Soil Stabilization and Solidification
Cerro Conduit Co. Site

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Prepared for:

Cerro Conduit Company

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CERRO CONDUIT CO. SITE:
SOIL STABILIZATION AND SOLIDIFICATION

1.0 INTRODUCTION

The Cerro Conduit Company (CCC) site is located at Robbins Lane and Miller Road in Syosset, Long Island, New York. There are three former recharge basins on site which were used to discharge treated effluent under a SPDES permit (NY0076171) until the area was sewered in 1981. The sand and gravel in the basins has been tested and found to contain copper and cyanide.

The Avendt Group, Inc., prior consultants to Cerro, has provided Camp Dresser & McKee (CDM) with an estimate of the area, soil characteristics and depth of remediation necessary at each of the three basins based on a recommended guideline that soils having total copper concentrations greater than 1,000 ppm, and total cyanide concentrations greater than 12 ppm need remediation. TCLP results show that soil contaminated below the recommended guidelines poses no threat to groundwater. Based on the TCLP results, and the fact that, after stabilization, permeabilities are extremely low, these guidelines are very conservative when compared to the usually applied standard for TCLP results of 100 times the drinking water standard. Table 1.1 presents the volume estimates as provided by AGI.

Table 1.1

Volume of Soil to be Remediated

Basin	Depth of Remediation (in ft)	Area of Remediation (in ft^2)	Volume of Soil be Remediation (in yd^3)
1	6.5	6148	1480
2	3.5	7442	964
3	6.5	1007	242
Boring 109	--	--	150
		Total	2,836

The estimated total volume of soil to be remediated is approximately 2,850 yd^3. A summary of the sampling results are shown in table 1.2. This data indicates that only the top 5 feet of soil is contaminated above the recommended guideline. More complete sampling results are provided in Figures 1.1 and 1.2.

Table 1.3 provides the results of TCLP tests on copper, showing that copper only leaches out of the shallow soils at rates significantly above the secondary drinking water standard of 1.0 mg/l when total copper is greater than 1,000 ppm.

CDM was selected by the Cerro Conduit Company to provide an evaluation of in-situ soil stabilization/solidification technologies and their applicability to the CCC site. Because in-situ and on-site technologies are both readily performed by contractors, the choice depends on site-specific conditions. Both technologies are reviewed in this report. In addition, CDM was asked to provide a list of contractors who are available to perform soil stabilization services on Long Island (LI), some recent unit price ranges for the required services, and a list of tests and performance standards which can be used to assess the effectiveness of the stabilization process.

2.0 SOIL STABILIZATION AND FIXATION TECHNOLOGIES

The cost-effectiveness of soil stabilization and solidification depends on the selection of a reagent which is appropriate for stabilizing the copper and cyanide, and the method of application (e.g. in-situ or excavation, mixing and replacement of treated material).

Stabilization and solidification technologies are used to reduce the potential for leachate generation from contaminated solids by modifying the physical or chemical properties of the waste material. The waste is physically mixed with an appropriate binding agent and allowed to cure. Stabilization processes are usually based upon chemistries that ensure that the hazardous constituents are maintained in their least mobile or least toxic form. These processes may include chemical modification or

TABLE 1.2
AVERAGE TOTAL COPPER AND CYANIDE
CONCENTRATIONS (mg/kg) BY DEPTH

Basin	Depth 1-5 feet		Depth 5-15 feet		Depth 15-25 feet	
	Copper	Cyanide	Copper	Cyanide	Copper	Cyanide
1	525	2.1	250	2.3	174	4.2
2	1122	5.2	260	1.6	161	3.6
3	2690	5.2	106	0.2	61	ND

TABLE 1.3

AVERAGE TCLP RESULTS (MG/L) FOR
COPPER BY DEPTH

Basin	Depth 1-5 feet	Depth 5-15 feet	Depth 15-25 feet
1	5.6	3.7	2.7
2	15.1	3.4	2.5
3	97.3	2.4	1.0

(WP31/10)

Sample ID	(x, y)	(20x, 20y)	Copper Concentrations							
			Depth 1'	3'	5'	6'	10'	15'	20'	25'
Basin 1 (Elevation = 163')										
101	(8.0,5.0)	(160.0,100.0)	*	99	*	108	*	*	*	*
102	(10.0,3.5)	(200.0,70.0)	*	504	*	183	*	*	*	*
103	(12.0,1.8)	(240.0,36.0)	*	1,040	*	500	*	*	*	*
104	(9.0,7.0)	(180.0,140.0)	*	316	*	317	*	*	*	*
105	(11.0,5.5)	(220.0,110.0)	*	570	*	319	*	*	*	*
106	(12.0,1.8)	(240,36)	240	*	320	*	260	200	130	92
107	(11.0,5.5)	(220,110)	1,200	*	340	*	170	210	230	180
Basin 2 (Elevation = 155')										
201	(4.0,7.0)	(80.0,140.0)	*	108	*	124	*	*	*	*
202	(6.0,5.0)	(120.0,100.0)	*	2,290	*	397	*	*	*	*
203	(7.0,3.2)	(140.0,64.0)	*	317	*	259	*	*	*	*
204	(8.0,1.5)	(160.0,30.0)	*	106	*	171	*	*	*	*
205	(6.5,8.5)	(130.0,170.0)	*	417	*	217	*	*	*	*
206	(8.0,7.0)	(160.0,140.0)	*	320	*	235	*	*	*	*
207	(9.0,4.5)	(180.0,90.0)	*	213	*	112	*	*	*	*
208	(6.0,5.0)	(120,100)	4,100	*	410	*	270	330	190	124
209	(6.6,8.5)	(130,170)	320	*	420	*	180	190	110	140
210	(8.0,7.0)	(160,140)	1,200	*	280	*	140	120	190	59
Basin 3 (Elevation = 170')										
301	(1.5,5.2)	(30,140)	*	2,070	*	1,900	*	*	*	*
302	(3.0,3.8)	(60.0,76.0)	*	39	*	32	*	*	*	*
303	(2.0,6.8)	(40.0,136.0)	*	1,210	*	299	*	*	*	*
304	(4.0,5.2)	(80.0,104.0)	*	15	*	5.7	*	*	*	*
305	(1.5,5.2)	(30,104)	5,200	*	180	*	91	46	87	50

KEY:

1 Unit = 20'

* Not Analyzed

SOURCE: Avendt Group, Inc.

Figure 1-1

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Total Copper Test Results By Depth

Soil Stabilization and Solidification
Cerro Conduit Company Site

Sample ID	(x, y)	(20x, 20y)	Cyanide Concentrations							
			Depth 1'	3'	5'	6'	10'	15'	20'	25'
Basin 1 (Elevation = 163')										
101	(8.0,5.0)	(160.0,100.0)	*	11	*	15	*	*	*	*
102	(10.0,3.5)	(200.0,70.0)	*	22	*	21	*	*	*	*
103	(12.0,1.8)	(240.0,36.0)	*	47	*	10	*	*	*	*
104	(9.0,7.0)	(180.0,140.0)	*	4.5	*	9	*	*	*	*
105	(11.0,5.5)	(220.0,110.0)	*	25	*	8.6	*	*	*	*
106	(12.0,1.8)	(240,36)	2.1	*	1.1	*	1.5	1.8	1.6	1.2
107	(11.0,5.5)	(220,110)	2.1	*	3.1	*	1.9	4.3	5.2	11
Basin 2 (Elevation = 155')										
201	(4.0,7.0)	(80.0,140.0)	*	<1.0	*	<1.0	*	*	*	*
202	(6.0,5.0)	(120.0,100.0)	*	96	*	6.4	*	*	*	*
203	(7.0,3.2)	(140.0,64.0)	*	2.1	*	5.7	*	*	*	*
204	(8.0,1.5)	(160.0,30.0)	*	1.9	*	1.7	*	*	*	*
205	(6.5,8.5)	(130.0,170.0)	*	16	*	8.9	*	*	*	*
206	(8.0,7.0)	(160.0,140.0)	*	8.8	*	5.1	*	*	*	*
207	(9.0,4.5)	(180.0,90.0)	*	5.8	*	3.6	*	*	*	*
208	(6.0,5.0)	(120,100)	14	*	2.6	*	ND	.47	.67	1.2
209	(6.6,8.5)	(130,170)	4	*	.94	*	2	3.8	7.4	1.6
210	(8.0,7.0)	(160,140)	7.8	*	1.6	*	.47	2.5	3.4	11
Basin 3 (Elevation = 170')										
301	(1.5,5.2)	(30,140)	*	44	*	15	*	*	*	*
302	(3.0,3.8)	(60.0,76.0)	*	1.3	*	<1.0	*	*	*	*
303	(2.0,6.8)	(40.0,136.0)	*	1.7	*	1.0	*	*	*	*
304	(4.0,5.2)	(80.0,104.0)	*	<1.0	*	<1.0	*	*	*	*
305	(1.5,5.2)	(30,104)	9.9	*	.53	*	.17	ND	ND	ND

KEY:

1 Unit = 20'

* Not Analyzed

SOURCE: Avendt Group, Inc.

Figure 1-2

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Total Cyanide Test Results By Depth

Soil Stabilization and Solidification
Cerro Conduit Company Site

destruction of the hazardous constituent. Solidification implies that the beneficial results are obtained by modifying the structural properties of the material, such as its permeability or compressibility.

The most commonly used processes operate through both chemical and physical mechanisms. Binding agents which have a proven track record for the successful stabilization/ solidification of heavy metals include:

- cementation: for which the binding agent is Portland cement, which produces a solid, fairly impermeable product. This process is incompatible with waste containing dissolved sulfate salt or metallic anions such as arsenate or borates.
- lime solidification: the binding agents are soluble silicates and silicate setting materials. This process is also incompatible with wastes containing dissolved sulfate salt or metallic anions such as borates, as well as carbohydrates.

These processes have also been shown to reduce the leachability of cyanides through immobilization and destruction.

The mixing processes for cementation and lime solidification are identical, each requiring complete and uniform mixing of the soils with the reagent. This can either be done in-situ using rotating augers or conventional earth-moving equipment, or on site, using mixing trommels or pug mills.

Both techniques have been used successfully at Superfund sites to solidify and stabilize soils and waste sludges containing heavy metals, cyanide, and PCB's and are applicable for soil remediation at the Cerro site. The costs and relative feasibility of the methods will depend on the selected performance standards for stabilization/solidification, which can best be made based upon information collected through a pilot study.

One in-situ method which should be considered at this site is the use of shallow soil mixing. A crane mounted mixing system with 12 foot diameter mixing augers is moved onto the area to be remediated and placed over a series of defined points in a grid. An open bottom cylinder containing the mixing augers is forced into the ground up to a depth of 40 feet. The auger is lowered while rotating until the required depth is reached, while

a slurry of the binding agent is simultaneously pumped into the cylinder. The augers are then pulled up halfway and dropped to the bottom again to provide thorough mixing of the deeper material. The auger is pulled slowly while rotating to complete the mixing. This pattern is repeated until the area of contaminated soils is completed with a grid of "primary columns". The procedure is repeated to create "secondary columns" overlapping the primary columns, making sure the entire area is covered. Augers for shallow soil mixing are available in diameters as great as 12 feet and can penetrate to depths of 40 feet, which is adequate for conditions at the Cerro site. The low moisture content reported for the soils in the areas of remediation (2.2 to 7.4 percent) would make it necessary to inject the binding agent in a slurried form.

An alternate to shallow in situ soil mixing is excavation, on site treatment and replacement of soils. Mixing occurs in trommels or mixing hoppers, which provide for controlled reagent/soil ratios and thorough mixing. The material is temporarily stored and cured on site before replacement in the excavated area, or use elsewhere on the site.

3.0 TESTING AND PERFORMANCE STANDARDS

The selection of performance standards for site remediation by stabilization/solidification processes will depend on the specific objectives of the remedial action. These objectives should be in compliance with the federal and State regulations which are directly applicable to the proposed action or which are relevant and appropriate to similar situations.

Based on discussions with NYSDEC staff, relevant criteria that may be applied in this situation would be to remediate all soils which exceed a total copper concentration of 1,000 ppm and a total cyanide concentration of 12 ppm. These guidelines were developed based on TCLP results provided by EPA studies, test results at the Cerro Wire site, and remediations performed elsewhere. Results show that for waste contaminated below the recommended guidelines, the leachate will pose no threat to groundwater quality. In some cases, even the leachate from the untreated waste meets drinking water standards for cyanide (see section 4.0).

Although no regulations exist governing testing requirements, Cerro Conduit Company will perform extensive testing to evaluate the effectivenes of remediation.

Selection of the tests and criteria is based on general discussions with knowledgeable staff from EPA and NYSDEC, review of EPA guidance documents and information provided by stabilization/solidification vendors. They represent a very complete testing program covering both physical and chemical properties.

Criteria for physical properties of the treated material should be based on the requirements for future activities on the site and general considerations of good engineering practice. Appropriate criteria are recommended in the paragraphs discussing physical properties tests.

There are a number of tests which have been applied to evaluate the effectiveness of stabilization/solidification in meeting remedial objectives relative to the chemical and physical properties of the treated material. The following tests have been selected as appropriate for the CCC site.

Chemical Analyses

A number of tests have been applied to evaluate the leachability of contaminants from solid matrices. As each test has its particular applicability and limitations, we recommend using all three. Leaching tests would be performed during bench-scale pilot tests to develop an optimal reagent and demonstrate the feasibility of attaining the remedial criteria. They would also be performed during remediation as quality control measures to demonstrate the performance of the remedial contractor.

Based on common practice elsewhere, contractors are generally required to run one leachability test for every 100 cubic yards of material treated on-site. For in-situ methods, one test per 900 square feet is a commonly used rule of thumb. At present, there are no enforceable NYSDEC standards

for the TCLP test. The RCRA standard of 100 times the drinking water standard could be applied to both the TCLP and the Multiple Extraction Procedure (MEP).

The following tests could be applied at the CCC site to evaluate the degree to which the copper and cyanide have been immobilized by the binding agent:

- Toxicity Characteristic Leaching Procedure (TCLP, SW-846 Method 1311). The TCLP is one of the most frequently cited tests used to evaluate the effectiveness of stabilization/solidification. Samples of the treated materials are pulverized to pass a 9.5 mm screen and extracted with acetic acid solution, and the leachate is analyzed for the presence of contaminants. Test results are compared on a "before and after" basis or may be compared to preselected criteria. This test is also used as a basis for classification of wastes as hazardous and to determine their suitability for land disposal.

- Multiple Extraction Procedure (MEP, SW-846 Method 1320). The MEP is not a regulatory leaching test, but has been frequently cited to demonstrate the effectiveness of treatment processes for soils and wastes. The MEP is similar to the regulatory predecessor of the TCLP ("EP Tox"), except that the initial acetic acid extraction is followed by sequential extractions with a simulated acid rain water.

- pH test (EPA SW 846 - Method 9045). Copper has been demonstrated to be most effectively bound in the solid matrix at pH between 8.5 and 11. Monitoring the pH of a treated sample can therefore be used as a quality control test during remediation.

Physical Properties Tests

The following tests have been selected as suitable for evaluating the physical properties that are important for maintaining the integrity of the treated material and allowing use of the treated areas. As with the chemical tests, these would be performed during bench-scale testing to evaluate the feasibility of the criteria, and would be performed as quality control tests during remediation to demonstrate the effectiveness of contractor performance. A similar frequency of testing to that negotiated for the TCLP may be appropriate for the durability, strength and permeability tests. Field penetration tests could be performed at a higher frequency to assess uniformity of stabilization for in-situ methods.

- Wet/Dry Durability (ASTM Method D559-89). This test measures the resistance of a soil/cement material to structural degradation by subjecting it to repeated cycles of wetting and drying. A performance standard for this test of weight loss of less than 15 percent would be sufficiently stringent.

- Freeze/Thaw Durability (ASTM Method D560-89). This test measures the resistance of a soil/cement material to structual degradation by subjecting it to repeated cycles of freezing and thawing. This test would not be needed for material located below the zone of freezing. A performance standard for this test of weight loss of less than 30 percent would be quite stringent.

- Unconfined Compressive Strength (ASTM Method D1633-84). This test would be appropriate to evaluate whether the treated area has sufficient bearing capacity for its intended use (for example as a building site or vehicle maintenance area). Generally, attainment of 60 psi is suitable for load bearing functions. Cementation of sand and gravel typically would meet this guideline.

- Permeability - Corps of Engineers: (EM 1110-2-1906; App. VII, or a Constant Head Permeability Test SW-846 - Method 9100). This test would be recommended if a low permeability is required as a further check against the leaching of copper and cyanide. The most stringent standard which would be applied would require a permeability of 1×10^{-7} cm/sec, which is the RCRA standard for a landfill cap. The EPA generally requests the EM-1110-2-1906 test.

- Field Penetration Tests: To field check the completeness of the solidification process, periodic testing of the treated area could be performed using a pocket penetrometer, the Dutch Cone Test, or some similar test.

4.0 CONTRACTORS

This section contains a listing of contractors who have expressed a willingness to perform the soil solidification/stabilization services at the Cerro Wire site. Included are the name and address of the company, the name and telephone number of a contact person, the processes available, and pertinent information regarding performance tests done elsewhere on copper or cyanide contaminated wastes. Note that each vendor recommends a bench pilot test to optimize the choice of binding agent. The choice of binding agent depends on agreed upon performance standards and cost. Generally by

increasing the amount of binding agent used, fixation is improved but costs go up.

The performance data reported by these vendors are generally not from tests performed on soils that contained both copper and cyanide. There were usually other contaminants present that may have influenced the results of the tests. However, the leachate concentrations achieved in these tests are consistently low enough to support the vendor's claims that their processes can achieve the most stringent performance criteria that may be required by NYSDEC.

I. International Waste Technologies
150 North Main Street, Suite 910
Wichita, Kansas 67202
Contact: Jeffrey Newton
(316) 693-8986

Process:
Proprietary cement-organo clay mix. Either above ground or in situ mixing can be used, depending on cost. Often works with Geo-Con shallow soil mixing technique. (See following contractor)

Performance Results:
Tests have been run under the USEPA Superfund Innovative Technology Evaluation Program using in-situ mixing. In addition, IWT has already run copper and cyanide TCLP tests on material taken from the Cerro site. Some relevant results:

Total Cyanide	235 mg/kg
Untreated waste TCLP	0.34 mg/l
Treated waste TCLP	BDL <0.02 mg/l

Cerro Site Data (copper)
TCLP results 0.25 - 0.76 mg/l
for copper (total copper concentration in soil sample is unknown)

Site in Alabama
Total copper 3000 mg/kg
EP toxicity value of treated waste 0.22 mg/l

Average permeability of treated soils: $1x10^{-6}$ to $1x10^{-7}$ cm/sec
Average unconfined compressive strength: 300-500 psi

Local Experience:

Has not worked in New York State, however, does have experience treating sand and gravel material.

II. Geo-Con Inc.
P.O. Box 17380
Pittsburgh, PA 15235
Contact: Jerry R. Stiffy
(412) 856-7700

Process:
In-situ shallow soil mixing using Type I Portland cement at about 15 percent by weight ratio. Geo-Con typically subcontracts bench-scale testing to one of several, specialized laboratories.

Performance Results:
None provided, however treatability study will be used to provide data. Geo-Con worked with IWT on the EPA SITE study.

Local Experience:

Has not worked in New York State, but has worked in Connecticut and Rhode Island.

III. Chemfix Environmental Services
2424 Edenborn Avenue
Suite 230
Metairie, Louisiana 70001
Contact: Jim Silverman
(504) 831-3600

Process:
Closed loop, on site treatment at 400-600 tons per day. Process includes excavation of material, mixing soil with silicate setting agents in a pug mill, on site curing, and return of material to basins.

Performance results:

Permeability	$1x10^{-5}$ to $1x10^{-8}$ cm/sec
Total copper	33,000 mg/kg
TCLP of untreated waste	120 mg/l
TCLP of treated waste	0.60 mg/l
Total cyanide untreated waste	18.5 mg/kg
TCLP untreated waste	1.9 mg/l
TCLP treated waste	BDL (<0.02 mg/l)

Local Experience:

Has not worked on Long Island, but has experience and clients in New York and New Jersey.

IV. Rolite Inc, Ash Management
108 E. Lancaster Ave.
Wayne, PA 19087
Contact: Paul E. Henchey
(215) 688-5559

Process:
Soil excavated, mixed with Portland cement and, if needed, siliceous clay in a dry mix trammel. Treated material emerges as granular, concrete coated spheres.

Performance Results:
None provided for copper and cyanide. Treatability study recommended.

Local Experience:

Rolite is presently working for the Islip, New York Resource Recovery Agency stabilizing incinerator ash. Jessy Gaynbrone 516 360-9635

V. OHM Corporation
4 Research Way
Princeton, NJ 08540

Contact: Kevin Corradino
609-987-0010

Process:
Additives used include lime, fly ash, Portland cement, and sodium silicate. The choice depends on cost and the desired characteristics of the final product. This would be determined in preliminary, bench scale testing. The mixing process can either be accomplished using:

- o drum type mixers for batch processing at rates up to 100 tons per hour;
- o in-situ mixing using conventional construction equipment;
- o pug mill for continuous feed operations up to 200 tons per hour.

Performance Results:
None provided, however, a treatability study will be used to provide data.

Local Experience:

No Long Island experience, but has current contracts in New York and New Jersey.

5.0 COST RANGES

The following are recent unit prices and price estimates for similar projects provided by the contractors listed in section 4.0.

I. Full, Bench Scale Treatability Study $6000-$8000
This would generally include TCLP, pH, unconfined compressive strength, and permeability tests.

II. Field Treatment Cost

A per ton waste unit price range of $60 to $90 was quoted by several vendors as a rough estimate for this job. Both in-situ and on site mixing techniques were priced in this range. This price includes equipment, labor, cost of reagents, mobilization/demobilization and daily maintenance costs. The price depends on the percent solids of the waste, volume to be treated, type and level of contamination, and site characteristics. The above price assumes waste between 5% and 99% solid, and reasonably uniform waste.

III. Analyses for Testing Performance (cost per sample)*

pH	$25
TCLP	$200
MEP	$600
Wet/dry Durability	$650
Freeze Thaw Durability	$600
Unconfined Compressive Strength	$150
Permeability	$450

* Quotes are from Kiber Assoc., Inc., of Atlanta, Georgia. Kiber has already tested material from this site.

6.0 CONCLUSIONS

Both in-situ and on site soil remediation within the confines of the basins using solidification/stabilization techniques appear to be applicable to the CCC site. Choosing one contractor over the other will depend on cost comparisons based on actual proposals, and any site constraints.

In order to properly proceed with soil remediation at the CCC site, soil clean-up standards must be developed and agreed to as part of a soil remediation plan. Once standards are finalized, we can then confirm the area and volume of soil to be remediated, as well as the type and amount of binding agent needed.

There are no soil remediation standards for copper and cyanide in New York State. NYSDEC currently favors a site specific, risk-based approach. The two principal concerns with regard to soil contaminant levels are:

- the potential for soil contaminants to contaminate ground water in a deep aquifer recharge zone.
- the potential risks associated with direct human contact with contaminated soils.

The proposed remediation will adequately address both of these concerns.

The available soil data indicates that total copper in the top several feet of soil is five to ten times higher than the levels measured between 5 feet and 25 feet below the surface. A similar decrease in cyanide levels also occurs. Based upon CDM's review of the data and our recommended guidelines of 1,000 ppm of total copper, and 12 ppm of total cyanide, remediation should focus on the top 6.5 feet (see table 1.1), for an estimated total volume of soil to be remediated of 2,836 yd^3.

The reported test results indicate that the soils would not be classifiable as characteristically hazardous based either on the leachability of copper or total cyanide, or based on the reactivity of the cyanide.
In addition, it must be considered that the source of the wastes was discharge of treated waste water under a SPDES permit (NY 0076171, see appendix A) which contained residual concentrations of copper and cyanide compounds. The soils are therefore also not considered a hazardous waste based on the source.

7.0 RECOMMENDATIONS

CDM recommends the following steps be implemented to complete the remediation of the Cerro Cable and Conduit Co. site.

- Soils containing copper concentations in excess of 1,000 ppm, and cyanide concentations in excess of 12 ppm should be remediated. Utilizing the data provided by AGI, this means that soils in basin 1 and 3 should be remediated to a depth of 6.5 feet, and soils in basin 2 should be remediated to a depth of 3.5 feet. The data indicates that remediation to the recommended depths would actually stabilize all soils with concentrations of copper in excess of 300 ppm and cyanide in excess of 5 ppm, well below the recommended concentrations. Considering that TCLP results for soils at depths greater than the above limits show very little leaching of copper, and that after remediation, deeper soils will effectively be capped, we believe that this is a conservative guideline.

- Either in-situ or on-site soil stabilization/solidification should be applied. Selection of the best alternative will be made based on price and performance testing, and all work will be confined to the area of the basin floor.

- A bench scale laboratory test on materials taken from the site should be performed to develop specific performance standards. The following tests should be applied to the sample:

  TCLP
  Multiple Extraction Procedure
  pH
  Wet/Dry Durability
  Unconfined Compressive Strength
  Permeability

- Using the results of the bench scale laboratory test, performance criteria should be designed and a contractor selected for remediation.

- The contractor should provide a field bench scale test to prove that the selected reagent can sufficiently stabilize the material to meet the performance standards.

- Pending the outcome of the field bench scale test, a notice to proceed should be given, and the site remediated.

- Field testing should be performed, either one test per 100 cubic yards, or one test per 900 square feet, depending on the selected remediation technique. Pending the results of the test, the remediation can be accepted as final.

- CDM recommends the following performance criteria, for consideration by the NYSDEC.

  TCLP: less than 100 times the drinking water standard

  Wet/Dry Durability: less than 15 percent weight loss

  Freeze Thaw Durability: less than 30 percent weight loss

  Unconfined Compressive Strength: greater than 60 psi

  Permability: less than 1 x 10^{-6} cm/sec. (WP31/9)

New York State Department of Environmental Conservation

Ogden Reid,
Commissioner

September 23, 1975

NY0067171

Cerro Wire & Cable Corp.
Robbins Lane
Syosset, N.Y. 11791

RE: SPDES Permit No.: NY0067171
Reference No.: 28-0075

Dear Sir:

Enclosed please find the State Pollutant Discharge Elimination System Permit for the discharge from Cerro Wire and Cable Corp. at Robbins Lane, Syosset, N.Y. 11791.

Please carefully read the general and other conditions and the schedule contained in the permit to insure compliance during the term of the permit. This permit, or copy thereof, should be kept available on the premises of the discharging facility at all times.

The permit requires that you report monitoring results to the New York State Department of Environmental Conservation in Albany, to the Suffolk County Department of Environmental Control, and to this office. Monitoring information should be summarized and submitted using a discharge Monitoring Report form at the intervals specified in the SPDES permit under General Conditions (Part II). Attached herewith are forms for this purpose.

Your attention is directed to Item 8 of Schedule A which requires routine sampling and testing of plant flows to assure proper operational control and surveillance. For this purpose, daily monitoring of all parameters will be required, in addition to the sampling required under Permit Effluent Limitations. Please submit your proposed method of operational monitoring and testing to this Office for approval within thirty (30) days.

Sincerely yours,

Andrew R. Yerman, P.E.
Regional Water Quality Engineer

ARY:rja
Enclosures
cc: W. Garvey
A. Machlin
SCDEC

SPDES File
Region 1 - Ref. #28-0075
Nassau Co. Dept. of Health
Mr. Crandall - BMS
Mr. Quinn - BIP

Application No. : NY 007 6171

Name of Permittee : Cerro Wire & Cable Corp.

Effective Date : September 5, 1975

Expiration Date : September 5, 1980

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES) DISCHARGE PERMIT

Special Conditions (Part I)

This SPDES permit is issued in compliance with Title 8 of Article 17 of the Environmental Conservation Law of New York State and in compliance with the provisions of the Federal Water Pollution Control Act, as amended by the Federal Water Pollution Control Act Amendments of 1972, P.L. 92-500, October 18, 1972 (33 U.S.C. § 1251 et. seq.) (hereinafter referred to as "the Act").

Cerro Wire & Cable Corp.
(Full Name of Permittee)

is authorized by George K. Hansen, P.E., Chief, PDES Permit Section
(Designated Representative of Commissioner of the Department of Environmental Conservation)

to discharge from Robbins Lane
(Street Address of Discharging Facility)
Syosset, N.Y. 11791

Oyster Bay (T), Nassau Co.

to Ground waters Class GA
(Name of Receiving Waters)

in accordance with the following special and general conditions:

The specific effluent limitations and other pollution controls applicable to the discharge permitted herein are set forth in the special conditions. Also set forth are self-monitoring and reporting requirements. Unless otherwise specified, the permittee shall submit original copies of all reports to the Central Office and the appropriate Regional Office of the Department of Environmental Conservation and the EPA Region II Regional Administrator. Except for data determined to be confidential under Section 17-0805 of the Environmental Conservation Law or Section 308 of the Act, all such reports shall be available for public inspection at the offices of the Department of Environmental Conservation and the Regional Administrator of EPA Region II. Knowlingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 71-1933 of the Environmental Conservation Law or Section 309 of the Act.

Initial Effluent Limitations N/A

During the period beginning on the effective date of this permit and lasting until _____ (Give Date), discharges from outfalls _____ (Specify Outfall Numbers) shall be limited and monitored by the permittee as specified below:

(a) The following shall be limited and monitored by the permittee as specified:

Outfall Number	Effluent Characteristic	Discharge Limitation in kg/day (lbs./day) Daily Average	Discharge Limitation in kg/day (lbs./day) Daily Maximum	Other Limitations (Specify Units) Average	Other Limitations (Specify Units) Maximum	Monitoring Requirements Measurement Frequency	Monitoring Requirements Sample Type

For the purposes of this subsection, the daily average discharge is the total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating.

For the purposes of this subsection, the daily maximum discharge means the total discharge by weight during any calendar day.

(b) The pH shall not be less than _____ nor greater than _____. The pH shall be monitored as follows: _____

Final Effluent Limitations

During the period beginning 4 mos. from EDP and lasting
(Give Date)
until the date of expiration of this permit, discharges from outfalls 001, 002 & 003
(Specify Outfall Numbers)
shall be limited and monitored by the permittee as specified below:

(a) The following shall be limited and monitored by the permittee as specified:

Outfall Number	Effluent Characteristic	Discharge Limitation in kg/day (lbs./day) Daily Average	Discharge Limitation in kg/day (lbs./day) Daily Maximum	Other Limitations (Specify Units) Average	Other Limitations (Specify Units) Maximum	Monitoring Requirements Measurement Frequency	Monitoring Requirements Sample Type
					250,000 GPD	Daily	
001	Flow				.4 mg/l	"	Composite
	Copper				.02 mg/l	"	"
	Cadmium				1.0 mg/l	"	"
	Nickel				.1 mg/l	"	"
	Lead				0.4 mg/l	"	"
	Cyanide				0.6 mg/l	"	
	Iron						
					NA	"	
002*	Flow						
					3,500 GPD	NA	NA
003	Flow-Sanitary Only						

*Cooling water only, no industrial waste.

Also subject to attached (1) Schedule "B"

For the purposes of this subsection, the daily average discharge is the total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating.

For the purposes of this subsection, the daily maximum discharge means the total discharge by weight during any calendar day.

(b) The pH shall not be less than 6.0 nor greater than 8.5.
The pH shall be monitored as follows: Continuous pH monitoring equipment

Schedule of Compliance for Effluent Limitations

(a) Permittee shall achieve compliance with the effluent limitations specified above for discharges from outfalls 001, 002 & 003
(Specify Outfall Numbers)

in accordance with the following schedule:

1. Submit Approvable Engineering Report by: NA
2. Submit Approvable Final Plans by : NA
3. Award of Contract or other Commitment of Financing by : NA
4. Commencement of Construction by : NA
5. Report of Construction Progress : NA
6. Report of Construction Progress : NA
7. Report of Construction Progress : NA
8. Completion of Construction by : NA
9. Attainment of Operational Level by : 4 mos. from EDP

(b) The permittee shall submit to the Department of Environmental Conservation the required document (s) where a specific action is required in (a) above to be taken by a certain date, and a written notice of compliance or noncompliance with each of the above schedule dates, postmarked no later than 14 days following each elapsed date. Each notice of noncompliance shall include the following information:

1. A short description of the noncompliance;

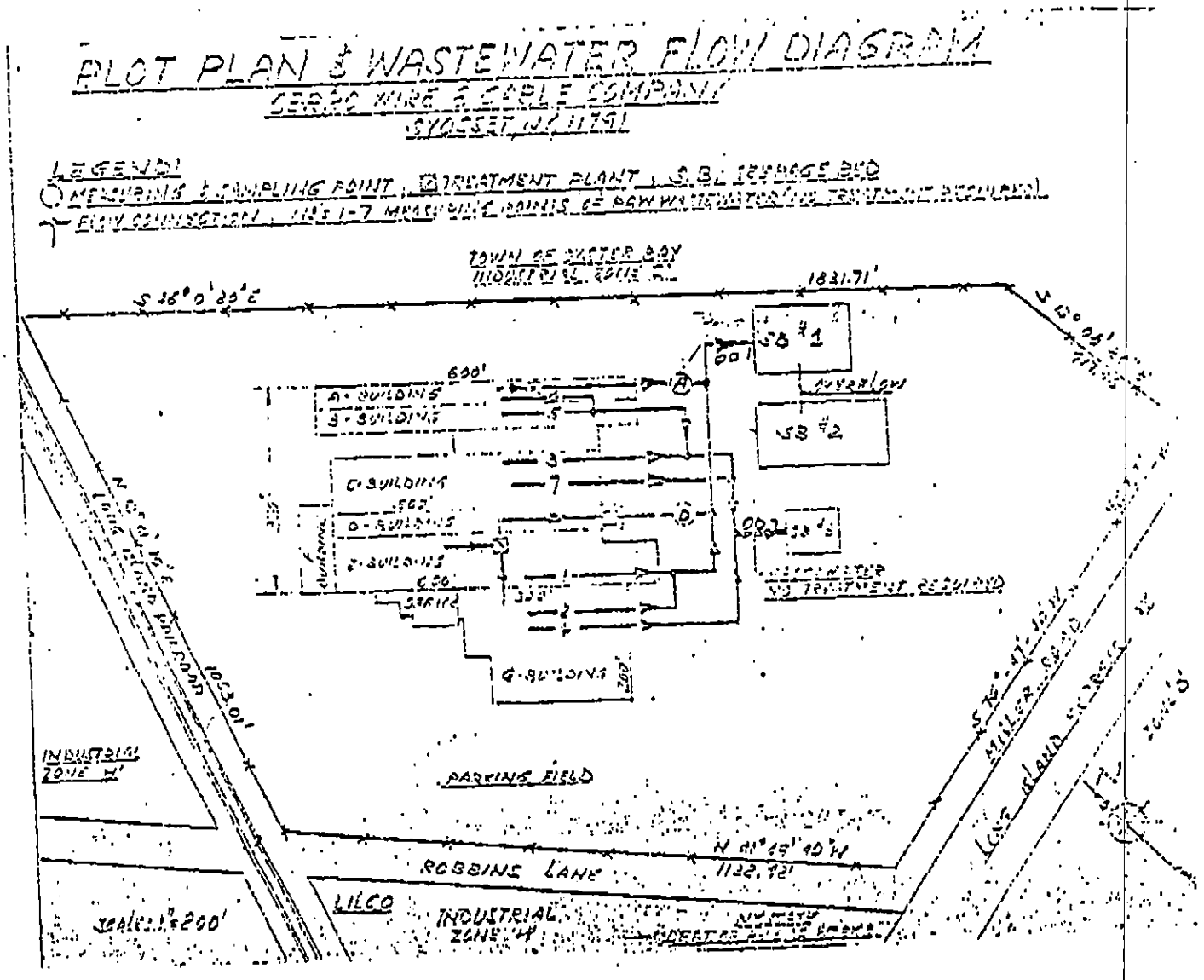
2. A description of any actions taken or proposed by the permittee to comply with the elapsed schedule requirement without further delay;

3. A description of any factors which tend to explain or mitigate the noncompliance; and

4. An estimate of the date permittee will comply with the elapsed schedule requirement and an assessment of the probability that permittee will meet the next scheduled requirement on time.

Monitoring Locations

Permittee shall take samples and measurements to meet the monitoring requirements at the location indicated below: (Show locations of outfalls with sketch or flow diagram as appropriate).



This permit and the authorization to discharge shall expire on midnight 5 yrs. from EDP (Give Date). Permittee shall not discharge after the above date of expiration. In order to receive authorization to discharge beyond the above date of expiration, the permittee shall submit such information, forms, and fees as are required by the Department of Environmental Conservation no later than 180 days prior to the above date of expiration.

By Authority of George K. Hansen, P.E., Chief, PDES Permit Section
Designated Represenative of Commissioner of the
Department of Environmental Conservation

September 5, 1975
Date

George K Hansen
Signature

Attachments:

General Conditions
Other Conditions
Schedule "B"