

November 10, 2020

GPS Was Here

Tracking Monitoring Events and Path

Energy lives here™

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Optical Gas Imaging Stakeholder Workshop

Preliminary DRAFT

Value of GPS in Leak Detection & Repair (LDAR) Programs

Current Uses in LDAR with Method 21

- Location finding for LDAR components
- Validation tool for monitoring activity technicians
- Mapping of emission points

Potential Uses in LDAR with Optical Gas Imaging (OGI)

- Same value-added functions as M21
- Provides reliable alternative recordkeeping option to continuous/individual video recording requirements in existing Alternative Work Practice (AWP).
- Requires no new technology or work practices – GPS already a mature work process

Exemplar Use of GPS – Assigned GPS Coordinates

Each regulated component can have an assigned GPS coordinate (lat/long)

The screenshot shows a software interface for managing a component. The active tag is 5-08841. The component is a VALVE of Type GATE. The location is #1 PAD HSP BLK PG, with assigned GPS coordinates: Longitude -91.1792297363281, Latitude 30.4923458099365, and Altitude 16.4041996002197. A yellow arrow points to the Latitude field. The process stream is 00840-MARYLAND AVG LIQUID, and the chemical state is LIGHT LIQUID. The date added to unit is Tuesday, November 25, 1997.

I	Del	Regulation	Rule	Group	Begin	End	Exmpt	NDE	DMS	LLD	NRML	Freq
*	<input type="checkbox"/>	Consent Decree	CDVALA3		4/1/2020	6/30/2020		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	QE
	<input type="checkbox"/>	LA-NON	LANONVALN2		7/1/2020	9/30/2020		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	QE

Exemplar Use of GPS – Captured GPS Coordinates

The GPS coordinates are recorded for each monitoring event which can be used to plot the route or time/sequence comparison of monitoring events.



	NetReading	Pass_Fail	Inspector	LocationDescript...	ScanStartTime	ScanSeconds	Longitude	Latitude	Altitude	Sate
	1	Passed	M2339	#1 PAD HSP BLK...	6/1/2020 7:02:36 AM	15	-91.1792221069336	30.49229431152...	-3.28083992004395	
	0	Passed	M2339	#1 PAD HSP BLK...	6/1/2020 7:03:14 AM	26	-91.1792297363281	30.49230766296...	6.56167984008789	
	0	Passed	M2339	#1 PAD HSP BLK...	6/1/2020 7:05:04 AM	18	-91.1792297363281	30.49234580993...	16.4041996002197	
	0	Passed	M2339	#1 PAD HSP BLK...	6/1/2020 7:05:34 AM	17	-91.1792221069336	30.492317199707	-3.28083992004395	
	0	Passed	M2339	#1 PAD HSP BLK...	6/1/2020 7:06:15 AM	16	-91.17919921875	30.492317199707	6.56167984008789	
	59	Passed	M2339	#1 PAD HSP...	6/1/2020 7:07:51 AM	30	-91.1792602539063	30.49235153198...	-9.84251976013184	
	0	Passed	M2339	#1 PAD HSP...	6/1/2020 7:09:54 AM	21	-91.1792907714844	30.49236106872...	-9.84251976013184	
	0	Passed	M2339	1 PAD HSP BLK...	6/1/2020 7:10:26 AM	21	-91.1792907714844	30.492359161377	-6.56167984008789	
	43	Passed	M2339	1 PAD MOTOR...	6/1/2020 7:11:34 AM	30	-91.1793212890625	30.49230957031...	-16.4041996002197	
	1	Passed	M2339	1 PAD MOTOR...	6/1/2020 7:12:37 AM	18	-91.179313659668	30.492317199707	6.56167984008789	
	0	Passed	M2339	1 PAD MOTOR...	6/1/2020 7:13:25 AM	19	-91.1792984008789	30.49233627319...	19.6850395202637	
	0	Passed	M2339	1 PAD MOTOR...	6/1/2020 7:14:26 AM	17	-91.1792755126953	30.49231147766...	3.28083992004395	
	0	Passed	M2339	1 PAD MOTOR...	6/1/2020 7:14:58 AM	17	-91.1792373657227	30.49237060546...	6.56167984008789	
	2	Passed	M2339	1 PAD PFFD BLK	6/1/2020 7:16:28 AM	20	-91.1792297363281	30.49241065979	13.1233596801758	
	0	Passed	M2339	1 PAD PFFD	6/1/2020 7:16:55 AM	18	-91.1792221069336	30.49243354797...	16.4041996002197	
	16	Passed	M2339	1 PAD PFFD	6/1/2020 7:17:24 AM	18	-91.1792144775391	30.49245834350...	19.6850395202637	
	0	Passed	M2339	1 PAD PFFD	6/1/2020 7:17:52 AM	16	-91.1792068481445	30.49248123168...	22.9658794403076	
	0	Passed	M2339	1 PAD MOTOR...	6/1/2020 7:19:05 AM	15	-91.1791839599609	30.49254417419...	32.8083992004395	
	6	Passed	M2339	1 PAD MOTOR...	6/1/2020 7:19:41 AM	23	-91.1791610717773	30.49255180358...	42.6509170532227	
	1	Passed	M2339	1 PAD MOTOR...	6/1/2020 7:20:34 AM	19	-91.1791610717773	30.492582321167	36.0892372131348	

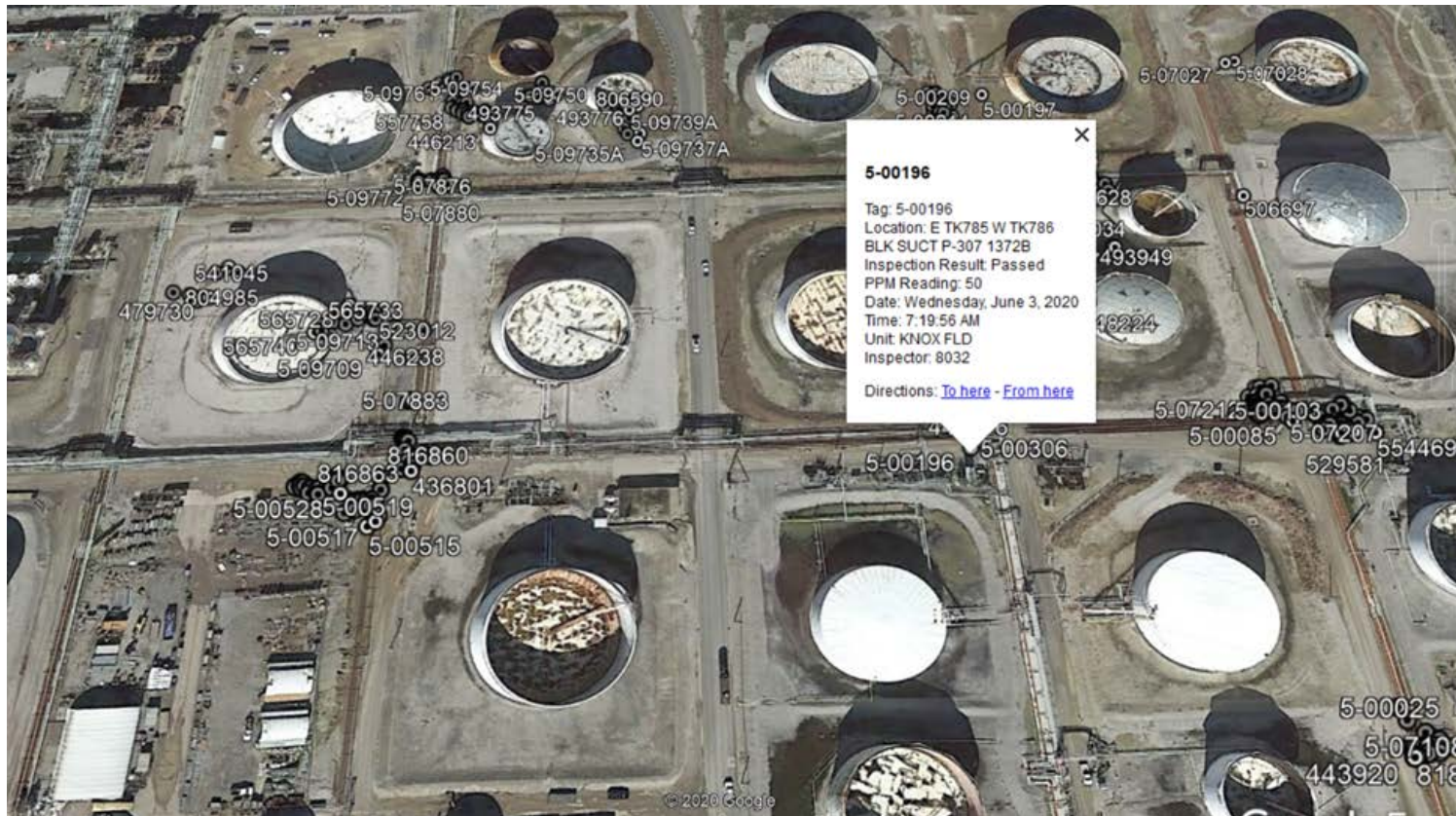
Exemplar Use of GPS – Plotting Monitoring Events

Plotting monitoring event locations for components



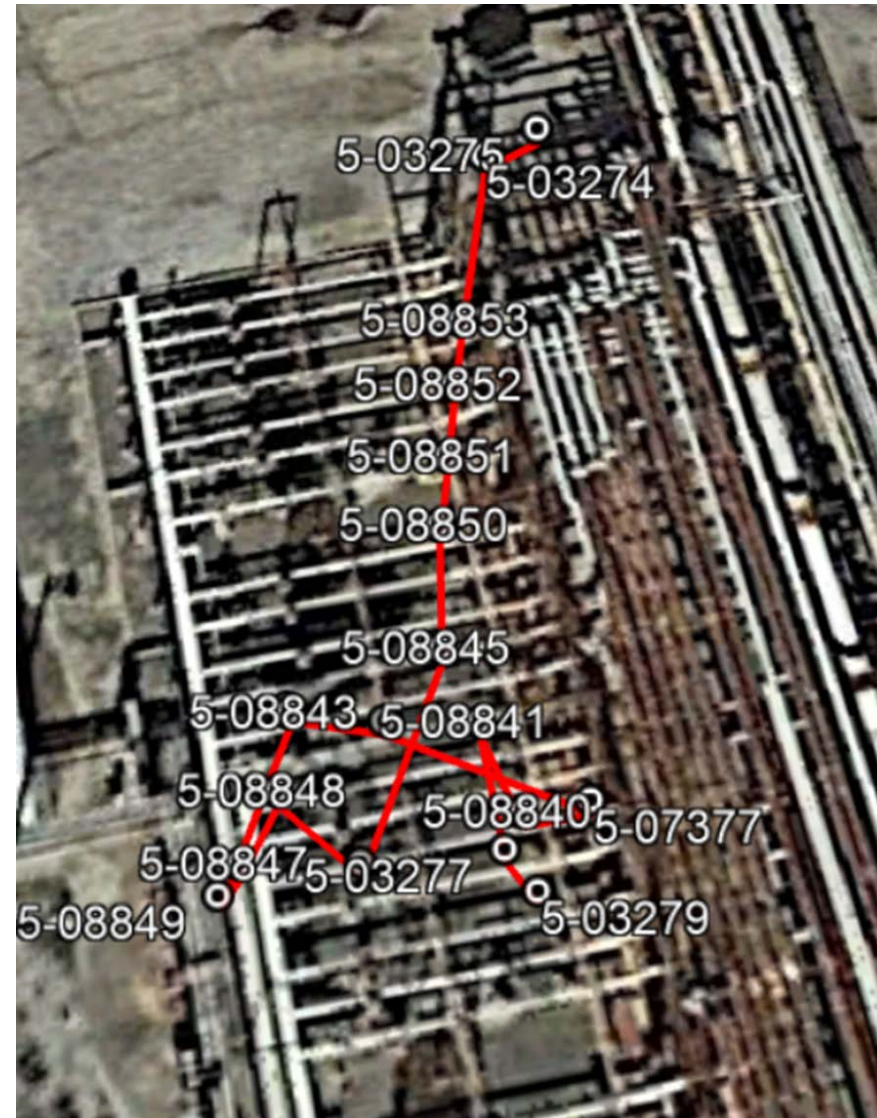
Exemplar Use of GPS – Detailed Information for Monitoring

Plot at closer resolution – each point has the ability to pull up the regulated components monitoring event data including tag #, location, date/time, and monitoring results from the database system



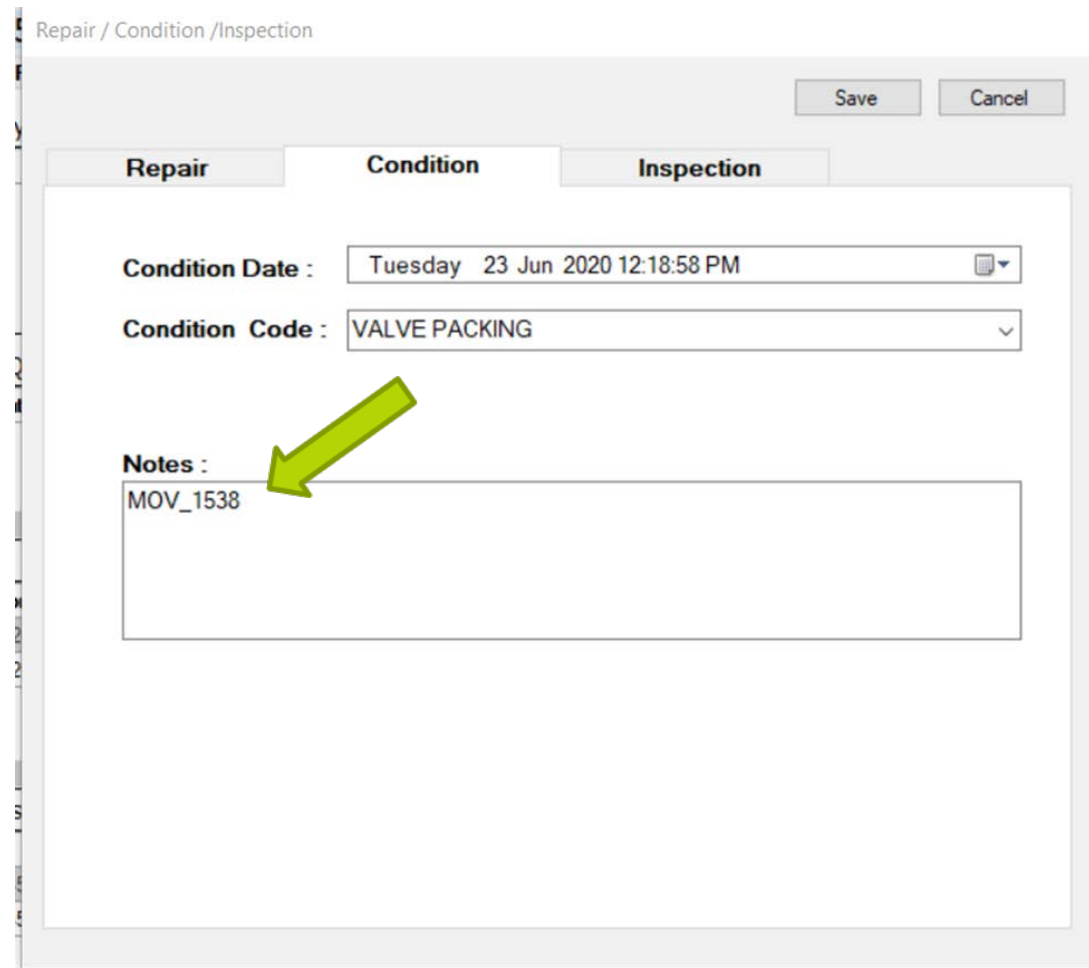
Exemplar Use of GPS – Plot Monitoring Routes/Movement

Plot of actual route (in time sequence order) of monitoring events



Exemplar Use of GPS – Capture Leaks and Video Record

If leak is found, technician can record condition of component and list the file name of the recorded video for the leak record.



Repair / Condition / Inspection

Save Cancel

Repair Condition Inspection

Condition Date : Tuesday 23 Jun 2020 12:18:58 PM

Condition Code : VALVE PACKING

Notes :
MOV_1538

Exemplar Use of GPS – Detailed Leak Information

If a leak is found, the failed condition (can see leak via camera) is documented.

report / condition / inspection

Save Cancel

Repair Condition **Inspection**

Inspection Date : Tuesday 23 Jun 2020 12:21:57 PM

Inspector : Derek Reese

Instrument : FLIR 1234

Visual Inspection

Sensory Visual Result: Fail

Method 21 Inspection

MaximumAllowed (ppm) : 499

InspectionBackground (ppm) :

InspectionMaximum (ppm) :

M21 Results : Fail

Path Forward for GPS

GPS functionality exists and is actively in use today

On-going work to streamline video recording transfer capabilities

Straightforward solution to recordkeeping and tracking of monitoring events

GPS is here and ready for use in OGI alternatives