

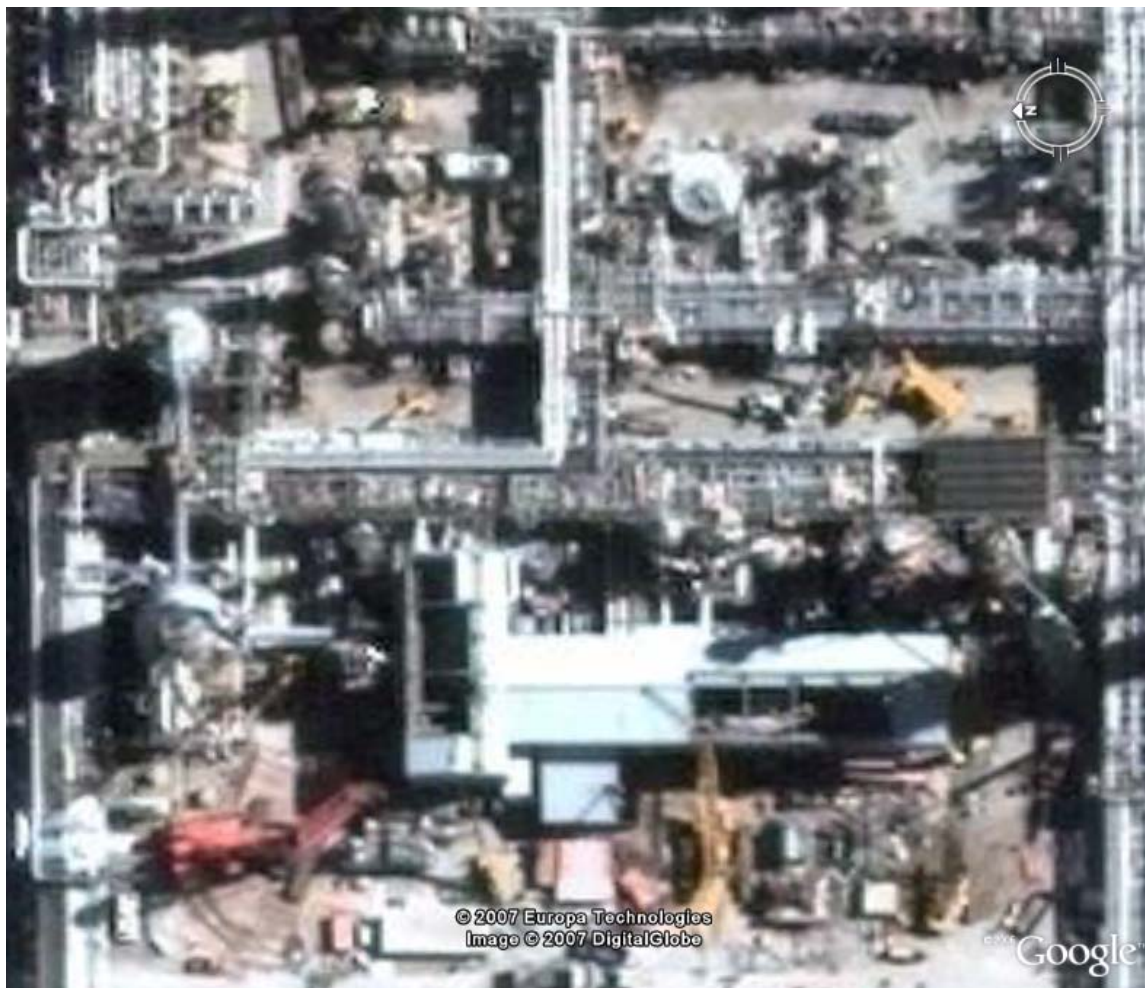
STIMULATING *IN SITU* REMEDIATION AT THREE DIFFERENT SITES WITH NUTRIENTS



This is NOVA Chemicals

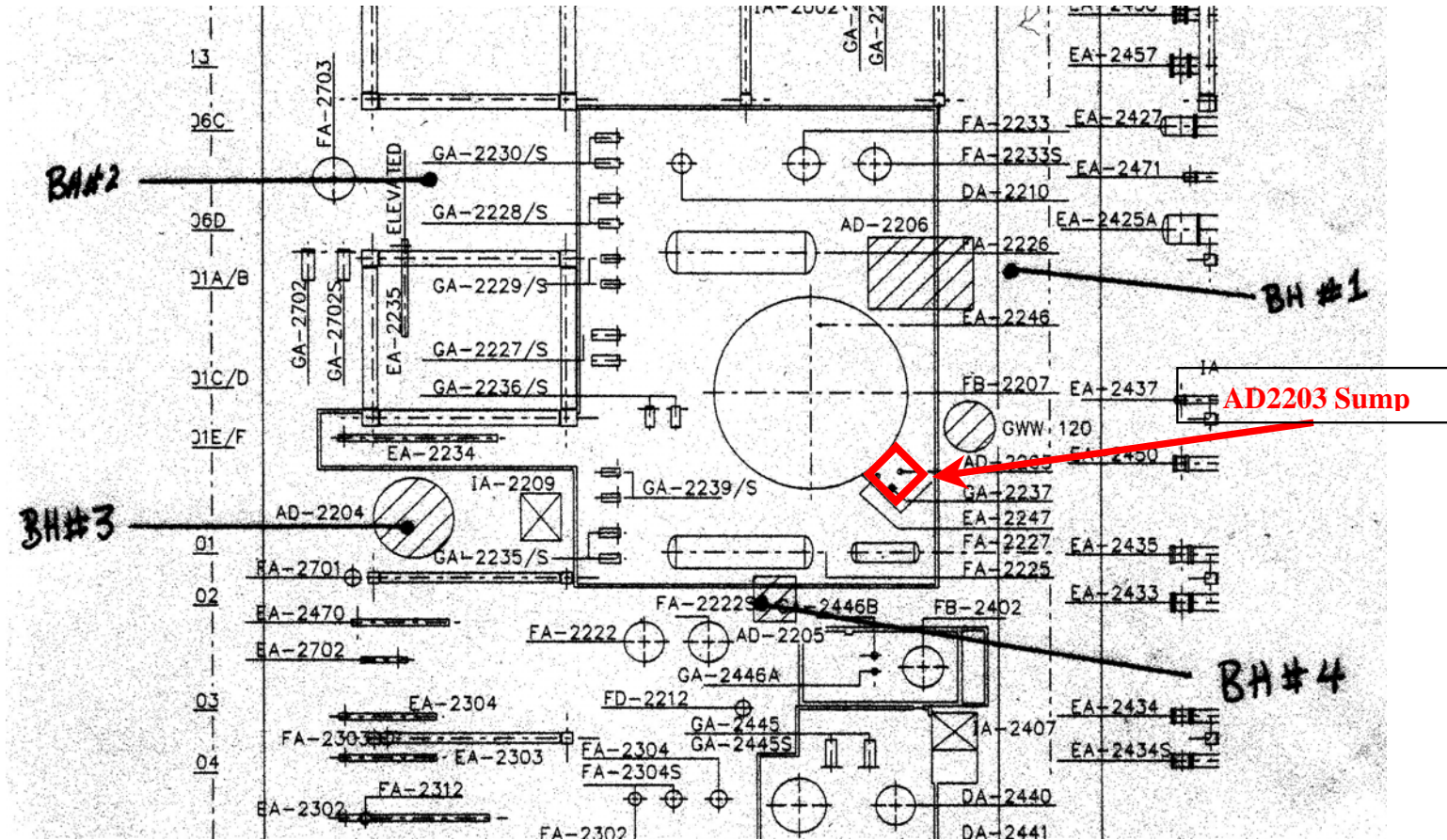
***Les Stehmeier, Darrell Jones,
Sue Levesque
(NOVA Chemicals, Canada)***

Site B

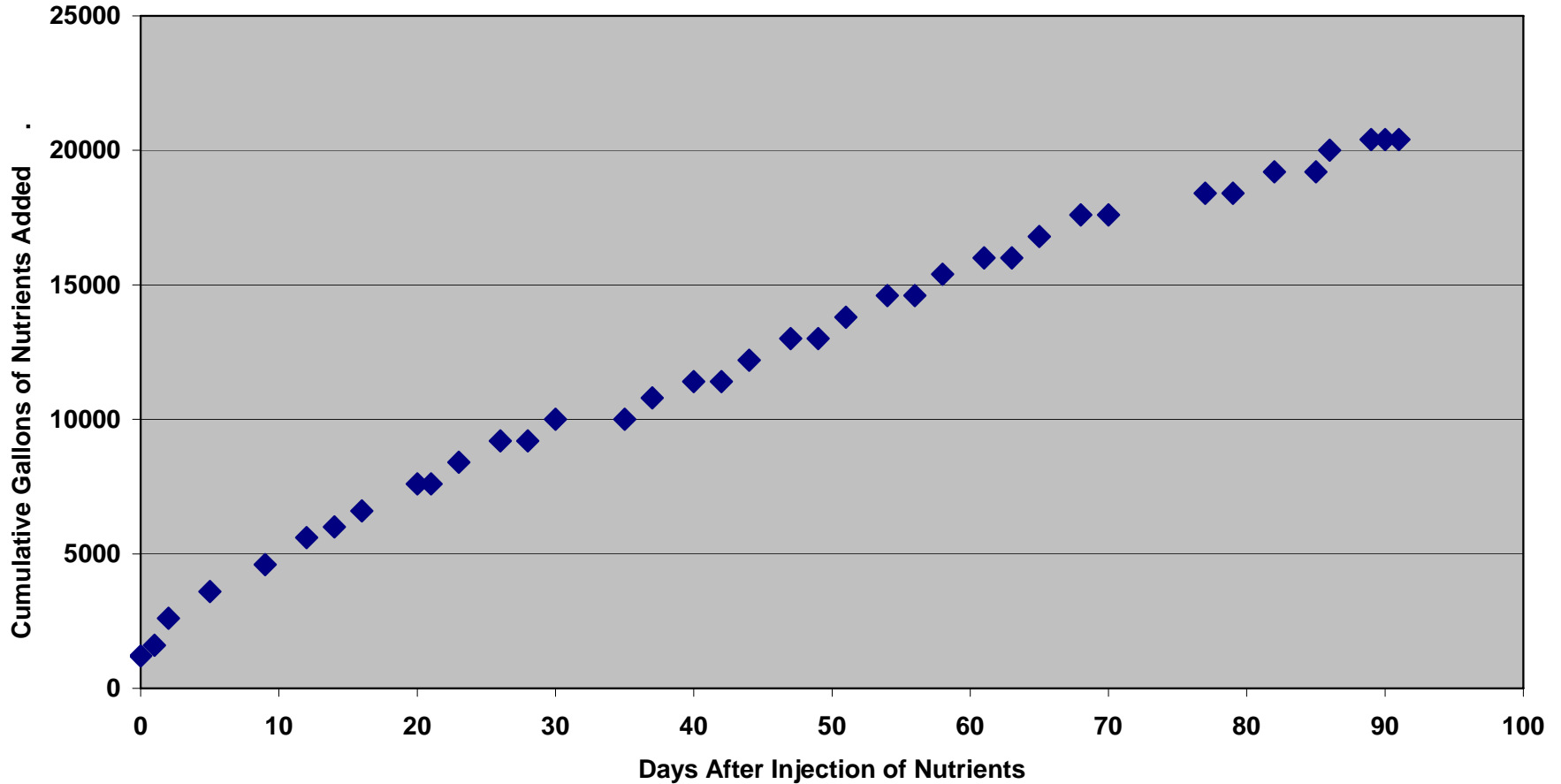


This is NOVA Chemicals

Site B

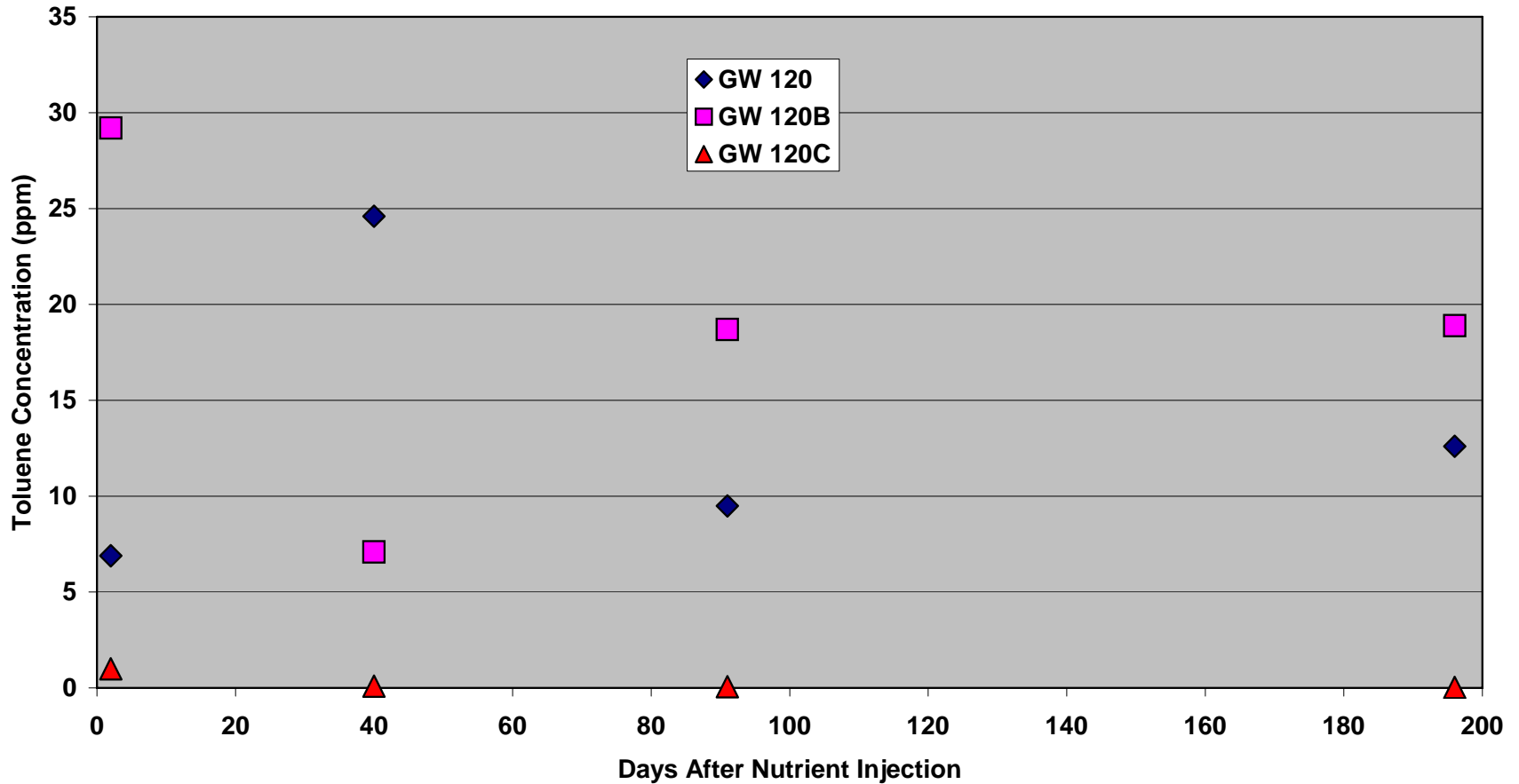


Nutrients Added to Sump

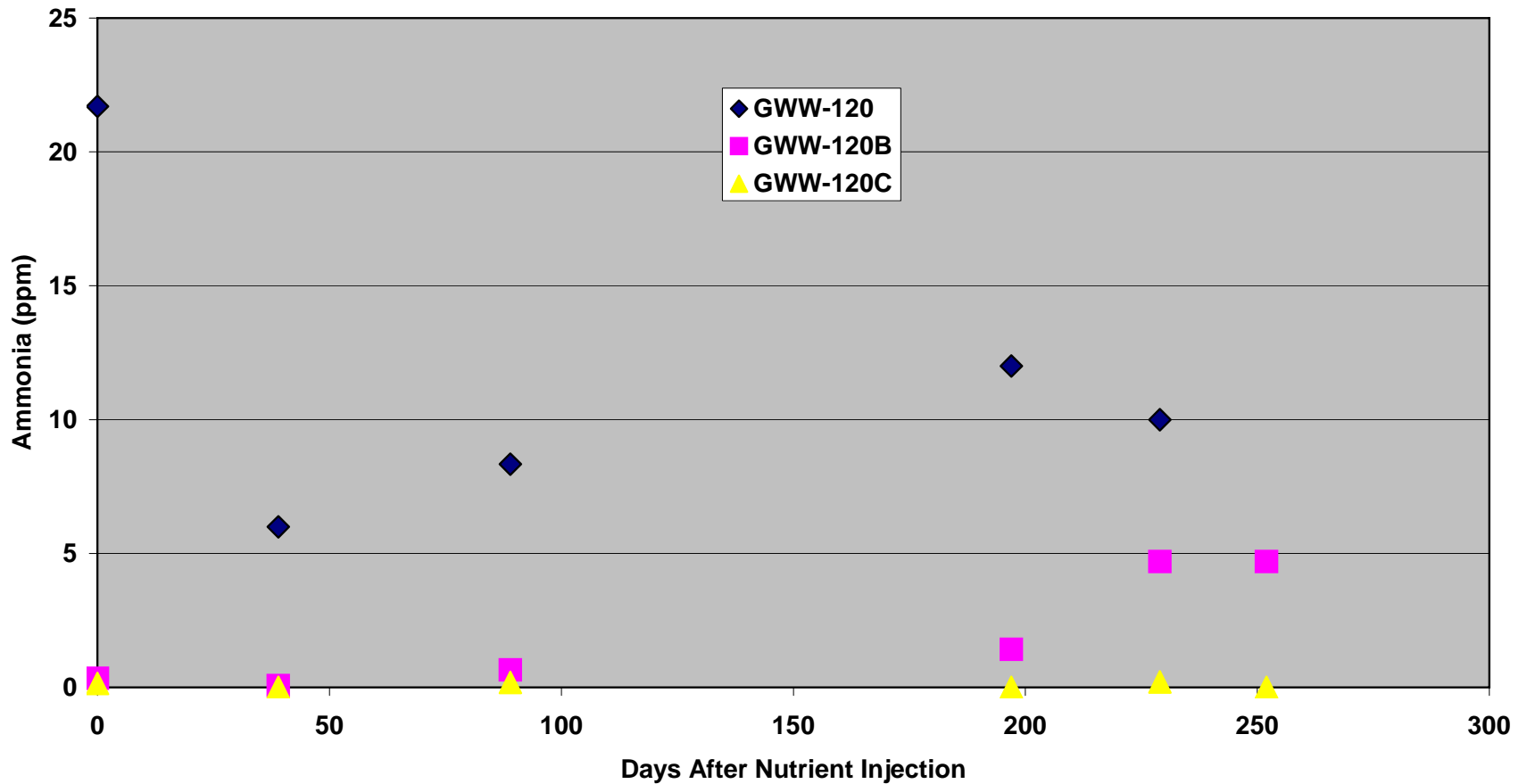


This is NOVA Chemicals

Hydrocarbon Concentrations after Nutrient Injection Commenced



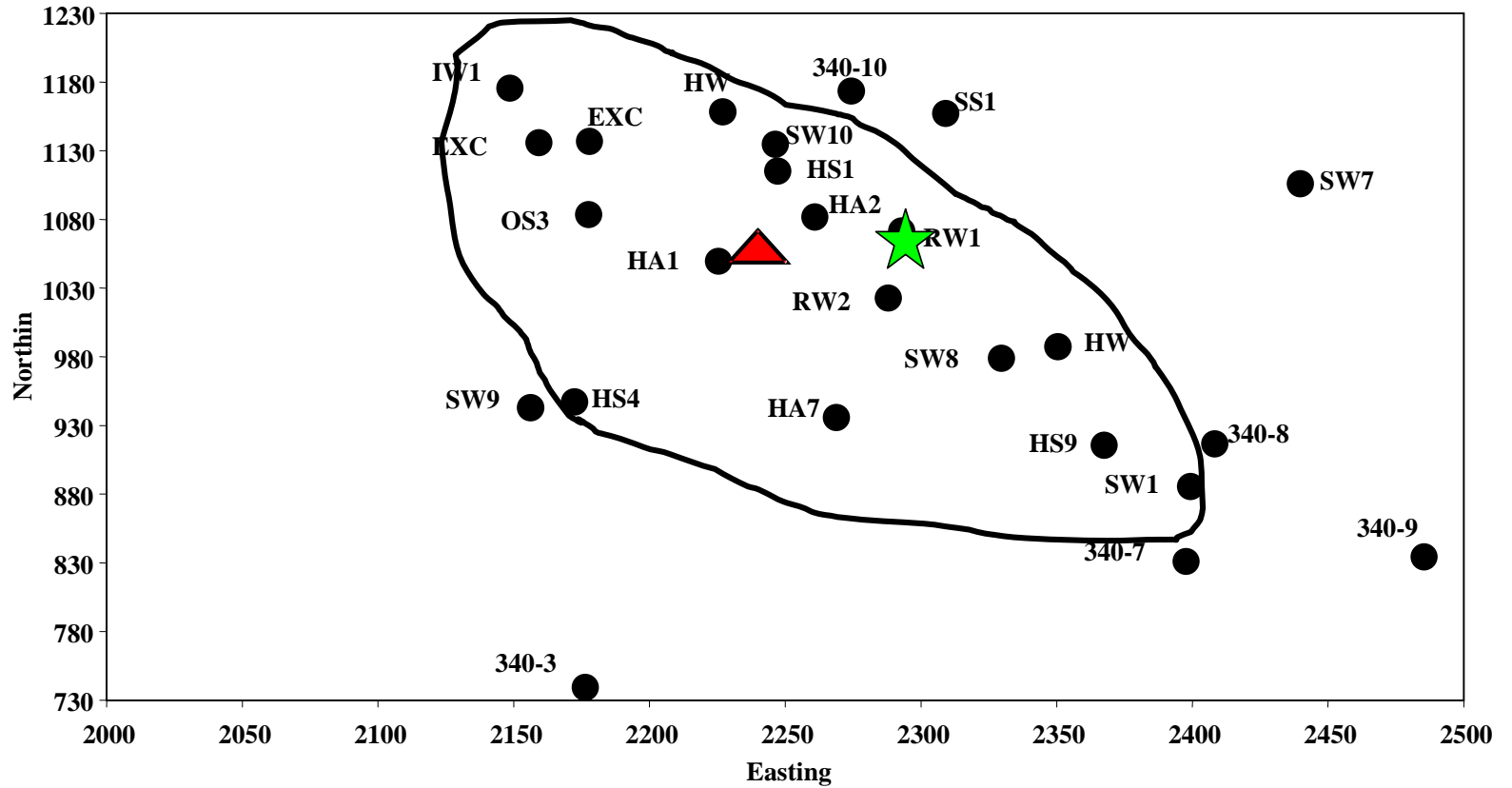
Ammonia Concentrations after Nutrient Injection Commenced



This is NOVA Chemicals

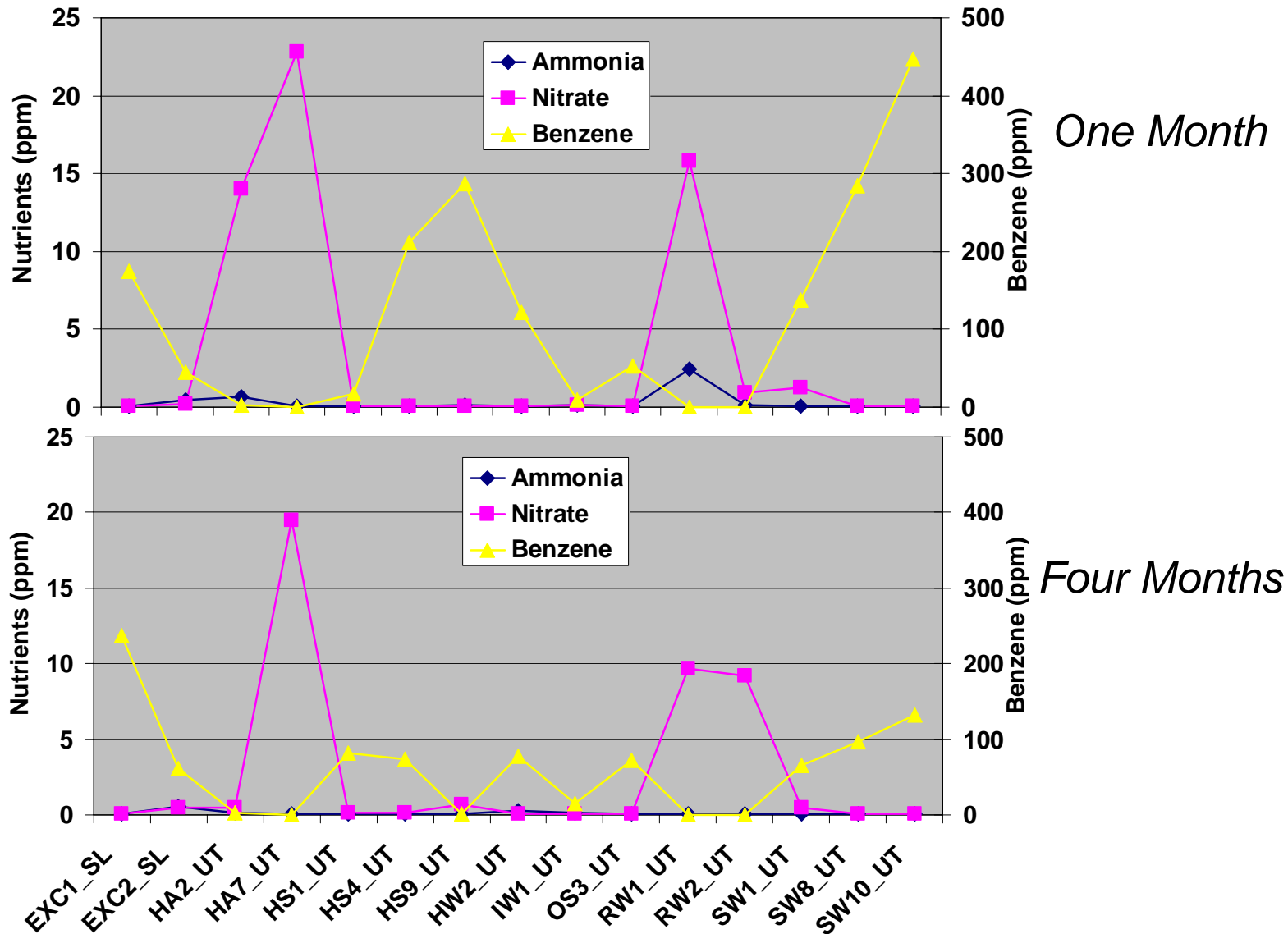


Site A



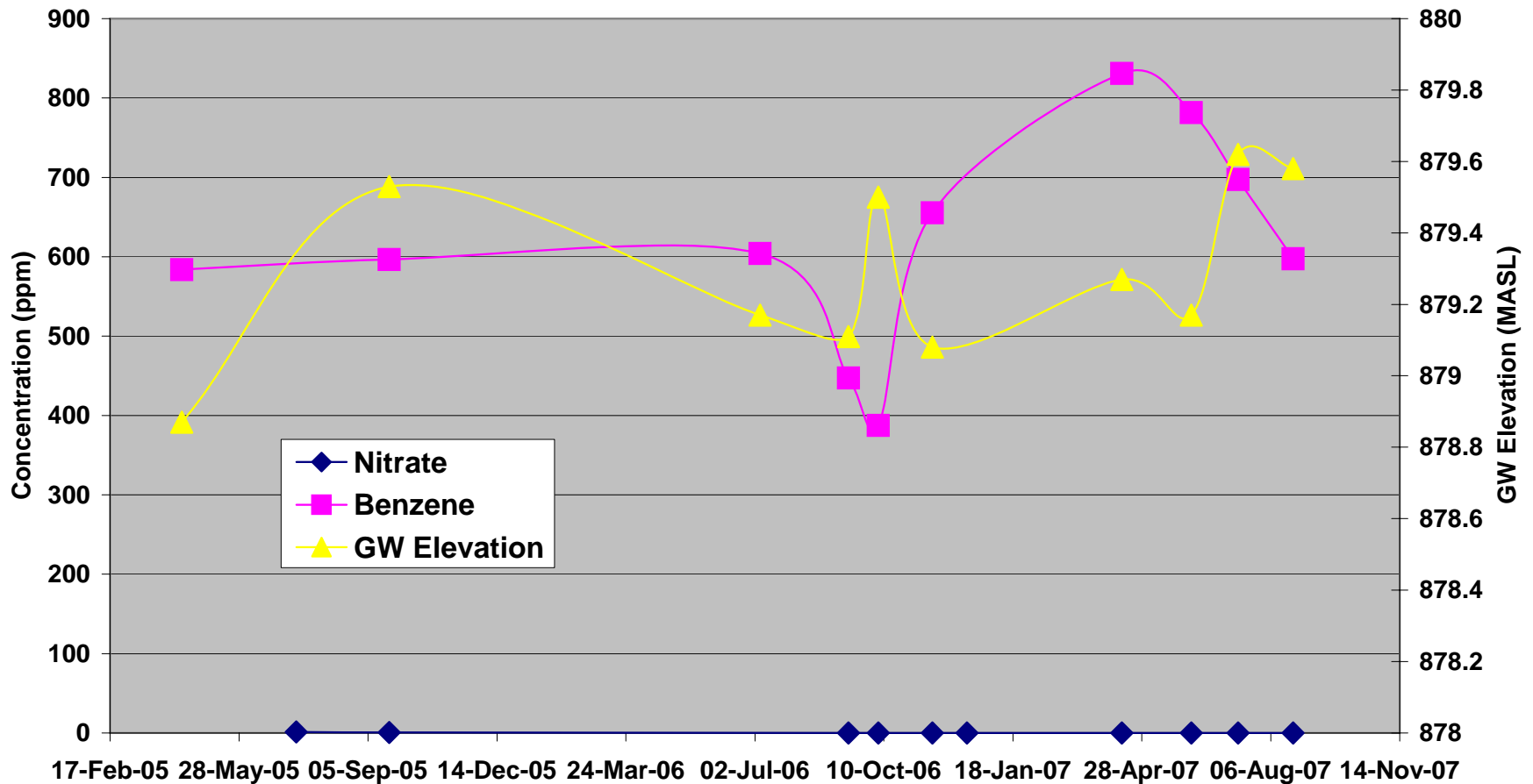
This is NOVA Chemicals

Relationship Between Benzene and Nutrients

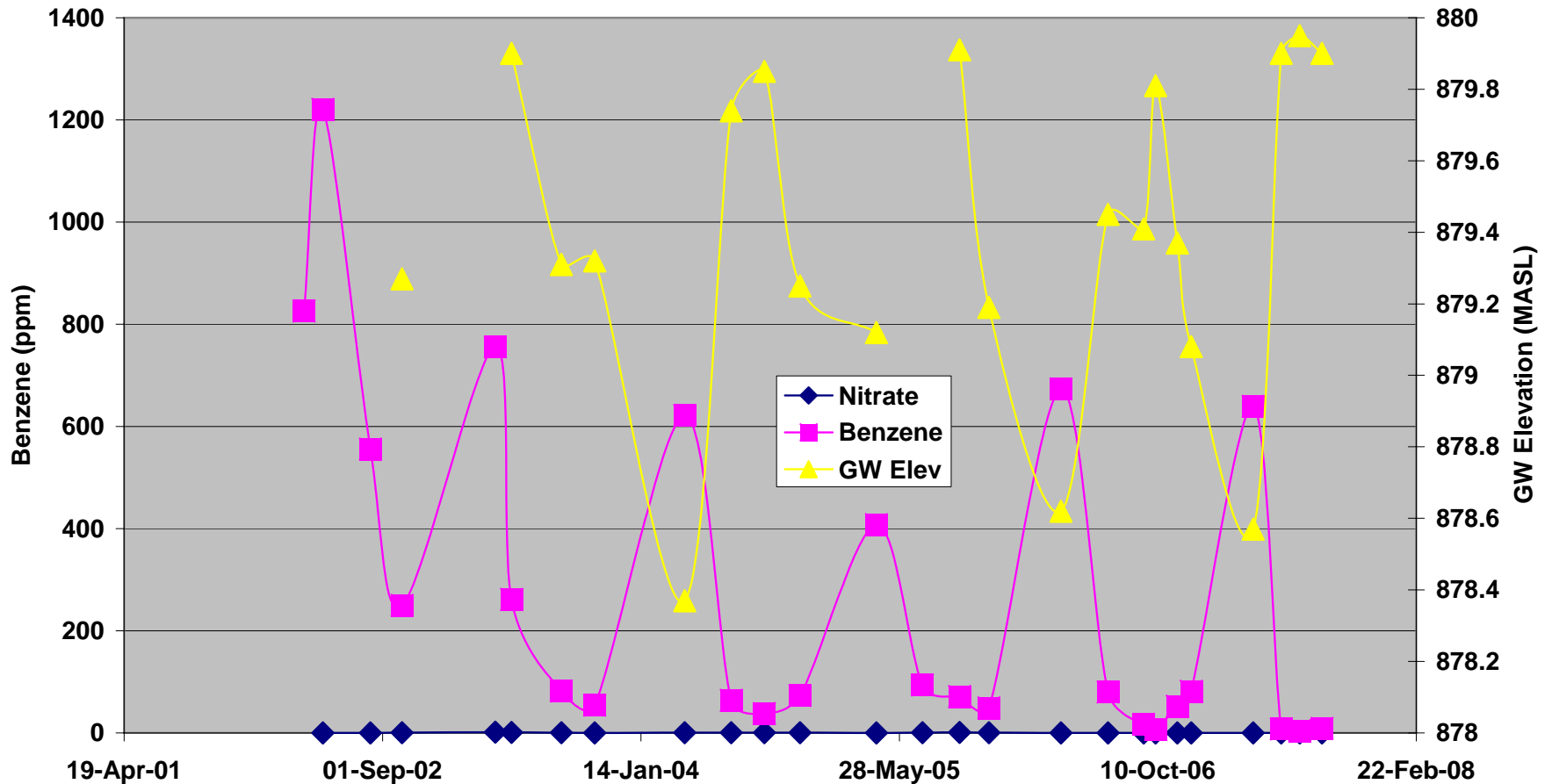


This is NOVA Chemicals

SW10 – Relationship between benzene, nitrate and groundwater elevation

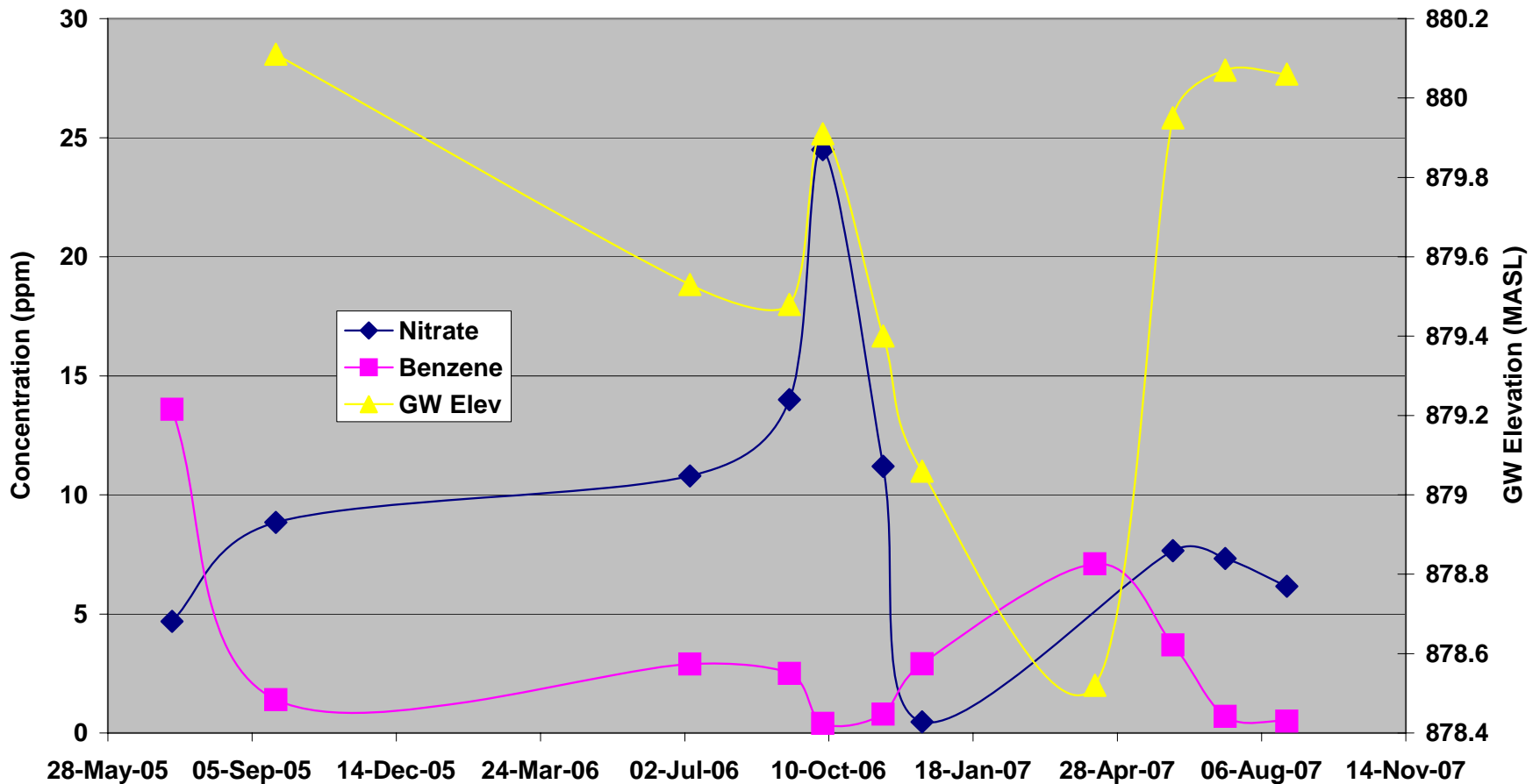


HS1 – Relationship between benzene, nitrate and groundwater elevation

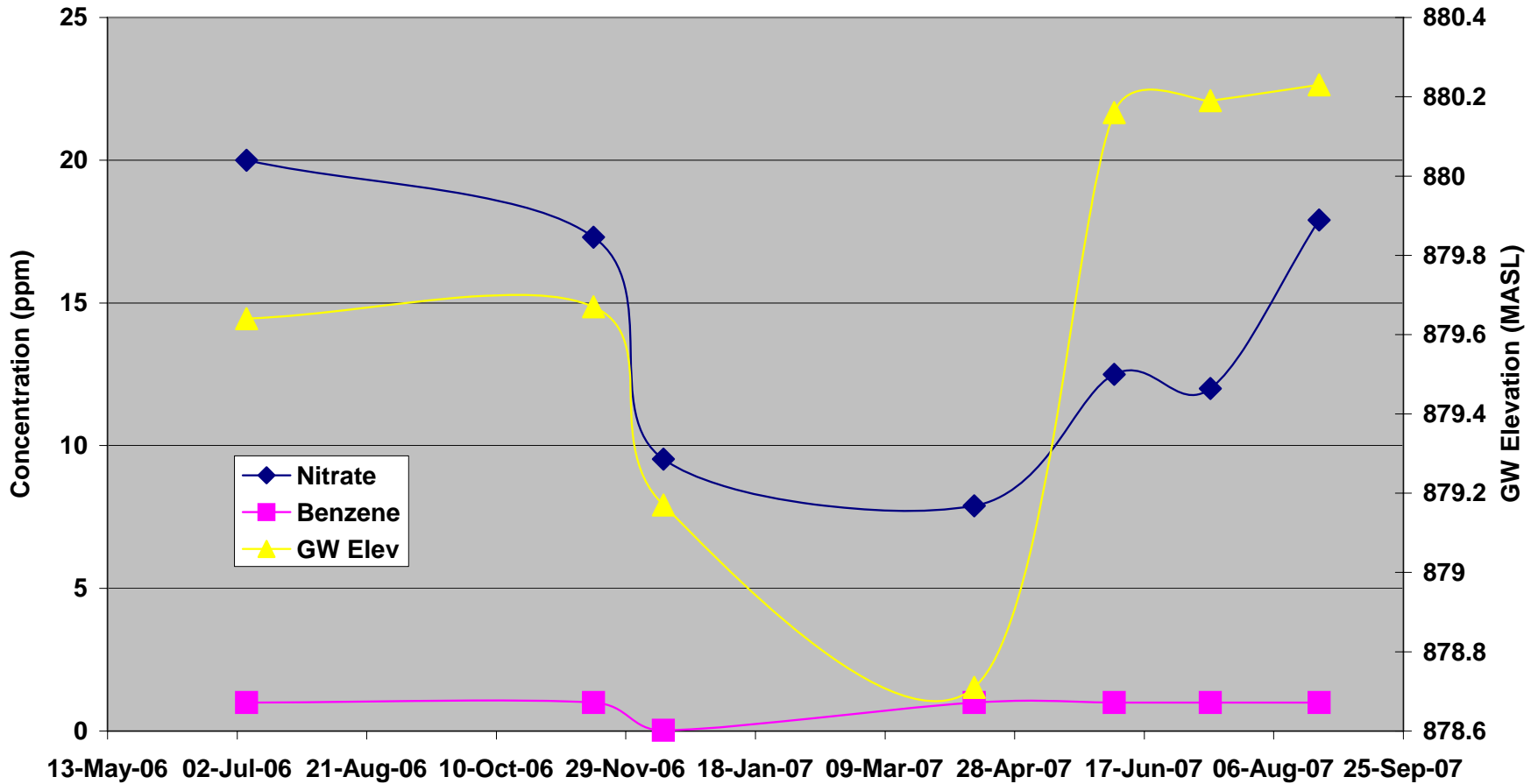


This is NOVA Chemicals

HA2 – Relationship between benzene, nitrate and groundwater elevation

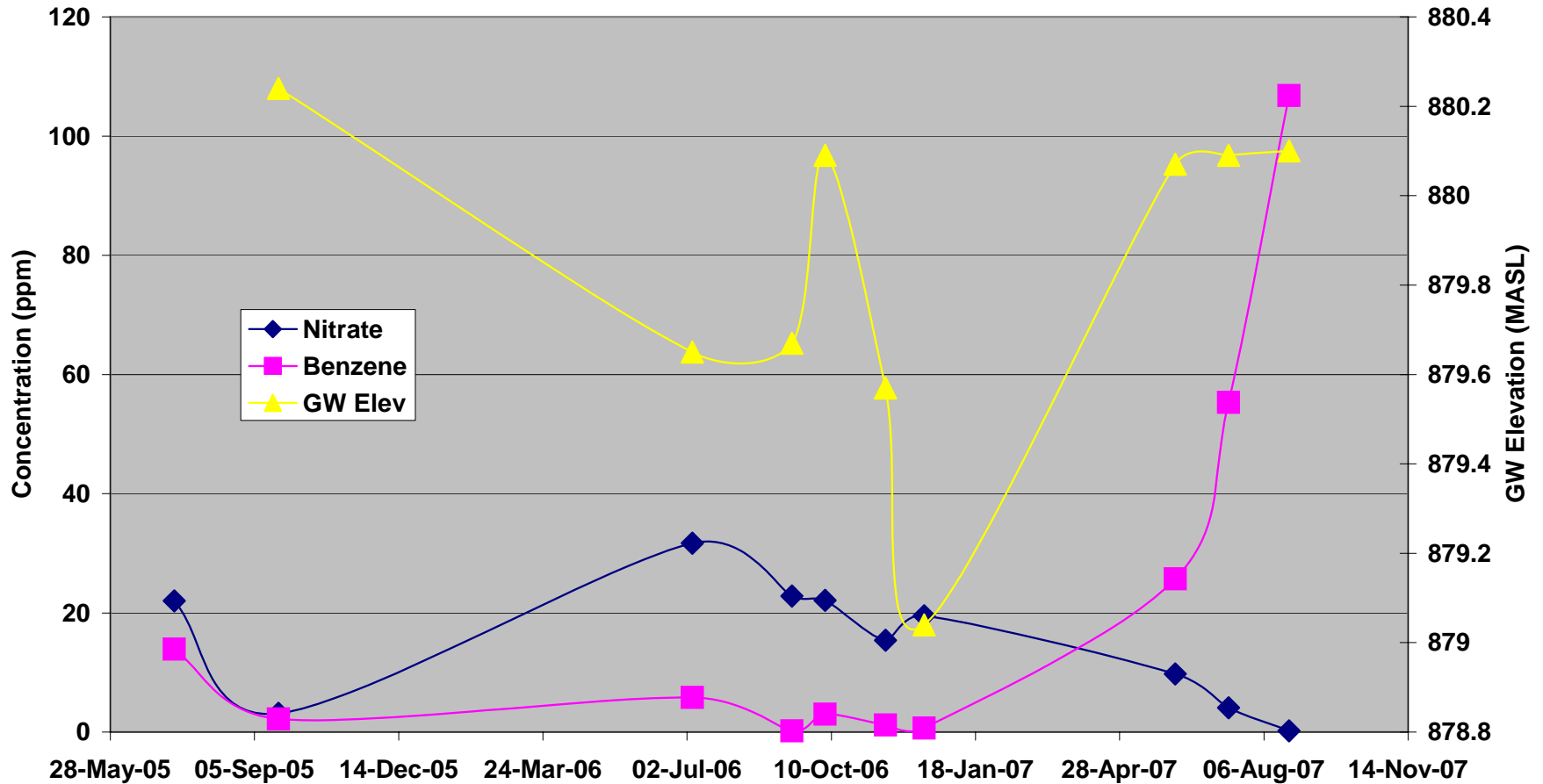


HW1 – Relationship between benzene, nitrate and groundwater elevation



This is NOVA Chemicals

HA7 – Relationship between benzene, nitrate and groundwater elevation



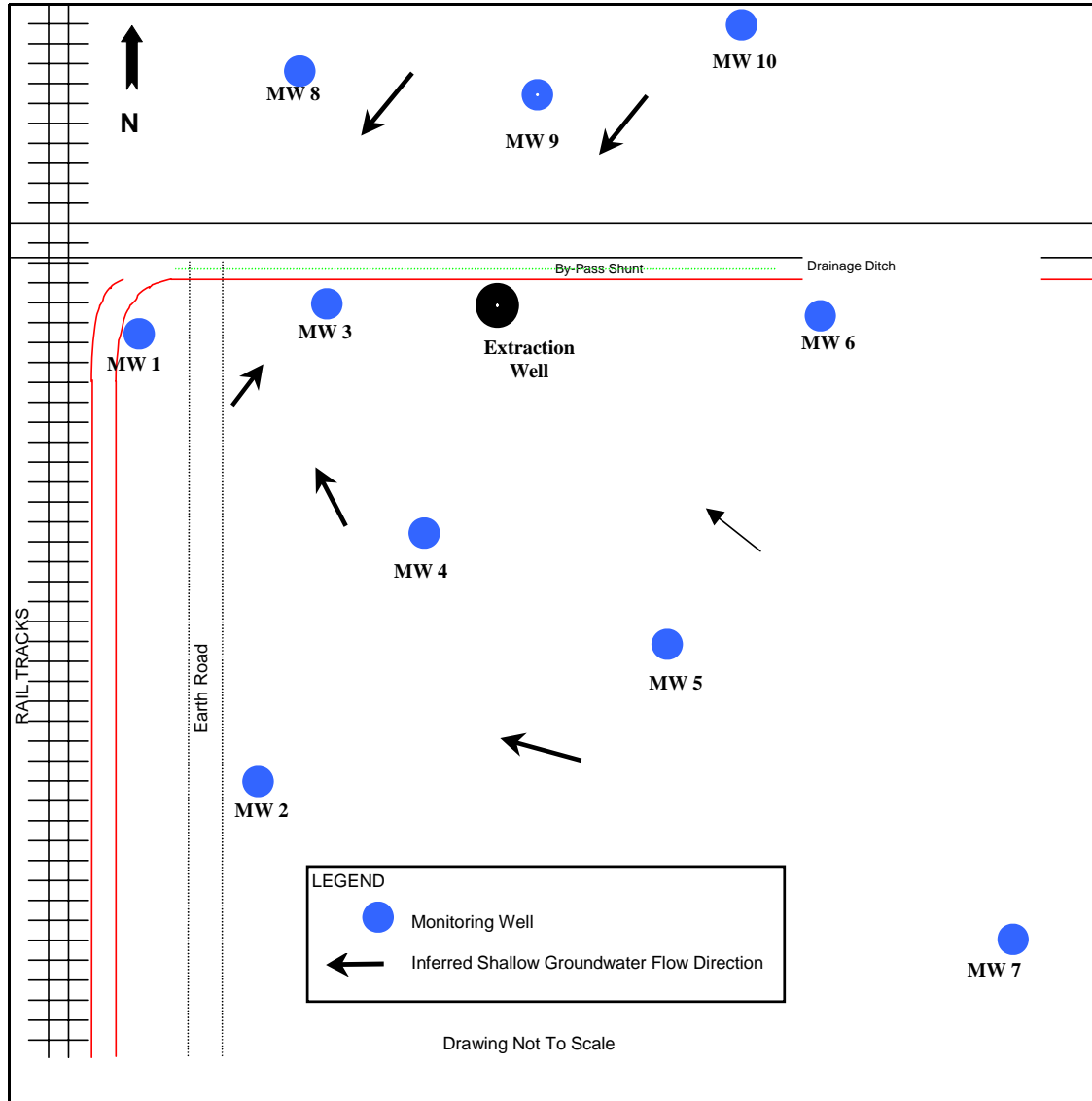
This is NOVA Chemicals

Site C

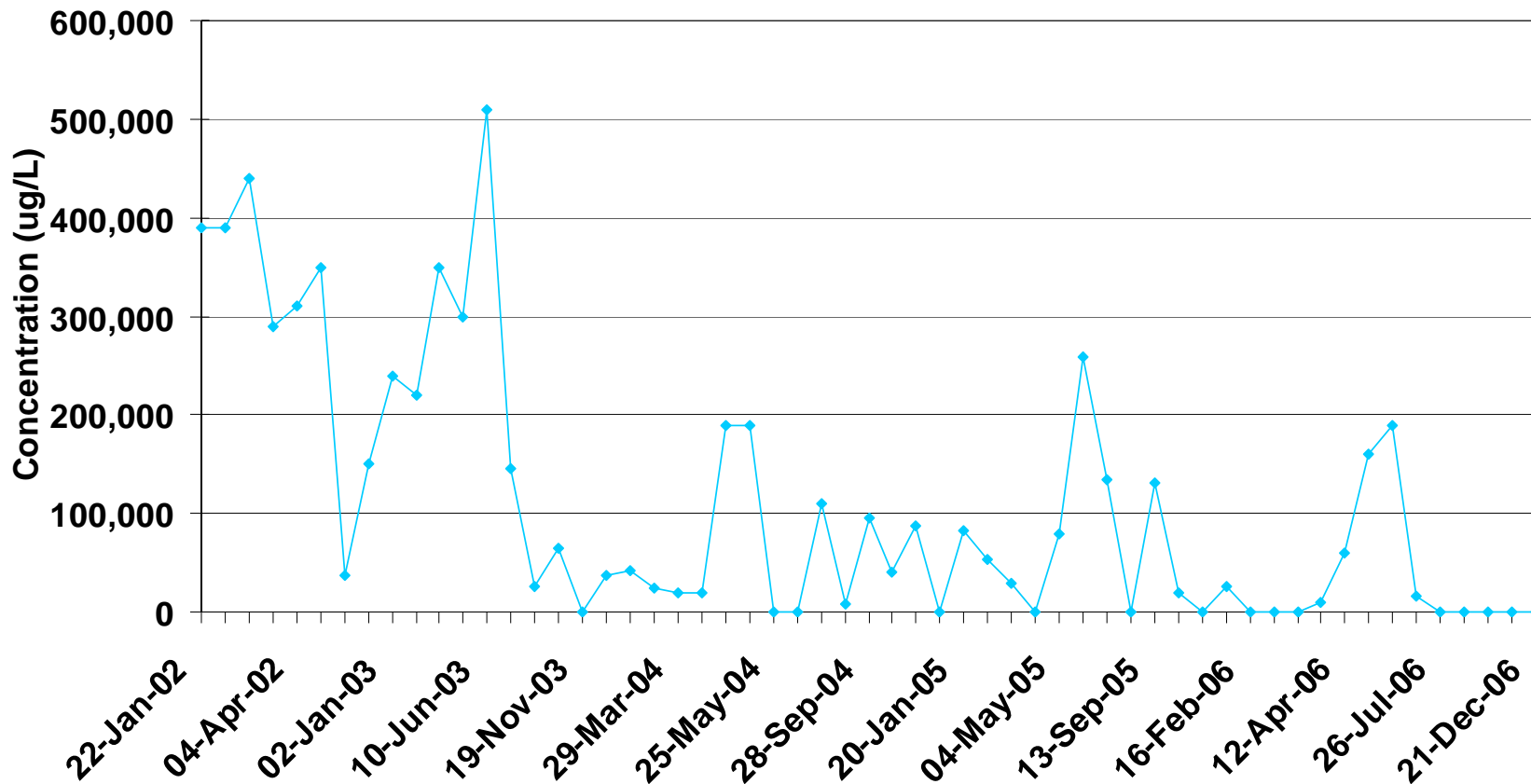


This is NOVA Chemicals

Site C

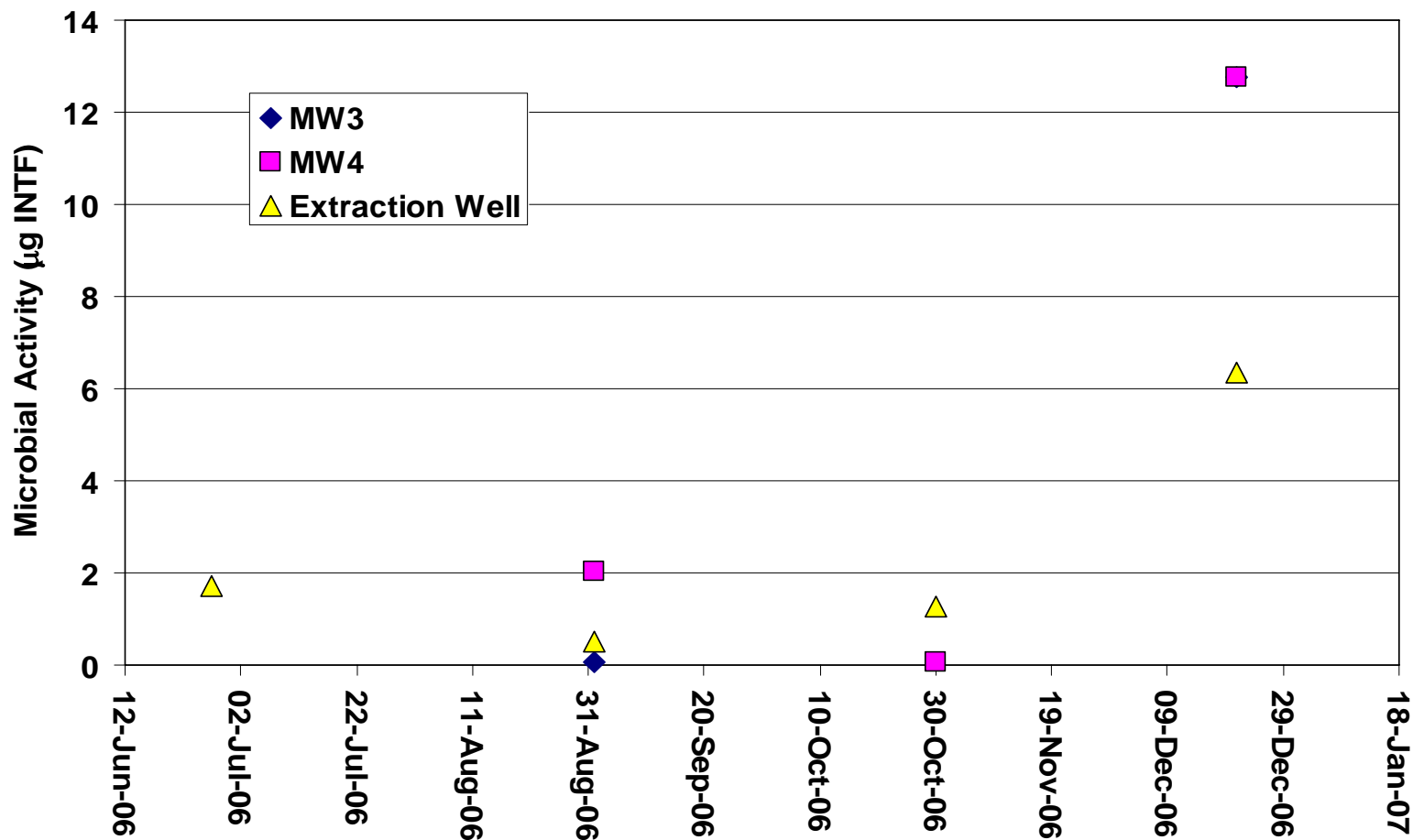


Benzene Concentration at the Extraction Well



This is NOVA Chemicals

Increase in Microbial Activity after Nutrient Injection

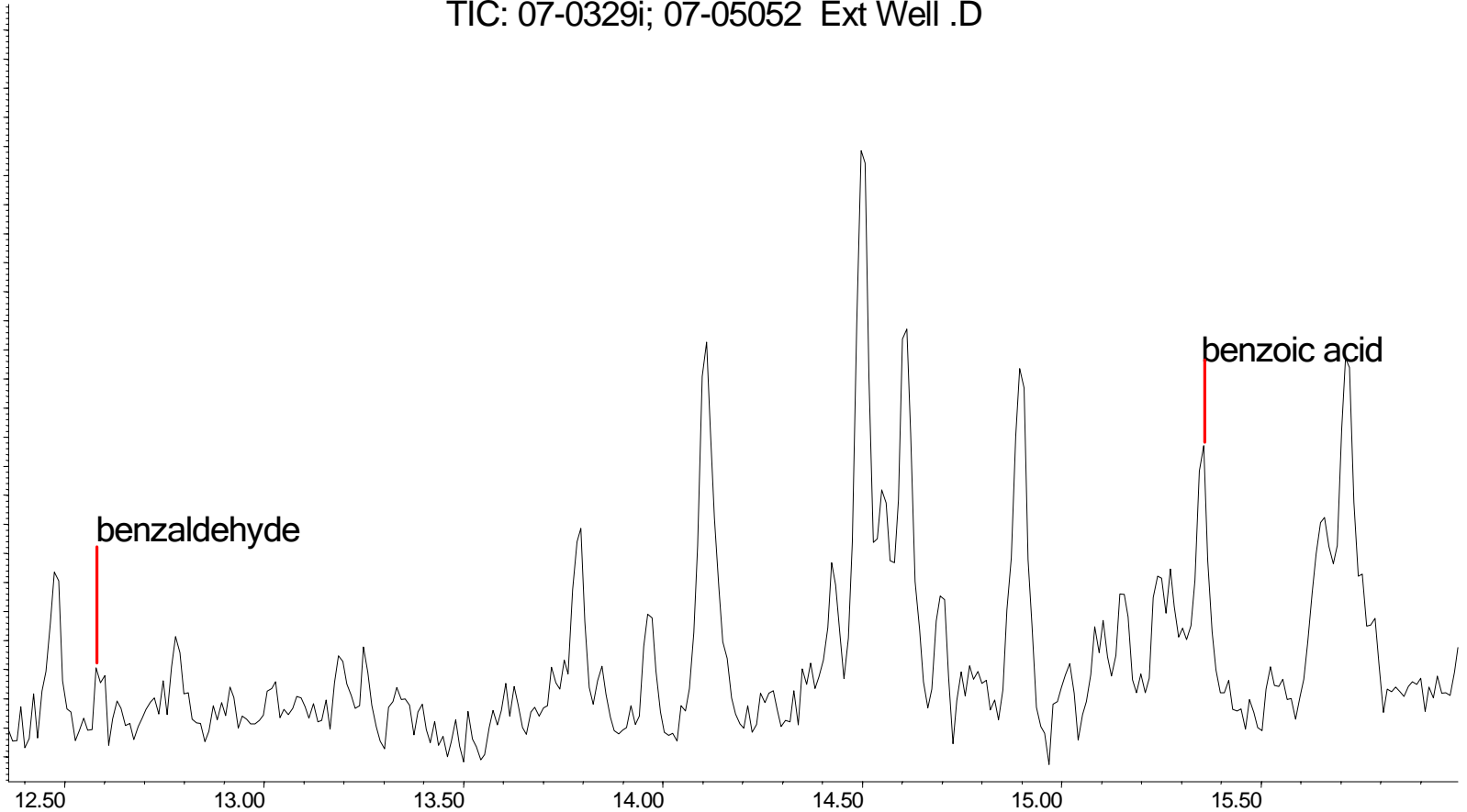


Benzene Metabolic Intermediates Extracted from Extraction Well

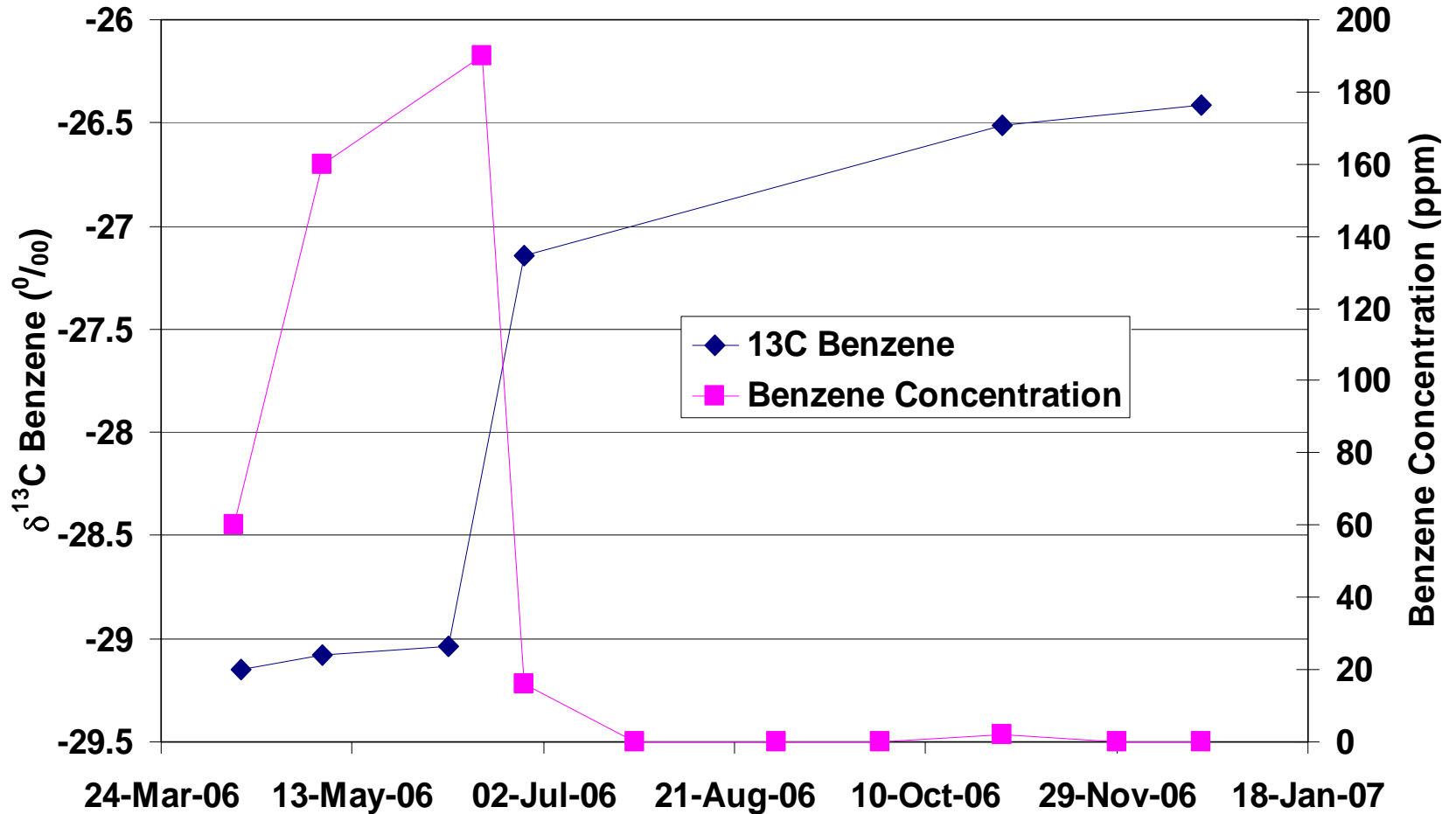
Abundance

TIC: 07-0329j; 07-05052 Ext Well .D

33000
32000
31000
30000
29000
28000
27000
26000
25000
24000
23000
22000
21000
20000
19000
18000
17000
16000
15000
14000
13000
12000
11000

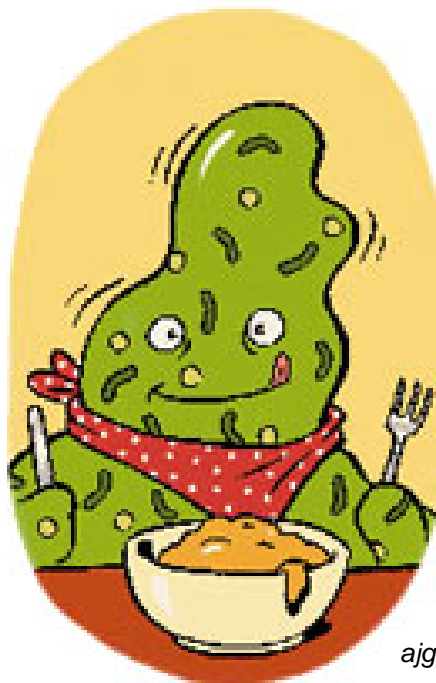


Relationship Between Benzene Concentration and $\delta^{13}\text{C}$ Benzene



This is NOVA Chemicals

Final Thoughts



ajgarces@earthlink.net