

**ECONOMIC COMPARISON OF
A GHG EMISSION
REDUCTION SYSTEM AT A
REGIONAL MUNICIPAL
SOLID WASTE
MANAGEMENT FACILITY**

SYSTEM GOAL

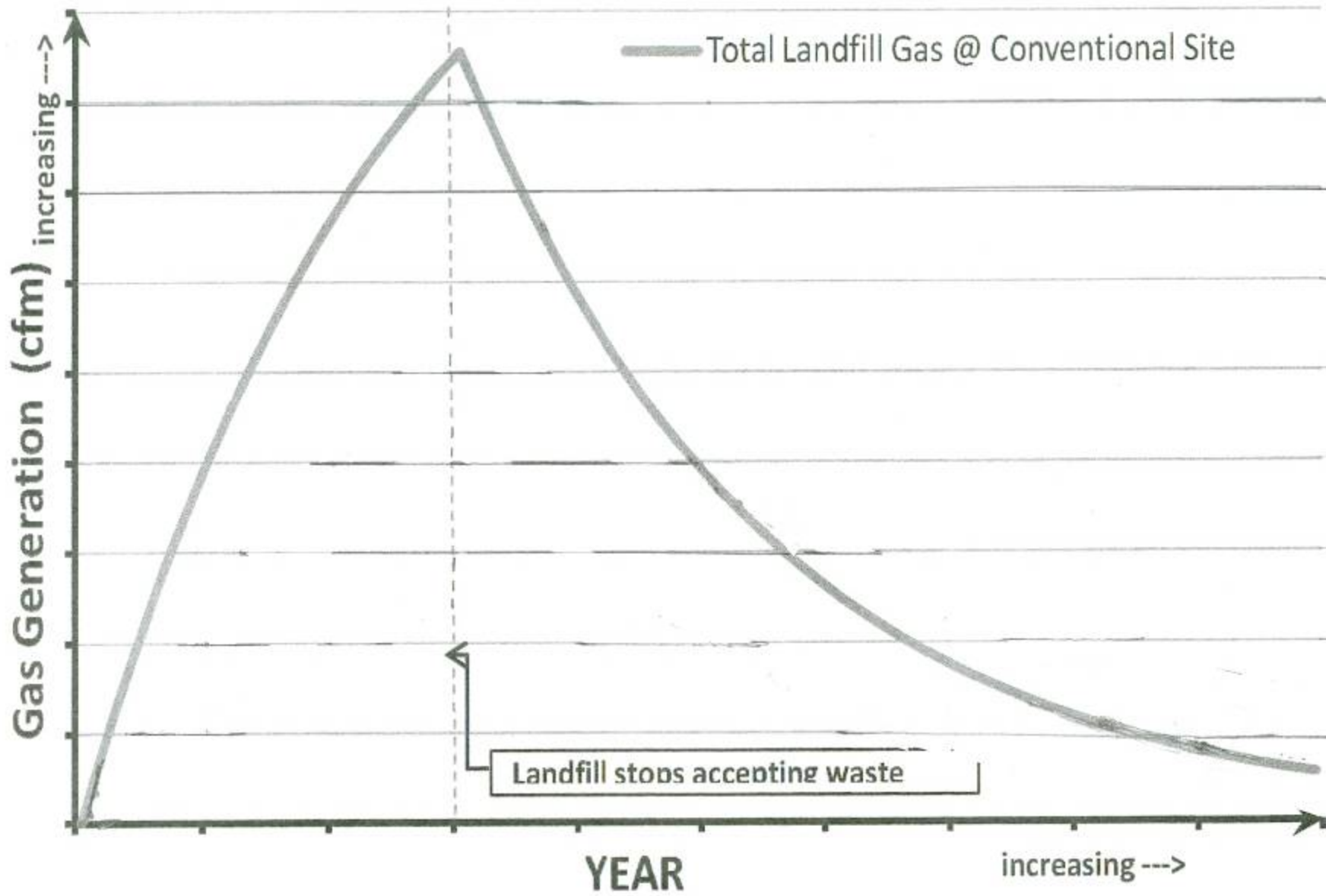
ELIMINATE METHANE

EMISSIONS

AEROBICALLY

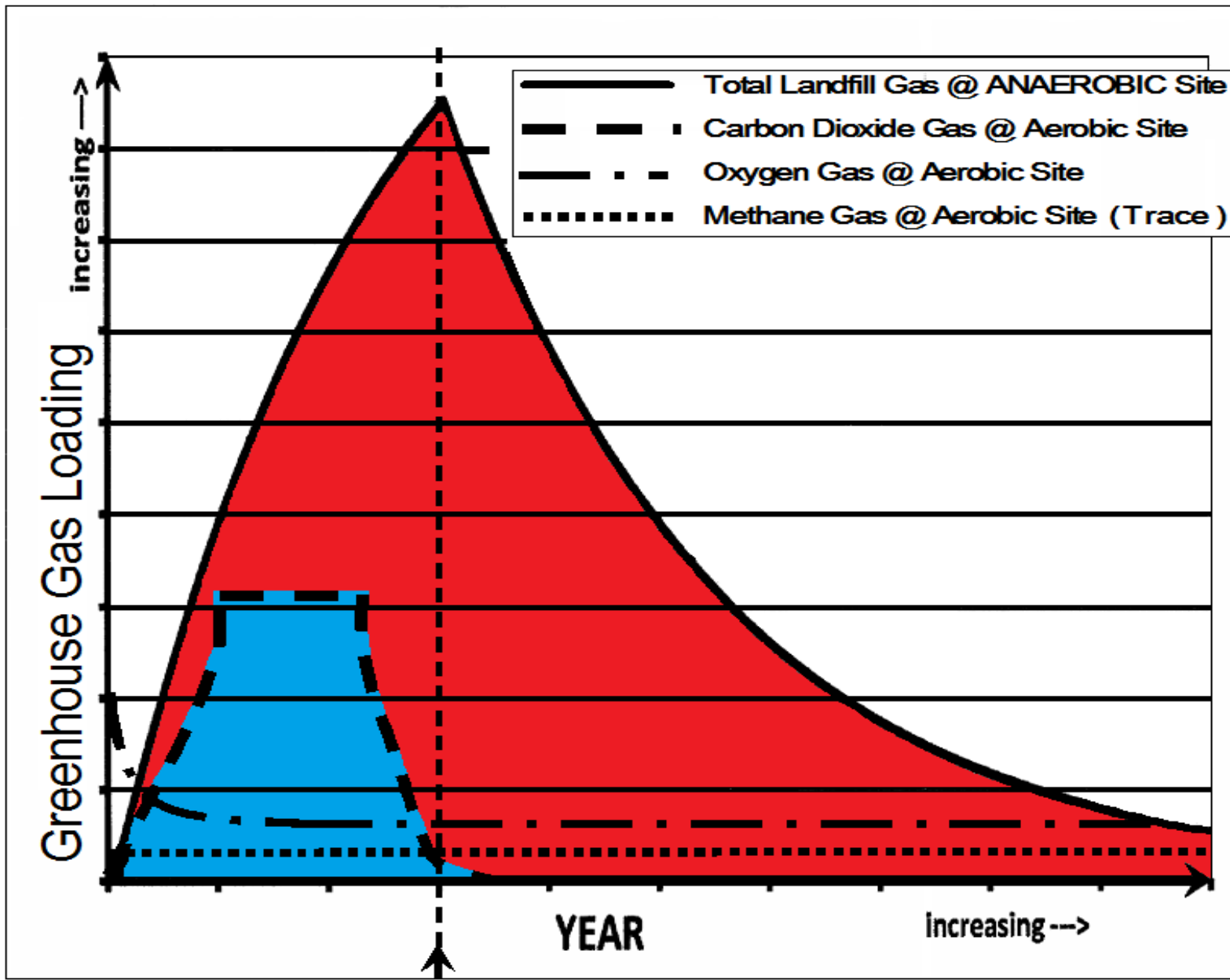
WHILE

REDUCING COSTS



US EPA

GHG Generation Curves



PROJECT RESULTS

- ELIMINATION OF METHANE RELEASE
- LEACHATE TREATMENT
- EXTENDED LANDFILL LIFE

MODIFICATION COST

NEW SUBTITLE “D” CELL

- **CELL COST \$1,194,512**
- **DIRECTLY ATTRIBUTED EXPENSE \$8,425**
- **INDIRECT/ASSOCIATED EXPENSE \$ 104,554**

ECONOMIC QUANTIFICATION

- AVOID AN \$800,000 COLLECTION SYSTEM
- EXTEND FACILITY LIFE/DECREASE CONSTRUCTION COST BY 80+%
- MINIMIZE POST CLOSURE SITE LIABILITY
- LEACHATE COST REDUCED BY \$0.053 PER GALLON

PROJECT DOCUMENTATION

- EXTENSIVE SUBSURFACE, SURFACE, AND SUPER SURFACE EMISSION TESTING
- ON-SITE LEACHATE TREATMENT TO CLEAN WATER STANDARDS-TEST RESULTS
- ORGANICS PROCESSED TO HIGH QUALITY COMPOST STANDARDS-TEST RESULTS



Starting Location

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PROJECT ILLUSTRATION

“THE MATTRESS TEST”









HUMMUS

























TREATMENT



TREATMENT ECON

ON-SITE TREATMENT

\$ 138,124

HAUL TO POTW

\$ 1,140,000









**PROJECT
DOCUMENTATION
EMISSIONS TESTING**

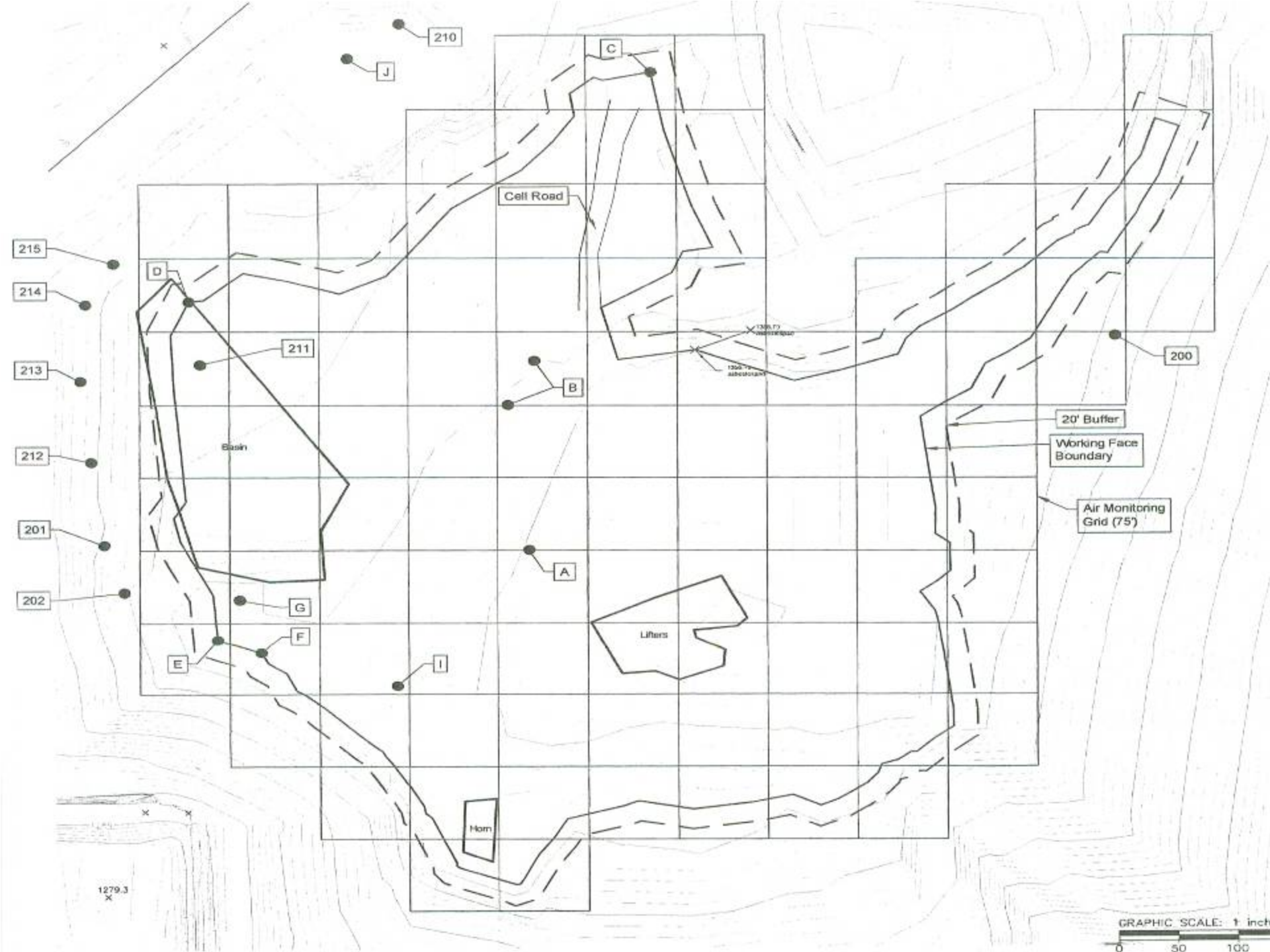


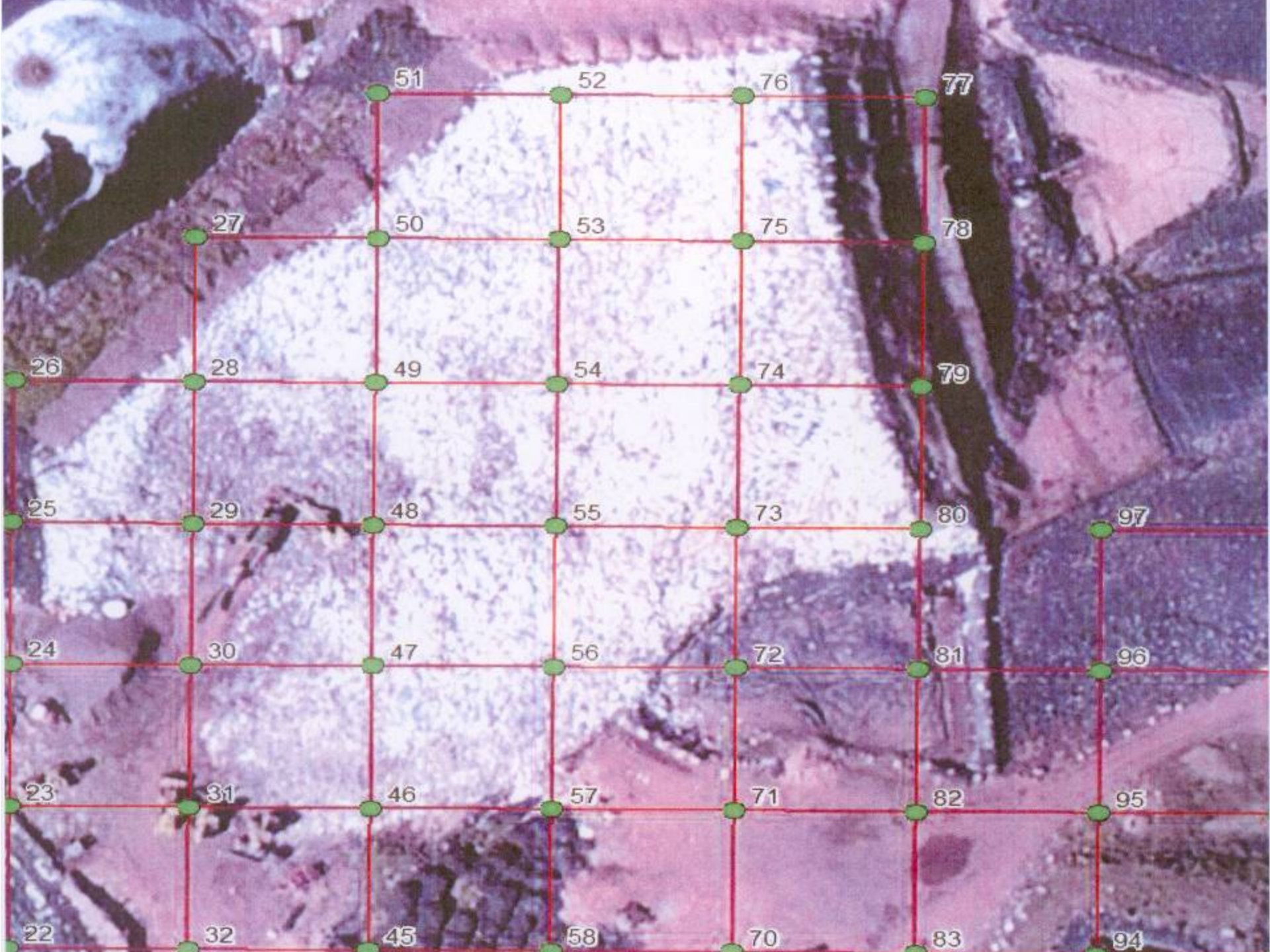
Starting Location

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Google earth







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Gascope® Combustible Gas Indicator

model 60

CALIBRATED
FOR

METHANE part no. 465475

SERIAL
NUMBER

13939

WARNING

THE ULTIMATE USER MUST READ AND UNDERSTAND THE MODEL 60 INSTRUCTION MANUAL BEFORE
USE. FAILURE TO FOLLOW THE INSTRUCTIONS CAN RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

OPERATING INSTRUCTIONS

1. Set range switch on 0-5. Move power switch to ON and thoroughly purge the instrument by aspirating fresh air through it.
 2. After READY lamp illuminates, zero meter with 0-5 zero control.
 3. Set range on 0-100; after READY lamp illuminates, zero meter with 0-100 zero control.
 4. Aspirate sample into inlet from area to be tested; note highest meter reading.
 5. With instrument on 0-5 range, meter 0.
 6. Check for leak by aspirating instrument with fresh air; turn switch OFF.
- NOTE: Always test all both ranges after READY lamp illuminates. Repeat calibration when READY lamp will not illuminate.

MFD. BY
MSA MINE SAFETY APPLIANCES COMPANY
PHILADELPHIA, PENNSYLVANIA, U.S.A. 19130



RANGE

0-100

ON

OFF

0-100

IF YOU ARE USING THIS INSTRUMENT IN A MINE, YOU MUST READ AND UNDERSTAND THE MODEL 60 INSTRUCTION MANUAL BEFORE USE. FAILURE TO FOLLOW THE INSTRUCTIONS CAN RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

OPERATING INSTRUCTIONS

1. Set range switch on 0-5. Move power switch to ON and thoroughly purge the instrument by aspirating fresh air through it.
2. After READY lamp illuminates, zero meter with 0-5 zero control.
3. Set range on 0-100; after READY lamp illuminates, zero meter with 0-100 zero control.
4. Aspirate sample into inlet from area to be tested; note highest meter reading.
5. With instrument on 0-5 range, meter 0.
6. Check for leak by aspirating instrument with fresh air; turn switch OFF.

NOTE: Always test all both ranges after READY lamp illuminates. Repeat calibration when READY lamp will not illuminate.



MSA

SIRIUS

On/Off

Page



Accept

Reset

ISOBUTYL

MEM	20.8
0	0
VOL	0
0.0	0



SUBSURFACE







SURFACE











**PROJECT
DOCUMENTATION
EMISSIONS TESTING
RESULTS**

EMISSIONS TESTING RESULTS

EPA EGGRT MODEL

35,000 TONS CO₂ EQUIVALENT
METHANE

ACTUAL RESULTS **0** TONS
CO₂ EQUIVALENT METHANE

CONCLUSION

LANDFILL METHANE
EMISSIONS CAN BE
COST EFFECTIVELY
ELIMINATED