundwater Flow Vectors

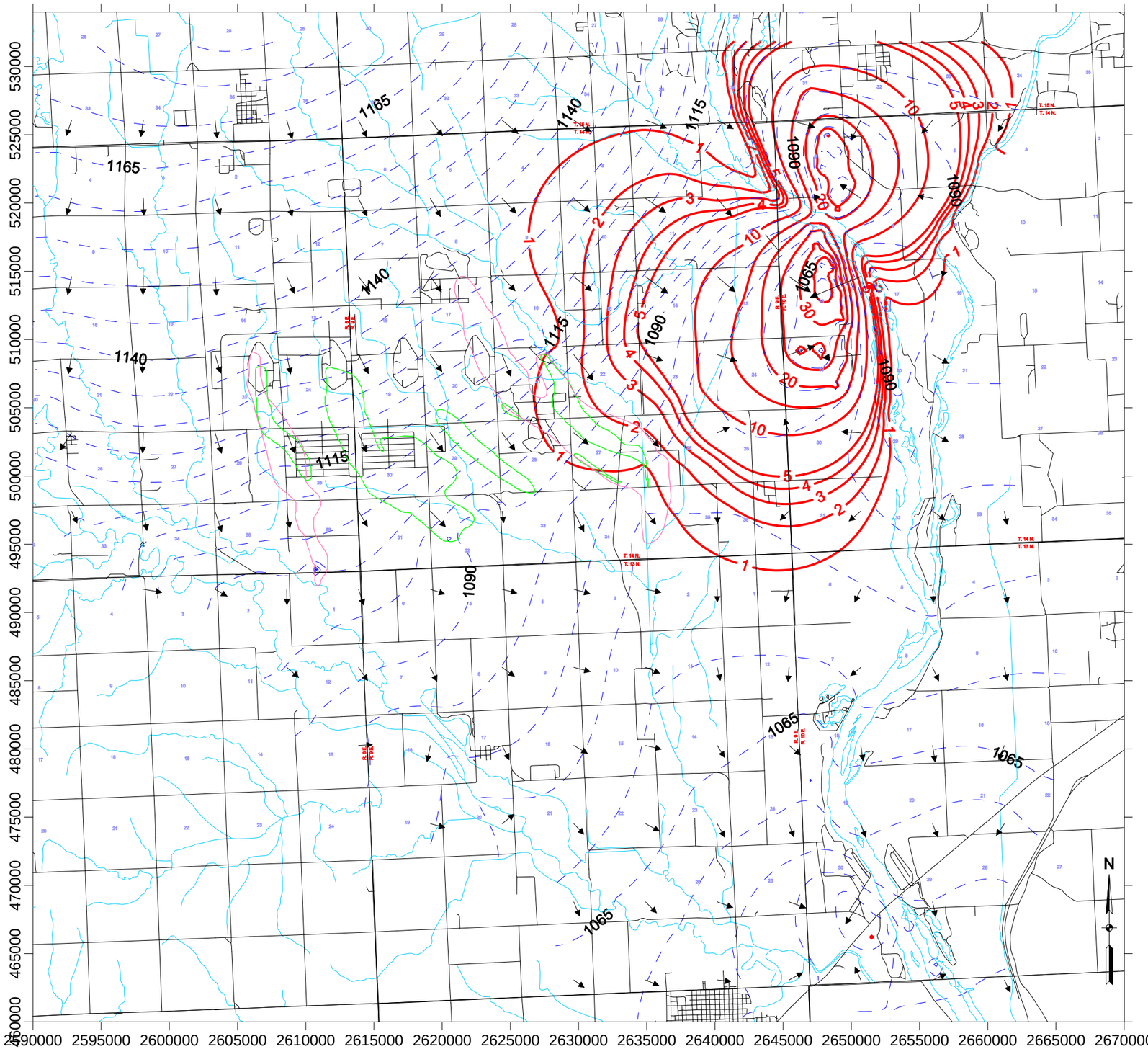
Drawdown from MUD Pumping

TCE Plume

RDX Plume

URS	U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI	
Designed by: M.E.W.	OPERABLE UNIT NO. 2 FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE	
Drawn by: M.E.W.	U.S. Army Corps of Engineers	**MUD 69 MGD ANNUAL AVERAGE**
Checked by:	Scale: 1" = 8,000'	Figure Number: 4
Submitted by:	Date: August 2007	
	Fig. No.: 4	

DRAWDOWN FROM 74 MGD ANNUAL AVERAGE M.U.D. PUMPING



NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

Groundwater Elevations

Groundwater Flow Vectors

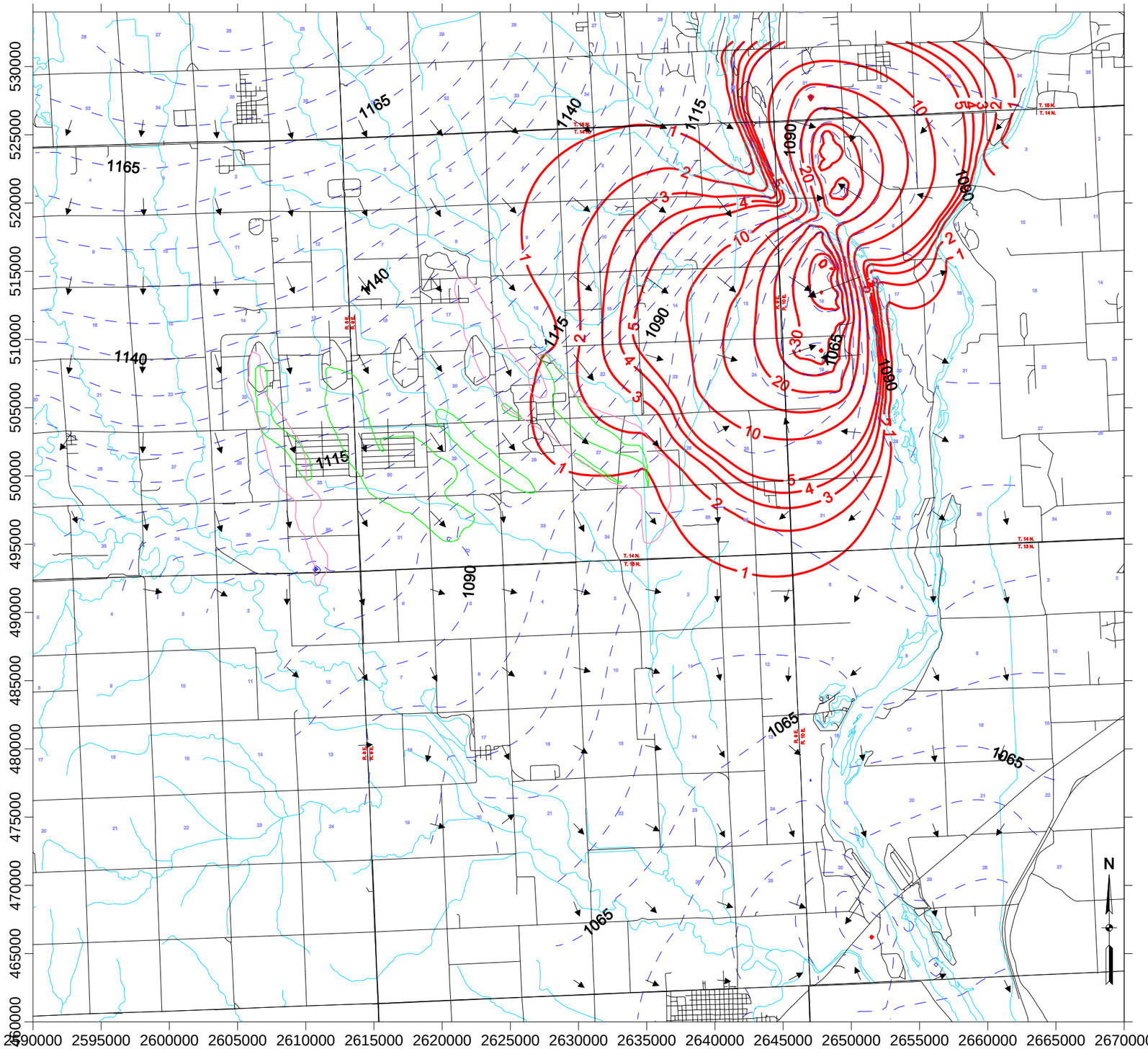
Drawdown from MUD Pumping

TCE Plume

RDX Plume

URS	U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI	
Designed by: M.E.W.	OPERABLE UNIT NO. 2 FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE	
Drawn by: M.E.W.	U.S. Army Corps of Engineers	**MUD 74 MGD ANNUAL AVERAGE**
Checked by:	Scale: 1" = 8,000'	Figure Number: 5
Submitted by:	Date: August 2007	
	Fig. No.: 5	

DRAWDOWN FROM 79 MGD ANNUAL AVERAGE M.U.D. PUMPING



NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

Groundwater Elevations

Groundwater Flow Vectors

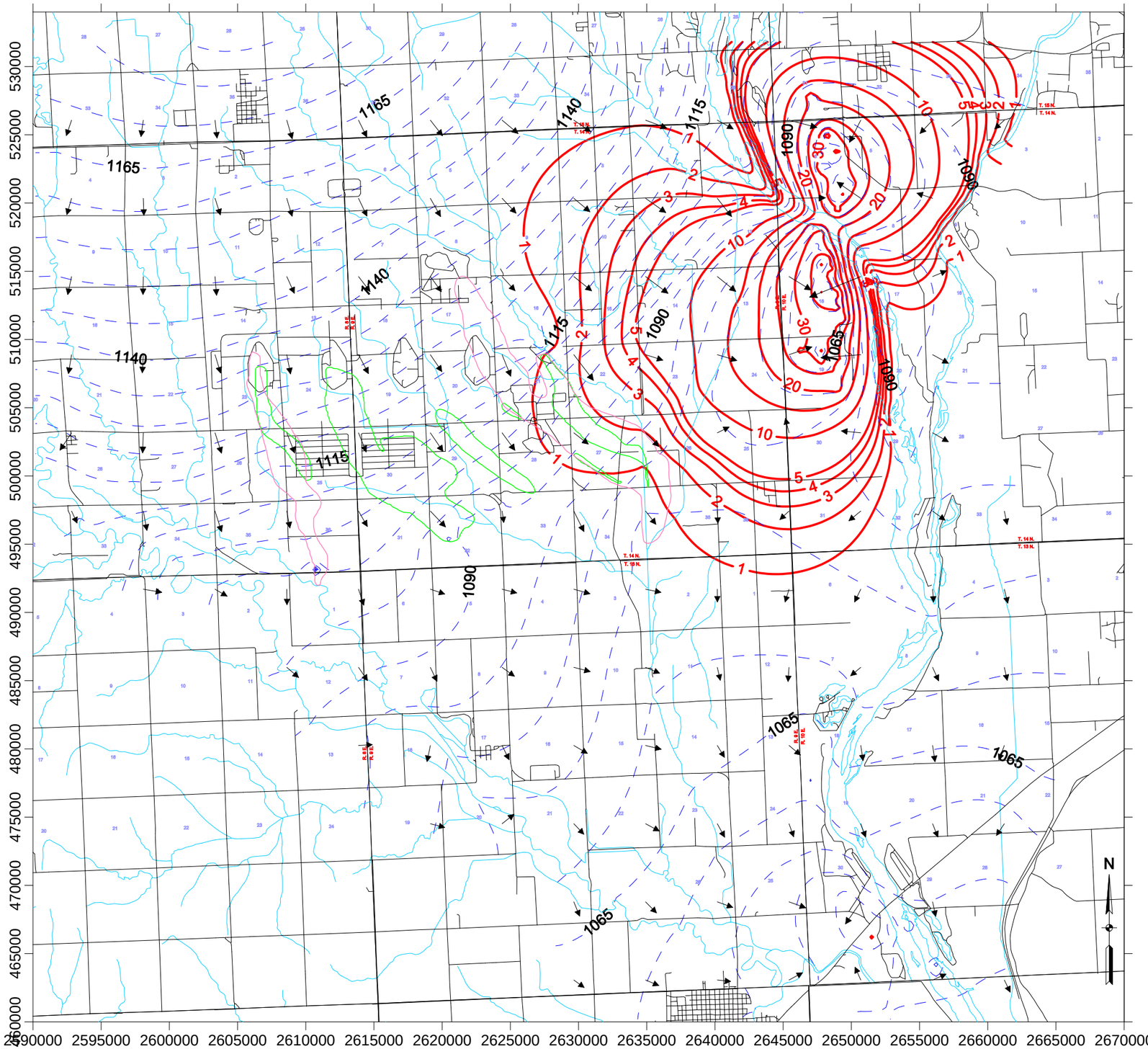
Drawdown from MUD Pumping

TCE Plume

RDX Plume

URS	U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI	
Designed by: M.E.W.	OPERABLE UNIT NO. 2 FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE	
Drawn by: M.E.W.	U.S. Army Corps of Engineers	**MUD 79 MGD ANNUAL AVERAGE**
Checked by:	Scale: 1" = 8,000'	Figure Number: 6
Submitted by:	Date: August 2007	
	Fig. No.: 6	

DRAWDOWN FROM 84 MGD ANNUAL AVERAGE M.U.D. PUMPING



NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

Groundwater Elevations

Groundwater Flow Vectors

Drawdown from MUD Pumping

TCE Plume

RDX Plume

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U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: M.E.W.
Drawn by: M.E.W.
Checked by:
Submitted by:

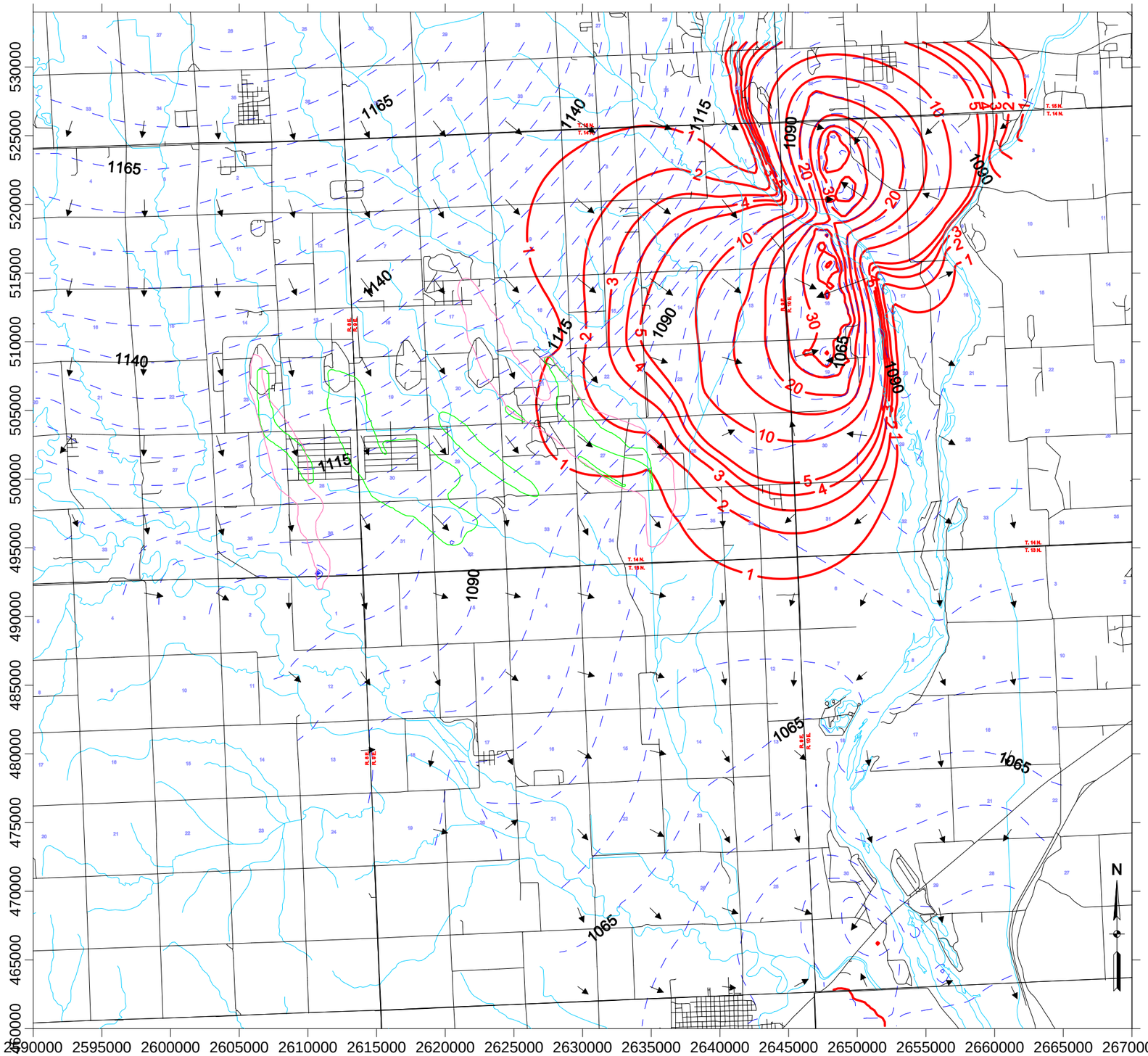
U.S. Army Corps of Engineers

OPERABLE UNIT NO. 2
FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE

MUD 84 MGD ANNUAL AVERAGE

Scale: 1" = 8,000'
Date: August 2007
Fig. No.: 7
Figure Number: 7

DRAWDOWN FROM 89 MGD ANNUAL AVERAGE M.U.D. PUMPING



NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

Groundwater Elevations

Groundwater Flow Vectors

Drawdown from MUD Pumping

TCE Plume

RDX Plume

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CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

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Checked by:
Submitted by:

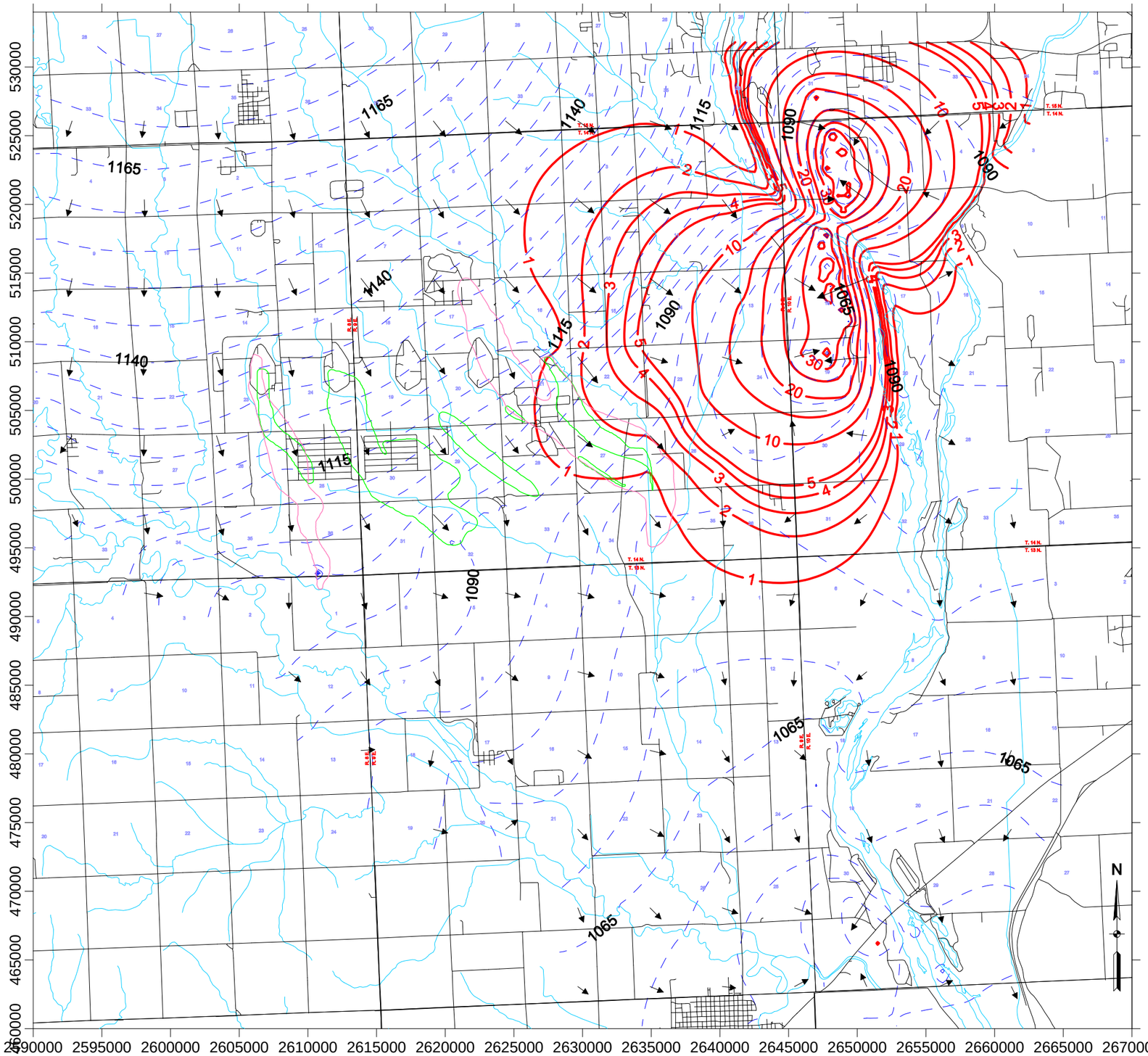
U.S. Army Corps of Engineers

OPERABLE UNIT NO. 2
FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE

MUD 89 MGD ANNUAL AVERAGE

Scale: 1" = 8,000'
Date: August 2007
Fig. No.: 8
Figure Number: 8

DRAWDOWN FROM 94 MGD ANNUAL AVERAGE M.U.D. PUMPING



NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

Groundwater Elevations

Groundwater Flow Vectors

Drawdown from MUD Pumping

TCE Plume

RDX Plume

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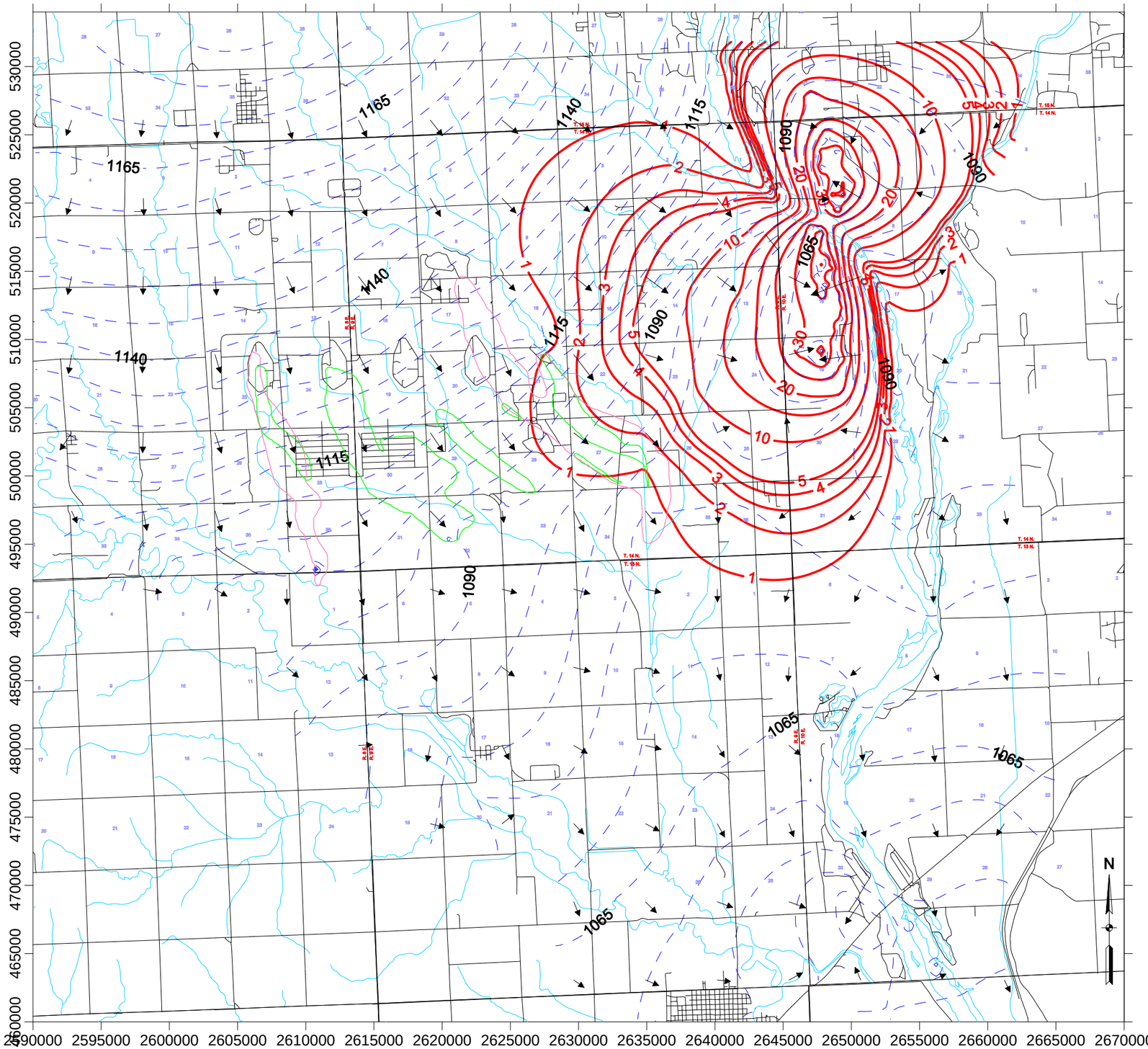
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: M.E.W.	OPERABLE UNIT NO. 2 FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE
Drawn by: M.E.W.	U.S. Army Corps of Engineers — **MUD 94 MGD ANNUAL AVERAGE**
Checked by:	Scale: 1" = 8,000' — Figure Number: 9
Submitted by:	Date: August 2007
	Fig. No.: 9

DRAWDOWN FROM 99 MGD ANNUAL AVERAGE M.U.D. PUMPING



NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

Groundwater Elevations

Groundwater Flow Vectors

Drawdown from MUD Pumping

TCE Plume

RDX Plume

URS

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CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

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Drawn by: M.E.W.
Checked by:
Submitted by:

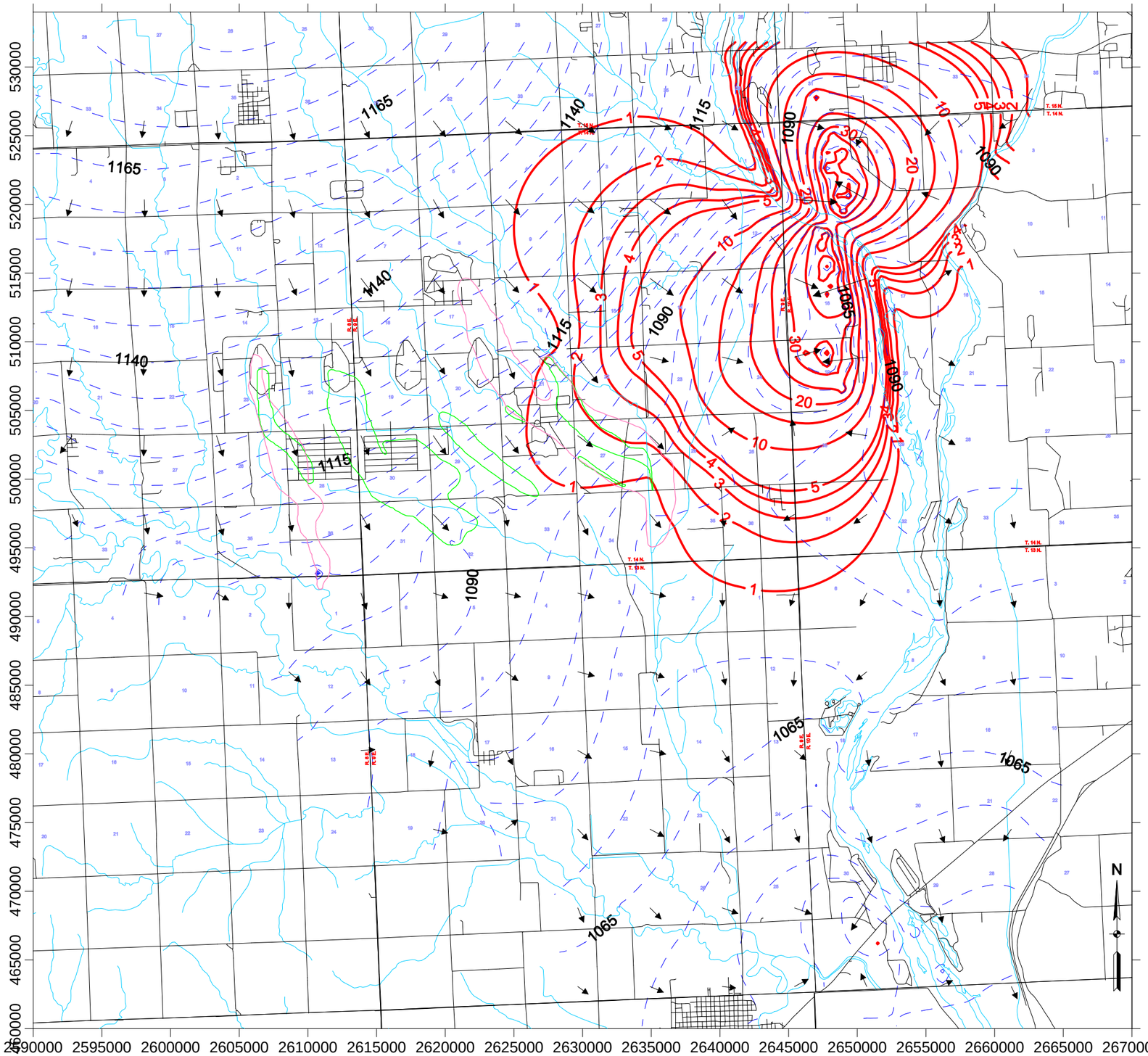
U.S. Army Corps of Engineers

OPERABLE UNIT NO. 2
FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE

MUD 99 MGD ANNUAL AVERAGE

Scale: 1" = 8,000'
Date: August 2007
Fig. No.: 10
Figure Number: 10

DRAWDOWN FROM 104 MGD ANNUAL AVERAGE M.U.D. PUMPING



NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

Groundwater Elevations

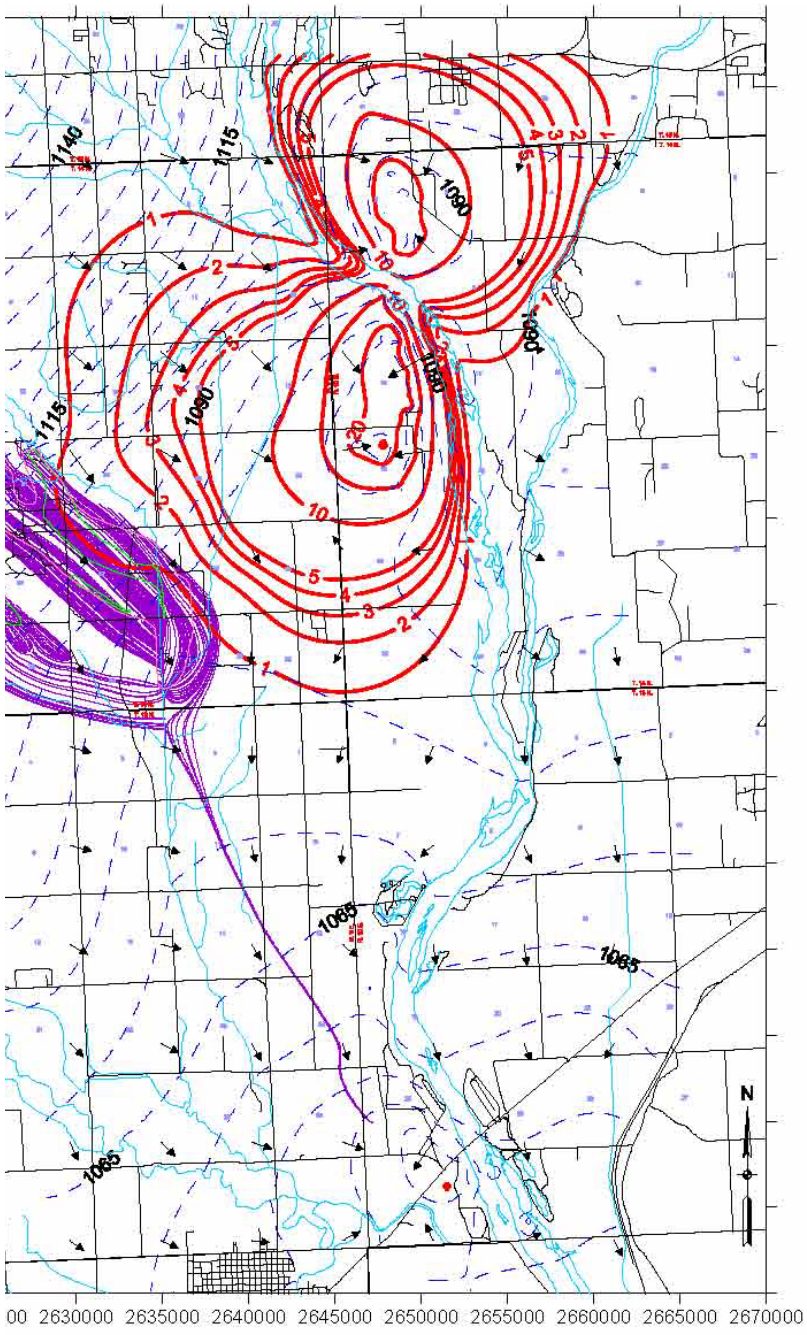
Groundwater Flow Vectors

Drawdown from MUD Pumping

TCE Plume

RDX Plume

URS	U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI	
Designed by: M.E.W.	OPERABLE UNIT NO. 2 FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE	
Drawn by: M.E.W.	U.S. Army Corps of Engineers	**MUD 104 MGD ANNUAL AVERAGE**
Checked by:	Scale: 1" = 8,000'	Figure Number: **11**
Submitted by:	Date: August 2007	
	Fig. No.: **11**	



Particle tracking based on steady state simulation – continuous pumping with no end point. Also assumes 2006 well network and pumping rates.

NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

- Groundwater Elevations
- Groundwater Flow Vectors
- Drawdown from MUD Pumping
- Particle Traces
- TCE Plume
- RDX Plume

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CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

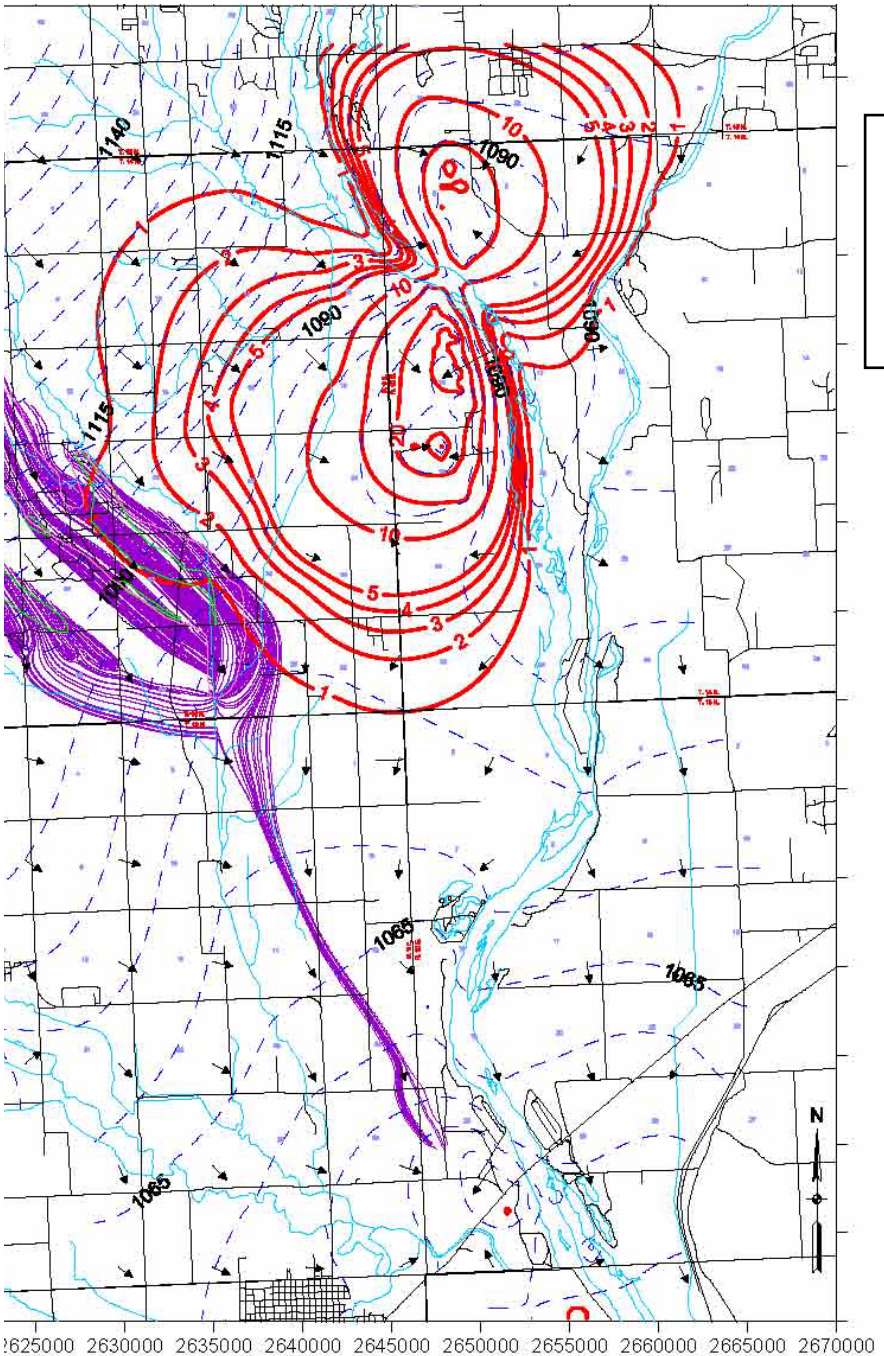
Designed by: M.E.W.
Drawn by: M.E.W.
Checked by:
Submitted by:

OPERABLE UNIT NO. 2
FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE

U.S. Army Corps of Engineers

MUD 54 MGD ANNUAL AVERAGE

Scale: 1" = 8,000'
Date: August 2007
Fig. No.: 1
Figure Number: 1



Particle tracking based on steady state simulation – continuous pumping with no end point. Also assumes 2006 well network and pumping rates.

NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

- Groundwater Elevations
- Groundwater Flow Vectors
- Drawdown from MUD Pumping
- Particle Traces
- TCE Plume
- RDX Plume

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CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: M.E.W.
Drawn by: M.E.W.
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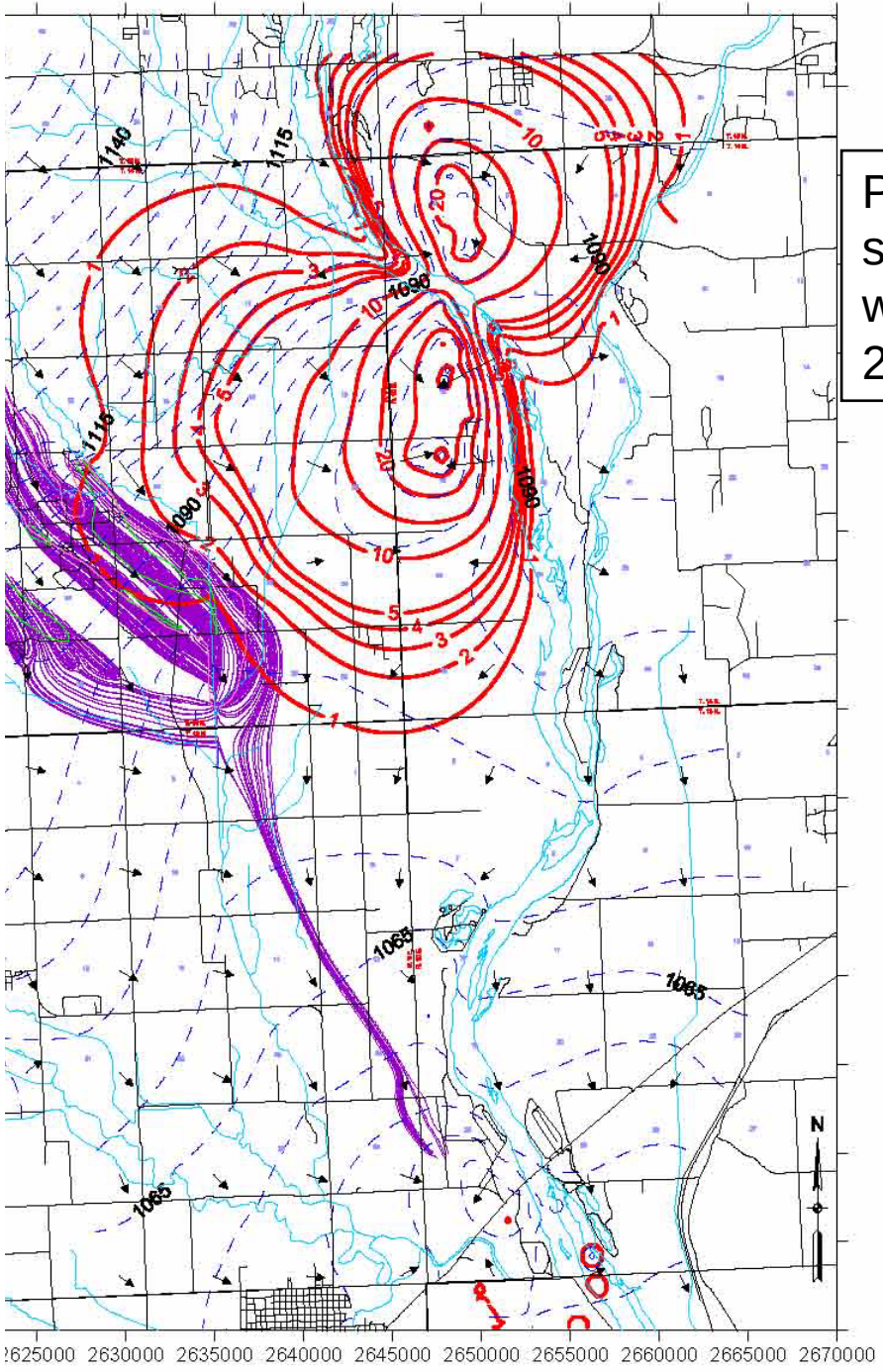
Submitted by:

U.S. Army Corps of Engineers

OPERABLE UNIT NO. 2
FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE

MUD 59 MGD
ANNUAL AVERAGE

Scale: 1" = 8,000'
Date: August 2007
Fig. No.: 2
Figure Number: 2



Particle tracking based on steady state simulation – continuous pumping with no end point. Also assumes 2006 well network and pumping rates.

NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

- Groundwater Elevations
- Groundwater Flow Vectors
- Drawdown from MUD Pumping
- Particle Traces
- TCE Plume
- RDX Plume

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CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: M.E.W.
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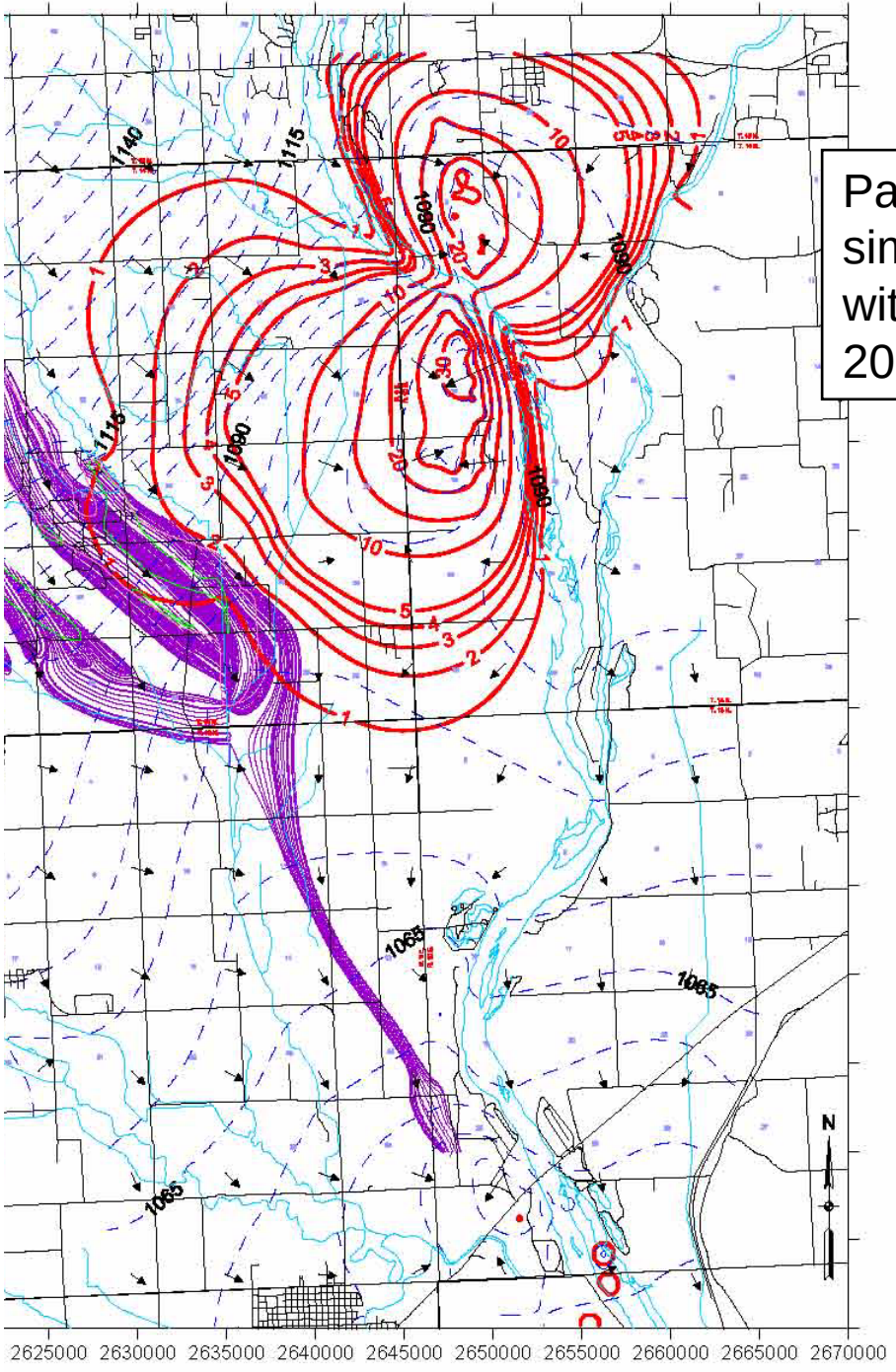
U.S. Army Corps of Engineers

OPERABLE UNIT NO. 2
FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE

MUD 64 MGD
ANNUAL AVERAGE

Scale: 1" = 8,000'
Date: August 2007
Fig. No.: 3
Figure Number: 3



Particle tracking based on steady state simulation – continuous pumping with no end point. Also assumes 2006 well network and pumping rates.

NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

- Groundwater Elevations
- Groundwater Flow Vectors
- Drawdown from MUD Pumping
- Particle Traces
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- RDX Plume

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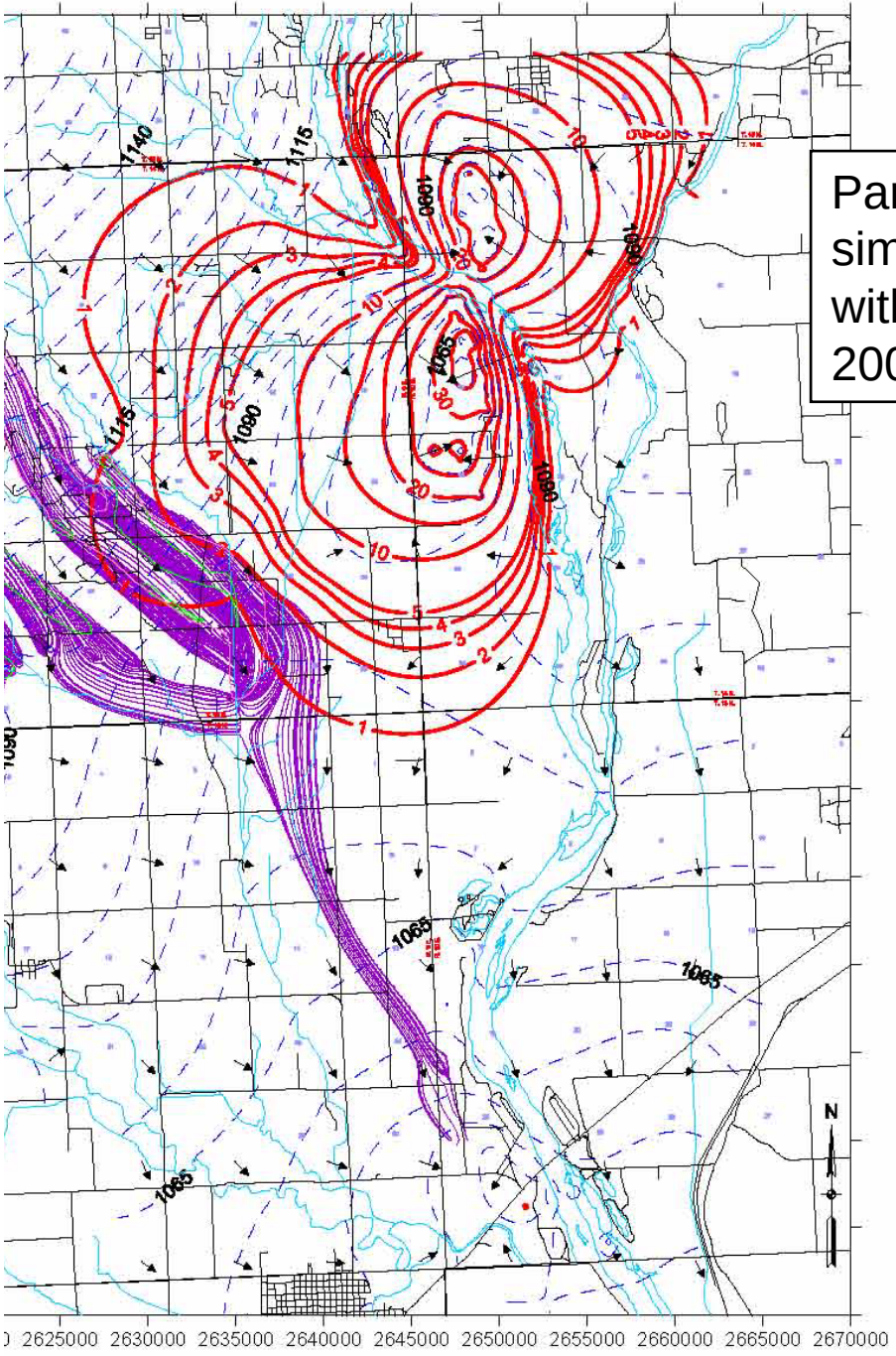
OPERABLE UNIT NO. 2
FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE

U.S. Army Corps of Engineers

MUD 69 MGD
ANNUAL AVERAGE

Scale: 1" = 8,000'
Date: August 2007
Fig. No.: 4
Figure Number: 4



Particle tracking based on steady state simulation – continuous pumping with no end point. Also assumes 2006 well network and pumping rates.

NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

- Groundwater Elevations
- Groundwater Flow Vectors
- Drawdown from MUD Pumping
- Particle Traces
- TCE Plume
- RDX Plume

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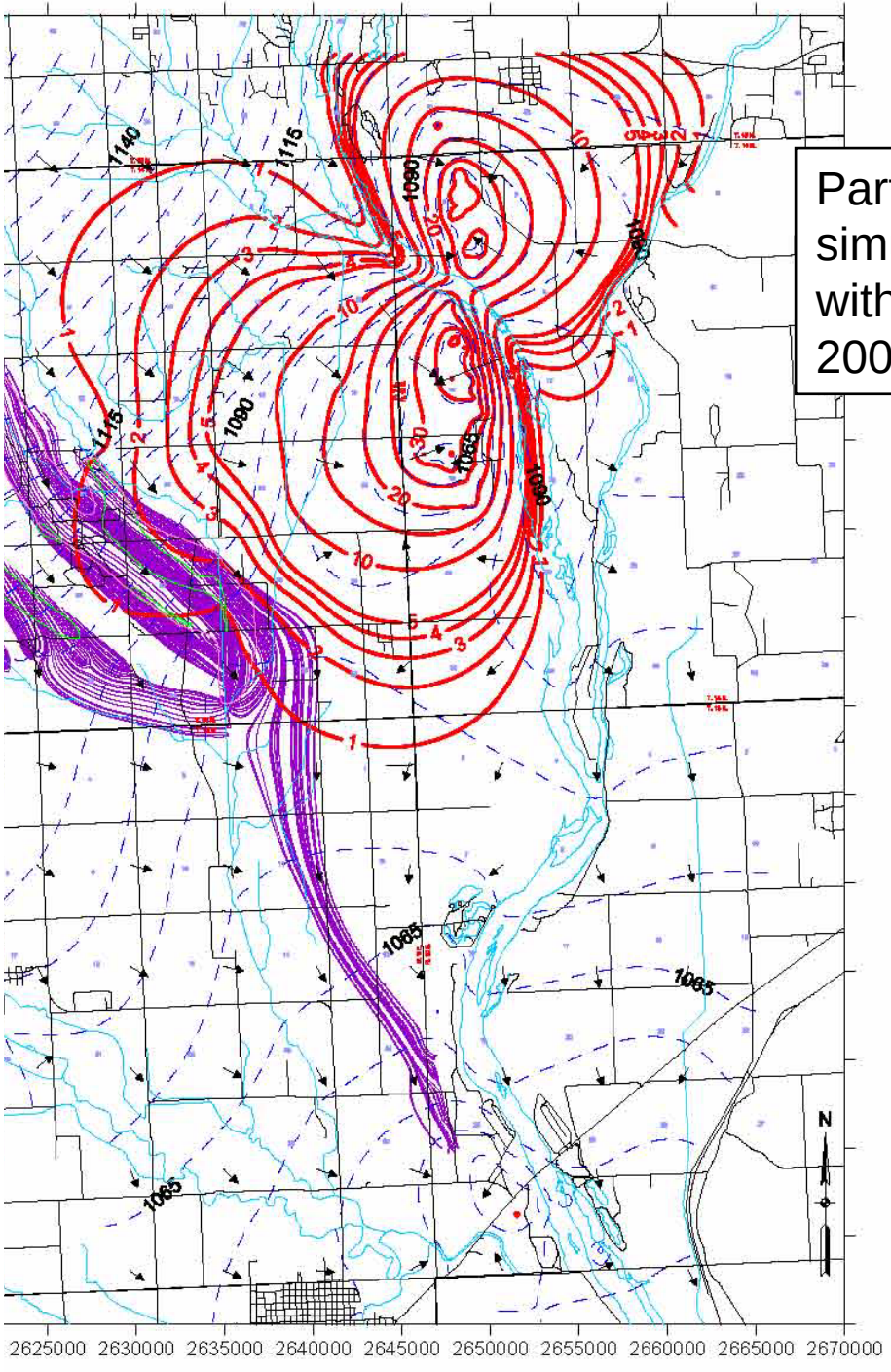
OPERABLE UNIT NO. 2
FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE

U.S. Army Corps of Engineers

MUD 74 MGD
ANNUAL AVERAGE

Scale: 1" = 8,000'
Date: August 2007
Fig. No.: 5
Figure Number: 5



Particle tracking based on steady state simulation – continuous pumping with no end point. Also assumes 2006 well network and pumping rates.

NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

- Groundwater Elevations
- Groundwater Flow Vectors
- Drawdown from MUD Pumping
- Particle Traces
- TCE Plume
- RDX Plume

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CORPS OF ENGINEERS
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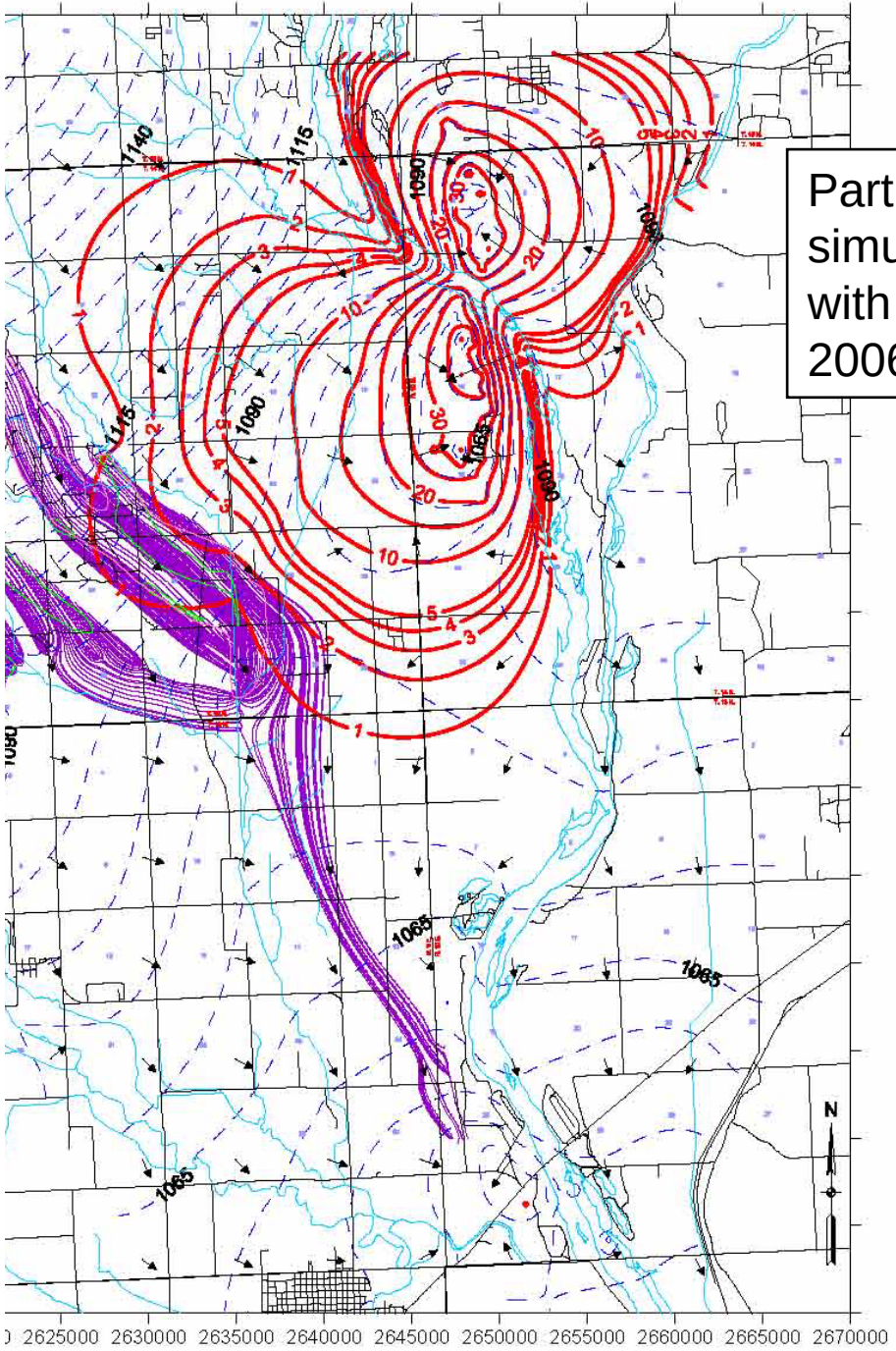
OPERABLE UNIT NO. 2
FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE

MUD 79 MGD
ANNUAL AVERAGE

Scale: 1" = 8,000'
Date: August 2007
File: 6
Figure Number: 6



Particle tracking based on steady state simulation – continuous pumping with no end point. Also assumes 2006 well network and pumping rates.

NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

- Groundwater Elevations
- Groundwater Flow Vectors
- Drawdown from MUD Pumping
- Particle Traces
- TCE Plume
- RDX Plume

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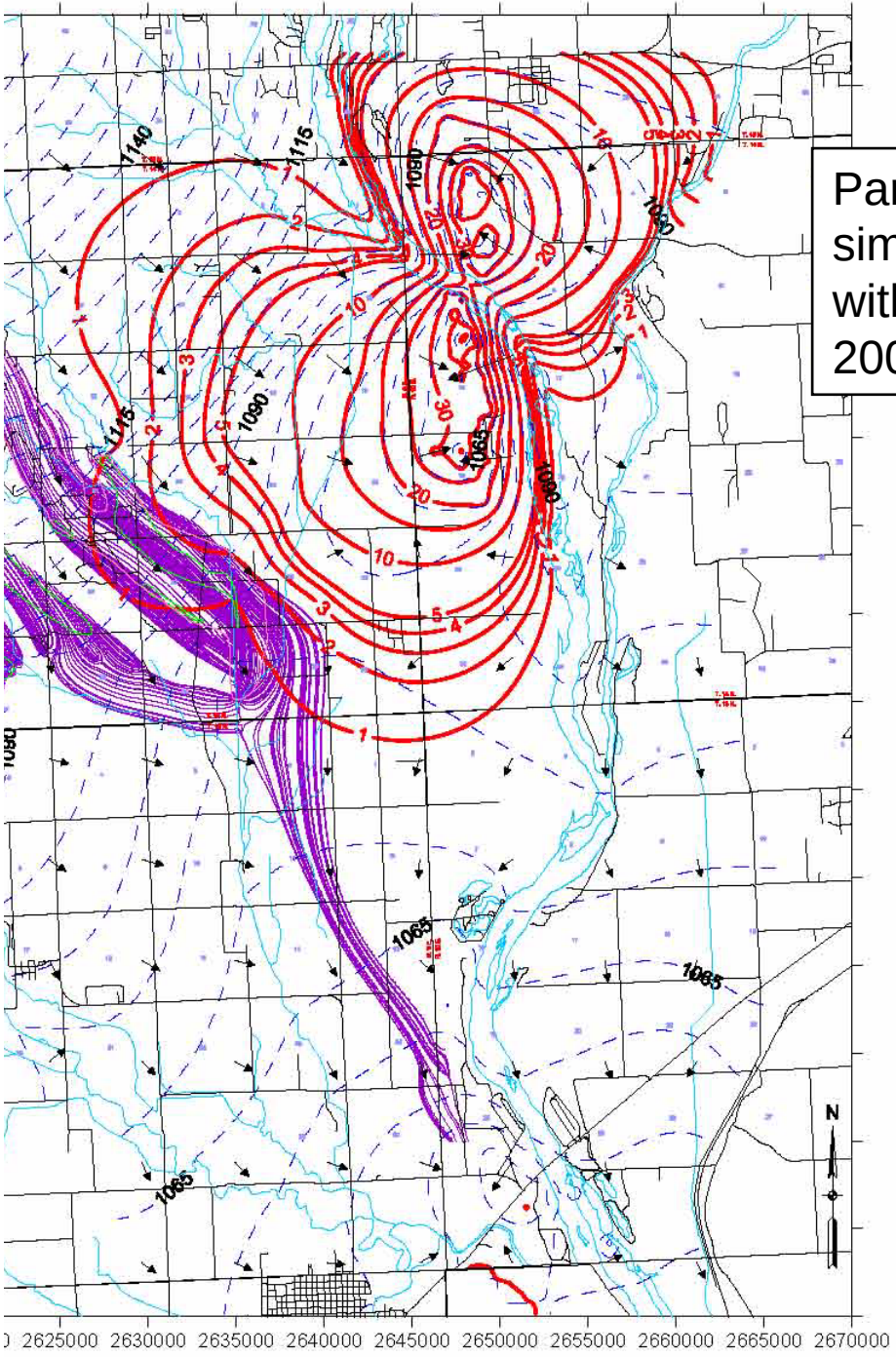
FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE

U.S. Army Corps of Engineers

MUD 84 MGD ANNUAL AVERAGE

Scale: 1" = 8,000'
Date: August 2007
No.: 7
Figure Number: 7



Particle tracking based on steady state simulation – continuous pumping with no end point. Also assumes 2006 well network and pumping rates.

NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

- Groundwater Elevations
- Groundwater Flow Vectors
- Drawdown from MUD Pumping
- Particle Traces
- TCE Plume
- RDX Plume

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CORPS OF ENGINEERS
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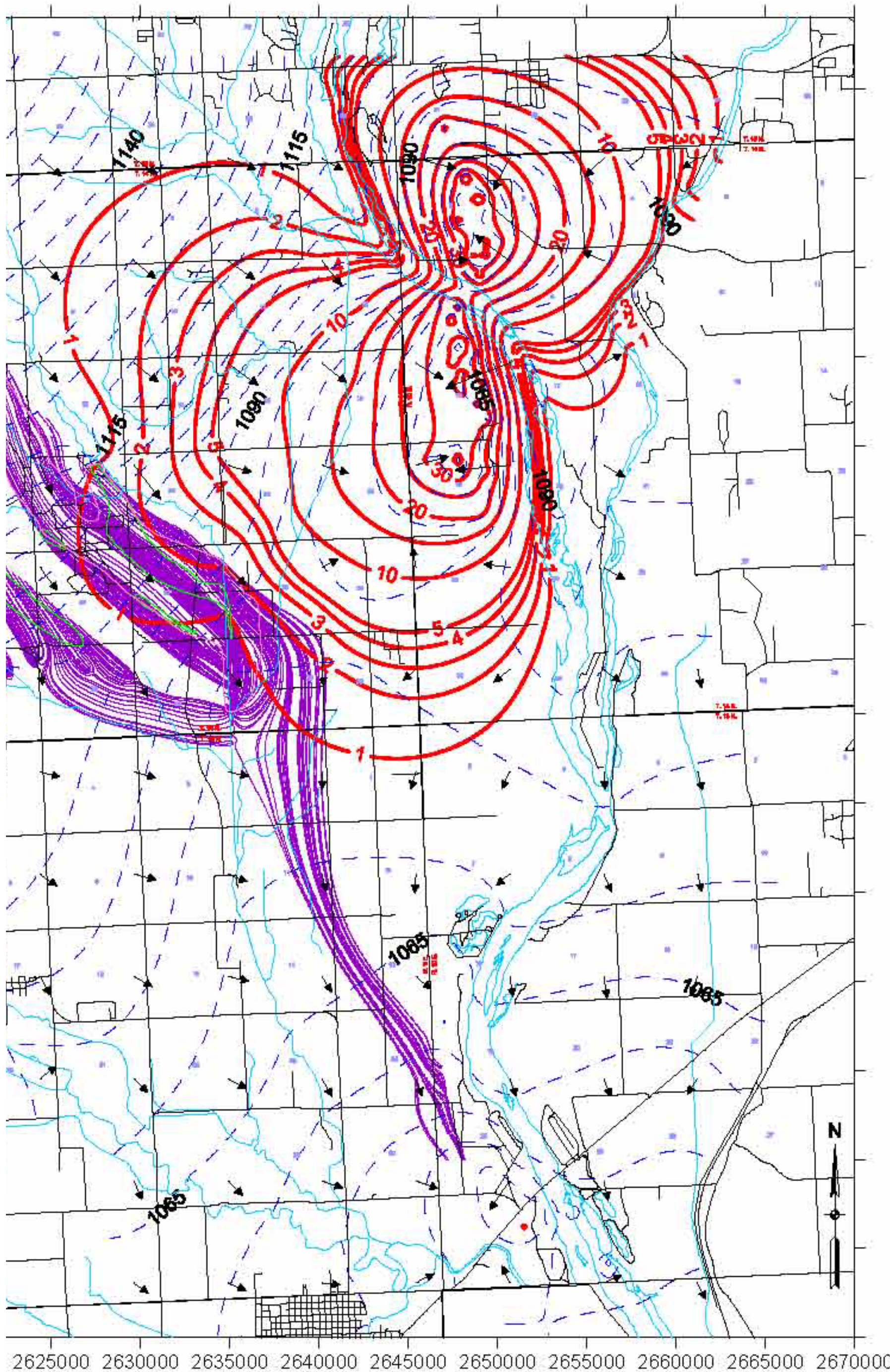
OPERABLE UNIT NO. 2
FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE

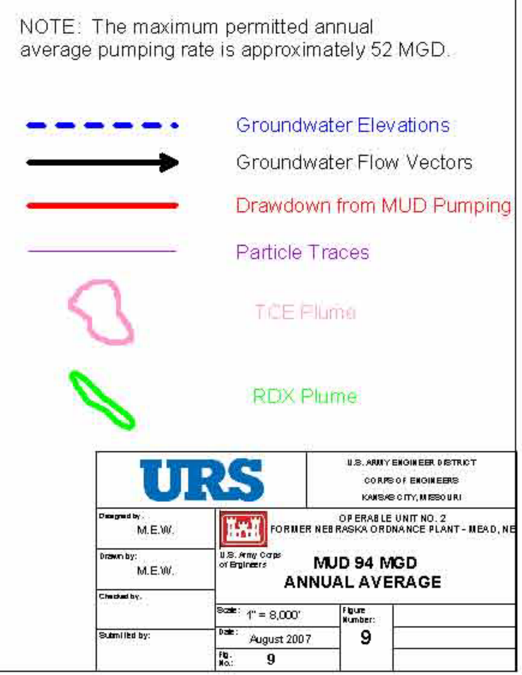
U.S. Army Corps of Engineers

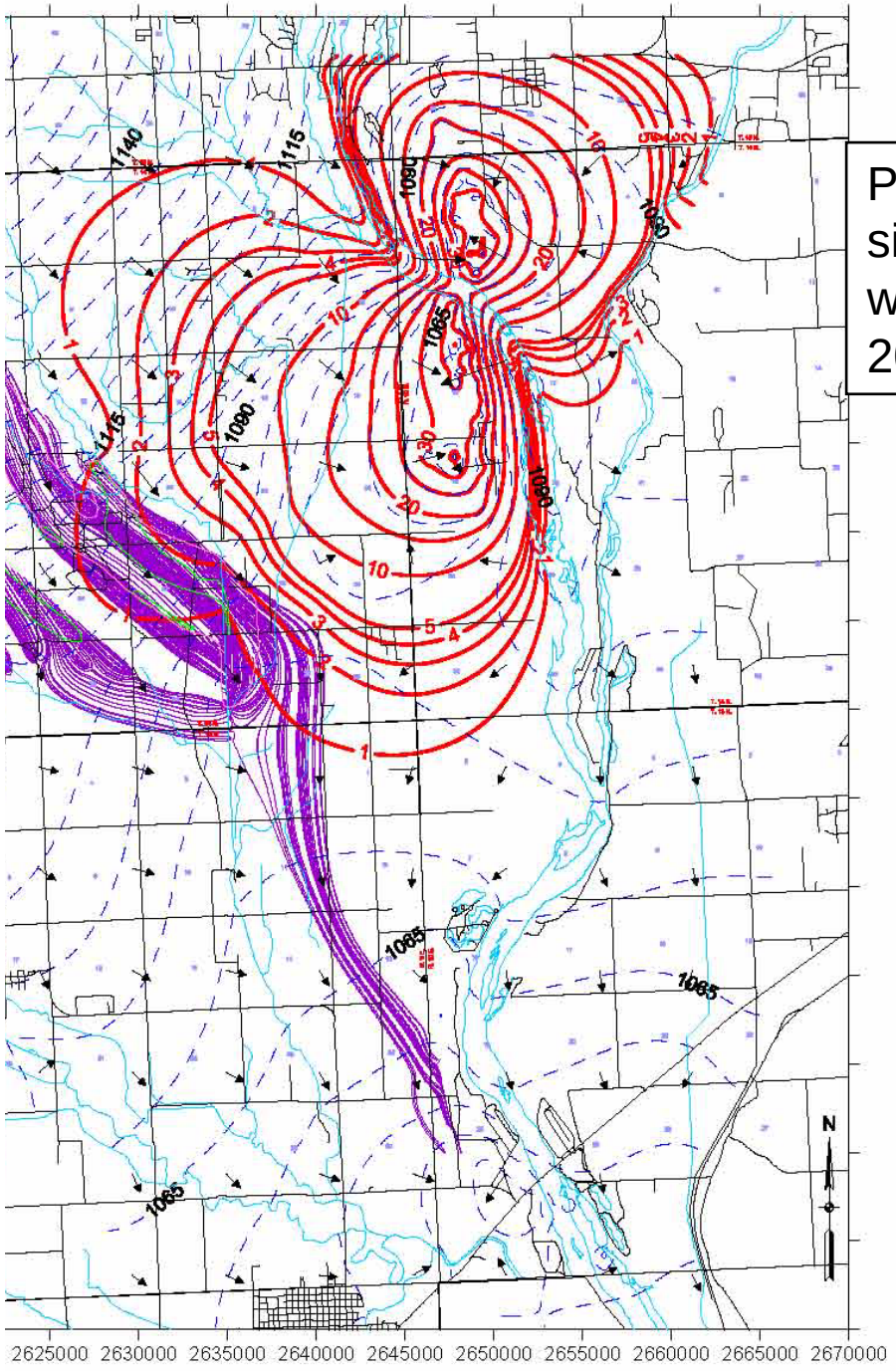
MUD 89 MGD ANNUAL AVERAGE

Scale: 1" = 8,000'
Date: August 2007
Fig.: 8
Figure Number: 8



Particle tracking based on steady state simulation – continuous pumping with no end point. Also assumes 2006 well network and pumping rates.





Particle tracking based on steady state simulation – continuous pumping with no end point. Also assumes 2006 well network and pumping rates.

NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

- Groundwater Elevations
- Groundwater Flow Vectors
- Drawdown from MUD Pumping
- Particle Traces
- TCE Plume
- RDX Plume

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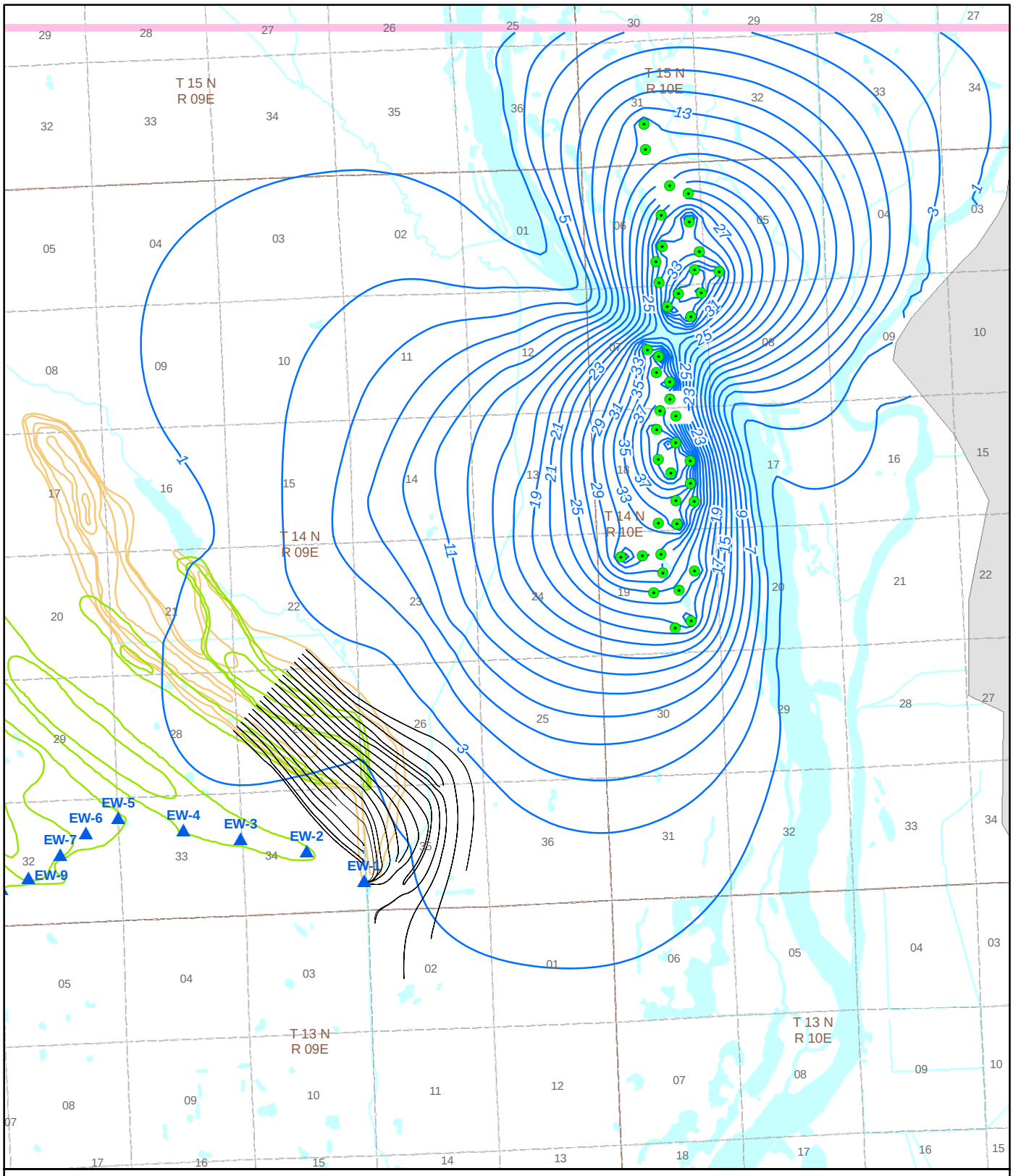
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: M.E.W.
Drawn by: M.E.W.
Checked by:
Submitted by:

OPERABLE UNIT NO. 2
FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE
U.S. Army Corps of Engineers

MUD 99 MGD ANNUAL AVERAGE

Scale: 1" = 8,000'
Date: August 2007
Fig. No.: 10
Figure Number: 10



Explanation

- Omaha Met. Utility Dist. Water Supply Well
- USACE Extraction Well
- Simulated Particle Tracks
- Simulated Drawdown (feet)
- Model Domain
- RDX Shallow Plume 2006
- TCE Shallow Plume 2006
- Inactive Areas, equivalent to loess-mantled till uplands

N

0 6,000 Feet

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KANSAS CITY, MISSOURI

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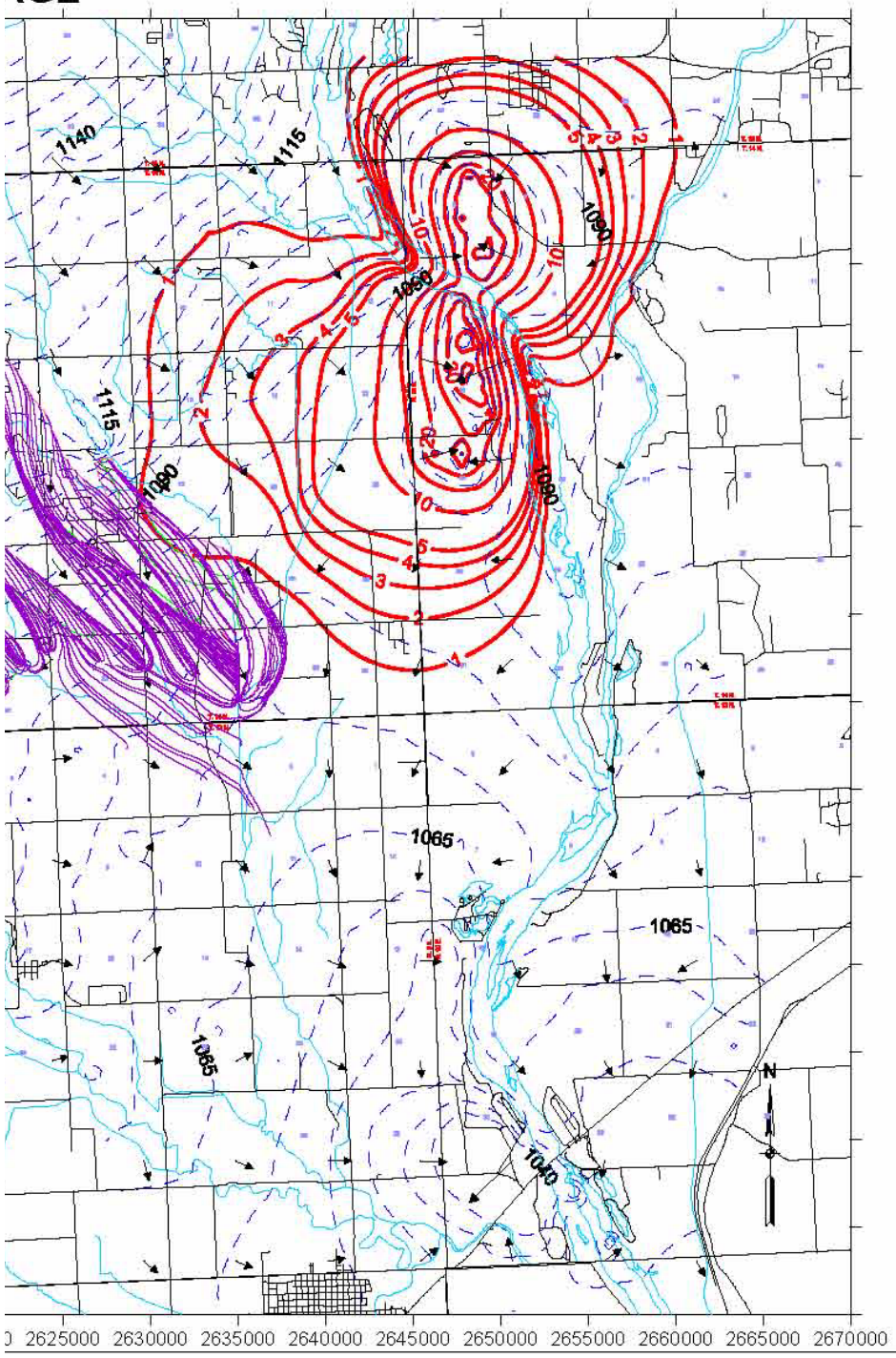
Drawn by:	
Checked by:	
Submitted by: URS	

U.S. Army Corps of Engineers

Simulated Drawdowns Caused by MUD Pumping at 104 MGD under Steady State with Particle Tracking

Scale:	Figure Number:	
Date: January 2007		
Fig. No.:		



NOTE: The maximum permitted annual average pumping rate is approximately 52 MGD.

- Groundwater Elevations
- Groundwater Flow Vectors
- Drawdown from MUD Pumping
- Particle Traces
- TCE Plume
- RDX Plume

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CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: M.E.W.
Drawn by: M.E.W.
Checked by:
Submitted by:

OPERABLE UNIT NO. 2
FORMER NEBRASKA ORDNANCE PLANT - MEAD, NE

MUD 104 MGD JUNE-AUGUST 52 MGD ANNUAL AVERAGE

Scale: 1" = 8,000'
Date: August 2007
Fig. No.: 12
Figure Number: 12