

GEO-INFORMATION MANAGEMENT AT ALAMOS GOLD

ALAMOS GOLD INC.
Exploration Department

By Fernando Lopez
July 2017

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Our Path

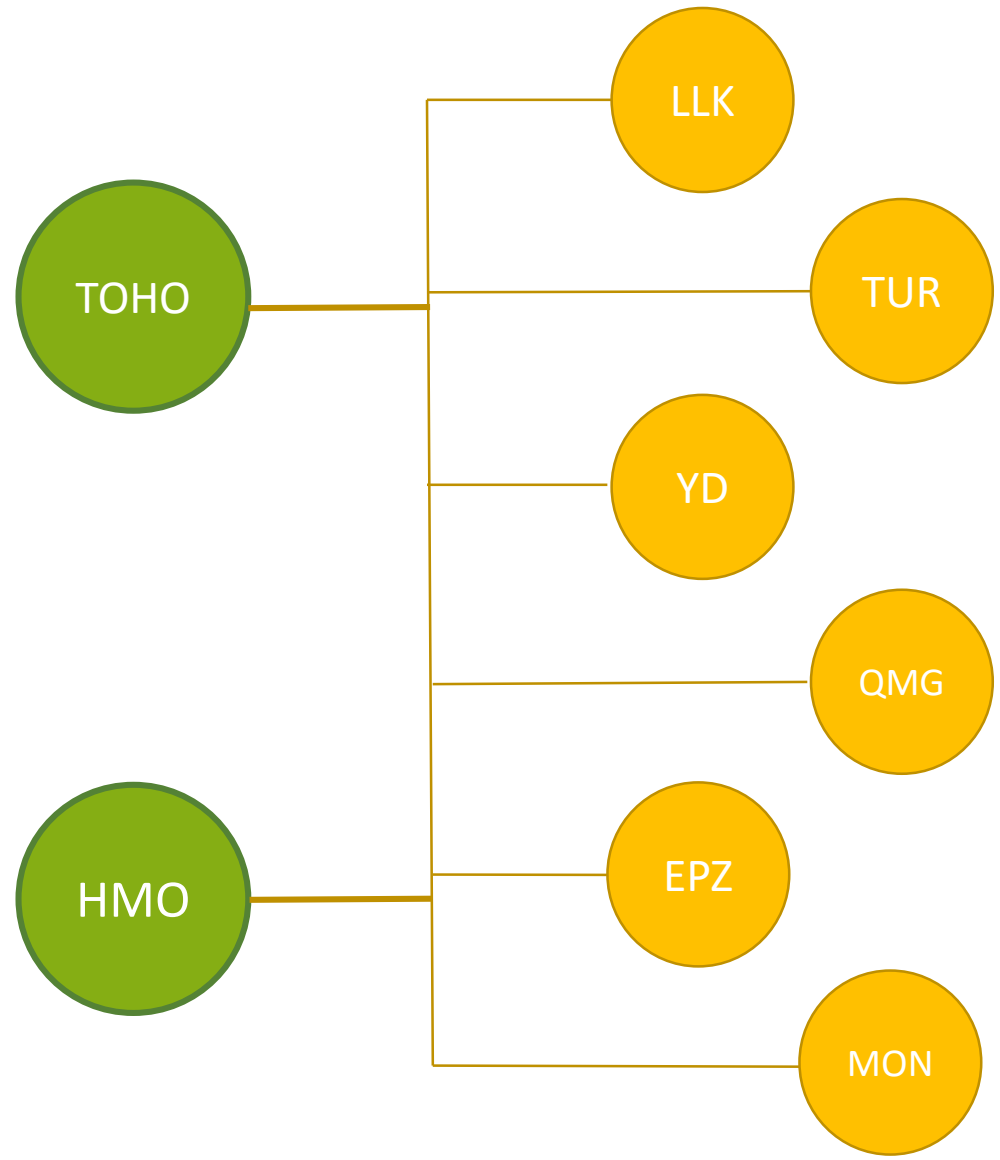
04

ArcGIS APPs

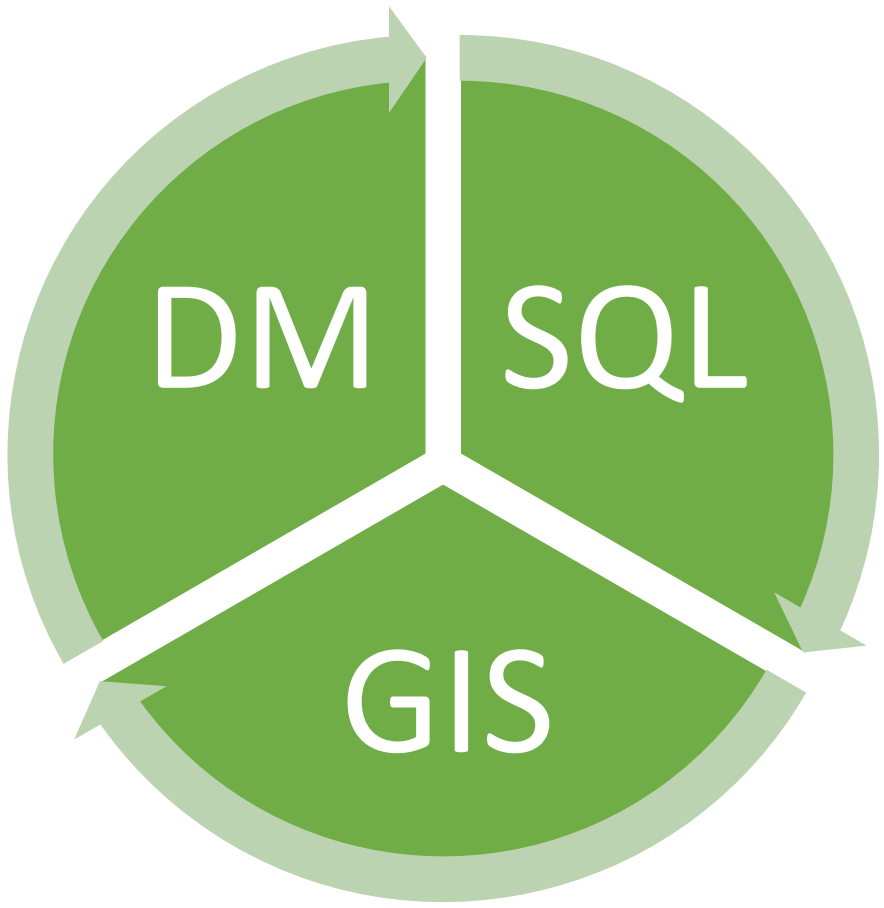
ALAMOS GOLD



GEO-INFORMATION
GROUP



BACKGROUND



Stages of Mineral
Exploration &
Development



BACKGROUND

01

Prospecting

10 000-1 000 000 km²

Up to 10
(million
US\$)

- Surface Datasets
- Databases
- Tech. reports

< 5 TB of
information

02

Advanced
Exploration

1 000
- 10 000
km²

Up to 100
(million US\$)

- Surface Datasets
- **Sub-Surface Datasets**
- Databases
- Technical Reports

> 3 - 4 TB of information

THE CHALLENGE
2013

2013

What data are we capturing? Is this data **enough**? **How** to best collect data? Where to **store** our data? Can we all **share** it? Is it **secure**?

01 Prospecting

Remote Sensing

Geochemistry

Geophysics

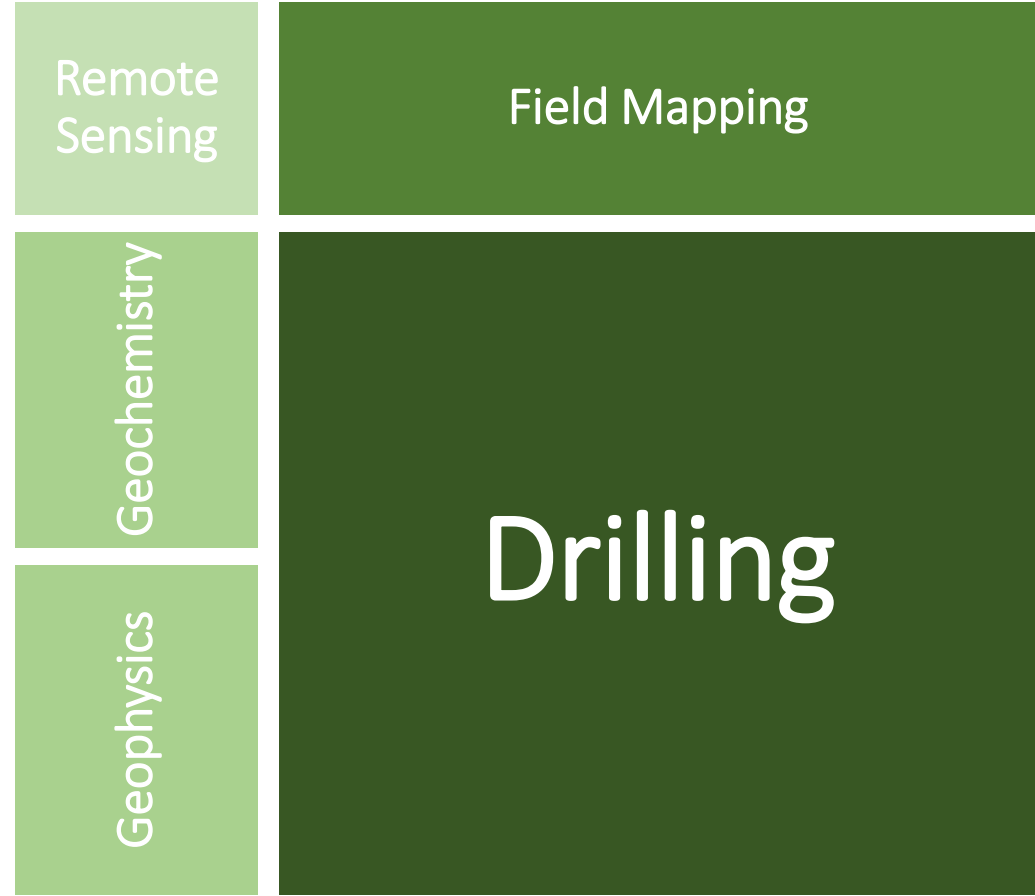
Field Mapping



90% Spatial Data

- Data is not structured
- Different formats
- Paper maps
- Duplicated datasets
- Multiple locations

02 Advanced Exploration



CHALLENGE

OF WELL:

Depth

0-5

5-10

10-15

15-20

20-25

25-30

30-35

35-40

40-45

45-50

50-55

55-60

60-65

65-70

70-75

75-80

80-85

85-90

90-95

95-100

100-105

105-110

110-115

115-120

120-125

125-130

130-135

135-140

140-145

145-150

150-155

155-160

Depths

OF WELL:

Depths	Graphic Section	Rock Type	Color		Grain Size		Misc
			Mode	Range	Mode	Range	
0-5		Sand	Lt yl bn	Fn	Vfn/VC	Weathered dolomit	
5-10						NO SAMPLE, Driller reports same as preceding interval	
10-15		Sand	Lt yl bn	Fn	Vfn/VC	Weathered dolomit	
15-20		"	"	"	"	Same plus little	
20-25		"	"	"	"	Same,	
25-30		Clay	lylbn/dpkn	--	--	Dolomitic, Much	
30-35		"	"	--	--	Same but little	
35-40		"	"	--	--	Same plus much dk	
40-45		Dolomite	Rn yellow	Fn	Fn/M	Wea. Little cav	
45-50		"	"	"	"	Wea. Moh wh to y	
50-55		"	Lt yl bn	M	"	Same,	
55-60		"	"	"	"	Same plus trace	
60-65		"	"	"	"	Same,	
65-70		"	Ylbn/dpkn	"	"	Wea. Moh bn nott	
70-75		"	"	"	"	Same,	
75-80		"	Lt yl bn	"	"	Wea. Moh bn nott	
80-85		"	"	"	"	Same,	
85-90		"	"	"	"	"	
90-95		"	"	"	"	Powdered, Much	
95-100		"	V pl brown	Fn	"	Same plus much	
100-105		"	Yellow	"	"	Powdered, Little	
105-110		"	"	"	"	Same plus trace	
110-115		"	V pl brown	"	"	Powdered, Much	
115-120		"	"	"	"	Same but trace	
120-125		"	"	"	"	Same,	
125-130		"	Yl brown	M	"	Few ool, qtz xls	
130-135		"	Lt yl bn	"	"	Same,	
135-140		"	"	"	"	Mny ool, Lt flt	
140-145		"	"	"	"	Same,	
145-150		Ss & dol	"	M/M	/Fn/VC/Fn/M	Srnd, Powd (dol)	
150-155		"	"	"	"	Same but few ool	
155-160		"	"	"	"	Srnd, Powd (dol)	

~ 30% Spatial Data

- Data is not structured
- Different formats
- Paper logs
- Duplicated datasets
- Multiple locations

CHALLENGE



CHALLENGE



Technology

- No standard software
- Outdated hardware
- Information silos

Process

- No workflows
- Missing key data processes
- Duplication of effort

People

- Lack of training
- No sharing culture
- No information specialists

OUR PATH
2014

GLOBAL DATA
MANAGEMENT
PROGRAM

(GDMP)

Goal

Our mission is to organize AGI's Exploration information and make it globally accessible and useful.

Scope

All exploration sites company-wide.

Time Frame

2 years

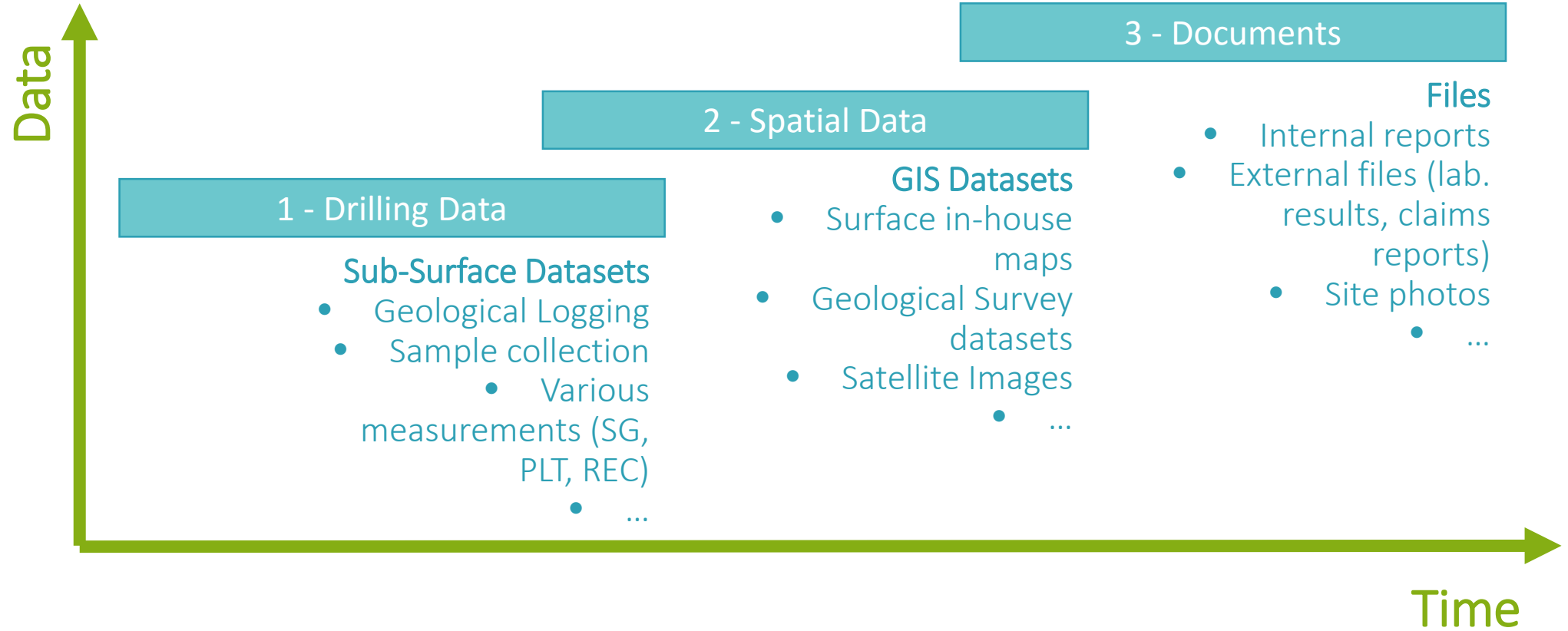
Budget

CA\$ 500,000

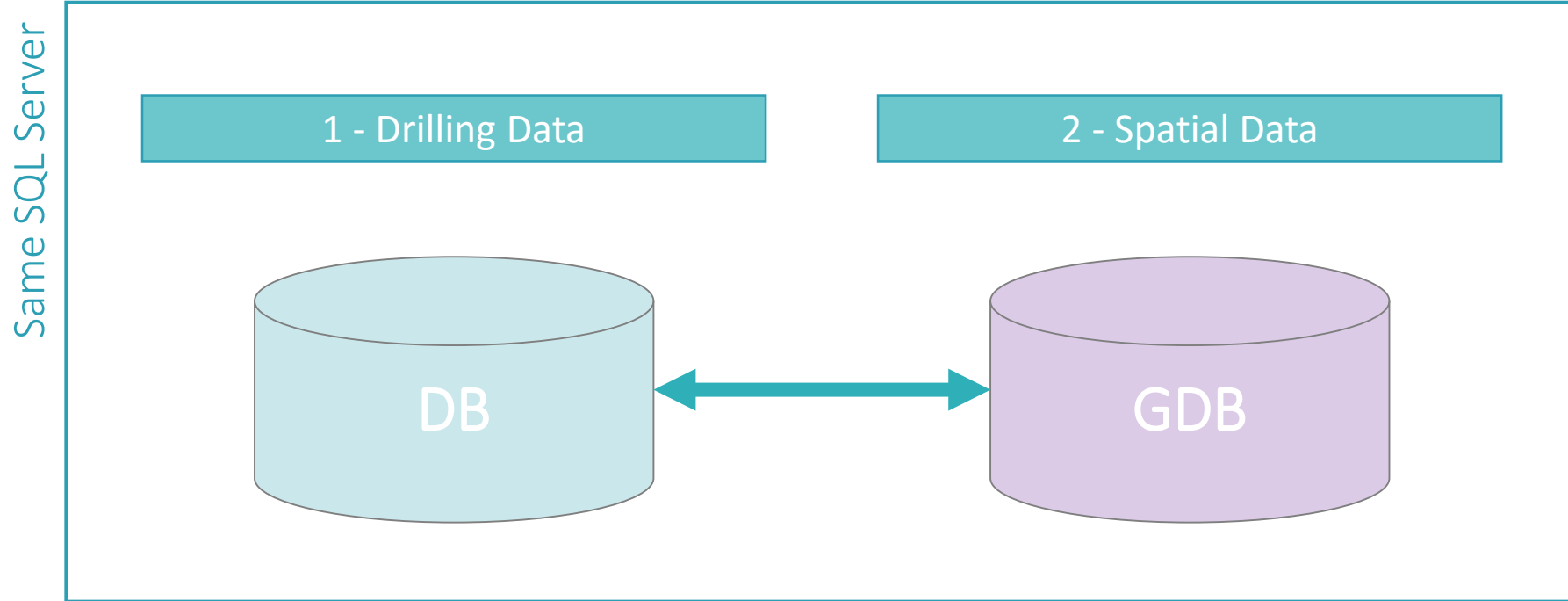
Staff

01

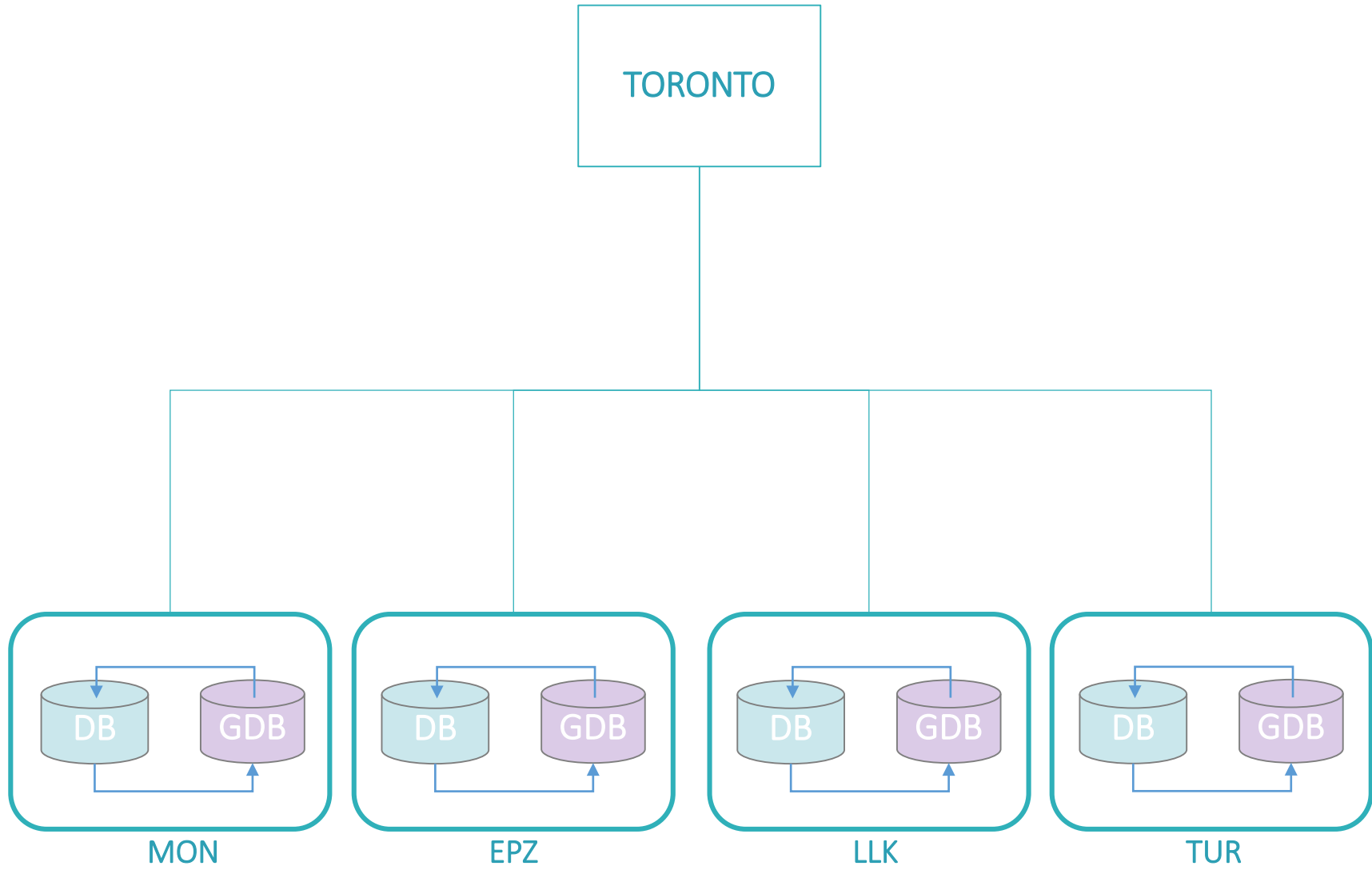
PROJECT DEFINITION



SYSTEM INTEGRATION



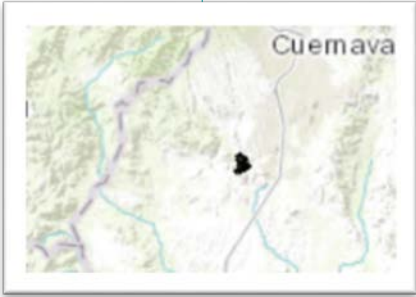
OUR PATH



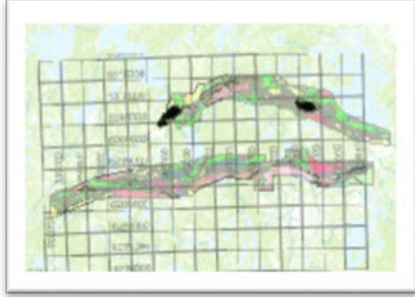
TORONTO



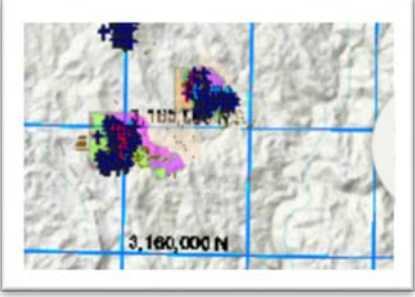
MON



EPZ



LLK

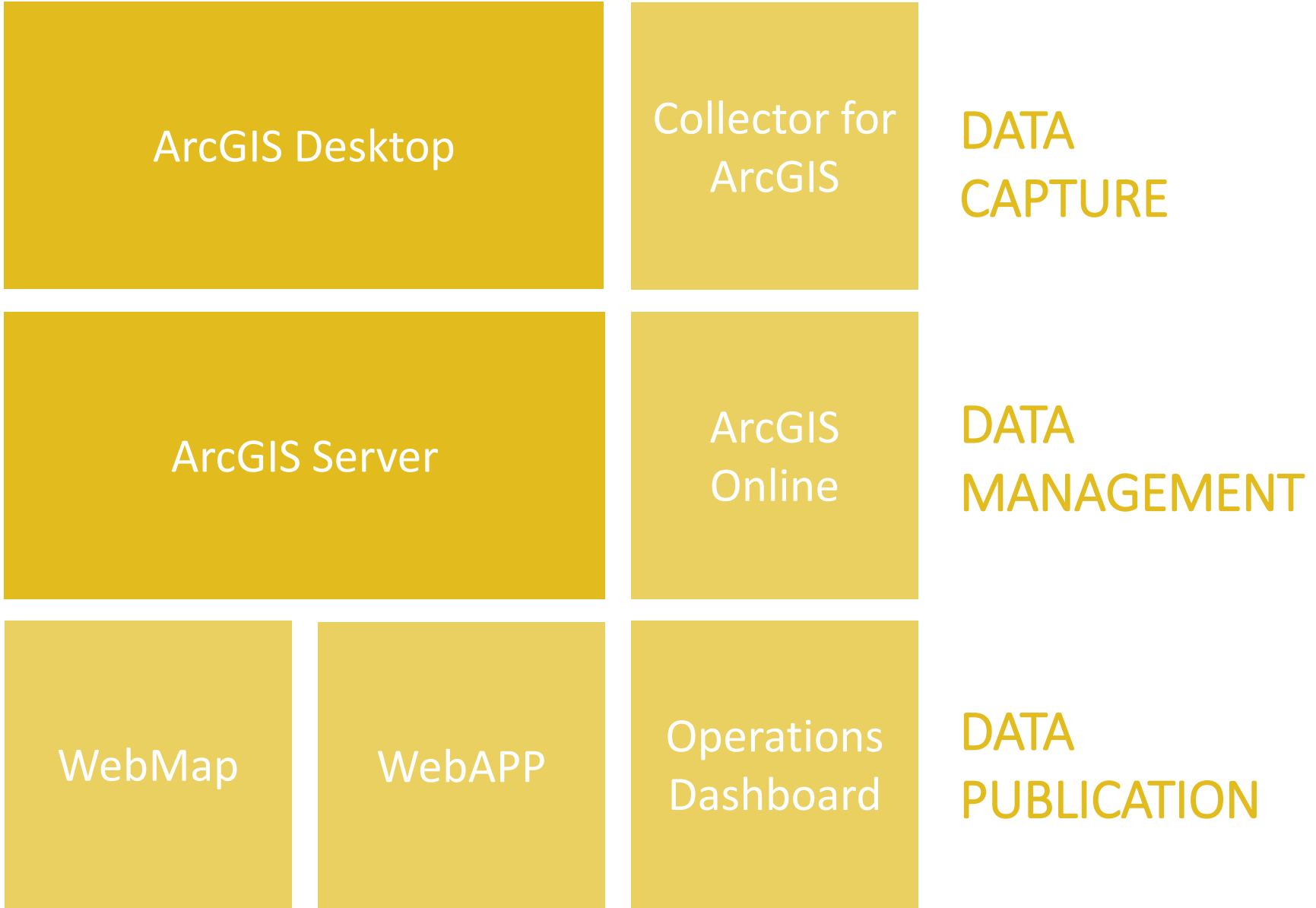


TUR

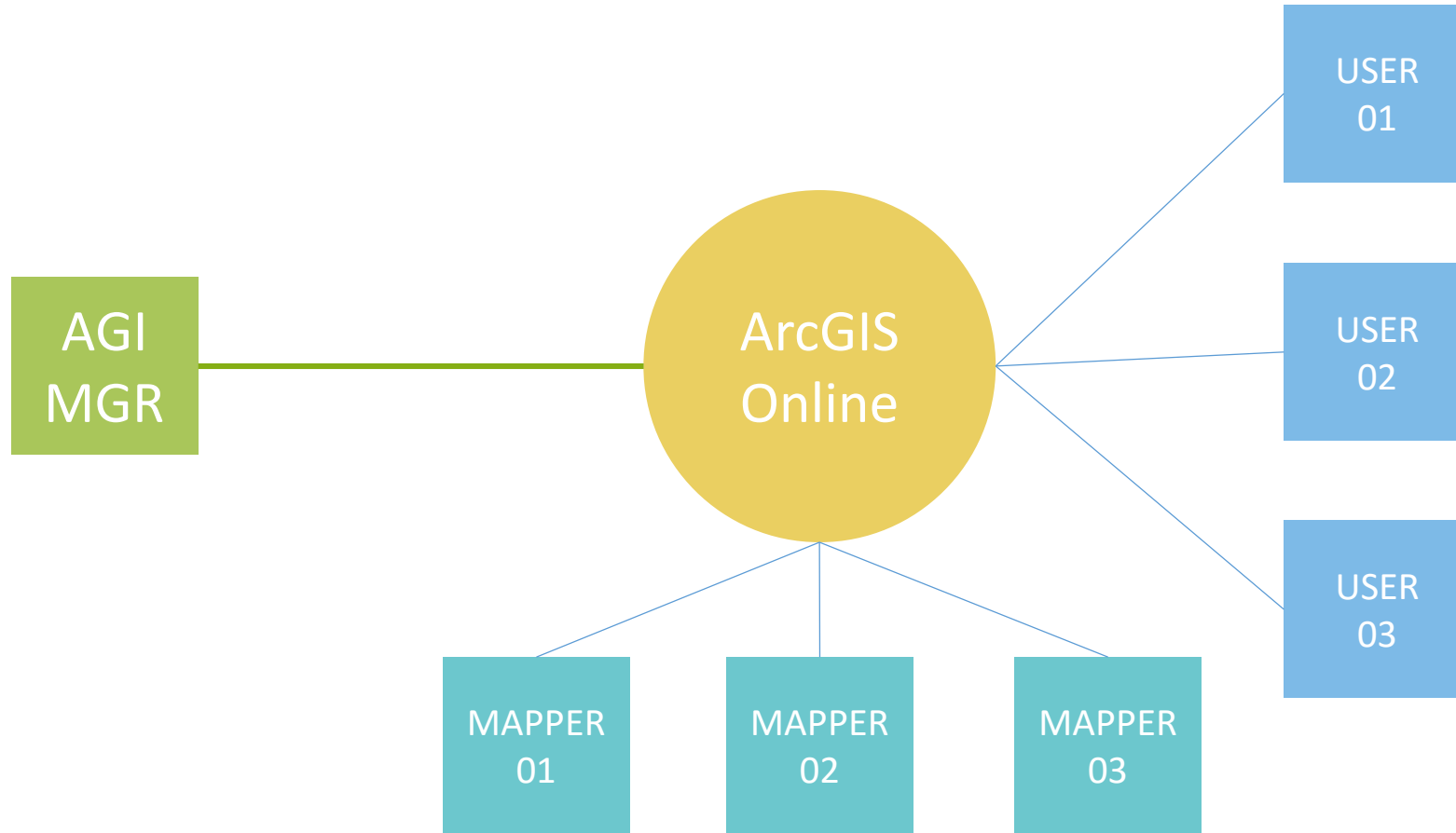
2016

What data are we capturing? Is this data **enough**? **How** to best collect data? Where to **store** our data? Can we all **share** it? Is it **secure**?

ESRI SOFTWARE



Data capture | COLLECTOR FOR ARCGIS



Data capture | COLLECTOR FOR ARCGIS



Data Management | ArcGIS ONLINE

Home Gallery Map Scene Groups My Content My Organization

MGR

AGI

Exploration Department

CHANATE - MAY

ESPERANZA - MAY

LLK - SEPTEMBER

MULATOS - SEPTEMBER

www.alamosgold.com

Geo-Information Group

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Data Management | ArcGIS ONLINE

Home Gallery Map Scene Groups My Content My Organization

My Content

Folders

NEW DELETE

- AGIMGR (Home)
- AGI_CHA
- AGI_EPZ
- AGI_LLK
- AGI_MON
- AGI_MONOTHERS
- AGI_QMZ
- AGI_TUR
- AGI_YD
- GLOBAL
- REG_MTB
- REG_NEV
- REG_ONT
- REG_ORG
- REG_SON

Show

- All
- Maps
- Layers

+ Add Item Create Share Del

Title

Add and share

This is where you can add your maps and apps or Click + Add item to add your content or click a li

- + Adding your maps and apps
- Sharing with others

ALAMOS GOLD INC

Created On: 10/16/2015 | Renewal Date: 6/1/2017 | Credits Remaining: 1,451.46

Quick Date Select Start: 9/20/2016 End: 10/4/2016

Credits Content Apps Members Groups

Sep 20, 2016, 12:00:00 AM GMT to Oct 4, 2016, 8:55:34 PM GMT
Interact with the charts, tables and map in this report to explore content activity and usage

Content Summary

5 Items This Period | 1 Contributors

Contributors

Member	Items
MGR AGE	1

Content Details

Category	Count
File	2
Layer	2
Map	1

Filters: None

Sharing Summary

Sharing Type	Count
Public	3
Private	2
Organization	0
Group	0

Tags in Items

Item Name	Type	Member	Access
MULATOS - OCTUBER	Web Map	MGR AGE	Organizati...
MON_20161004_DRILLSSAMPLE	Service Definition	MGR AGE	Private
MON_20161004_DRILLSSAMPLE	Feature Service	MGR AGE	Organizati...
MON_20161004	Feature Service	MGR AGE	Organizati...
MON_20161004	Service Definition	MGR AGE	Private

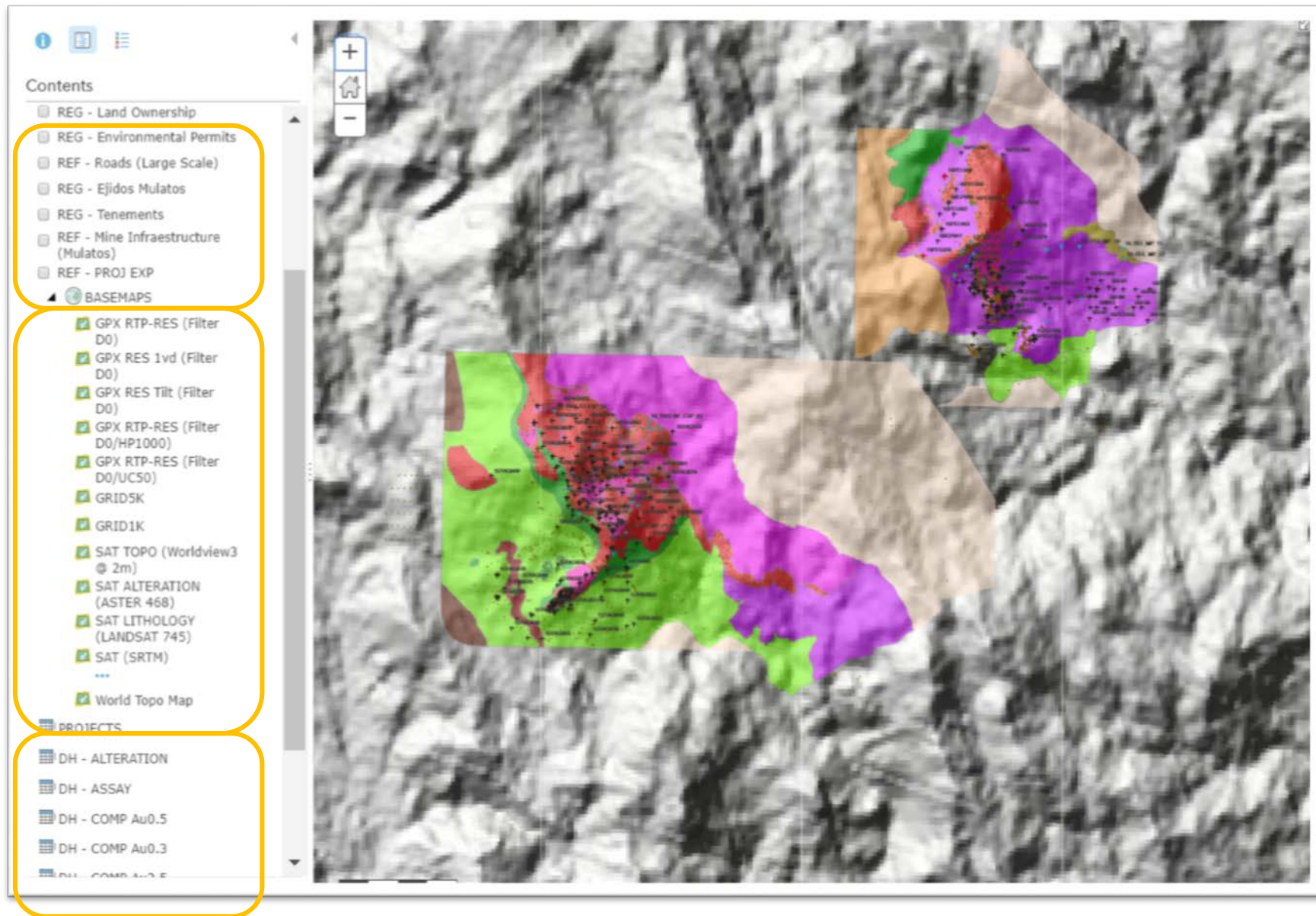
DRILLING EXPLORATION MON
MULATOS OCTUBER 2016 UPDATE GIS

Data Publication | WebApp

Vector Datasets
(from GDB)

Raster Datasets
(from GDB)

Drilling Datasets
(from SQL DB)

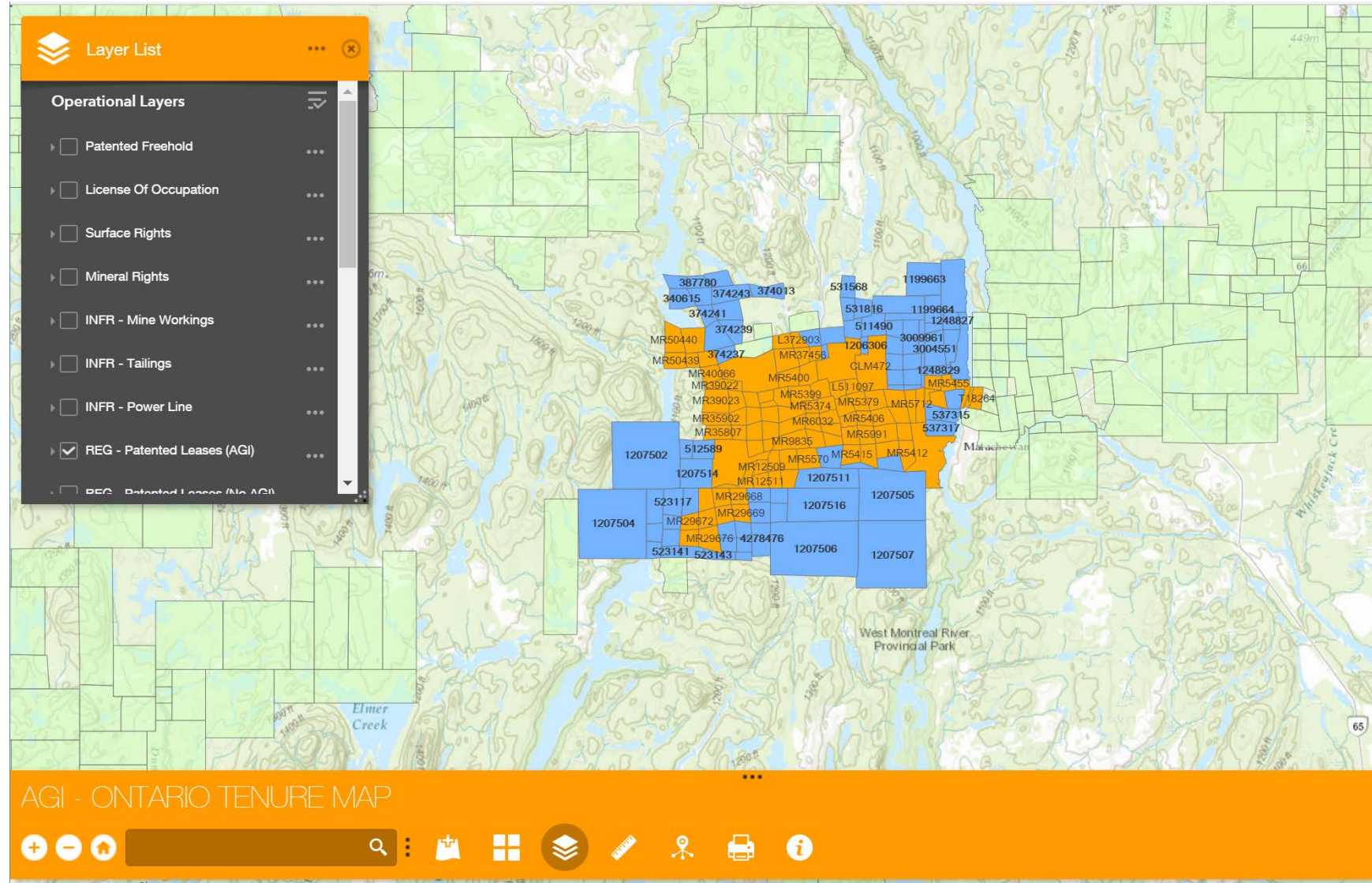


- REG - Land Ownership
- REG - Environmental Permits
- REF - Roads (Large Scale)
- REG - Ejidos Mulatos
- REG - Tenements
- REF - Mine Infraestructure (Mulatos)
- REF - PROJ EXP

- BASEMAPS
 - GPX RTP-RES (Filter D0)
 - GPX RES 1vd (Filter D0)
 - GPX RES Tilt (Filter D0)
 - GPX RTP-RES (Filter D0/HP1000)
 - GPX RTP-RES (Filter D0/UC50)
 - GRID5K
 - GRID1K
 - SAT TOPO (Worldview3 @ 2m)
 - SAT ALTERATION (ASTER 468)
 - SAT LITHOLOGY (LANDSAT 745)
 - SAT (SRTM)
 - World Topo Map

- PROJECTS
 - DH - ALTERATION
 - DH - ASSAY
 - DH - COMP Au0.5
 - DH - COMP Au0.3
 - DH - COMP Au0.1

Data Publication | WEBAPP



Data Publication | OPERATIONS DASHBOARD

ONTARIO TENURE

>> ACTION LIST

Results for 'Claims - Next 2 months'

Last executed: **6/4/2017 12:52:30 PM**

Number of results: **13**

Limit the results to the current map extent.

Features:

Show

Zoom to

Select

Re-execute

13

Unpatented Mining Claims Require Attention

CAD \$ 4,516.00

Claim Paperwork Due - CAD \$

13

Unpatented Mining Claims

CLAIM_NUM 374013

HOLDER ALAMOS GOLD INC. (100.00%)

STATUS Active

STK_DATE July 19, 1980

EXP_DATE September 3, 2020

WORK_REQ 400.00

WORK_TODATE 11,600.00

DUE_DATE July 19, 2017

83 Claims

Total Claims Held by Alamos Gold

1,465,667.60 CAD \$

Unpatented Mining Claims

CLAIM_NUM	Due Date	Completed
1199662	August 25, 2017	NO
1199663	August 25, 2017	NO
1199664	August 25, 2017	NO
1206147	April 3, 2017	YES
1206148	April 3, 2017	YES
1206150	April 3, 2017	YES
1206306	November 13, 2017	NO
1207501	April 5, 2017	YES
1207502	April 5, 2017	YES
1207503	April 5, 2017	Completed:
1207504		

What's next?



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