

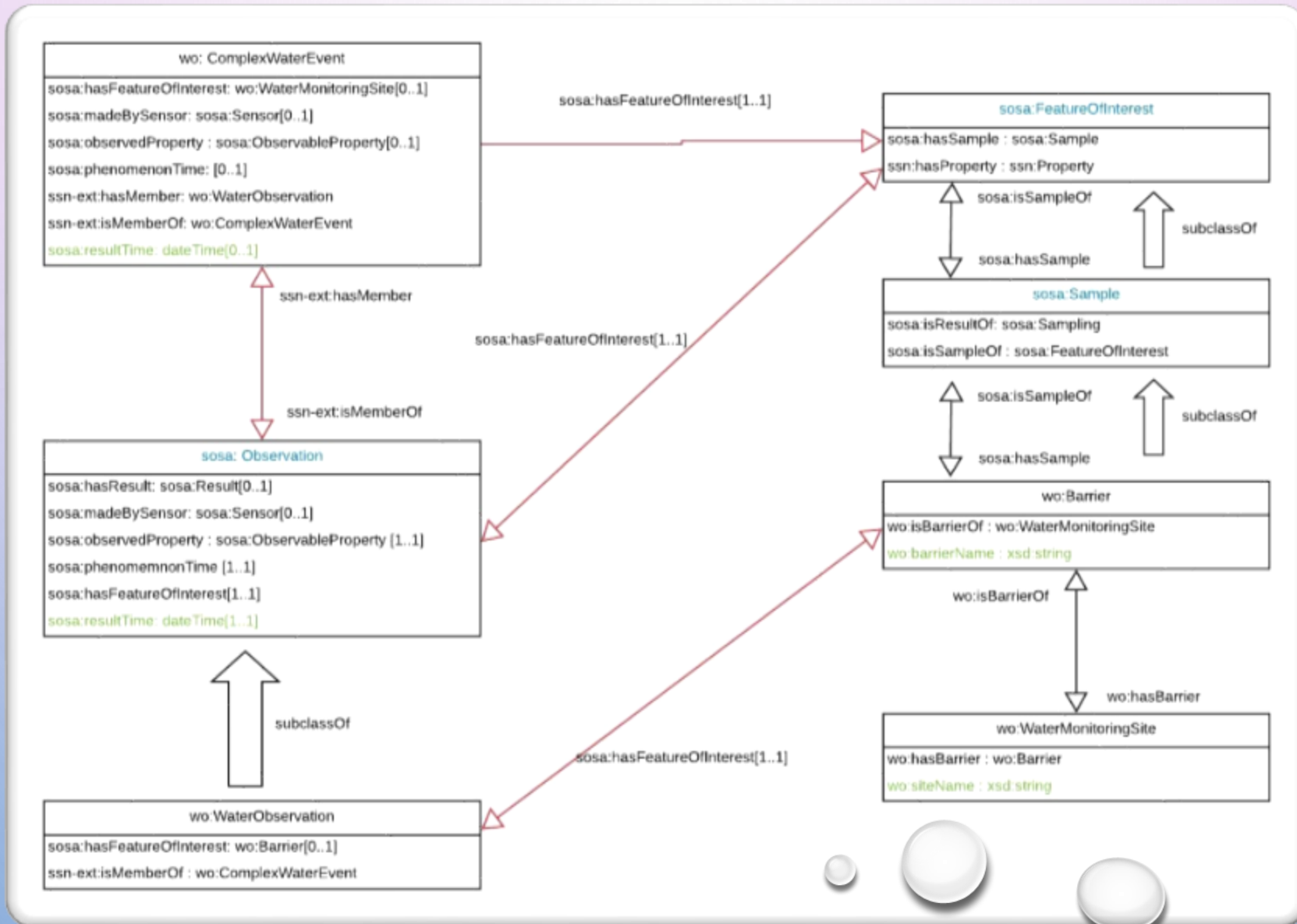
QUERY REWRITING

THE ONTOLOGY

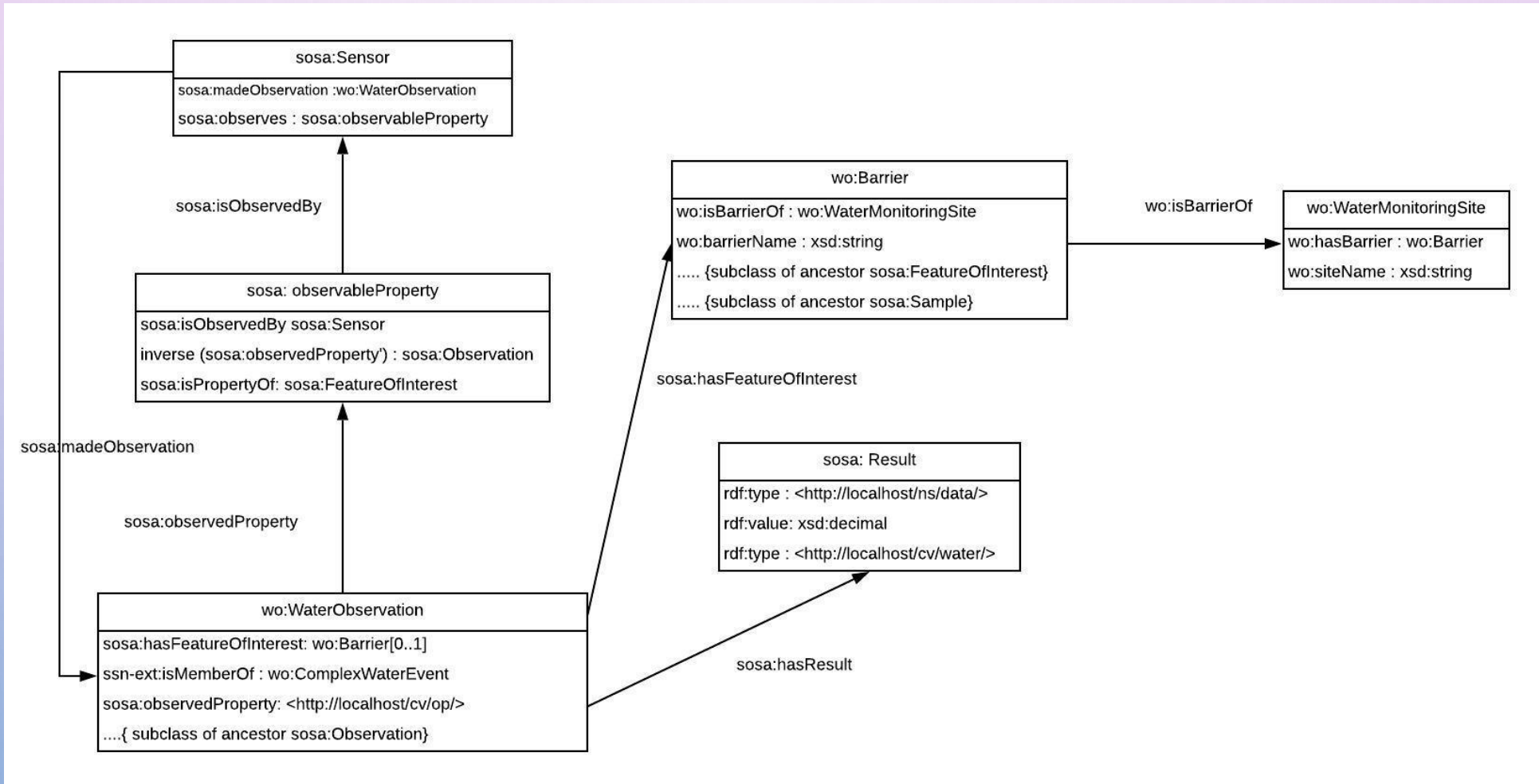
[HTTPS://GITHUB.COM/SUNY1000/WATER-ONTOLOGY](https://github.com/suny1000/water-ontology)

- EXTENDS EXISTING ONTOLOGIES
 - SSN/SOSA ONTOLOGY
 - SSN-EXT
- CONTROL VOCABS FOR WATER MONITORING

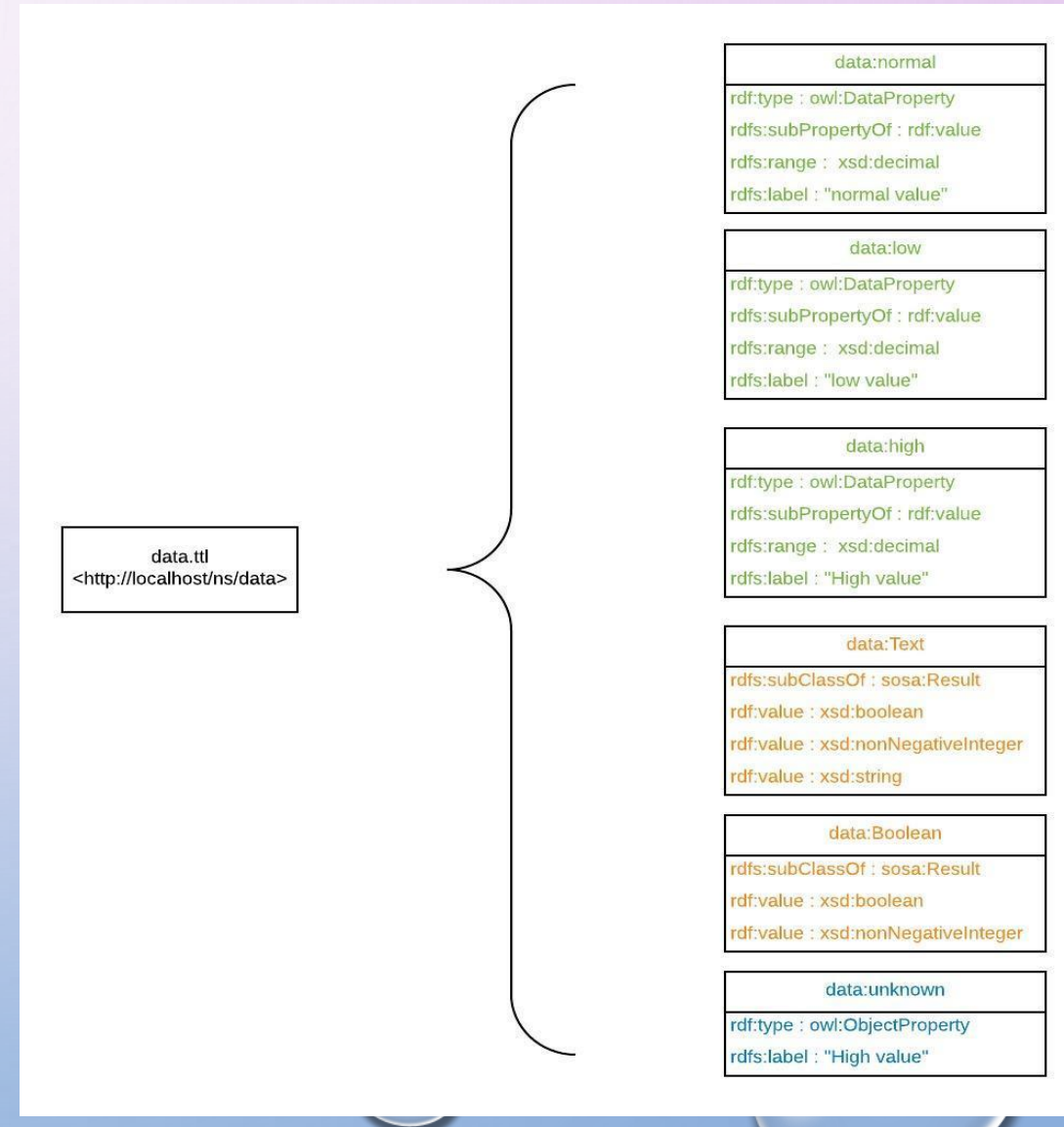
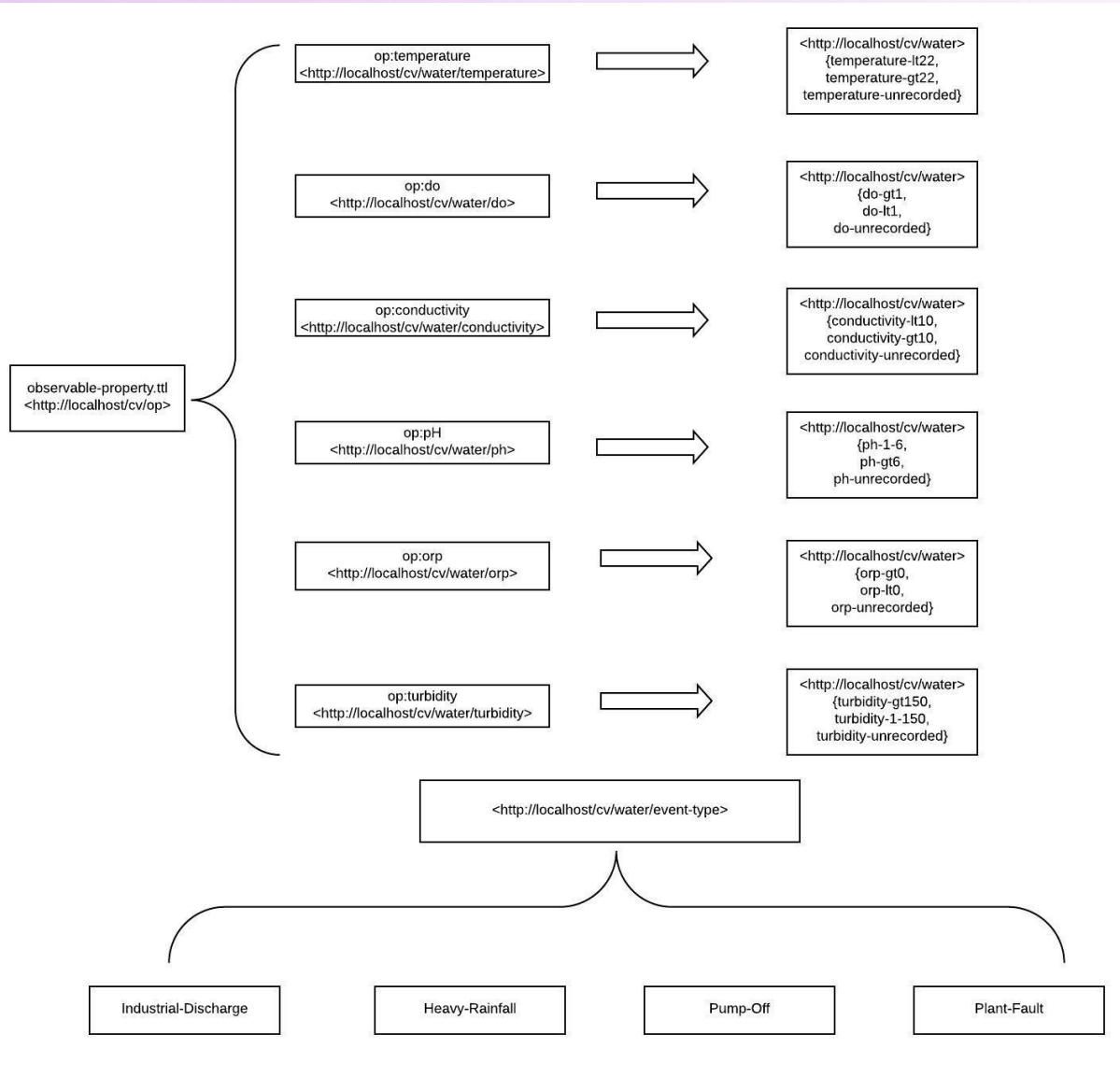
SCHEMA



SCHEMA



DATA & CONTROL VOCABS



COMPLEX EVENTS

- INDUSTRIAL DISCHARGE
- HEAVY RAINFALL
- PUMP OFF
- PLANT FAULT

INDUSTRIAL DISCHARGE

- LOW PH, HIGH TURBIDITY, HIGH CONDUCTIVITY
- HIGH PH, HIGH TURBIDITY, LOW ORP

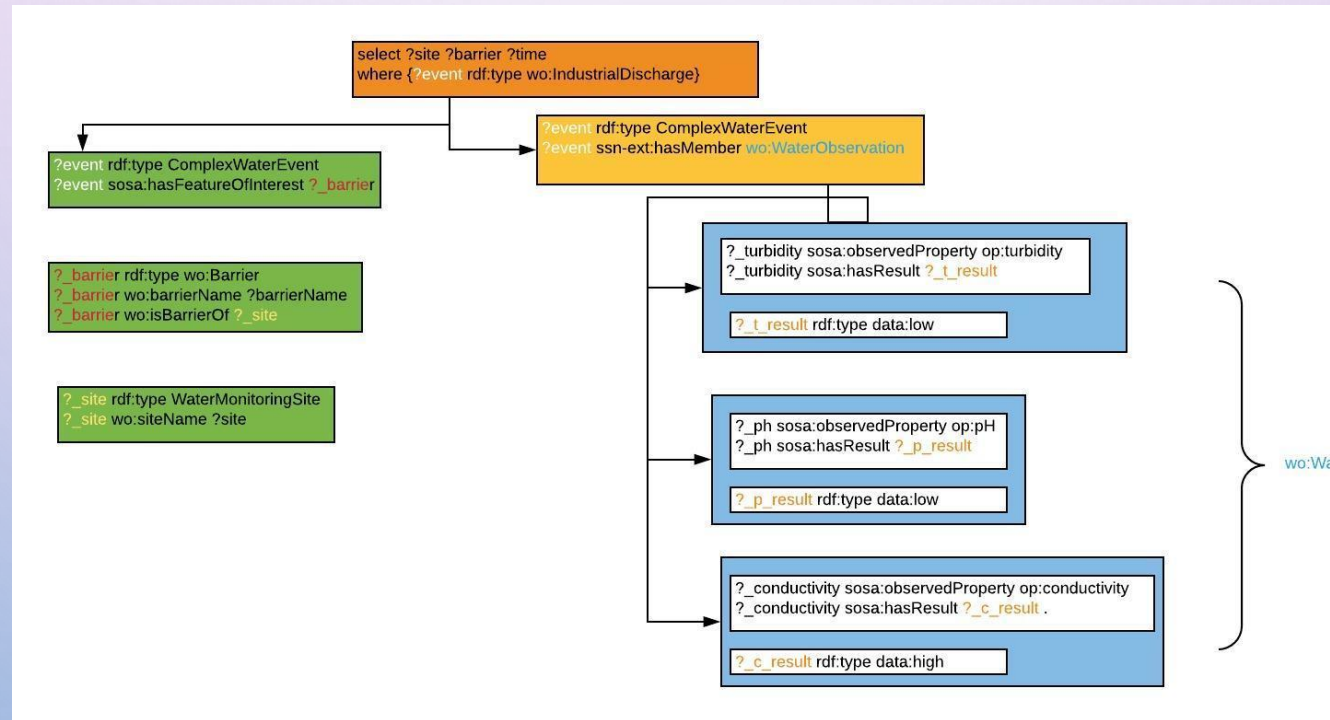
EXAMPLE HIGH LEVEL QUERIES

- WHAT DATE AND TIME DOES INDUSTRIAL DISCHARGE EVENT HAPPEN AT WHICH BARRIER OF WHICH SITE?

SELECT ?SITE ?BARRIER ?TIME

WHERE {?EVENT RDF:TYPE WO:INDUSTRIALDISCHARGE}

REWRITING PROCESS



REWRITING EXPLAINED

INDUSTRIAL DISCHARGE EVENT

- WATERCOMPLEXEVENT &
- HAS WATEROBSERVATION
 - OBSERVEDPROPERTY PH
 - PH LOW
 - OBSERVEDPROPERTY TURBIDITY
 - TURBIDITY HIGH
 - OBSERVEDPROPERTY CONDUCTIVITY
 - CONDUCTIVITY HIGH