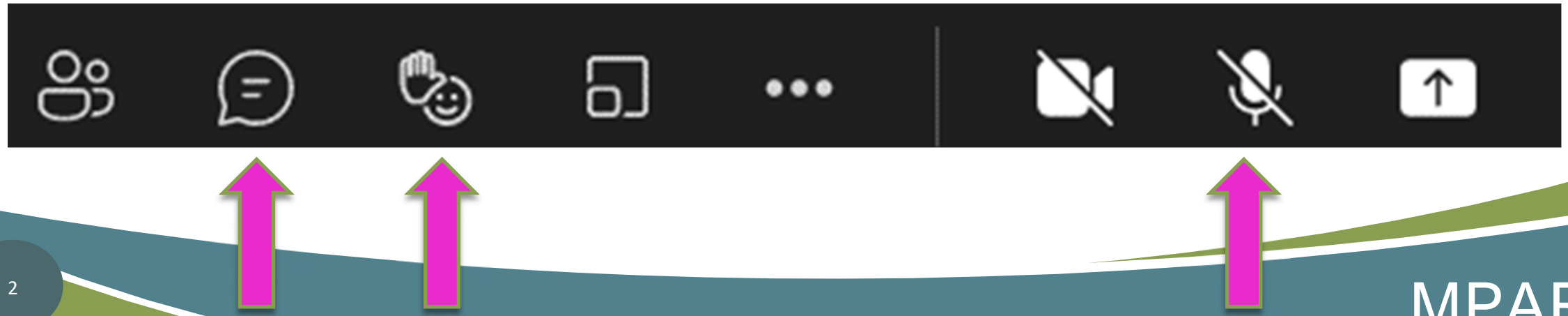
MPART Citizens Advisory Workgroup

September 13, 2022

MPART

Housekeeping

- Please keep your mic/phone muted unless speaking
- Only use the “raise hand” and/or “chat” function for questions or to request to speak
- Cameras are optional
- This meeting is being recorded



Agenda

- Welcome New Members:
  - Jason Lagowski (Howell)
  - Mike Boerman (Rockford)
- Roll Call – Community Updates
- Subcommittee Reports
- MPART Updates
- Wellogic Presentation – John Yellich

Roll Call and local updates/events/ sharing from communities

CAWG Subcommittee's

- Engaging the Public Subcommittee
- Website Review Subcommittee
- Preventative Measures Subcommitteebcommittee
- Membership Subcommittee

Completion of Voting Procedure

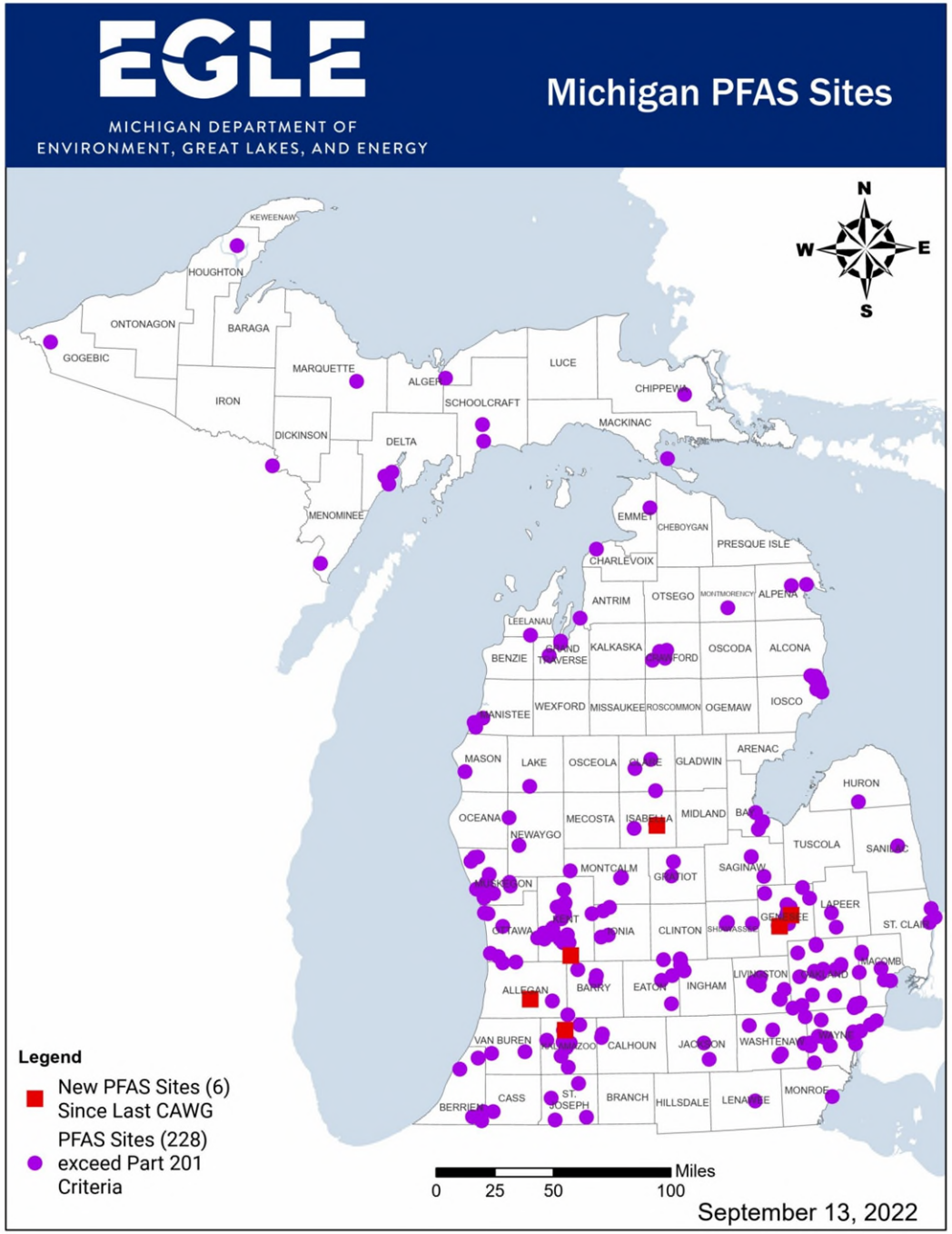
Connie Boris

MPART Updates

- $5 Million Residential Well Sampling
- Drinking Water State Revolving Fund (DWSRF)
  - Community Intent to Apply due November 1st
- Working on a training for Local Health Departments
- EPA Updates

New Sites

- Hydro Extrusion USA,
  Kalamazoo, Kalamazoo County
- Caledonia Wastewater Treatment Plant,
  Caledonia, Kent County
- 104 North Kinney Road,
  Mt. Pleasant, Isabella County
- Rockwell International Corporation,
  Allegan, Allegan County
- Bishop International Airport Authority,
  Flint, Genesee County
- Delphi Plants 400 and 500,
  Flint, Genesee County



Triage project and Wellogic

Citizen Advisory Work Group (CAWG)

EGLE Triage Project Review & Status

JOHN A. YELLICH, CPG

DIRECTOR

September 13, 2022

JOHN.A.YELLICH@WMICH.EDU

269-387-8649

What is Michigan Geology?

What is Michigan's most critical natural resource in the LP and UP for today and future generations?

Water!

Michigan glacial geology in the LP is:

- **Not uniform, vertically and laterally and what does it contain?**
  - **Surface and subsurface geology contains these natural resources**
    - **Groundwater**
    - **Surface water**
    - **Aggregates**
    - **Wetlands**

What do we know about the geologic & water resource?

Almost NOTHING!

Update- Michigan Water

Water is Michigan's highest societal and economic resource!

- **Science, a word that resonates today, but not used!**
- **Water has never been scientifically quantified!**
- **Total amount is unknown.**
- **Yet, Michigan has signed national and international agreements stating its water resources are understood!**
- **Michigan has not committed sufficient funding to scientifically assess or quantify this critical resource.**

Water issues by county

Michigan Lower Peninsula, ~ 60% of drinking water is from glacial sediments, what is important?

There is no scientific database that has validated and corrected geologic data.

- **Many programs use Wellogic (drillers) data, the only data.**
  - **Wellhead Protection,**
  - **Groundwater level,**
  - **Depth to bedrock,**
  - **WWAT, HC well program, etc.**

Wellogic was never location validated since 2003.

Many uses of this well data, 2003 to present.

Economics of Michigan Water

- **Water and aggregates support all sectors of the Michigan economy!**
  - **Water supports growth and development e.g. Pfizer 17mg/d, ~ equal to the City of Kalamazoo.**
  - **Water supports agriculture**
  - **Aggregates support the infrastructure of Michigan!**
- **Michigan does not have any data programs to delineate the location of water and aggregates!**
- **Michigan has never compiled any of the geologic data for water or aggregates into any database.**
- **For too many years, Michigan has relied upon inadequate and unvalidated information, not data.**

Kicking the geology can down the road!

- Compliance with Great Lakes Compact was needed, ~2000.
- Michigan water division in 2006 accepted a software program that incorporated un-validated water well data.
- Developed Groundwater Inventory and Mapping (GWIM).
- GWIM compiled data on watersheds & drainages and interpreted water values, conductivity and transmissivity, both not validated values.
- GWIM program is claimed to be a robust program that is based on unvalidated data and using Kriging to make the data look smooth.
- Kriging does not make the data correct, just looks good and provides estimates –This is not mapping.

Michigan Update- Results?

- **NO validated scientific geologic data was available local or statewide.**
- **Developed Groundwater Inventory and Mapping (GWIM).**
- **GWIM - Used to support the Water Withdrawal Assessment Tool (WWAT) for assessing High Capacity (>70gpm) groundwater withdrawals.**
- **<u>Did anyone working on WWAT/GWIM have geologic field experience?</u>**
- **WWAT was claimed to be a scientific approach, but there was NO scientific data collection or validation, a screening approach, only.**
- **Well drillers logs, (5000 to 188 terms) also given scientific water values.**
  - **Storage coefficient (K) and transmissivity (T).**
  - **Both K and T not scientifically factual in GWIM, WWAT, other.**
- **Michigan claimed compliance with Great Lakes Compact.**
- **GWIM - no valid geologic data, nothing but look good estimates!**
- **Did not have a program to input geologic data to WWAT.**
- **Drillers were never trained in data entry.**
- **There is a common Michigan theme, NO SCIENTIFIC DATA!**

Michigan data

How does Michigan begin to understand the water resources and the economic value?

- **Simply put, produce more Surficial Geologic maps with 3D geology.**
- **Stop using unvalidated data and this starts with validating the well drillers database.**
- **MGS surficial 3D mapping has documented the following:**
  - **Wetlands discharge and re-charge.**
  - **Sand and Gravel at the surface and subsurface.**
    - **Water is in sand and gravel**
  - **Depth to bedrock.**
  - **3D interpretation of geologic setting, real data to support modeling.**
  - **Groundwater levels in produced document(s)**
  - **Resulting in correct Wellhead protection areas noted.**
- **All geologic data has economic and societal value.**
- **Wellogic data can NOT produce these validated mapping products!**

Economics of Michigan Water

No Factual data, unlike Canada and adjoining states, Ohio, Indiana, Illinois.

What if Michigan continues to rely on non-factual data and continues to delay inputting factual data?

Here is an example of what happened!

- **2018-19, PFAS is identified in selective water wells,**
  - **Where do we sample?**
  - **Wellogic tells State to find wells that were not "down gradient".**
  - **Most of the wells were over a mile from projected location and not downgradient.**
  - **State had to go to Google or the field to locate the wells to sample.**

Michigan glacial geology is perhaps the most complicated discontinuous lithologic units that have been recorded.

- There are multiple stages of ice advances and retreats having crossed Michigan (200,000 to ~10,000 years ago).
- Glacial movement has resulted in the deposition of various glacial deposits and features and they include aggregates and water bearing sand zones, and
- Glacial moraines, which have the most important term, glacial till, it is not in the only database, Wellogic terminology table. Till - no economic aquifers or aggregates documented.

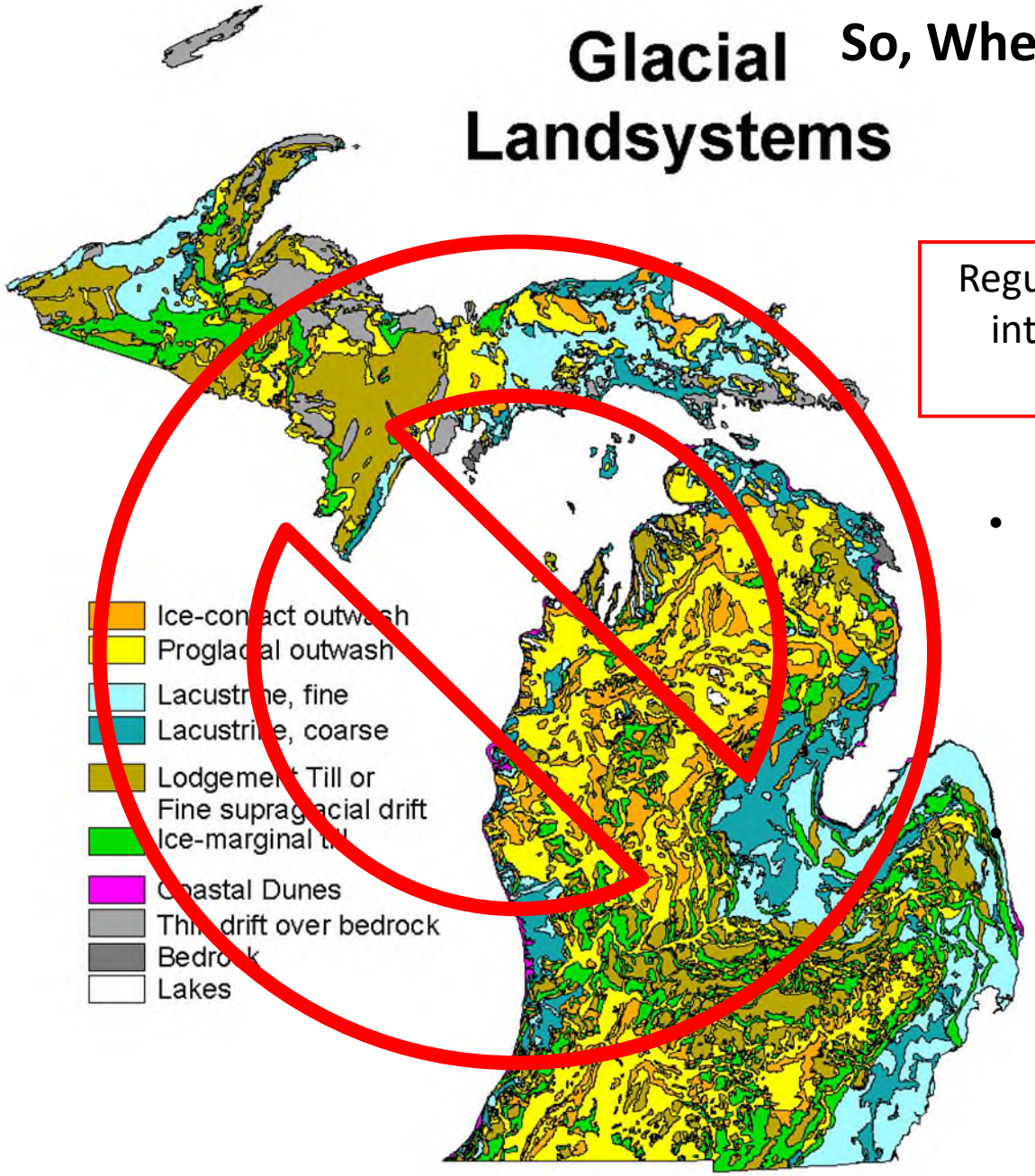
Michigan Geological Survey (MGS)- October 2011

PA- 167 - MGS to Western Michigan University with the Legislative mandate for the Michigan Geological Survey:

- **Provide scientifically validated research and the data necessary for appropriate natural resource protection, discovery, assessment and management.**
- **Act as an independent, un-biased authority on geological matters underpinning Michigan's natural resource protection and management.**
- **Provide and preserve geologic records that can support the natural resource decision makers, public and private.**
- **NOTE: Michigan did not provide any funding to MGS in 2011!**

MGS is mandated to compile geologic data and was the only Great Lakes state without an annually funded geological survey until July 2022!

So, Where do we begin?

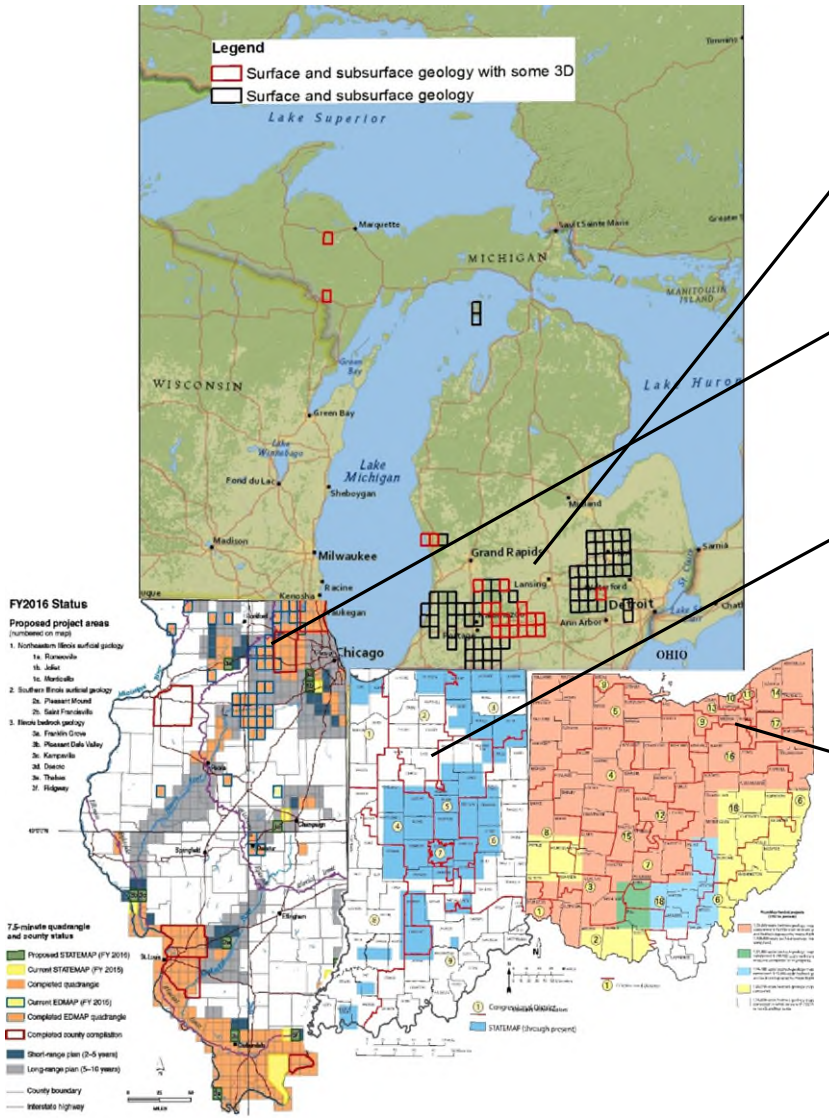


Regulatory, Consulting and Mi WWAT interpretations and decisions are made using this map.

- **This surficial geology map is based on 1915 (Leverett & Taylor) data, with minimal changes in 1955 (Helen Martin), and 1982 (Farrand & Bell). This is ONLY a surficial geology map. No subsurface validation.**

The role of the Survey is to provide updated mapping in priority areas.

Mapping-Michigan versus adjoining states!



Federal matching dollars in the last 25 years

- **Michigan,** no dedicated funds in 25 years, not until 2014, $44,000 to support mapping in Cass County, < 10% mapped. ($1.751 M = $72.9 K/yr).
- **Illinois,** mapping in high impact and use areas, many priority areas for 3D mapping, ~ 30% mapped. ($4.987M=$207.8 K/yr).
- **Indiana,** mapping in high impact areas, some priority 3D mapping, ~ 40% mapped. ($4.276 M=$178.2 K/yr).
- **Ohio,** funding from energy and minerals, geo-hazards for mapping in addition to Fed funds ~ 80% mapped ($3.069 M=$127.9 K/yr).
- **Wisconsin,** mapping impact areas, $3.762 M = $156.7k/ year
- **Minnesota,** mapping impact areas, $2.834 M = $118.3k/year.

All data from MGS mapping programs is OPEN FILES.

Background – Triage Project-February 2018

2018 MGS proposed Triage data summaries for areas impacted by PFAS!

Problem:

- PFAS contamination has been identified in waters of the State and additional locations are likely to be identified. Decision makers need geologic and hydrogeologic data to help identify risks and to formulate their decisions.

Scope of Work- Phase I:

- MGS would develop a local map of water table, flow directions, recharge and discharge relationships.
- 2D geologic cross sections, 3D visualization of well depths, screen intervals, static water levels, lithologies, bedrock surface.
- Bedrock topography, drift thickness, bedrock valleys and structure contour maps, if appropriate.
- Use available LiDAR for regional surface geologic features.
- Identify data gaps, databases or data from EGLE to support additional understanding of the location.
- Submit summary report with supporting documents, figures and data.

Phase II:

- Compile additional data, reports, etc.

Phase III:

- Develop additional technical data for a more thorough report.

August 2018, MPART Revised tasks to Budget for Rapid assessment of locations impacted by PFAS.

- Selective 2-5 mile radius assessment of Locations provided by EGLE consultants.
- **9-2022** MGS is only completing Phase I and some portions of Phase 11 at this time.

Background – Triage Project- Revision June 2019

2019 MGS continues to provide Triage summaries to MPART.

Project Revision by EGLE-Water Division June 2019:

- MGS will begin to correct the Wellogic locations and input of all new paper logs (5000) submitted to WRD, input to Wellogic.
- Continue to provide MPART Triage specific Location geologic and water summaries.
- MGS hires additional students to support project.
  - MGS had priority counties for Wellogic corrections from MPART (46) and WRD (13) HC wells, with focus on:
  - 1 - Kalamazoo County
  - 2 - Oakland County
  - 3 - Kent County
  - 4 - Muskegon County
  - 5 - Livingston County
  - 6 - Branch County
  - 7 - Eaton County
  - 8 - Remaining counties in the order requested by DWEHD and MPART

Background – Triage Project- Revision June 2019

2019 MGS continues to provide Triage summaries to MPART.

August 2019 - Project Budget Revision by EGLE-Water Division:

- Continue to provide MPART Triage Location geologic and water summaries, when requested.
- MGS hired additional students to support the project.
  - MGS reached out to Jeff Reichert, Kalamazoo Health Dept and John Esch (EGLE) to provide other specific training in using **Parcel Viewer** and other techniques to expedite validating locations.
- Location, land-surface elevation, well depth, and depth to water will be reviewed and QA/QC'ed for each well & provide data for EGLE DWEHD Review.
- **MGS has a formal training and continuous QA and performance review program for all staff working on project (Average ~24 up to 32 project staff).**

Wellogic Summary, Drift vs Bedrock

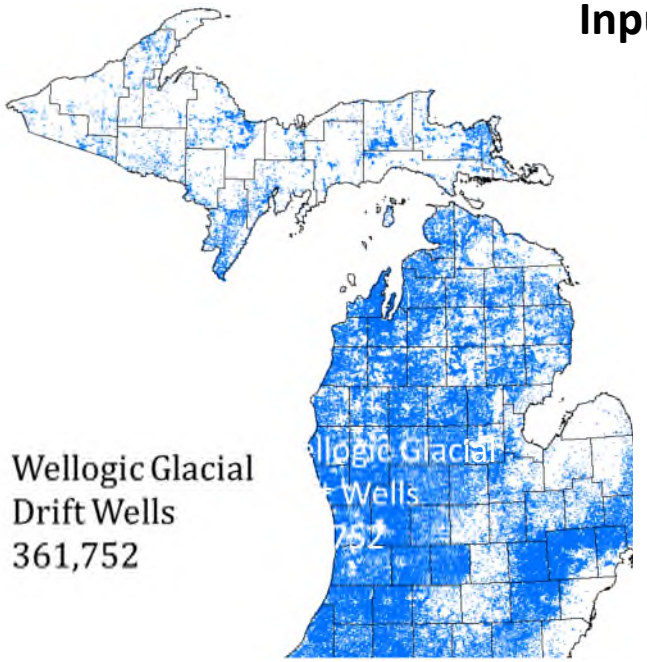
2019-MGS was contracted to validate and correct locations of all Wellogic wells >

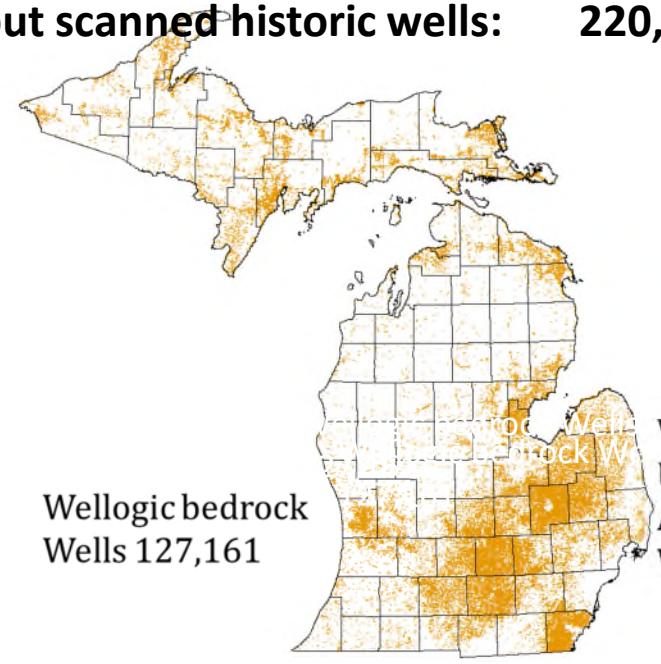
40% of Wellogic wells not on the correct location.

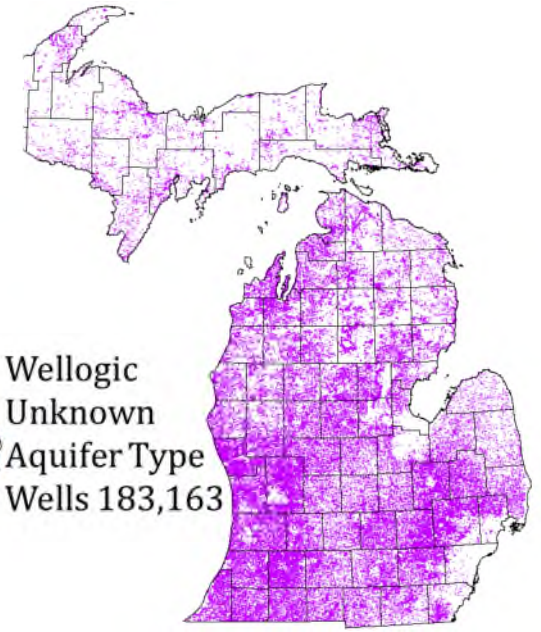
MGS has completed: ~42% of project completed (503,477 completed)

Validated Wellogic Locations: 274,613

Input scanned historic wells: 220,940







Wellogic well data update, January 2021

Note Aquifer Type field in Wellogic can often be unreliable

MGS inputting 700,000 scanned logs 1950's to 2003 to Wellogic (~1.3M total # of wells)

MGS, 2015, training well drillers how to log consistently into Wellogic.

Allegan and Ottawa county Wellogic locations validated in 2020

The ONLY Michigan database having subsurface data and it is 40% incorrect

Q2 -2022 Summary of Triage data to EGLE

Q2- 2022 Wellogic Triage Project Summary, Data Corrected and Input														
PROJECT TOTAL		Wellogc well location data				Scanned well logs from Wellogic data (~1950's to 2003)						Project Totals		
	County	Wellogic logs reviewed	Well locations corrected	% incorrect locations	~ % County completed	Scanned logs already in system	Number (#) incorrect data in system	Number % incorrect data in system	New scanned logs entered	Total input and corrected	% County input Scanned logs complete	Wellogic	Scanned	Total
1	Branch	2,883	1,265	43.9	62%							2,883		2,883
2	Oakland					3	3		142	145	100%		145	145
3	Monroe	3,089	2,996	97.0	89%	312	312		303	615	100%	3,089	615	3,704
4	Livingston	476	457	96.0	92%	3,576	3,552		3782	7,358	83%	476	7,358	7,834
5	Lenawee					339	269		3983	4,322	100%		4,322	4,322
6	Gladwin					62	52		296	358	28%		358	358
7	Ionia	56	0	0.0	56%	0	0		162	162	100%	56	162	218
8	Eaton	989	161	16.3	21%							989		989
9	Cass	20	0	0.0	85%							20		20
10	Washtenaw	6,569	2,920	44.5	34%	8,666	8,406		9,552	18,218	94%	6,569	18,218	24,787
11	Barry					3,878	3,806		3,882	7,760	67%		7,760	7,760
12	Berrien					768	758		1,725	2,493	7%		2,493	2,493
13	Montcalm	876	323	36.9	86%							876		876
14	Calhoun	181	68	37.6	44%							181		181
15	Marquette	6,703	2,930	43.7	100%							6,703		6,703
Paper Logs									Received	Processed	Completion			Paper
Group 5	Jan. 2022								1011	455	90%			455
	Totals	**21,842**	**11,120**	**51%**		**17,604**	**17,158**	**97%**		**41,886**				**63,728**
				Error				Error						

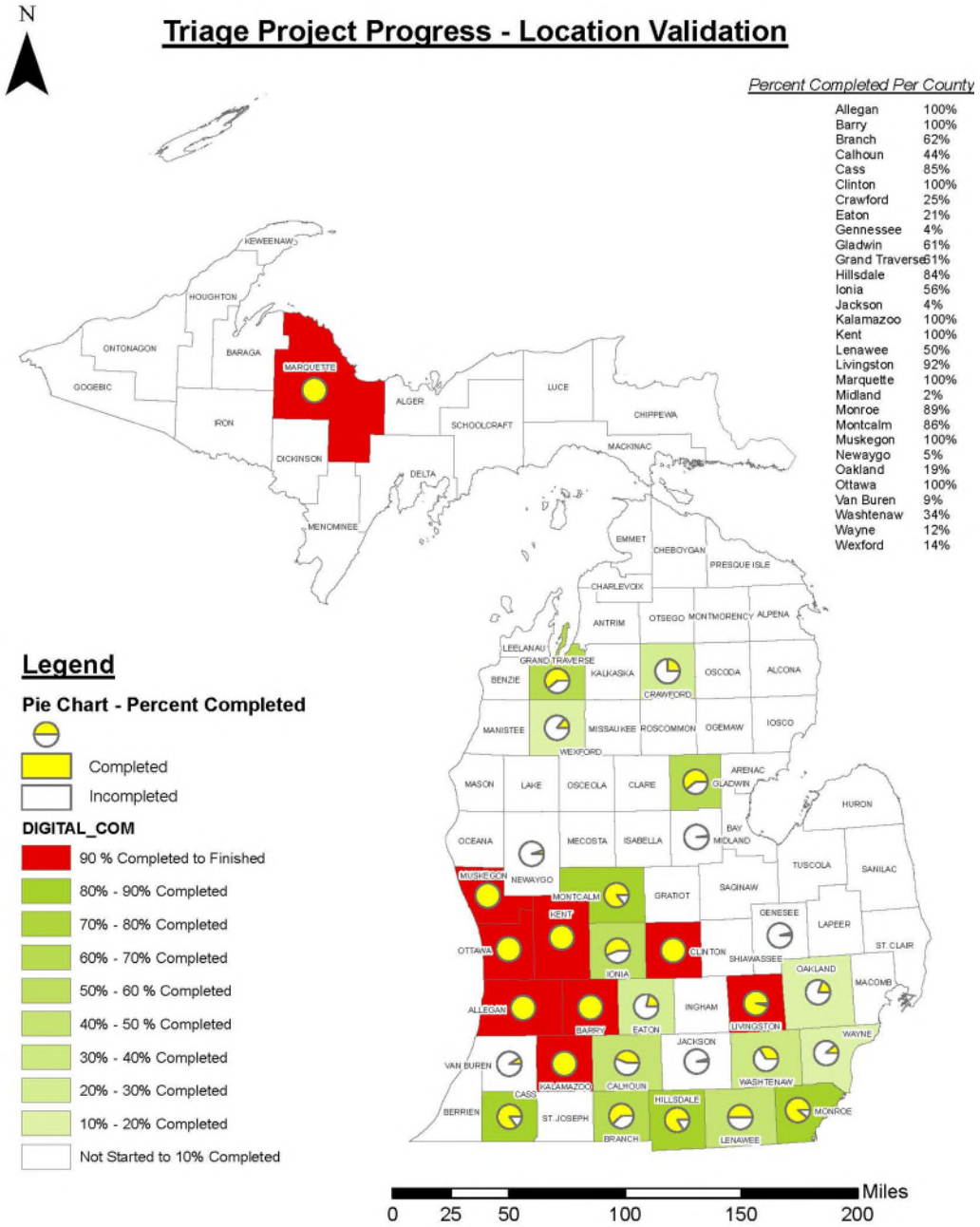
Q2 - 2022 Wellogic Triage Project Summary, Data Corrected and Input														
PROJECT TOTAL		Wellogc well location data				Scanned well logs from Wellogic data (~1950's to 2003)						Project Totals		
	County	Wellogic logs reviewed	Well locations corrected	% incorrect locations	~% County complete d	Scanned logs already in system	Number (#) incorrect data in system	Number % incorrect data in system	New scanned logs entered	Total input and corrected	% County input Scanned logs complete	Wellogic	Scanned	Total
1	Kalamazoo	18,719	6,065	32.4	100%	9,528	7,002	74%	5,052	14,580	100%	18,719	14,580	33,299
2	Allegan	14,483	5,336	36.8	100%							14,483		14,483
3	Ottawa	9,881	3,051	30.9	100%	1894	1689	89%	9572	11,466	100%	9,881	11,466	21,347
4	Muskegon	12,660	5,101	40.3	100%	3,963	3,406	86%	12,305	16,268	100%	12,660	16,268	28,928
5	Crawford	817	380	46.5	25%							817		817
6	Jackson	649	319	49.2	4%							649		649
7	Gladwin	7,287	3,221	44.2	61%	529	450	85%	3,392	3,921	28%	7,287	3,921	11,208
8	Barry	13,050	4,857	37.2	100%	3,878	3,806	98%	3,884	7,762	67%	13,050	7,762	20,812
9	Kent	29,597	11,214	37.9	100%	8,185	8,185	100%	23,639	31,824	100%	29,597	31,824	61,421
10	Livingston	27,837	11044	39.7	92%	13,659	13,316	97%	15985	29,644	83%	27,837	29,644	57,481
11	Midland	455	233	51.2	2%							455		455
12	Eaton	3,789	1652	43.6	21%							3,789		3,789
13	Clinton	6510	1787	27.5	100%							6,510		6,510
14	Grand Traverse	9,525	2,322	24.4	61%							9,525		9,525
15	Oakland	39,725	13,088	32.9	19%	16,315	15,811	97%	24782	41,097	100%	39,725	41,097	80,822
16	Van Buren	1,269	363	28.6	9%							1,269		1,269
17	Montcalm	8,835	3,549	40.2	86%	50	32	64%	536	586	4%	8,835	586	9,421
18	Cass	8,809	3,780	42.9	85%							8,809		8,809
19	Calhoun	7,683	3,136	40.8	44%	1250	1125	90%	11592	12,842	100%	7,683	12,842	20,525
20	Ionia	5,618	2,411	42.9	56%	588	444	76%	6653	7,241	100%	5,618	7,241	12,859
21	Monroe	15,925	10,370	65.1	89%	8,851	7,968	90%	2909	11,760	100%	15,925	11,760	27,685
22	Hillsdale	4,788	2,569	53.7	84%							4,788		4,788
23	Gennessee	811	370	45.6	4%							811		811
24	Washtenaw	6,783	2,992	44.1	34%	8,666	8,406	97%	9,552	18,218	94%	6,783	18,218	25,001
25	Wexford	897	328	36.6	14%							897		897
27	Wayne	257	73	28.4	12%							257		257
28	Lenawee	7,691	3,431	44.6	50%	1,023	864	84%	10215	11,238	100%	7,691	11,238	18,929
29	Newaygo	677	107	15.8	5%							677		677
30	Berrien					768	758	99%	1,725	2,493	7%		2,493	2,493
31	Marquette	6,703	2,930		100%							6,703		6,703
32	Branch	2,883	1,265		62%							2,883		2,883
Paper Logs									Received	Processed	Completion			Paper
Group 1	Unk 2019								5058	5058	100%			5,058
Group 2	Mar. 2020								464	464	100%			464
Group 3	Sep. 2020								495	495	100%			495
Group 4	Mar. 2021								916	286	31%			916
Group5	Jan. 2022								1107	991	90%			991
Group 6	Jun. 2022								743	0	0%			0
	Totals	**274,613**	**107,344**	**39%**		**79,147**	**73,262**	**93%**						**503,477**
				Errors				Errors						

Triage Q2 Project summary To EGLE

Wellogic summary

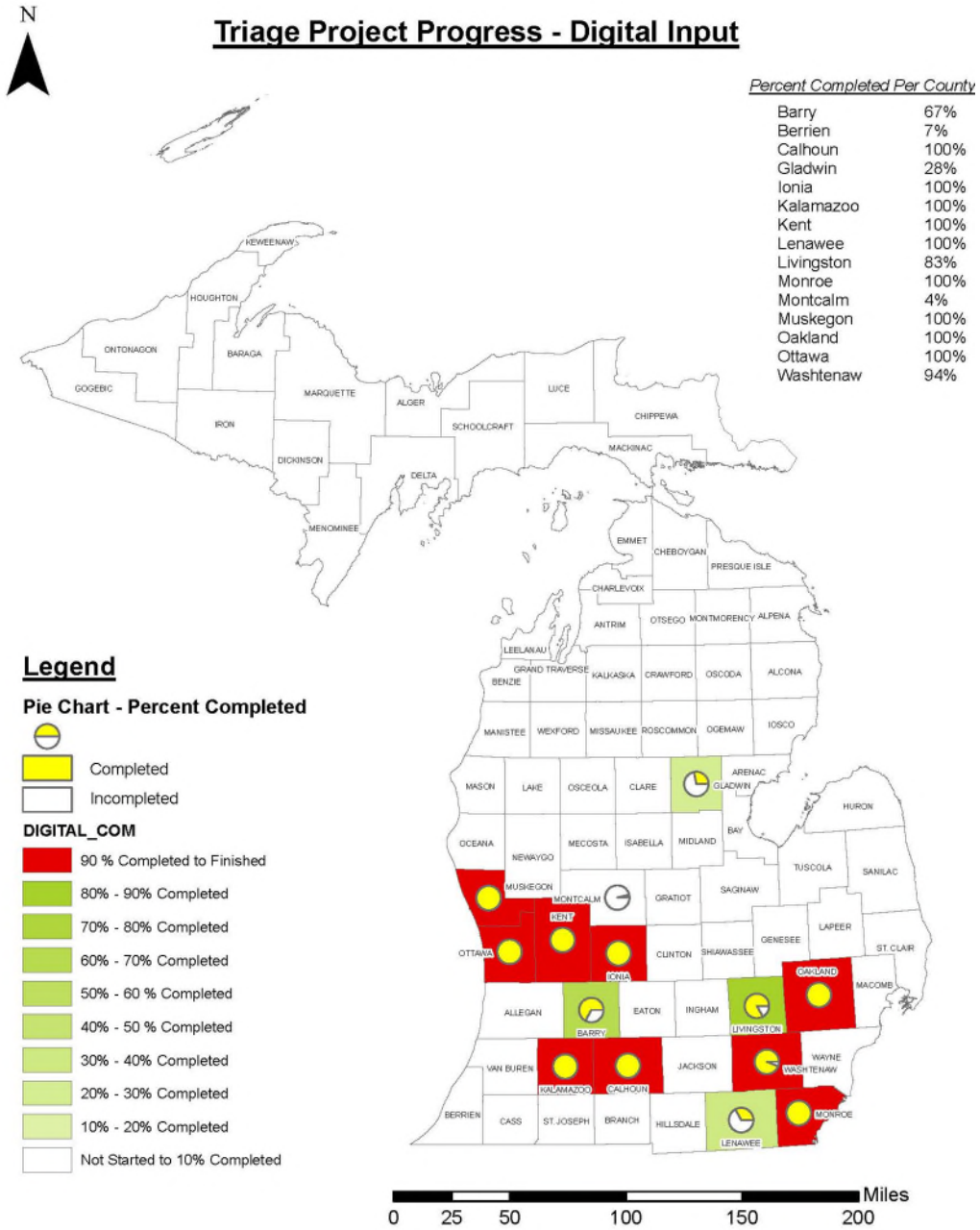
MGS reviewed locations **274,613**
107,344 were not located correctly=
39% not located correctly.
79,147 scanned logs in Wellogic
73,262 not input correctly **=93%** wrong
141,743 scanned logs input
7,294 paper logs input
503,477 completed ~503,477/1,200,000 = 42% Wellogic validation and input completed

This presents county summary and %



Q2- 2022 Project

Summary of Wellogic Location Validation



Q2-2022 Project

Summary of Scanned/ digital input from database.

Summary of 2018 Triage Submittals to EGLE

Quarter

Michigan Geological Survey (MGS)
Summary of Triage Sites submitted to MEGLE/MPART

	#	Submittal Date	Site name	County	City	RRD Office	Submitted to:	CC to	Notes:
3rd - 2018	1	27-Jun-18	North 34th Street	Kalamazoo	Richland	Lansing	Mike Jury	Mike Sweat Amy Peterson	Preliminary data
	2	13-Aug-18	North 34th Street	Kalamazoo	Richland	Lansing	Mike Jury	Mike Sweat Amy Peterson	PPT, Data summary table & data table
	3	13-Aug-18	Cherry Capital Airport	Grand Traverse	Traverse City	Lansing	Mike Jury	Mike Sweat Amy Peterson	PPT, Data summary table & data table
	4	13-Aug-18	Kellogg-Battle Creek Airport	Calhoun	Battle Creek	Lansing	Mike Jury	Mike Sweat Amy Peterson	PPT, Data summary table & data table
4th-2018	5	29-Oct-18	Robinson Elementary School	Ottawa	Robinson Twp	Grand Rapids	Abigail Hendershot	Mike Sweat Amy Peterson	Data summary table, Summ Report and Single set of PDF files
4th-2018	6	12-Dec-18	Ashley Avenue	Kent	Grattan Twp	Grand Rapids	Abigail Hendershot	Mike Sweat Amy Peterson	Data summary table, Summ Report and Single set of PDF files

Denotes Federal Facilities or there is an airport and/or Federal training area at the location.

August 2018, revised deliverables to 2 mile radius for data summary.

Summary of 2019 Triage Submittals to EGLE

1st - 2019	7	11-Jan	Muskegon Airport	Muskegon	Muskegon	Grand Rapids	Hendershott Peter Van Heest	Mike Sweat Amy Peterson	Data summary table, Summary Report, Single PDF files (12 files)
1st - 2019	8	8-Feb	Flint Bishop Airport - Landfill	Genesee	Flint	Lansing	Paul Bucholtz, Dennis Eagle	Mike Sweat Amy Peterson	Data summary Table, Summary PPT- 18 Figures, Transmittal Summary Repot
1st - 2019	9	9-Mar	Evergreen MHC	Ionia	Easton	Grand Rapids	Abigail Hendershott	Mike Sweat Amy Peterson	Data summary Table, Summary PPT- 12 Figures, Transmittal Summary Report
2nd- 2019	10	16-May	Ionia Biosolids	Ionia	Ronald/ City of Paleo	Lansing	Stephanie Kammer Sydney Ruhala	Mike Sweat Amy Peterson Mike Jury	Data Summary table, Summary PPT 10 figures, Transmittal Summary Report
2nd- 2019	11	21-May	IAC Mendon	St. Joseph	Mendon	Kalamazoo	Michael Baranoski Ray Spaulding	Mike Sweat Amy Peterson Mike Jury	Data Summary Table, Summary PPT 8 figures, Transmittal report
3nd- 2019	12	10-Aug	MI Milk Producers	St. Joseph	Constantine	Kalamazoo	David Heywood Erica Bays David Harn	Mike Sweat Amy Peterson Mike Jury	Data Summary Table, Summary PPT 9 figures, Transmittal report
3nd- 2019	13	25-Sep	Watson Township Dump	Allegan	Watson	Kalamazoo	David Heywood Ray Spaulding David Harn	Mike Sweat Amy Peterson Mike Jury	Data summary table, Summary PPT, 18 figures, Transmittal Report.
4th - 2019	14	21-Oct	Grayling Army Depot	Crawford	Grayling	Gaylord	Christiaan Bon Randy Rothe	Mike Sweat Amy Peterson Mike Jury	T25-26N R3-4W Data summary table, Summary PPT, 18 figures, Transmittal Report.
4th - 2019	15	21-Oct	Grayling Airport	Crawford	Grayling	Gaylord	Christiaan Bon Randy Rothe	Mike Sweat Amy Peterson Mike Jury	T25-26N R3-4W Data summary table, Summary PPT, 18 figures, Transmittal Report.
4th - 2019	16	21-Oct	Grayling MATES-Tank Training	Crawford	Grayling	Gaylord	Christiaan Bon Randy Rothe	Mike Sweat Amy Peterson Mike Jury	T25-26N R3-4W Data summary table, Summary PPT, 18 figures, Transmittal Report.
4th - 2019	17	11-Nov	Michner Plating	Jackson	Jackson	Jackson	Gerald Tiernan Jayamani Indumathy	Mike Sweat Amy Peterson Mike Jury	T2S; R1W; Sect 22 Data summary table, Summary PPT, 19 figures, Transmittal Report.

Denotes Federal Facilities or there is an airport and/or Federal training area at the location.

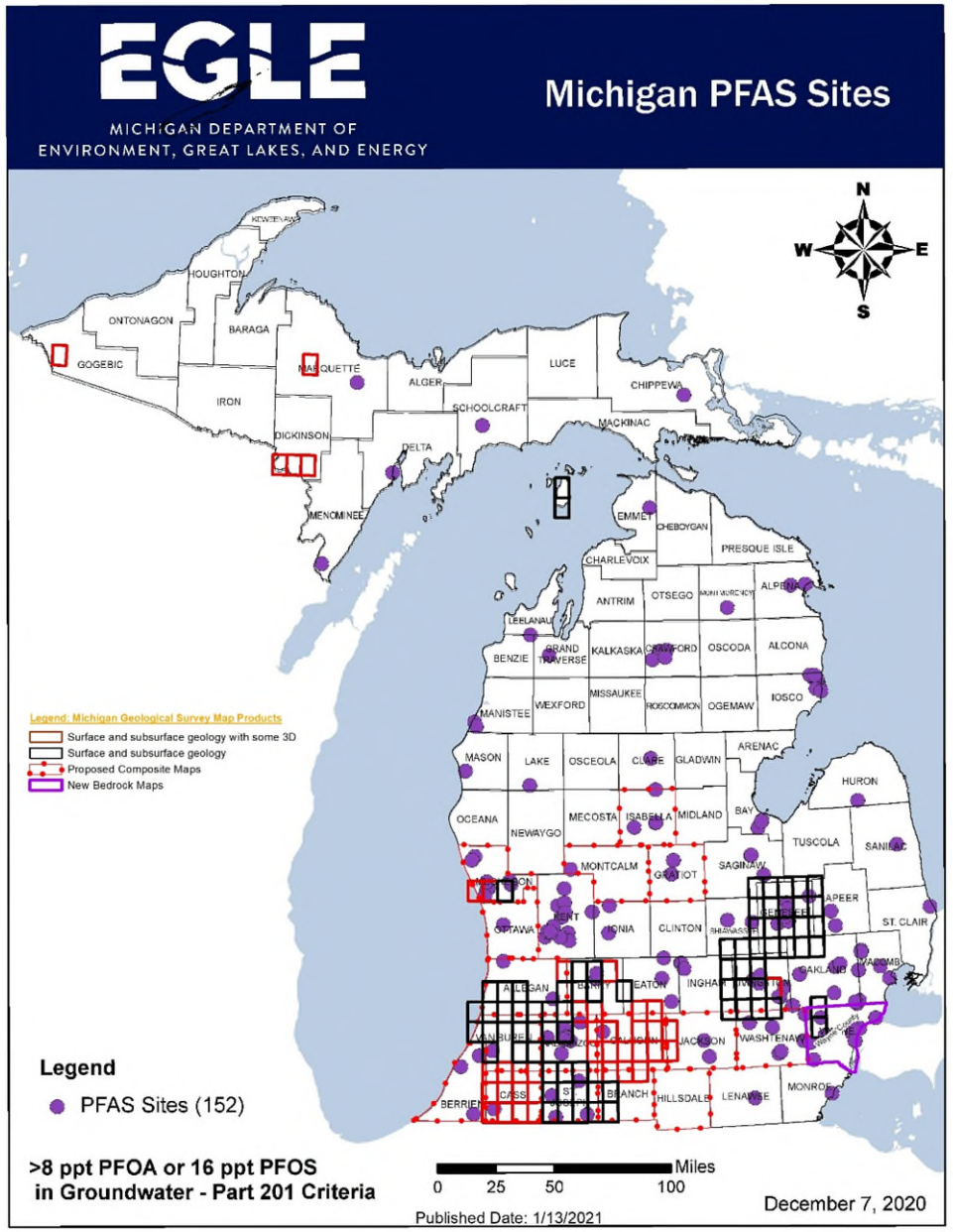
Summary of 2020-21 Triage Submittals to EGLE

	#	Submittal Date	Site name	County	City	RRD Office	Submitted to:	CC to	Notes:
1st - 2020	18	24-Mar	**37 locations provided by MPART for 1 mile.**	31 Counties			Kelly Ploehnk	Mike Sweat Amy Peterson	Surface and water well summary of 37 locations, Groudwater flow direction, # wells in 1 mile radius & # downgradient to MPART.
2nd- 2020	19	12-Apr	Chevy Commons	Genesee	Flint	Lansing	Paul Bucholtz, Dennis Eagle	Mike Sweat Amy Peterson Mike Jury	T7N: R6E; Sec 13 Data summary table, Summary PPT, 12 figures, Transmittal Report.
	20	23-Apr	Manistee Landfill	Manistee	Filer	Cadillac	Kaitlyn Bertram Steve Kitler	Mike Sweat Amy Peterson Mike Jury	T21N: R17W; S24 Data summary table, Summary PPT, 10 figures, Transmittal Report.
4th - 2020	21	1-Oct	1279 Rickett Road	Livingston	Brighton	Lansing	David LeBrecque; Rebecca Taylor	Mike Sweat Amy Peterson Mike Jury	T1N; R6E; Sec 31 Data summary Table, Summary PPT 15 figures, Transmittal Report
	22	17-Nov	10700 0 H Road Army Aviation Support Facility	Grand Ledge	Clinton	Lansing	Kim Sakowski	Mike Sweat Amy Peterson Mike Jury	T5N; R3E; Sec 36 Data summary Table, Summary PPT 14 figures, Transmittal Report
3rd- 2021	23	29-Aug	Fowlerville Landfill	Livingston	Fowlerville	Lansing	Rebecca Taylor David LeBrecque	Mark Snow Amy Peterson Mike Jury Matt Gamble	T3N; R3E; Sec 13 Data summary Table, Summary PPT 17 figures, Transmittal Report
3rd- 2021	24	5-Sep	Lucy Landfill	Livingston	Howell	Lansing	Rebecca Taylor David LeBrecque	Mark Snow Amy Peterson Mike Jury Matt Gamble	T3N; R4E; Sec 6 Data summary Table, Summary PPT-20 Transmittal Report
4th - 2021	25	6-Oct	Pollard Landfill	Genesee	Montrose	Lansing	Evin McGuire	Mark Snow Amy Peterson Mike Jury Matt Gamble	T9N; R5E; Sec 22 Data summary Table, Summary PPT-20 Transmittal Report
4th - 2021	26	10-Dec	Anderson Landfill	Oakland	Novi/Northville	Warren	Kevin Wojciechowski Mary Miller Cheryl Wilson	Mark Snow Amy Peterson Mike Jury Matt Gamble Mary Miller	T1N; R8E; Sec 33, Data summary Table, Summary PPT-25, Transmittal Report, Type I& II logs-poor data
4th - 2021	27	19-Dec	Wexford ISD		Cadillac	Lansing	Sara Pearson	Abigail Hendershott Mark Snow Amy Peterson Mike Jury Matt Gamble	T22N; R9W; Sec27, Data summary Table, Summary PPT-21, Transmittal Report, Type I& II logs-poor data
								Mark Snow	Sec 3, T3N; R3W, Dimondale

Summary of 2022 Triage Submittals to EGLE

1st - 2022	28	1/31/2022	MSP Secondary Complex	Eaton	Dimondale	Lansing	Kim Sakowski Evin Maquire	Mark Snow Amy Peterson Mike Jury Matt Gamble	Sec 3, T3N; R3W. Dimondale, Data summary Table, Summary PPT-21, Transmittal Report, Excel summary of wells
1st - 2022	29	12-Feb	Newaygo Farms	Oceana	Walkerville	Grand Rapids	Aaron Assmann	Mark Snow Amy Peterson Mike Jury Matt Gamble	Sec 13, T 15N: R 15W, Hilltop Data summary Table, Summary PPT-21, Transmittal Report
1st - 2022	30	12-Feb	Hilltop Longview,	Newaygo	Hisperia	Grand Rapids	Aaron Assmann	Mark Snow Amy Peterson Mike Jury Matt Gamble	Sec 30, T15N+A25:J38; R14W, Longview, Data summary Table, Summary PPT-21, Transmittal Report

- **MGS has completed 30 Location data summaries, most at 2 mile radius,**
- **Plus 37 - 1 mile radius for a total of 67 locations.**



Where do we need geologic data?

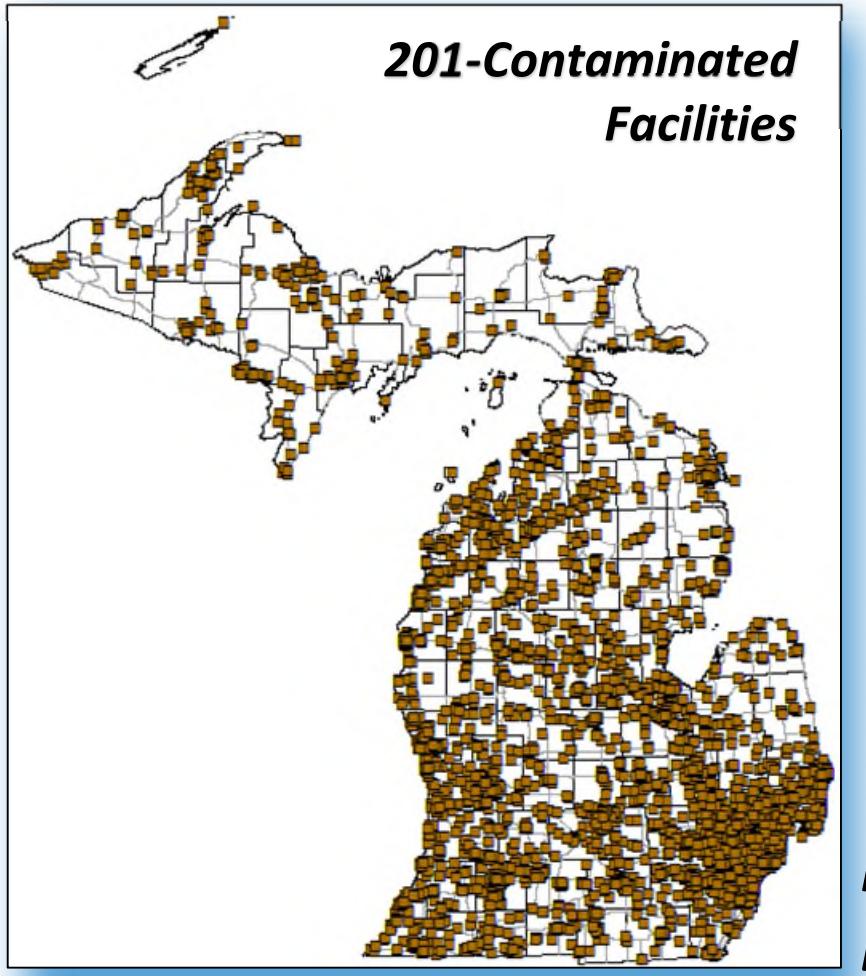
PFAS areas versus mapping

- Perfluorinated Alkyl Substances (PFAS) – Soils and water.
- Multiple locations throughout Michigan and there may be more.
- Where Michigan has open file subsurface geologic data.
- What's wrong with this picture?
- Red and Black outlines represent MGS mapping products.
- 13 red outlined counties from WRD--HC needing geologic data.
- MPART- PFAS 46 counties needing geology.

Let's review the history of Data!

EGLE -Estimated 30,000 sites

Hazardous Substances Released to the Environment



1980's Pre – CERCLA to present-geologic data

No geologic data compilation

EGLE is now working on a database

Summary of total project at current production

- Wellogic is the ONLY Michigan database with any subsurface information.
- EGLE, DNR, MDARD, all state departments, agencies, counties, consultants, well drillers, engineers, citizens use the Wellogic database.
- Until the locations were validated, Wellogic was a guess for small areas.
- What is important about the data to mapping.
  - Location, water levels, dates, lithology/terms, depth, screen location plus other data. MGS uses Wellogic to provide preliminary water and subsurface information.

Michigan Geological Survey

Summary as of May 1, 2015

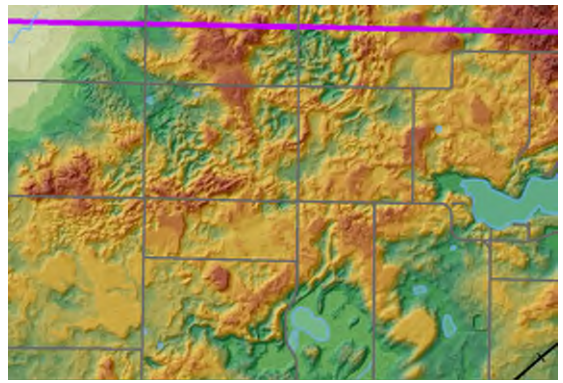
MICHIGAN GEOLOGICAL SURVEY (MGS) - STATE DATA SUMMARY

WITH DATA LOCATION NOTED

County	Number of RRD site entries in Environmental Mapper	RRD Files	Oil and Gas (OOGM) permitted boreholes	Wellogic water wells	Number of O&G Wireline log files -MGRRE	Shallow bedrock cored wells at MGRRE-WMU	Drill cuttings sets MGRRE
Alcona	108		934	3,300	755	0	73
Alger	56		0	2,286	4	0	1
Allegan	1,642		3,473	11,927	654	0	892
Alpena	321		1,469	2,877	1,367	2	116
Antrim	208		2,750	4,356	2,291	0	181
Arenac	362		1,076	2,498	457	0	731

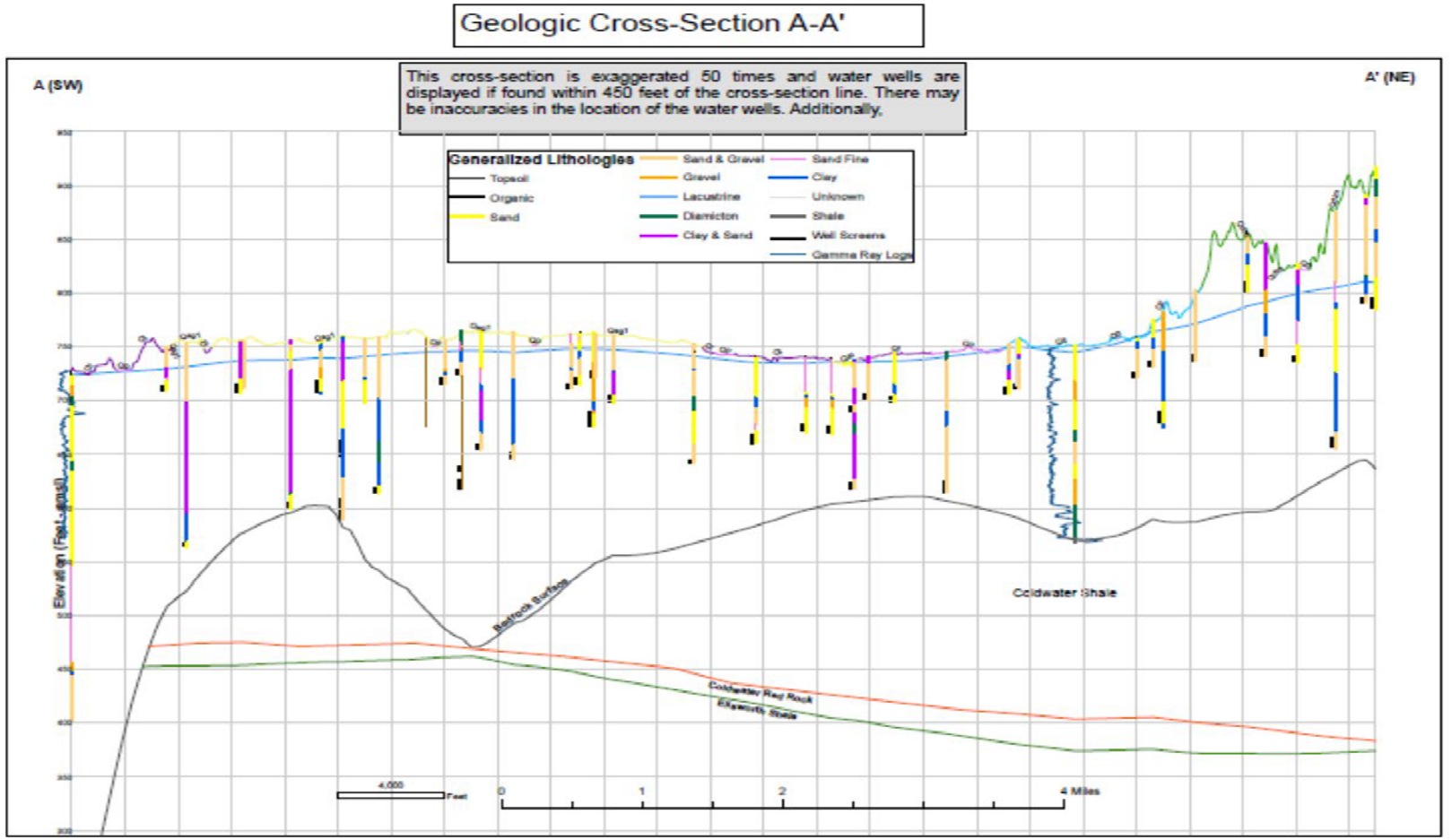
Thank you

Questions?



269-387-8649 john.a.yellich@wmich.edu

MGS Map product - Report



MICHIGAN PFAS ACTION RESPONSE TEAM (MPART)

www.Michigan.gov/PfasResponse

EGLE
MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

Michigan Department of Agriculture & Rural Development

MDHHS
Michigan Department of Health & Human Services

MDOT
Michigan Department of Transportation

DEPARTMENT OF NATURAL RESOURCES DNR MICHIGAN

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