GIS TO REPRESENT HEALTH EFFECTS IN ASSOCIATION WITH OCCUPATIONAL EXPOSURE

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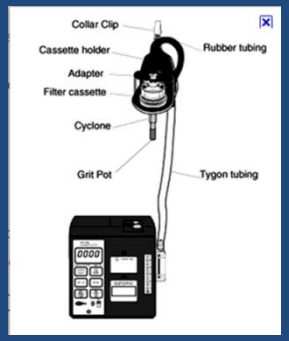
SCOPE OF THIS PRESENTATION

- **Problems associated with the management of Occupational Health and Hygiene Data**
- GIS as a possible solution
- Methods followed
- Results
- Discussion
- Conclusion

PROBLEMS IN MANAGEMENT OF DATA IN OCCUPATIONAL HEALTH AND SAFETY

WORKPLACE DATA



HEALTH DATA

CHALLENGE: CONSOLIDATION OF DATA

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GIS AS SOLUTION?

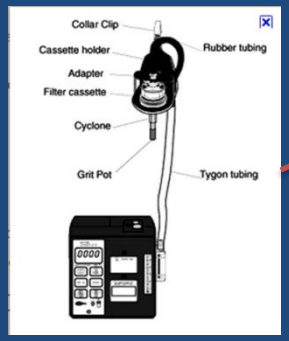
WORKPLACE DATA

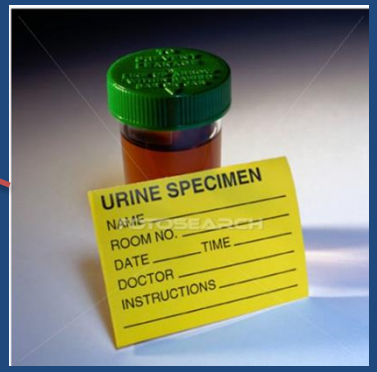
HEALTH DATA

Link

GIS

Context





RESEARCH QUESTION

Can a Geospatial/Geographic Information System (GIS) successfully integrate and present spatial and nonspatial Occupational Health and Hygiene data connected to a specific workplace?

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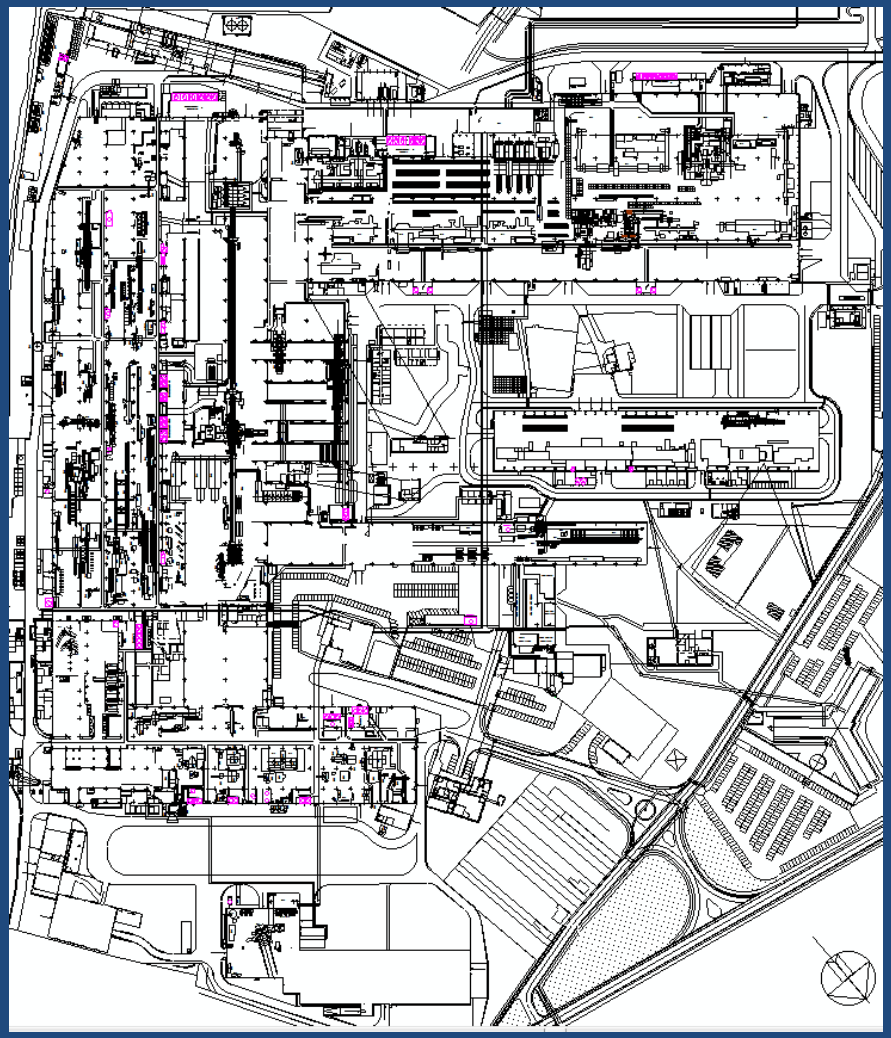
METHODOLOGY

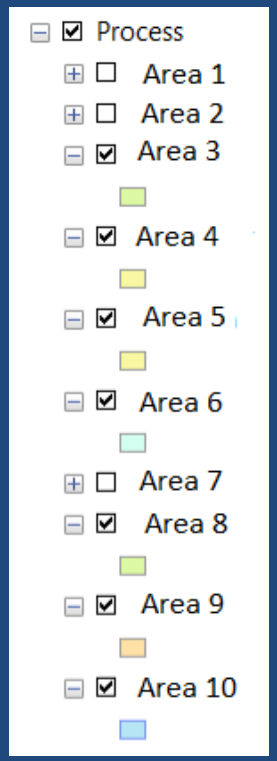
- Selection of an industrial plant
- Developing model
- Integrating data into the model

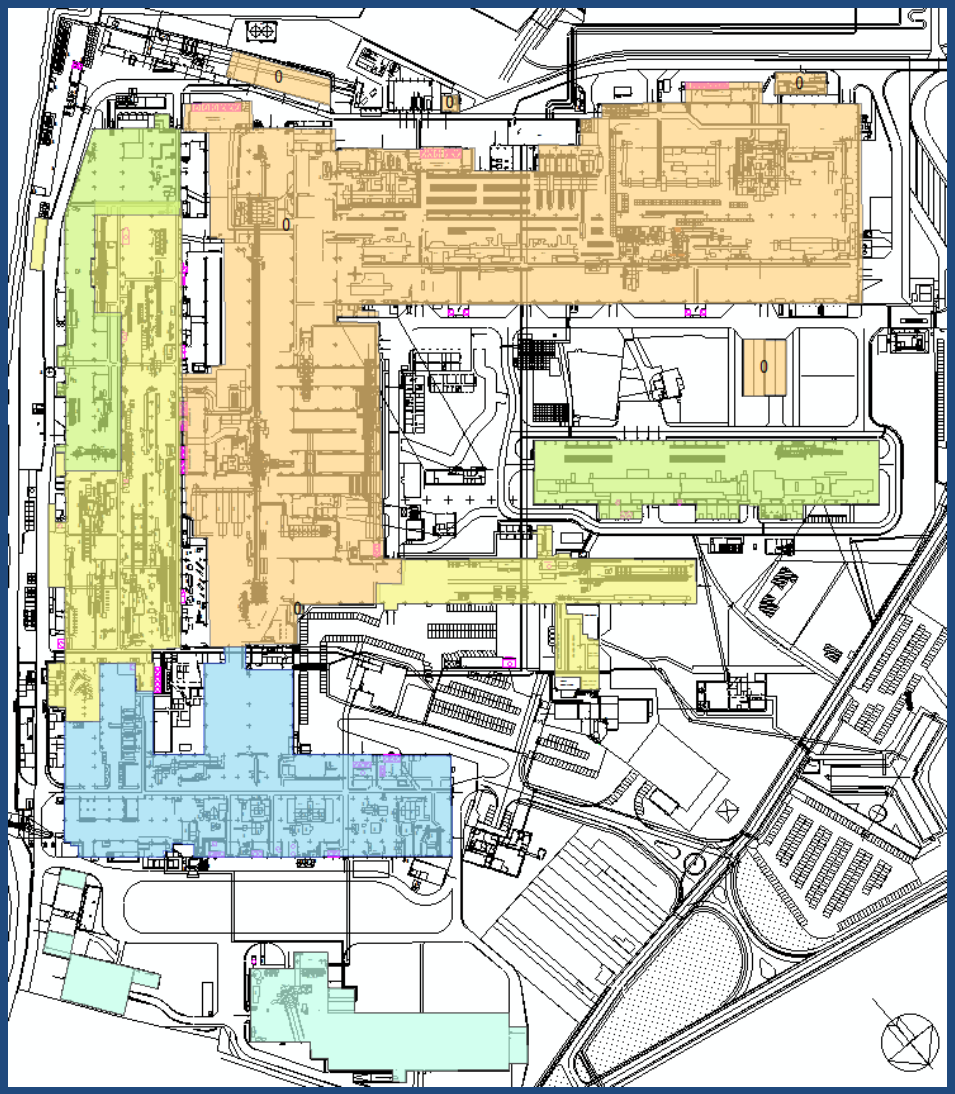
ARIAL VIEW

STEP1: IMPORT CAD DRAWING OF FLOORPLAN

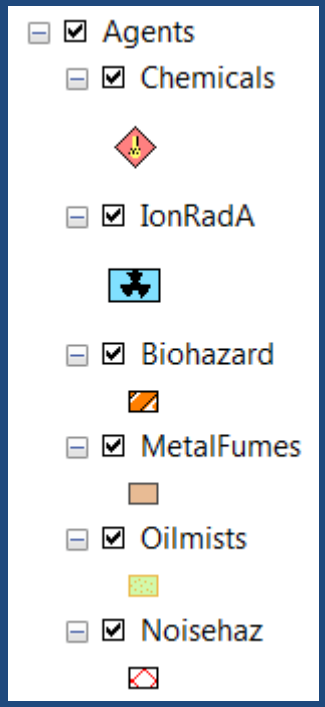


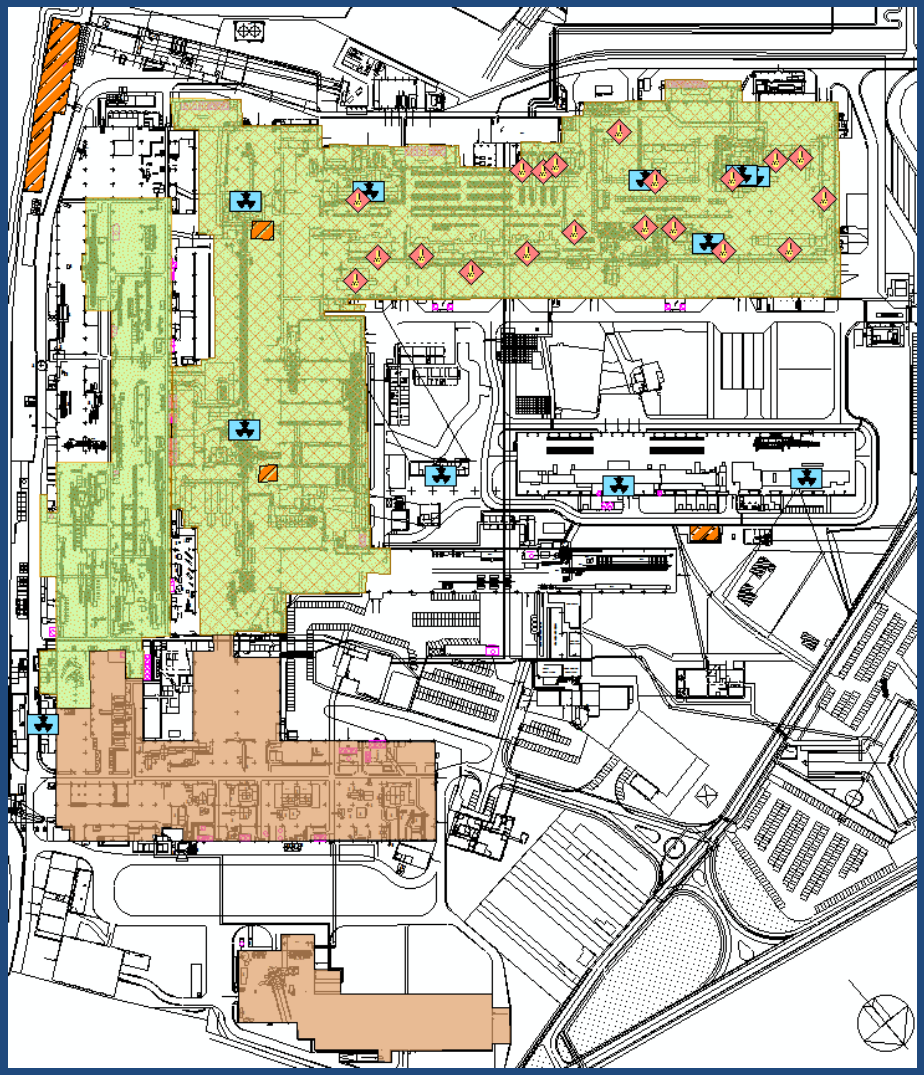
STEP 2: IDENTIFY WORK PROCESSES & AREAS



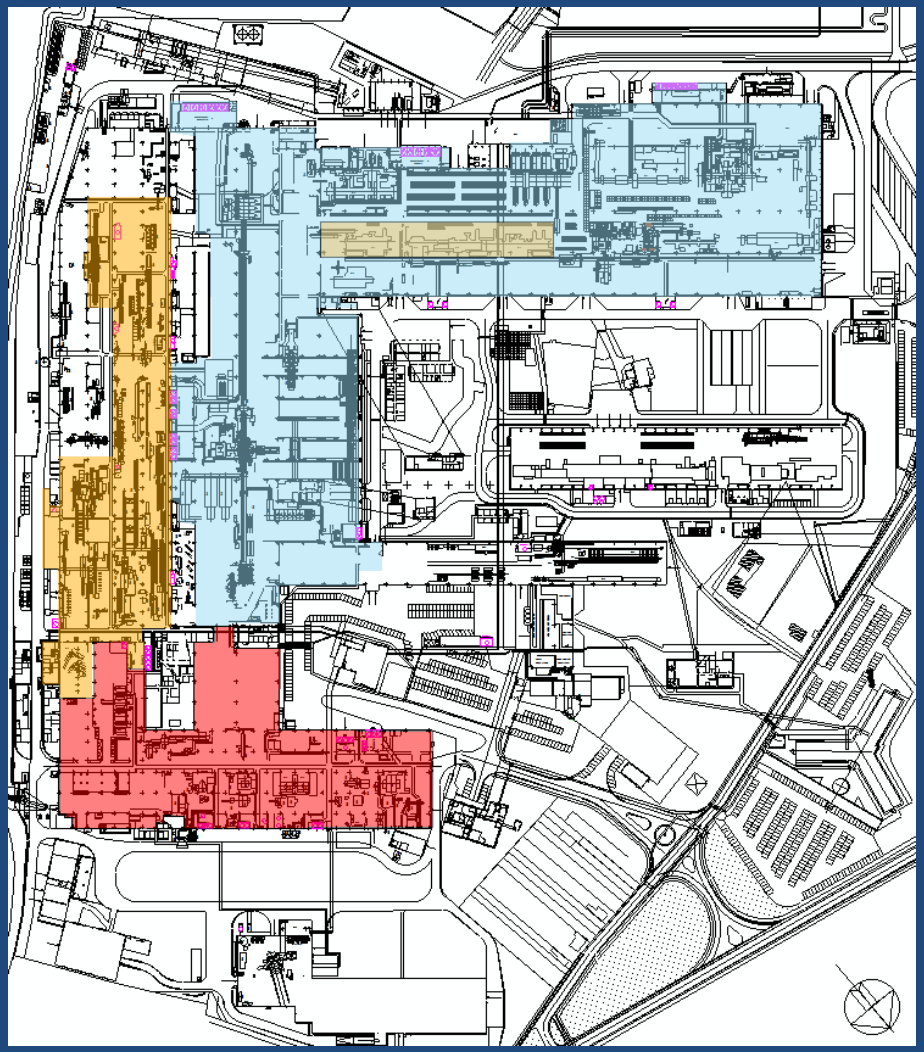


STEP 3: ADD LAYERS WITH HAZARDS

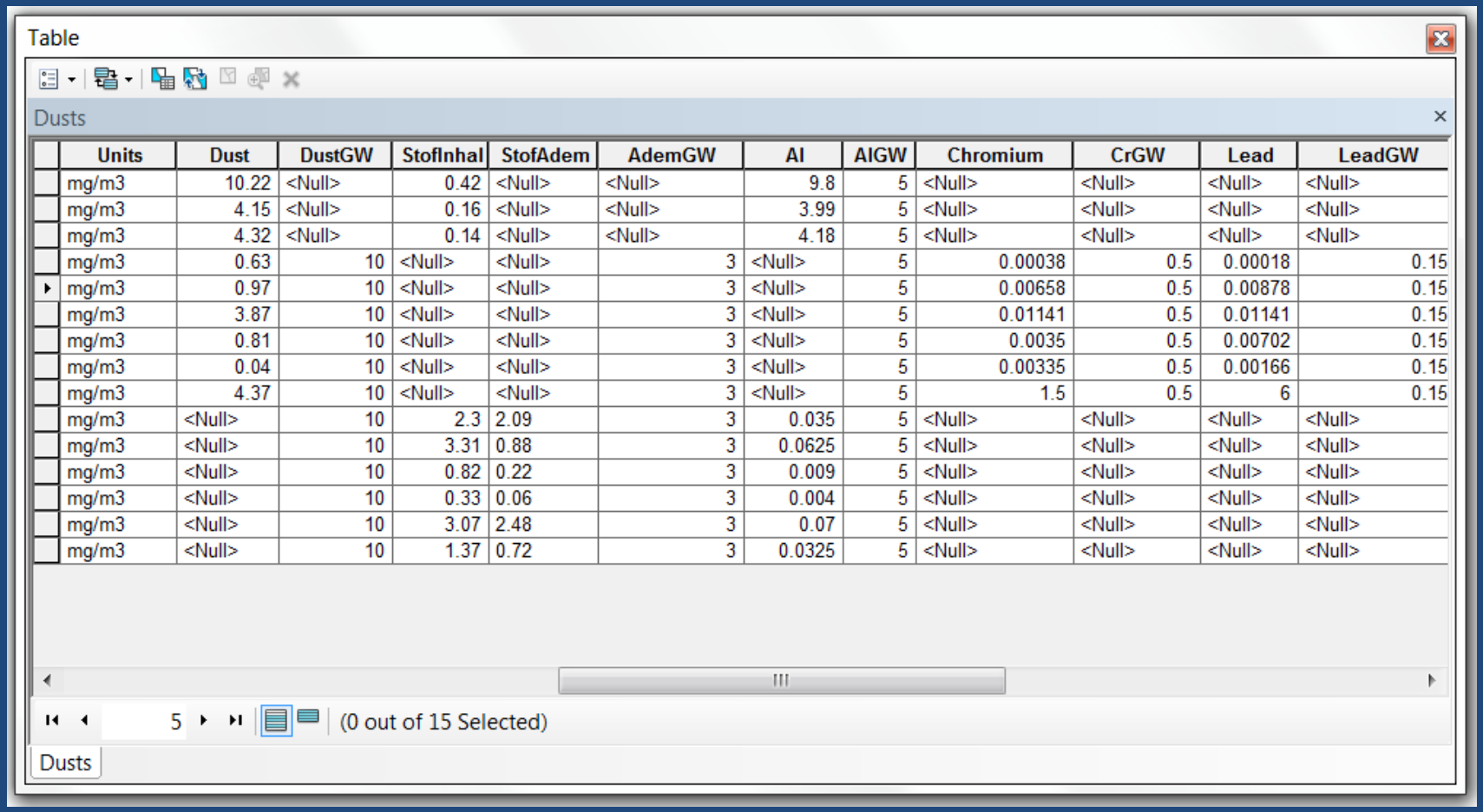




STEP 4: ADD LAYERS WITH MEDICAL DATA



STEP 5: CONNECT LAYERS



Table

Dusts

	Units	Dust	DustGW	StofInhal	StofAdem	AdemGW	Al	AlGW	Chromium	CrGW	Lead	LeadGW
	mg/m3	10.22	<Null>	0.42	<Null>	<Null>	9.8	5	<Null>	<Null>	<Null>	<Null>
	mg/m3	4.15	<Null>	0.16	<Null>	<Null>	3.99	5	<Null>	<Null>	<Null>	<Null>
	mg/m3	4.32	<Null>	0.14	<Null>	<Null>	4.18	5	<Null>	<Null>	<Null>	<Null>
	mg/m3	0.63	10	<Null>	<Null>	3	<Null>	5	0.00038	0.5	0.00018	0.15
▸	mg/m3	0.97	10	<Null>	<Null>	3	<Null>	5	0.00658	0.5	0.00878	0.15
	mg/m3	3.87	10	<Null>	<Null>	3	<Null>	5	0.01141	0.5	0.01141	0.15
	mg/m3	0.81	10	<Null>	<Null>	3	<Null>	5	0.0035	0.5	0.00702	0.15
	mg/m3	0.04	10	<Null>	<Null>	3	<Null>	5	0.00335	0.5	0.00166	0.15
	mg/m3	4.37	10	<Null>	<Null>	3	<Null>	5	1.5	0.5	6	0.15
	mg/m3	<Null>	10	2.3	2.09	3	0.035	5	<Null>	<Null>	<Null>	<Null>
	mg/m3	<Null>	10	3.31	0.88	3	0.0625	5	<Null>	<Null>	<Null>	<Null>
	mg/m3	<Null>	10	0.82	0.22	3	0.009	5	<Null>	<Null>	<Null>	<Null>
	mg/m3	<Null>	10	0.33	0.06	3	0.004	5	<Null>	<Null>	<Null>	<Null>
	mg/m3	<Null>	10	3.07	2.48	3	0.07	5	<Null>	<Null>	<Null>	<Null>
	mg/m3	<Null>	10	1.37	0.72	3	0.0325	5	<Null>	<Null>	<Null>	<Null>

5 (0 out of 15 Selected)

Dusts

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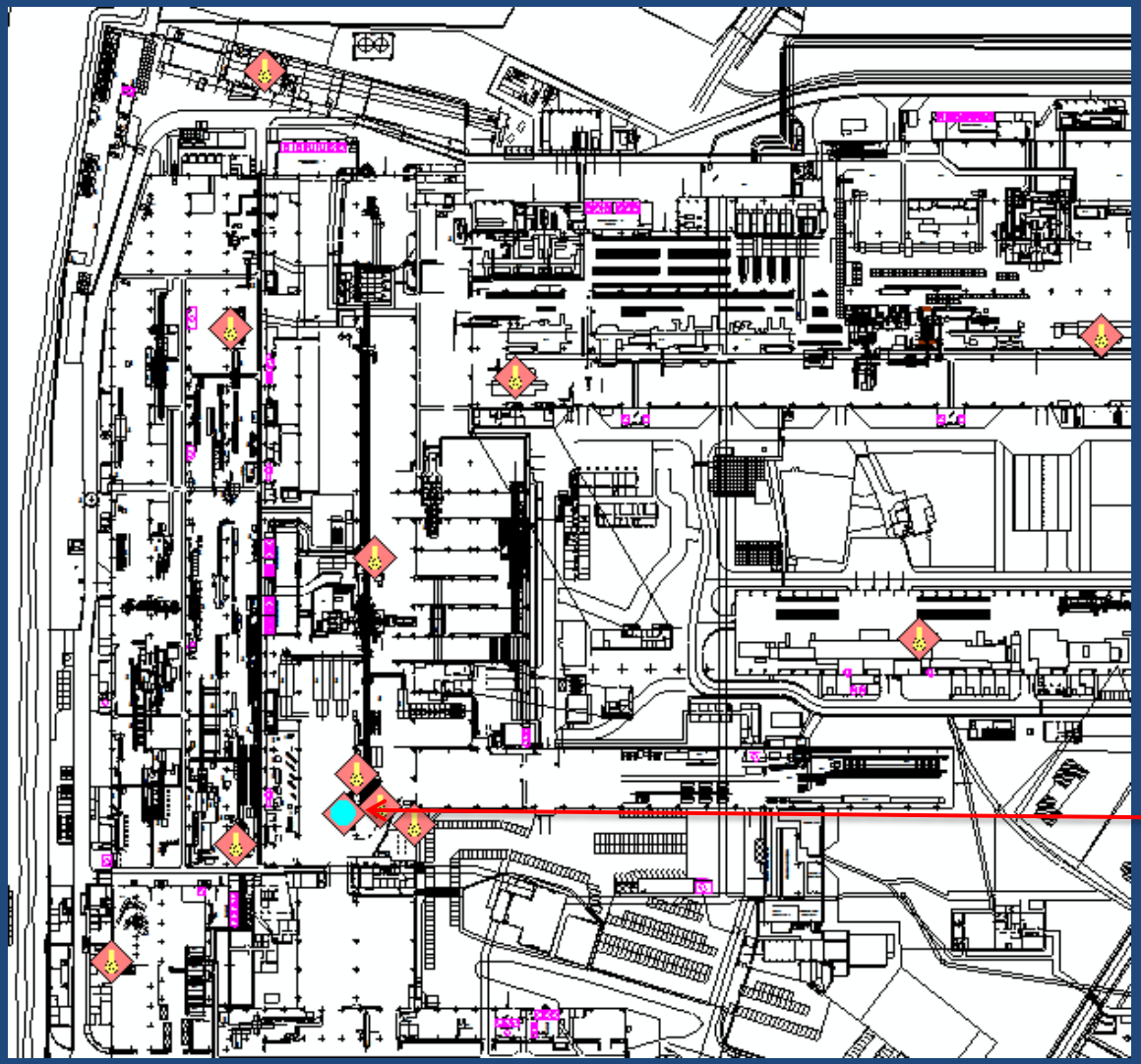
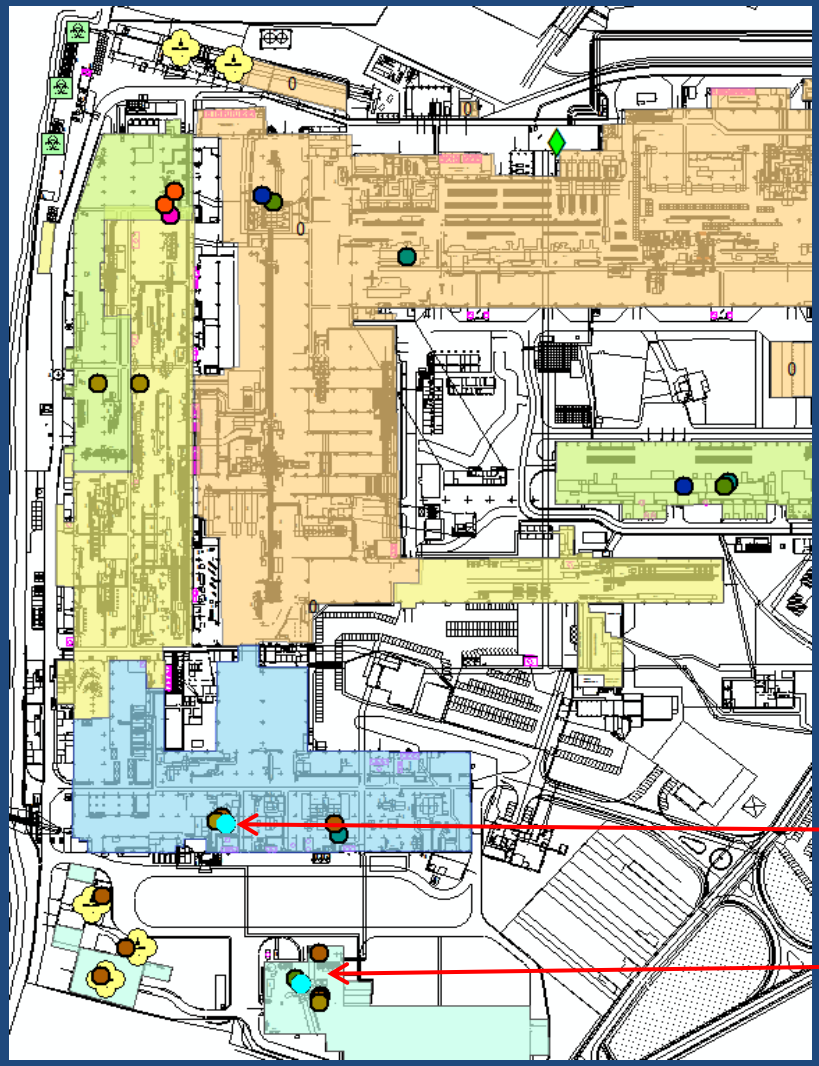
RESULT 1: CONDUCT SEARCHES



Layer Chemical Agents

- Effective search Terratogen

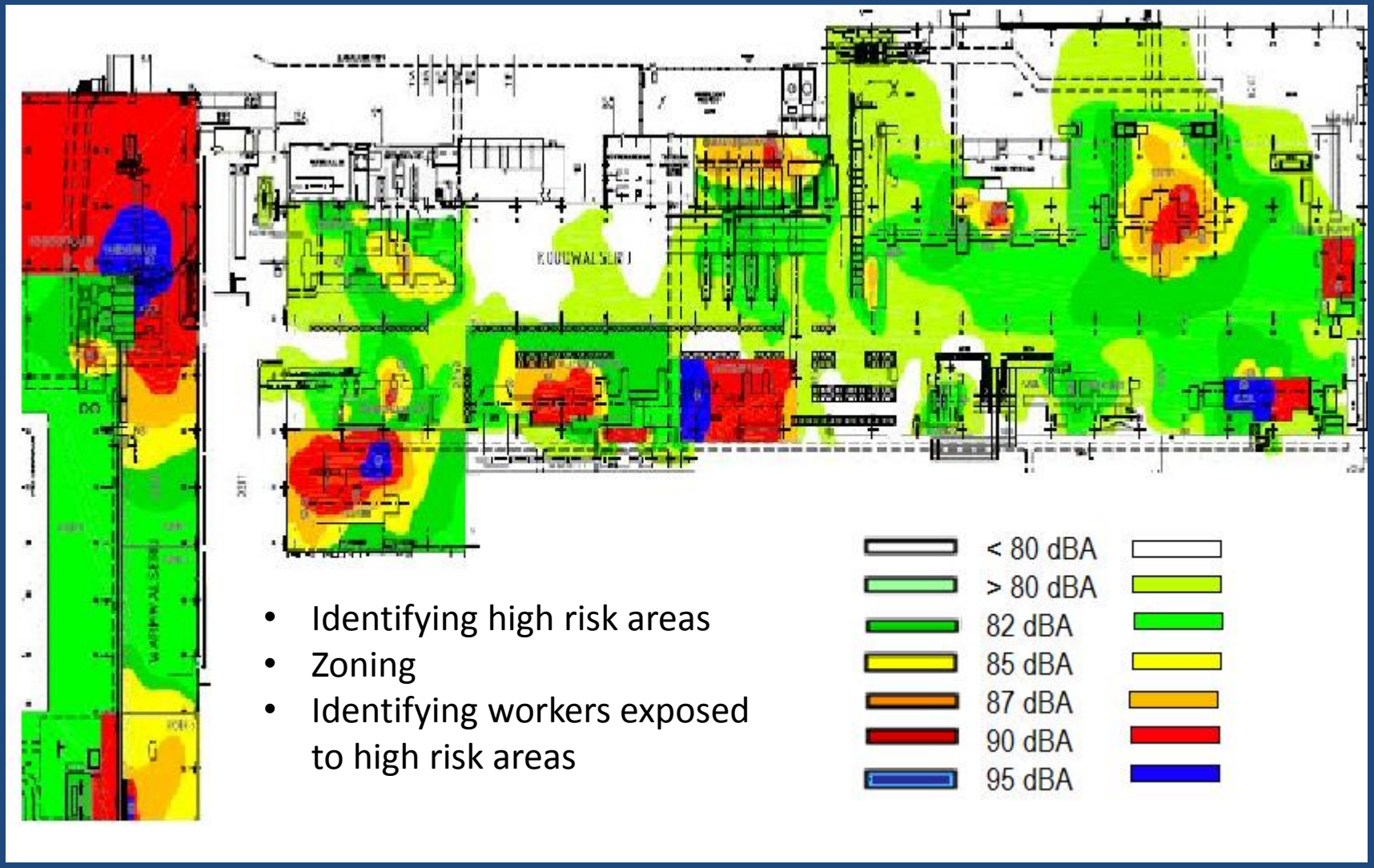
RESULT 2: QUERIES AND COMPARISON OF DATA LAYERS



Non Compliance Lead:
22/10/2003

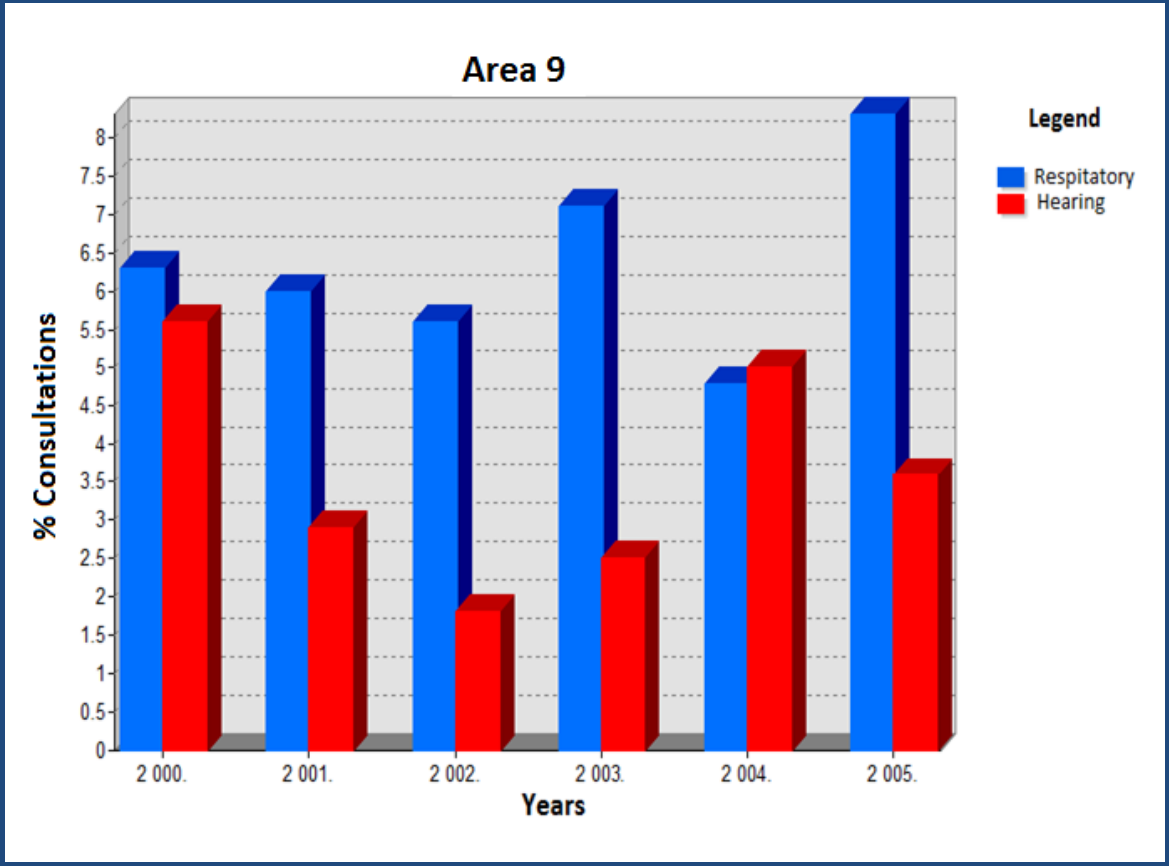
Non Compliance Aluminium:
18/12/2000

RESULT 3: INTEGRATION OF MEDICAL AND OCCUPATIONAL HYGIENE DATA LAYERS

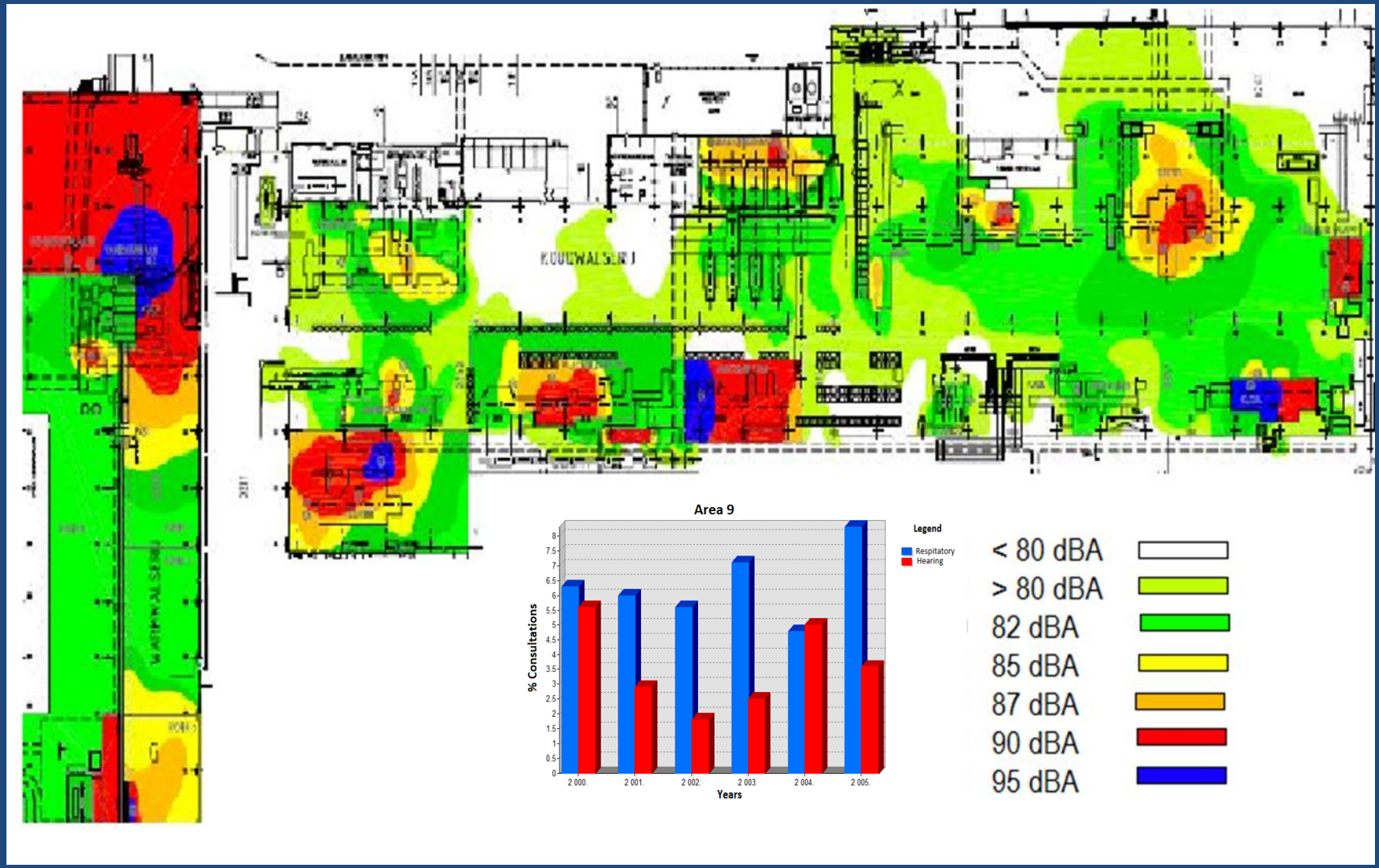


- Identifying high risk areas
- Zoning
- Identifying workers exposed to high risk areas

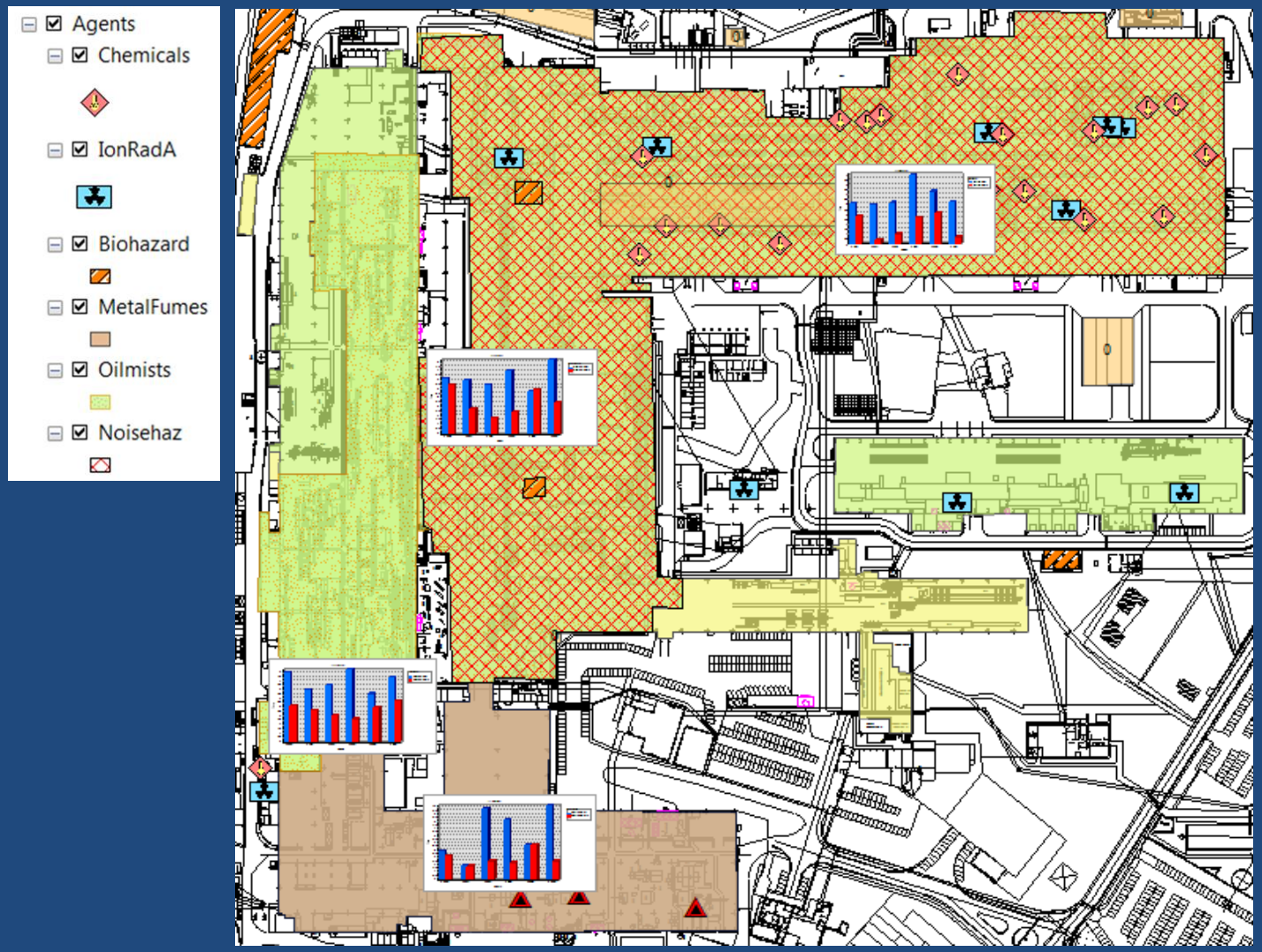
RESULT 3: INTEGRATION OF MEDICAL AND OCCUPATIONAL HYGIENE DATA LAYERS



RESULT 3: INTEGRATION OF MEDICAL AND OCCUPATIONAL HYGIENE DATA LAYERS



RESULT 3: INTEGRATION OF MEDICAL AND OCCUPATIONAL HYGIENE DATA LAYERS



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DISCUSSION

- Successful:
  - Integration CAD and GIS
  - Searches – *Terratogen*
  - Queries – *Non compliance of samples*
  - Overlays - *O/Health & O/Hygiene*
  - New perspectives?
- Geodatabase for consolidating data
- Can assist in focussing the collection of data

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CONCLUSION

- Storage and manipulation of data took place with relative ease
- The GIS geodatabase can accommodate O/Health and O/Hygiene data
- GIS can serve as an information system for Occupational Health related data Which includes photographs, spreadsheets, word documents.

CONCLUSION CONTINUED

- GIS can:
  - Consolidate and display data from related disciplines in a format that is relatively easy to access.
  - Provide new angles of incidence for evaluating existing data

THANK YOU FOR YOUR ATTENTION