New York State Department of Environmental Conservation
Division of Hazardous Waste Remediation
50 Wolf Road
Albany, New York 12233-4015

Add ____
Modify ____
Reclassify X
Delist ____

ADDITIONS/CHANGES TO REGISTRY OF INACTIVE HAZARDOUS WASTE DISPOSAL SITES

RECEIVED

JUN 21 1989

BUREAU OF
HAZARDOUS SITE CONTROL
DIVISION OF HAZARDOUS
WASTE REMEDIATION

Site Name Former Geneva Coal Gasification Plant **DEC ID Number** 850008

Site Address North Street, Waterloo **County** Seneca

___ **Add New Site:** (Potential hazardous waste site, Site Inspection Summary Report, EPA Preliminary Assessment Form and Registry Form must be completed and attached)

___ Modify Registry data (detail below)

_X_ Reclassify from class 2a to class 2 . (justify below)

___ Delist (justify below)

Detail/Justification

The Geneva Coke Plant of New York State Electric & Gas produced both liquid and solid wastes which were disposed of on-site. The disposal of sludge/tar generated from the Ammonia Concentrate building and the By-Product building (Task 1 Report) is considered as hazardous waste disposal (6NYCRR Part 371 Section 371.4, EPA Hazardous Waste #K060, K087).

Analysis of groundwater samples has indicated exceedences of regulatory guidelines and standards for PAH's, total phenols, antimony, beryllium, iron, lead, sulfate and cyanide. Similar contaminants were also found at elevated levels in soils, surface water and stream sediments (refer enclosed letter from Mike Ryan to Ray Lupe).

Prepared by Manmohan Mehta Date: June 15, 1989

Approvals:

Reg. Haz. Waste Eng. _____ Date: 6/16/89

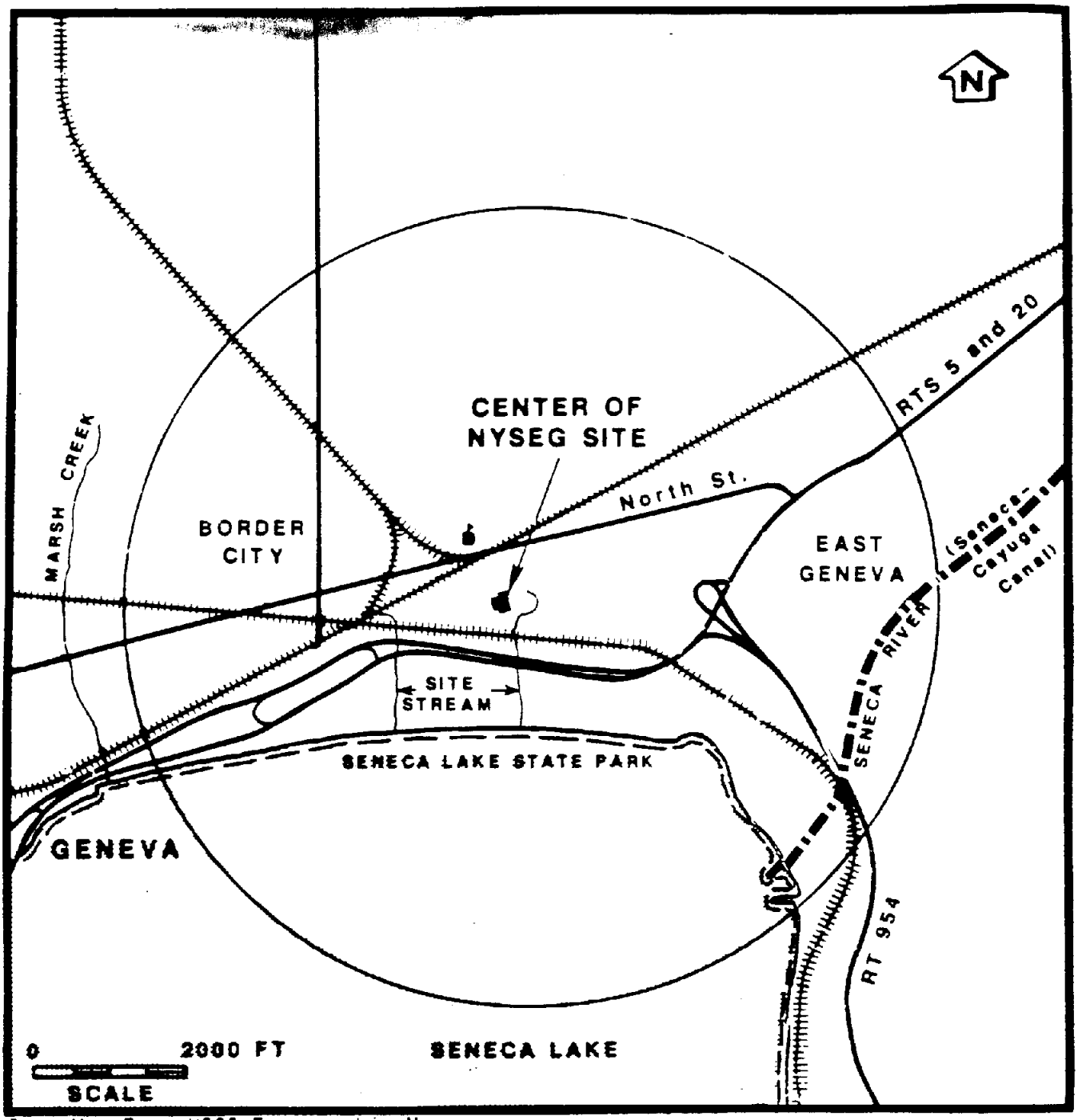
R. Tramontano NYSDOH _____ Date: 10/2/89

R. Dana/DEE _____ Date: 7/10/89

W. Demick/J. Swartwout/ D. Curtis _____ Date: 6/30/89

R. Marino _____ Date: 10/18/89

E. Barcomb _____ Date: 10/19/89



Base Map From USGS Topographic Map

(circle indicates 1 mile radius from site center)

Figure 3-1 Site Location

in soils where former gas plant structures (such as gas holders) had been located.

The predominant liquid waste generated at the Geneva site was quench water from the coking operations. Initially this water was discharged to a site stream. In 1923 a concrete-lined sludge basin was constructed and the water was pumped to the basin and allowed to separate. The supernatant was discharged to the site stream while the lower liquid layer was pumped into an 8-inch diameter, 336-foot deep injection well.

The environmental investigation has provided historical, geological, and hydrological information, as well as chemical data for ground water, stream water and sediment, lake sediment, soil, wastes, and air. Samples were analyzed for chemicals commonly found at coal gasification sites including polynuclear aromatic hydrocarbons (PAHs), volatile organic compounds, cyanides, non- chlorinated phenols and metals.

Specific "chemicals of interest" were selected for consideration in the risk assessment. Chemicals were included in the analysis if they were found at the site in elevated concentrations, have the potential for exerting acute or chronic health effects, and/or were present at levels exceeding established guidelines or standards. The assessment integrates two bodies of information for these chemicals: 1) site specific exposure analysis, and 2) health/ environmental effects data. The latter information is taken from the available literature and is often summarized by regulatory agencies (primarily EPA) in the form of "potency factors" or "Acceptable Intake Chronic or Acute Values".

Various transport models are used to estimate exposure point concentrations from laboratory measurements of field samples. In this analysis nominal values are used where data are reported as less than a

presence of "blue billy" found coating some rocks near the site of the gas holder and purifier building.

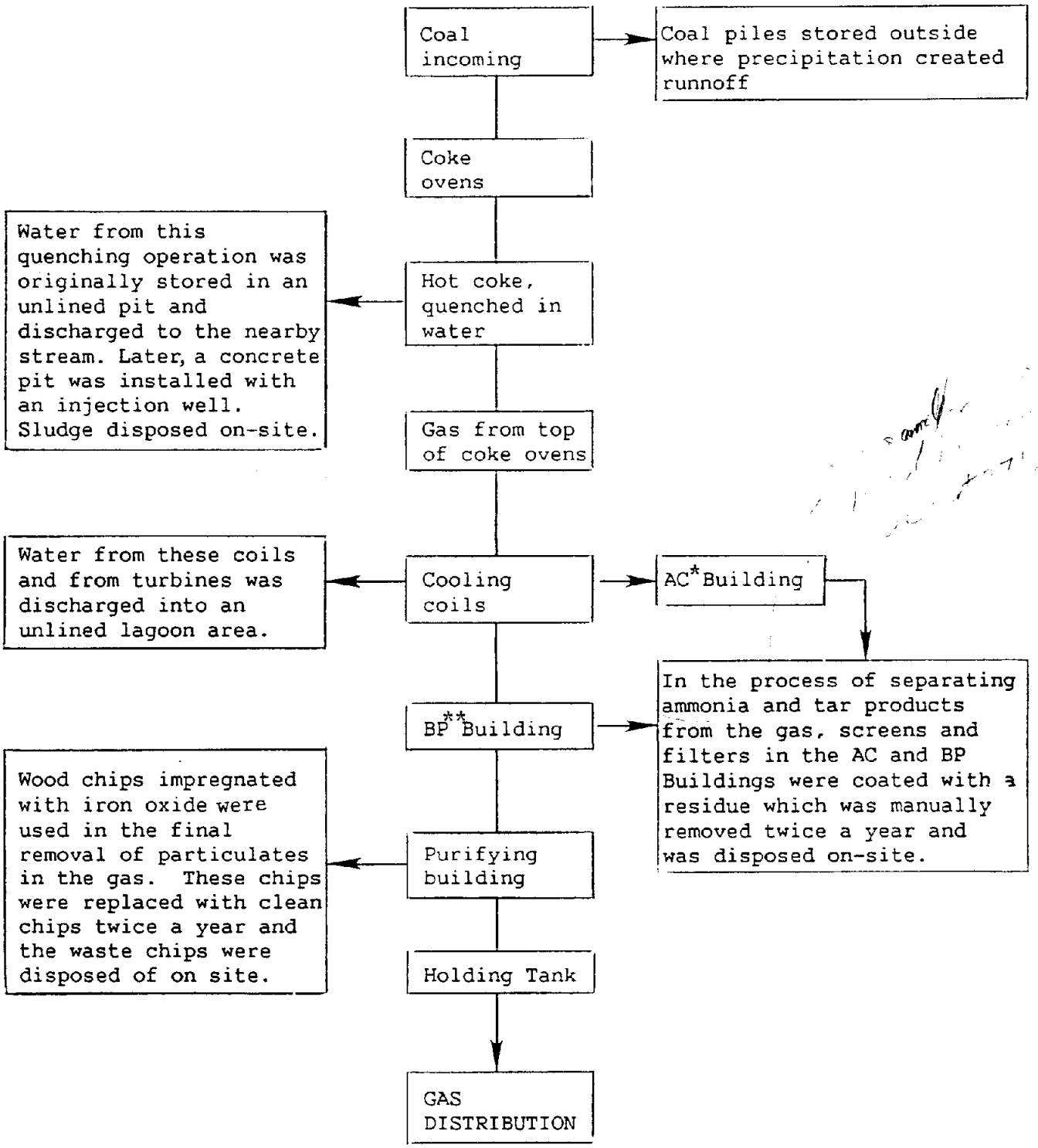
The use of a deep injection well to dispose of coke quench water suggests that there may be coal tar constituents at depths greater than 200 feet, i.e., in the bedrock. Within a one mile radius of the site, there are no potable water wells in the bedrock formation.

Air quality impacts from volatile organic compounds appear to be minor and present minimal risk to on-site workers. The measured levels are at or below the benzene threshold limit value (TLV) of 10 ppm (Time Weighted Average)(Lederer, 1985) established by the American Conference of Industrial Hygienists. One high reading was detected in the transmission room of the natural gas compressor building, an area not frequented by employees. It is suspected that this reading was caused by minor natural gas leakage. Natural gas is a simple asphyxiant, dangerous in very high concentrations; however, no TLV has been established for this substance.

These previous investigations identified direct contact, ground water, surface water, stream sediments, and possibly fugitive dust from the former disposal area, as primary potential contaminant pathways. Fugitive dust was later eliminated as a possible pathway due to the moist nature of the site.

At the conclusion of Task 1 the spatial extent of the constituents in both the near surface and deeper levels was not known. In addition, the data collected were insufficient to establish the type(s) and quantity of the material disposed of and the extent of any plume that may exist because of that disposal.

The method by which the suspected tars entered the stream sediments also has not been determined. This information is important because a direct disposal route suggests that the level of contamination is not increasing



*AMMONIA CONCENTRATE
**BY-PRODUCT

Figure 3-3 Waste Generation Flow Diagram
Geneva Coal Gasification Plant

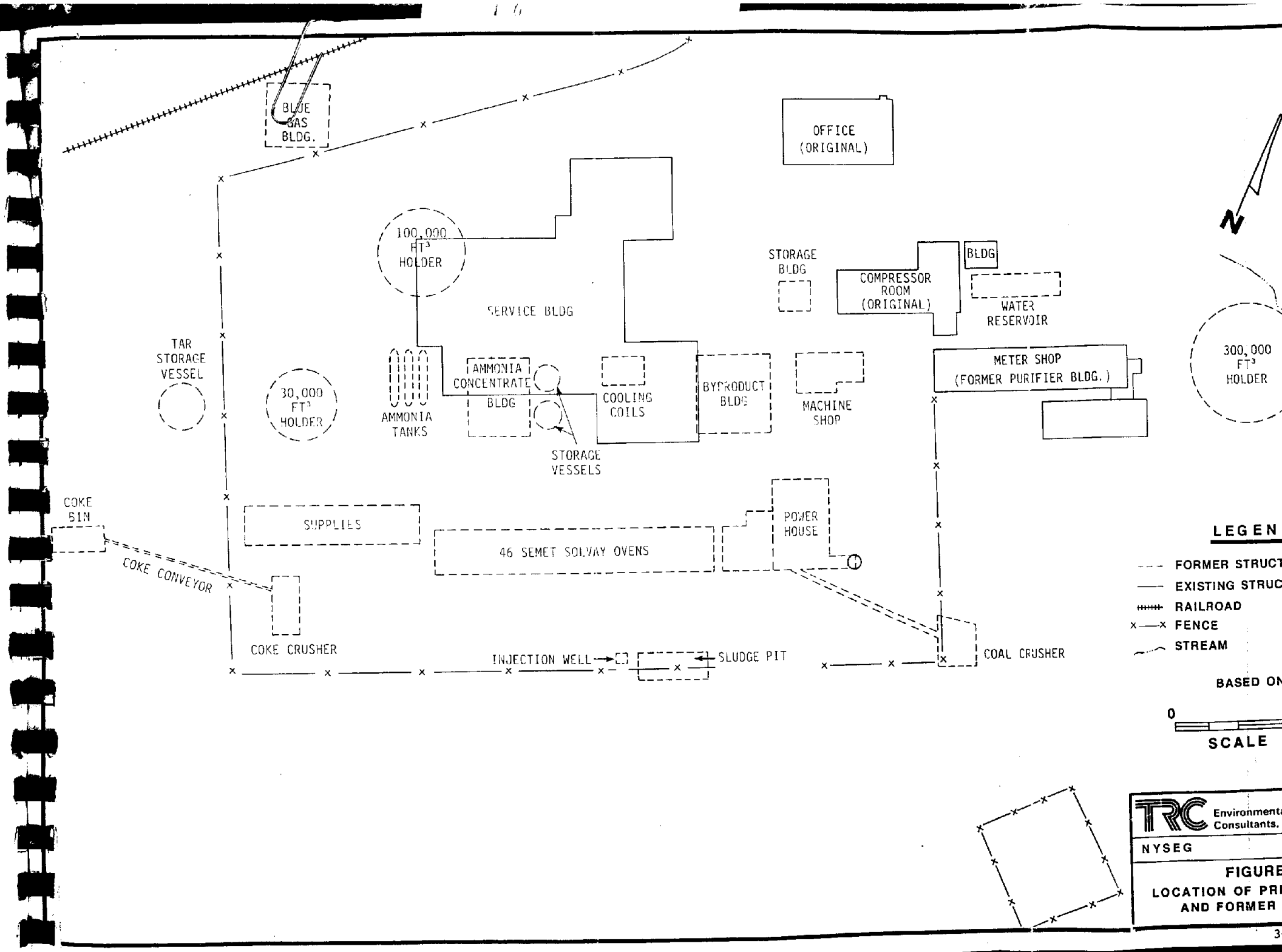

BLUE GAS BLDG.
OFFICE (ORIGINAL)
100,000 FT³ HOLDER
SERVICE BLDG
STORAGE BLDG
COMPRESSOR ROOM (ORIGINAL)
BLDG
WATER RESERVOIR
TAR STORAGE VESSEL
30,000 FT³ HOLDER
AMMONIA TANKS
AMMONIA CONCENTRATE BLDG
COOLING COILS
BYPRODUCT BLDG
MACHINE SHOP
METER SHOP (FORMER PURIFIER BLDG.)
300,000 FT³ HOLDER
STORAGE VESSELS
COKE BIN
SUPPLIES
46 SEMET SOLVAY OVENS
POWER HOUSE
COKE CONVEYOR
COKE CRUSHER
INJECTION WELL
SLUDGE PIT
COAL CRUSHER
LEGEN
FORMER STRUCT
EXISTING STRUC
RAILROAD
FENCE
STREAM
BASED ON
0
SCALE
TRC Environmenta Consultants.
NYSEG
FIGURE
LOCATION OF PR AND FORMER

TABLE E-29 (Cont.)

GENEVA GROUND WATER SAMPLES

RESULTS FROM COMPUCHEM - SUMMARY OF RESULTS - ROUND 1

CONSTITUENT	STANDARD DETECTION LIMIT MG/L	SAMPLE ID DATE SAMPLE TYPE	MW-1D 2/26/86 GRAB MG/L	MW-2S 2/25/86 GRAB MG/L
ORGANIC COMPOUNDS				
ACID EXTRACTABLES				
PHENOL	0.001		0.010	0.036	ND
2,4-DIMETHYLPHENOL			0.010	0.011	ND
VOLATILE ORGANICS				
METHYLENE CHLORIDE	0.05		0.010	ND	0.010
INORGANIC COMPOUNDS				
METALS				
MERCURY, TOTAL	0.002		0.00020	0.00032	0.0070
ZINC, TOTAL	5.0		0.020	0.080	0.16
CYANIDES				
TOTAL CYANIDE	0.2		0.010	ND	1.8

TABLE E-30 (Cont.)

GENEVA GROUND WATER SAMPLES

RESULTS FROM COMPUCHEM - ROUND 2

CONSTITUENT	STAN-DARD	DETECTION LIMIT MG/L	SAMPLE ID: MW-3S DATE: 5/1/86 SAMPLE TYPE: GRAB MG/L	SAMPLE ID: MW-3D DATE: 5/1/86 SAMPLE TYPE: GRAB MG/L
INORGANIC COMPOUNDS				
METALS				
ANTIMONY, TOTAL	0.003	0.050	ND	ND
ARSENIC, TOTAL	0.025	0.050	0.075	ND
BERYLLIUM, TOTAL		0.020	ND	ND
CADMIUM, TOTAL		0.010	ND	ND
CHROMIUM, TOTAL		0.050	ND	ND
COPPER, TOTAL		0.10	ND	ND
LEAD, TOTAL	0.025	0.050	0.16	ND
MERCURY, TOTAL	0.002	0.00020	0.00038	0.00038
NICKEL, TOTAL		0.10	ND	ND
SELENIUM, TOTAL		0.010	ND	ND
SILVER, TOTAL		0.050	ND	ND
THALLIUM, TOTAL		0.050	ND	ND
ZINC, TOTAL	5.0	0.020	0.20	0.080
PHENOLS				
TOTAL PHENOL	0.001	0.010	0.034	ND
CYANIDES				
TOTAL CYANIDE	0.2	0.010	0.075	ND

TABLE E-31 (Cont.)

GENEVA GROUND WATER SAMPLES

RESULTS FROM COMPUCHEM - ROUND 3

CONSTITUENT	STANDARD	DETECTION LIMIT MG/L	SAMPLE ID: MW-2S DATE: 8/7/86 SAMPLE TYPE: GRAB MG/L	SAMPLE ID: MW-2D DATE: 8/7/86 SAMPLE TYPE: GRAB MG/L
VOLATILE ORGANICS				
CHLOROMETHANE		0.010	ND	ND
VINYL CHLORIDE		0.010	ND	ND
CHLOROETHANE		0.010	ND	ND
BROMOMETHANE		0.010	ND	ND
ACROLEIN		0.100	ND	ND
ACRYLONITRILE		0.100	ND	ND
METHYLENE CHLORIDE	0.05	0.010	0.011*	0.014*
1,1-DICHLOROETHYLENE		0.010	ND	ND
1,1-DICHLOROETHANE		0.010	ND	ND
TRANS-1,2-DICHLOROETHYLENE		0.010	ND	ND
CHLOROFORM		0.010	ND	ND
1,2-DICHLOROETHANE		0.010	ND	ND
1,1,1-TRICHLOROETHANE		0.010	ND	ND
CARBON TETRACHLORIDE		0.010	ND	ND
BROMODICHLOROMETHANE		0.010	ND	ND
1,2-DICHLOROPROPANE		0.010	ND	ND
TRANS-1,3-DICHLOROPROPENE		0.010	ND	ND
TRICHLOROETHYLENE	0.01	0.010	0.021	ND
BENZENE		0.010	ND	ND
CIS-1,3-DICHLOROPROPENE		0.010	ND	ND
1,1,2-TRICHLOROETHANE		0.010	ND	ND
DIBROMOCHLOROMETHANE		0.010	ND	ND
BROMOFORM		0.010	ND	ND
1,1,2,2-TETRACHLOROETHYLENE		0.010	ND	ND
1,1,2,2-TETRACHLOROTHANE		0.010	ND	ND
TOLUENE		0.010	ND	ND
CHLOROBENZENE		0.010	ND	ND
ETHYLBENZENE		0.010	ND	ND
2-CHLOROETHYL VINYL ETHER		0.010	ND	ND

* Detected in method blank in a concentration greater than 1/2 the detection limit and greater than 1/2 the sample concentration.

TABLE E-31 (Cont.)

GENEVA GROUND WATER SAMPLES

RESULTS FROM COMPUCHEM - ROUND 3

CONSTITUENT	STANDARD	DETECTION LIMIT MG/L	SAMPLE ID	MW-2S	MW-2D	MW-2S	MW-2D
			DATE	8/7/86	8/7/86	8/7/86	8/7/86
			SAMPLE TYPE	GRAB	GRAB	GRAB	GRAB
				(FILTERED SAMPLES)		(UNFILTERED SAMPLES)	
				MG/L	MG/L	MG/L	MG/L
INORGANIC COMPOUNDS							
METALS				DISSOLVED		TOTAL	
ANTIMONY		0.050		ND	ND	ND	ND
ARSENIC	0.025	0.050		ND	ND	0.052	ND
BERYLLIUM		0.020		ND	ND	ND	ND
CADMIUM	0.01	0.010		0.027	0.013	0.035	0.014
CHROMIUM		0.050		ND	ND	0.069	ND
COPPER	1.0	0.10		ND	ND	ND	ND
LEAD	0.025	0.050		ND	ND	ND	ND
MERCURY	0.002	0.00020		ND	ND	0.0047	ND
NICKEL		0.10		0.110	ND	0.19	ND
SELENIUM		0.010		ND	ND	ND	ND
SILVER		0.050		ND	ND	ND	ND
THALLIUM		0.050		ND	ND	ND	ND
ZINC		0.020		0.050	0.065	0.24	0.048

TABLE E-31 (Cont.)

GENEVA GROUND WATER SAMPLES

RESULTS FROM COMPUCHEM - ROUND 3

CONSTITUENT		SAMPLE ID DATE SAMPLE TYPE DETECTION LIMIT STANDARDS MG/L	MW-2S 8/7/86 GRAB MG/L	MW-2D 8/7/86 GRAB MG/L
PHENOLS				
	TOTAL PHENOL	0.001 0.010	0.028	ND
CYANIDES				
	TOTAL CYANIDE	0.2 0.010	0.016	ND

New York State Department of Environmental Conservation

MEMORANDUM

RECEIVED
JAN 5 1988
SOLID WASTE
D.E.C. REG. #8

TO: Raymond Lupe, Acting Supervisor, Western Investigation Section

FROM: Michael Ryan MJR

SUBJECT: NYSEG - Former Geneva Coal Gasification Plant, Seneca (c)

DATE: December 22, 1987

The above-referenced site was investigated as part of an ongoing site study by TRC Environmental Consultants. TRC is investigating the presence of coal gasification process residues at this New York State Electric and Gas Corporation (NYSEG) Facility.

This site is the former location of the Empire Coke Company. Though the controlling interest changed hands in later years, coal gas production at this facility continued until 1934. During its years of operation (1903-1934) the facility consisted of as many as 46 coke ovens, two large gas receivers and a blue gas operation with a holder. The property is currently maintained by NYSEG as a utility substation.

The existing problems are a result of the waste generated by the former operations at this site, specifically the disposal of that waste.

It is reported that both solid and liquid wastes were disposed of on-site. The solid wastes included iron oxide impregnated wood shavings from the purification process and tars. The predominant liquid waste generated was waste water from the coke quenching operation. In the early years of operation the liquid waste was discharged directly into the site stream. This process was altered in 1923 with the construction of a sludge basin. The sludge basin allowed separation of the waste water supernatent and sludge. The supernatent was discharged to the stream while the lower liquid layer was disposed via an 8 inch diameter, 336 foot deep injection well (Task II Report, pg. 3, pg. 24). Other liquid wastes disposed of on site were from random tar spillage, drip boxes or gas lines to collect condensed tar within the system.

As a result of the on-site waste disposal, laboratory analysis has showed contamination of soil, stream sediments, groundwater, and surface water at this site.

Analysis of the soil and stream sediments has shown elevated concentrations of PAH's, purgeable aromatics, phenols, iron, zinc, sulfate, organic compounds (nitrogen) and cyanides. Analysis of groundwater samples demonstrated levels exceeding regulatory guidelines and standards for the following: PAH's, total phenols, antimony, beryllium, iron, lead, sulfate and cyanide (see table). Site surface waters showed elevated levels of PAH's, iron, zinc, copper, lead, phenols and organic nitrogen.

The above noted problems illustrate the need for remedial activity at this site. ~~[illegible]~~, this site meets the definition of a class 2 site and should be upgraded accordingly.

Other recommendations and comments:

Prior to any remedial action one or more monitoring wells should be installed in the vicinity of the former injection well. This monitoring well(s) should be at a depth which would allow an accurate assessment of any contamination resulting from the injection well.

Risk assessment is a topic which requires the cooperation of the Health Department. It is suggested that before any risk assessment is completed, the Health Department be consulted and therefore an accurate assessment may be made.

bcc: F. Shattuck
M. Mehta
R. Tramontano
K. Gupta
M. Ryan
file

MR:kr

SUBSTANCE	STANDARD (ug/l)	MONITORING WELL CONTAMINANT RANGE (ug/l)					
		MW-1S	MW-1D	MW-2S	MW-2D	MW-3S	MW-3D
		***	ROUNDS 1 - 3	***			
Benzo (a) pyrene	ND	0-0.5	0-1.2	0-3.8	0-0.4		
Iron	300			1,620-2,580		660-1,940	
Sulfate	250,000			536,000-1,180,000	244,000-274,000	1,050,000-1,340,000	0-436,000
Cyanide	200			3,200-5,700		0-970	
Phenols (total)	1				0-5.2		
		***	ROUND 4	***			
Benzo (a) pyrene	ND			8-28			
Antimony				65-81		64	35
Beryllium				3.5	1.4	3.5	
Iron	300			6,230-6,600		3,160	48-9,800
Lead	25						0-50
Sulfate	250,000			1,100,000-1,200,000	280,000	1,100,000	320,000
Cyanide	200			1,900-2,100			
Phenols (total)	1	10	10	12-21	12	10	10